

INTERNATIONAL FINANCE
AND ACCOUNTING RESEARCH CONFERENCE

FINANCE AND ACCOUNTING IN THE FOURTH INDUSTRIAL REVOLUTION

THE SCIENTIFIC REVIEWER COMMITTEE OF INTERNATIONAL CONFERENCE IFARC 2019

No	Full name	Position	Responsibility
1	Assc Prof. Nguyen Trong Co	Academy of Finance	Director
2	Assc Prof. Truong Thi Thuy	Academy of Finance	Vice - Director
3	Assc Prof. Nguyen Vu Viet	Academy of Finance	Vice- Director
4	PHD. Nguyen Dao Tung	Academy of Finance	Vice-Director
5	Assc Prof. Ngo Thanh Hoang	Academy of Finance	Member of the Secretariat
6	Prof. Sheridan Titman	University of Texas at Austin	Member
7	Prof. Su Dinh Thanh	University of Economics Ho Chi Minh city	Member
8	PHD. Hoang Xuan Hoa	Assistant Politburo Member	Member
9	Prof. Ngo The Chi	Academy of Finance	Member
10	Prof. Nguyen Dinh Do	Academy of Finance	Member
11	Assc Prof. Le Xuan Truong	Academy of Finance	Member
12	Assc Prof. Bui Van Van	Academy of Finance	Member
13	Assc Prof. Nguyen Manh Thieu	Academy of Finance	Member
14	Assc Prof. Mai Ngoc Anh	Academy of Finance	Member
15	Assc Prof. Vu Van Ninh	Academy of Finance	Member
16	Assc Prof. Nguyen Le Cuong	Academy of Finance	Member
17	Assc Prof. Nguyen Van Dan	Academy of Finance	Member
18	Assc Prof. Chuc Anh Tu	Academy of Finance	Member
19	Assc Prof. Dao Thi Minh Thanh	Academy of Finance	Member
20	Assc Prof. Vu Thi Vinh	Academy of Finance	Member
21	Assc Prof. Ngo Thi Thu Hong	Academy of Finance	Member
22	Assc Prof. Nguyen Thi Thanh Hoai	Academy of Finance	Member
23	Assc Prof. Nguyen Thi Ha	Academy of Finance	Member
24	Assc Prof. Doan Huong Quynh	Academy of Finance	Member
25	Assc Prof. Pham Thi Thanh Hoa	Academy of Finance	Member
26	Assc Prof. Ly Phuong Duyen	Academy of Finance	Member
27	Assc Prof. Doan Minh Phung	Academy of Finance	Member
28	Assc Prof. Nguyen Xuan Thach	Academy of Finance	Member
29	Assc Prof. Pham Tien Hung	Academy of Finance	Member
30	PHD. Nguyen Thi Hong Van	Academy of Finance	Member
31	PHD. Tran Thanh Thu	Academy of Finance	Member
33	PHD. Diem Thi Thanh Hai	Phenika university	Member

THE EDITORIAL BOARD OF INTERNATIONAL CONFERENCE IFARC 2019

No	Full name	Position	Responsibility
1	Assc Prof. Nguyen Trong Co	Academy of Finance	Director
2	Assc Prof. Truong Thi Thuy	Academy of Finance	Vice - Director
3	Assc Prof. Nguyen Vu Viet	Academy of Finance	Vice- Director
4	PHD. Nguyen Dao Tung	Academy of Finance	Vice-Director
5	Assc Prof. Ngo Thanh Hoang	Academy of Finance	Member of the Secretariat
6	Assc Prof. Pham Thi Thanh Hoa	Academy of Finance	Member
7	PHD. Nguyen Thi Hong Van	Academy of Finance	Member
8	PHD. Nguyen Thu Giang	Academy of Finance	Member
9	MBA. Tran Thu Nga	Academy of Finance	Member
10	MBA. Nguyen Ba Linh	Academy of Finance	Member
11	PHD. Bui Thi Ha Linh	Academy of Finance	Member
12	MBA. Nguyen Huong Giang	Academy of Finance	Member
13	MBA. Phung Thu Ha	Academy of Finance	Member
14	PHD. Nguyen Thi Thu Thuy	Academy of Finance	Member
15	MBA. Bui Thu Huyen	Academy of Finance	Member
16	MBA. Le Thi Yen Oanh	Academy of Finance	Member
17	PHD. Tran Thi Phuong Mai	Academy of Finance	Member
18	MBA. Nguyen Thi Phuong Tuyen	Academy of Finance	Member



ACADEMY OF FINANCE



HO CHI MINH
NATIONAL ACADEMY OF POLITICS

INTERNATIONAL FINANCE AND ACCOUNTING RESEARCH CONFERENCE

IFARC 2019

FINANCE AND ACCOUNTING IN THE FOURTH INDUSTRIAL REVOLUTION

FINANCIAL PUBLISHING HOUSE

WELCOME NOTES

Dear Friends and Colleagues,

We are pleased to welcome you to the **International Finance and Accounting Research Conference (IFARC 2019)** which is jointly organized by **Academy of Finance and Ho Chi Minh National Academy of Politics, Vietnam**.

The International Conference IFARC 2019 brings together the world-leading experts in finance, accounting, audit, economic and business administration, serving as a point of convergence for researchers, practitioners and policymakers to meet, share and exchange their ideas. The International Conference IFARC 2019 will strive to offer not only plenty of networking opportunities, providing you with the opportunity to interact with the leading researchers from both academia and universities, but also an environment to engage in stimulating discussions about the most recent innovations, trends, experiences and concerns in the field of public and corporate finance, accounting - auditing. We are especially honoured to have:

Professor **Sheridan Titman** - McAllister Centennial Chair in Financial Services, University of Texas at Austin; Research Associate, the National Bureau of Economic Research; Editor, Review of Financial Studies; Director of Center for Energy Finance, University of Texas at Austin; Director of Real Estate Finance and Investment Center, University of Texas at Austin.

Professor **Su Dinh Thanh** - Former Dean of Faculty of Public Finance University of Economics Ho Chi Minh City; Editor-in-Chief of the Journal of Asian Business and Economic Studies (JABES).

Dr **Xuan Hoa Hoang** - Assistant Politburo Member, Vietnam Deputy Prime Minister Vuong Dinh Hue

We are indebted to members of the Organizing Committee for their support to make this International Conference a great success.

We wish you all an intellectually stimulating and productive conference!

On behalf of the Organizing Committee,

Nguyen Trong Co

ASSOCIATE PROFESSOR NGUYEN TRONG CO

PRESIDENT OF ACADEMY OF FINANCE



Assoc. Prof. Nguyen Trong Co is the President of Academy of Finance. He has been working for the Academy since his graduation and in different positions such as lecturer, Head of Financial Analysis Department, Deputy Head of Human Resources Department before becoming Vice President of the Academy. He was nominated as the President of Academy of Finance in 2014 and has been in that position to present.

He is the Editor-in-Chief of the Journal of Finance and Accounting Research, Vice President of the Scientific Board of Finance Research and member of the Scientific Board of Banking Research.

He was awarded the honor membership of FCPA Australia.

Assoc. Prof. Nguyen Trong Co is the author/co-author of more than 21 valuable textbooks and reference books such as “Financial Analysis”, Finance Publishing House, 2017; “Auditing Management and the use of Mineral Resources for Sustainable Development in Vietnam”, Finance Publishing House, 2016, etc.

He has completed and published more than 20 research projects covering a wide range of research topics such as corporate finance, public finance and technological market, etc. He has also published more than 70 articles in both local and international journals.

PROFESSOR SHERIDAN TITMAN



- McAllister Centennial Chair in Financial Services, University of Texas at Austin
- Research Associate, the National Bureau of Economic Research
- Editor, Review of Financial Studies
- Director of the Energy Management and Innovation Center, University of Texas at Austin
- Director of Center for Energy Finance, University of Texas at Austin
- Director of Real Estate Finance and Investment Center, University of Texas at Austin

Sheridan Titman holds the McAllister Centennial Chair in Financial Services at the University of Texas at Austin and is a Research Associate of the National Bureau of Economic Research. Prior to joining the faculty at the University of Texas, Sheridan was a Professor at UCLA, the Hong Kong University of Science and Technology and Boston College and spent the 1988-89 academic year in Washington D.C. as the special assistant to the Assistant Secretary of the Treasury for Economic Policy. Sheridan's academic publications include both theoretical and empirical articles on asset pricing, corporate finance, energy finance, real estate finance and urban economics. He has also co-authored three finance textbooks, Financial Markets and Corporate Strategy, Valuation: The Art and Science of Corporate Investment Decisions, and Financial Management: Principles and Applications. He won the Smith-Breeden best paper award for the Journal of Finance, the GSAM best paper award for the Review of Finance and was a recipient of the Battery March Fellowship. Sheridan has served on the editorial boards of leading academic journals, including the Journal of Finance, the Review of Financial Studies and Real Estate Economics and has served as President of the Western Finance Association, the American Finance Association and the American Real Estate and Urban Economics Association and has served as a Director of the American Finance Association, the Western Finance Association, the Financial Management Association and the Asia Pacific Finance Association.

Sheridan has a B.S. from the University of Colorado and an M.S. and Ph.D. from Carnegie Mellon University.

PROFESSOR SU DINH THANH



- Former Dean of Faculty of Public Finance University of Economics Ho Chi Minh City
- Editor-in-Chief of the Journal of Asian Business and Economic Studies (JABES)

Mr. Su Dinh Thanh, Editor-in-Chief of Journal of Asian Business and Economic Studies (JABES), University of Economics HCM (UEH), Vietnam

Mr. Su Dinh Thanh is Editor-in-Chief of JABES, UEH. Mr. Su has over 30 years of teaching and research experience in finance and banking. Recently, Mr. Su has a significant contribution to developing JABES as a Vietnam's first international journal, which is published on Emerald. Mr. Su was former dean of School of Public Finance, UEH.

He has been serving academies and universities, and giving lectures and seminars to several universities, and invited by many universities to present papers or conduct seminars. He is the chairman of international conference ACBES (UEH) in 2018, 2019 and 2020.

He has published 10 books and published more than one hundred papers including papers published in Economic Analysis and Policy, Research in International Business and Finance, International Economics, Annals of Public and Cooperative Economics, Centre of Sociological Research, Finance Research Letters, Climate and Development, International Journal of Energy Economics and Policy, Theoretical Economics Letters, Journal of Chinese Economic and Business Studies, Review of development finance, International Journal of Energy Economics and Policy, Economic Systems, Journal of Economic Development.

DR XUAN HOA HOANG



- Research Associate in different Institutes
- Assistant Politburo Member, Vietnam Deputy Prime Minister Vuong Dinh Hue

Dr Hoa is an Assistant Politburo Member, Vietnam Deputy Prime Minister Vuong Dinh Hue.

He graduated in National University Vietnam and soon after his graduation he focused his interests in International business by attending a Master course in the National Economic University in 1997. In 2002, he completed his studies in International Business by obtaining Doctorate of Philosophy degree in the Trade Research Institute, Ministry of Trade. He spent one year in mastering his research skills in University of Bocconi, Milan, Italy in 2003.

Dr Hoa served many years' in the European Research Institute, Vietnam Academy of Social Sciences as a researcher. From 2003 to 2018, he served for Department of General Economics, Vietnam Central Economic Board and had a number of important researches supporting for National economic policies. In 2018, he was called for Assistant Politburo Member, Vietnam Deputy Prime Minister Vuong Dinh Hue.

MỤC LỤC

1.	DEVELOPMENT OF FINANCIAL TECHNOLOGY (FINTECH) FOR FINANCIAL MARKET IN VIETNAM Tran Quang Phu, Nguyen Lan Huong	7
2.	TAX POLICY FOR INNOVATIVE START - UP IN VIETNAM Nguyen Thi Thanh Hoai, Chu Van Hung	16
3.	THE IMPACT OF INFORMATION DISCLOSURE ON FINANCIAL RISK: CASE STUDY IN LISTED CONSTRUCTION FIRMS IN VIETNAM'S STOCK MARKET Diem Thi Thanh Hai, Nguyen Ha My, Nguyen Thi Anh Thi, Bui Minh Trang	25
4.	THE IMPACT OF THE GLOBAL FINANCIAL CRISIS ON BANK PROFITABILITY: EVIDENCE FROM VIETNAM Ha Van Dung, Pham Hai Nam.....	41
5.	MODEL OF IMPACT FACTORS ON VIETNAM COMMERCIAL BANKS' INVESTMENT CAPITAL CREATION Do Thi Lan Dai, Nguyen The Khai	49
6.	EXPERIENCES OF BANGLADESH IN IMPROVING GREEN BANKING AND LESSONS FOR VIETNAM Nguyen Quoc Viet	61
7.	FACTORS THAT DETERMINE FIRM PERFORMANCE - EMPIRICAL EVIDENCE FROM THE FIRMS LISTED ON THE VIETNAM STOCK EXCHANGE Vu Van Ninh, Pham Thi Thanh Hoa	69
8.	APPLICATION OF INFORMATION TECHNOLOGY TO FINANCIAL MANAGEMENT: THE CASE OF TAXATION SECTOR Nguyen Manh Thieu	78
9.	CONCERNS ON CURRENT PUBLIC DEBTS IN VIETNAM Nguyen Quoc Thai.....	88
10.	IMPROVING THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN VIETNAM Nguyen Thu Ha	97
11.	CORPORATE SUSTAINABILITY PERFORMANCE OF THE PHARMACY SECTOR – ANALYSIS AND IMPLICATIONS Hung Nguyen, Linh Vien, Toan Bui Duy	105
12.	DIFFERENT FACTORS THAT AFFECT THE BRAND EQUITY OF VIETNAMESE COMMERCIAL BANKS Nguyen Quoc Huy, Nguyen The Khai	122
13.	MAJOR MODEL IMPACTING TAX POLICY TOWARDS PROMOTING ECONOMIC RESTRUCTURING IN VIETNAM Le Thu Thuy.....	134
14.	EXAMINING HOW MULTINATIONAL COMPANIES PERFORM PRICING TRANSFER IN VIETNAM Le Thanh Ha, Pham Thi Kim Len.....	143

15.	CORPORATE SOCIAL RESPONSIBILITY DISCLOSURES ON ANNUAL REPORT AND FINANCIAL RISK: EMPIRICAL EVIDENCES FROM VIETNAM Nguyen La Soa, Ngo Van Hau	148
16.	AN APPLICATION OF ARIMA MODEL IN FORECASTING VIETNAMESE REAL GDP RATE Nguyen Thi Viet Nga	162
17.	MOBILIZE CAPITAL FROM CHINA'S GREEN BOND MARKET AND MAKE RECOMMENDATIONS TO VIETNAM Bach Thi Thanh Ha, Bach Thi Thu Huong, Nguyen Thanh Huyen	170
18.	FOREIGN DIRECT INVESTMENT IN VIETNAM: A RECENT VIEW ON INADEQUACIES AND SHORTCOMINGS Pham Duc Tai	177
19.	IMPROVING THE CROWDFUNDING CHANNEL IN VIETNAM Nguyen Thi Thuy Dung, Pham Ngoc Hai, Chu Kieu Linh, Hoa Ngoc Minh	189
20.	THE EFFECTS OF CAPITAL STRUCTURE ON THE PERFORMANCE OF START-UP COMPANIES Vu Duy Hao, Bui Thi Thu Loan , Dang Phuong Mai	200
21.	INTERNATIONAL EXPERIENCE ON ELECTRONIC TAX ADMINISTRATION AND THE LESSONS FOR VIETNAM Nguyen Minh Tuan, Doan Huong Quynh, Pham Thi Van Anh	214
22.	MANAGING PEER TO PEER LENDING IN VIETNAM Tran Phuong Anh	219
23.	GREEN BONDS – THE TOOL FOR SUSTAINABLE DEVELOPMENT OF THE FOURTH INDUSTRIAL REVOLUTION Ha Thi Tuyet Minh	225
24.	TAX MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES IN VIETNAM Ho Quynh Anh, Nguyen Thi Thu Ha, Bui Thu Ha, Tran Thi Thu Nga, Le Viet Nga	232
25.	MOBILIZING FINANCIAL RESOURCES FOR PUBLIC HIGHER EDUCATION UNDER THE CURRENT AUTONOMY MECHANISM IN VIETNAM Tran Huong Xuan	238
26.	FINTECH – OPPORTUNITIES AND CHALLENGES FOR THE DEVELOPMENT OF THE FINANCIAL AND BANKING SYSTEMS Nguyen Huu Tan, Nguyen Thu Thuong	247
27.	ANALYSIS AND ASSESSMENT OF TAXATION MECHANISM FOR ATTRACTION OF INDIVIDUALS AND ORGANIZATIONS DOING CREATIVE START-UP OR FOREIGN INVESTMENT IN CREATIVE START-UPS IN VIETNAM Nguyen Trong Co	253
28.	CURRENT STATUS OF TAXATION MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE STARTUP IN VIETNAM IN RECENT YEARS Truong Thi Thuy	263
29.	CURRENT STATUS OF TAXATION MECHANISM TO ORGANIZATIONS AND INDIVIDUALS INVESTING INTO CREATIVE START-UP IN VIETNAM Nguyen Dao Tung	270
30.	SPECIFIC FINANCIAL MECHANISM AND FINANCIAL MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES OR TO INVEST IN CREATIVE INNOVATION Nguyen Vu Viet, Nguyen Dinh Chien, Nguyen Thi Van Anh	276

31.	ANALYSIS AND EVALUATION ON THE FINANCIAL MECHANISMS TO ATTRACT INDIVIDUALS AND ORGANIZATIONS IN DOING CREATIVE STARTUP OF FOREIGN INVESTMENT IN CREATIVE STARTUPS IN VIETNAM Ngo Thanh Hoang	284
32.	COMPLETING POLICIES AND LEGAL REGULATIONS ON SPECIAL TAX MECHANISM FOR START-UP BUSINESS INNOVATION Luong Thu Thuy, Nguyen Dao Tung	291
33.	INNOVATION OF THE STATE BUDGET ALLOCATION MECHANISM FOR SCIENCE AND TECHNOLOGY ACTIVITIES IN VIETNAM Dong Thi Phuong Nga, Nguyen Anh Tuan	297
34.	INNOVATION IN PRIVATE SECTOR MANAGEMENT Dinh Thi Nga, Lam Thanh Ha	310
35.	THE EFFECT OF AUDIT QUALITY ON EARNINGS MANAGEMENT: EVIDENCE FROM VIETNAMESE LISTED COMPANIES Dao Thi Thu Giang, Hoang Ha Anh	322
36.	ADOPTION OF INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) - BENEFITS AND CHALLENGES: A BUSINESS PERSPECTIVE Nguyen Thi Hong Van, Luu Duc Tuyen, Nguyen Huong Giang, Pham Phuong Anh, Nguyen Thi Phuong Tuyen	335
37.	SOLUTIONS FOR APPLYING INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) IN VIETNAM Nguyen Dinh Do	343
38.	DEVELOPING OF ACCOUNTING IN VIET NAM IN THE CONTEXT OF INDUSTRIAL REVOLUTION 4.0 Hoang Van Tuong, Bui Thi Thu Huong, Tran Thi Duc Hanh, Nguy Thu Hien, Tran Thi Ngoc Han	351
39.	COMPLETE ACCOUNTING OF BORROWING COSTS IN VIETNAM ACCORDING TO INTERNATIONAL ACCOUNTING PRACTICES Do Minh Thoa	366
40.	THE ROLES AND CHALLENGES OF CLOUD COMPUTING TO ACCOUNTING SYSTEM OF VIETNAMESE ENTERPRISES IN THE FOURTH INDUSTRIAL REVOLUTION Phan Huong Thao	382
41.	CLOUD COMPUTING AND THE FUTURE OF ACCOUNTING Le Phuong Tra, Nguyen Hong Chinh.....	391
42.	VIETNAMESE ACCOUNTING AND INDUSTRIAL REVOLUTION 4.0 OPPOTUNITIES AND CHALLENGES Nguyen Phu Tuan Anh	398
43.	ACCOUNTING, AUDITING IN THE ERA OF INDUSTRY 4.0 – DEVELOPMENT SOLUTIONS IN THE NEW ERA Tran Hai Long, Le Thi Yen Oanh	405
44.	THE CURRENT IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION ON HUMAN RESOURCES FOR ACCOUNTING AND AUDITING IN VIETNAM Ngo Thi Thu Hong, Nguyen Ba Linh.....	412
45.	TRAINING VIETNAMESE ACCOUNTING LABOR FORCE IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION Nguyen Thu Hoai	419
46.	THE IMPACTS OF BLOCKCHAIN TECHNOLOGY ON AUDITING ACTIVITIES, OPPORTUNITIES AND CHALLENGES FOR AUDITORS Do Thi Thoa, Bui Thi Bich Thuy	429

47.	FACTORS AFFECTING THE ABILITY OF IFRS TO APPLY FAIR VALUE IN VIETNAMESE ENTERPRISES IN THE CONTEXT OF THE INDUSTRIAL REVOLUTION 4.0	
	Nguyen Thu Hien	435
48.	INDUSTRIAL REVOLUTION 4.0 WITH VIETNAMESE HUMAN RESOURCES IN ACCOUNTING, AUDITING: OPPORTUNITIES AND CHALLENGES	
	Nguyen Ba Minh, Nguyen Ba Linh, Le Vu Thanh Tam	457
49.	STATE AUDIT OFFICE OF VIETNAM WITH THE FOURTH INDUSTRIAL REVOLUTION: PROBLEMS AND ADAPTATION SOLUTIONS	
	Nguyen Huu Hieu	464
50.	IMPROVING TRAINING QUALITY OF ACCOUNTING AND AUDITING IN THE INDUSTRY 4.0	
	Thinh Van Vinh.....	470
51.	RELATIONSHIPS BETWEEN NON-FINANCIAL FACTORS AND AUDITORS' OBJECTIVITY: EMPIRICAL EVIDENCE FROM VIETNAM	
	Nguyen Thi Kim Oanh, Nguyen Ha Phuong	482
52.	FACTORS AFFECTING THE QUALITY OF ACCOUNTING INFORMATION SYSTEMS IN ENTERPRISES: PROPOSING THE RESEARCH MODEL	
	Quang Binh, Nguyen Thi Thuan	498
53.	INOVATING THE STATE BUDGET ACCOUNTING IN VIETNAM IN THE 4TH INDUSTRIAL REVOLUTION	
	Nguyen Tuan Dung, Pham Thu Huyen	508
54.	PROMOTING THE IMPLEMENTATION OF ENVIRONMENTAL ACCOUNTING AT VIETNAMESE ENTERPRISES IN ORDER TO HELP THE PROCESS OF INTEGRATION INTO CPTPP AGREEMENT TO BE MORE RAPID AND SUSTAINABLE	
	Nguyen Tuan Anh, Nguyen Quoc Huy.....	512
55.	ACCOUNTING AND AUDITING PROFESSION IN THE INDUSTRIAL REVOLUTION 4.0: ISSUES AND IMPLICATIONS FOR VIETNAM	
	Pham Tien Hung, Ha Tuan Vinh, Nguyen Thanh Hue	521
56.	ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY AND THE TRANSPARENCY OF ACCOUNTING INFORMATION AT VIETNAMESE LISTED COMPANIES	
	Bui Thi Hang	529
57.	CORPORATE ACCOUNTING OPERATION IN THE CONTEXT OF INDUSTRIAL REVOLUTION 4.0	
	Dao Thi Minh Thanh, Dang Quynh Trinh	537
58.	FACTORS AFFECTING AUDIT FIRM'S CHOICE AMONG ENTERPRISES IN VIETNAM	
	Vu Thi Phuong Lien, Duong Thi Tham.....	543
59.	STRENGTHEN THE AUDIT OF EXTRA-BUDGETARY FUNDS AIMING FOR THE SUSTAINABILITY OF VIETNAM'S PUBLIC FINANCE	
	Nguyen Huu Hieu	551
60.	ASSET ACCOUNTING IN THE CONSTRUCTION ENTERPRISES IN THE TREND OF THE INDUSTRIAL REVOLUTION 4.0	
	Do Thi Thu Hang, Tran Tuan Anh	558
61.	DETERMINANTS OF HEALTH CARE DEMAND IN VIETNAM	
	Nguyen Thi Tuyet	562
62.	LAND CONSOLIDATION FOR AGRICULTURAL GROWTH IN VIETNAM	
	Nguyen Thi Thu Huong, Pham Nguyen My Linh	573
63.	PROMOTING PAYMENTS USING ELECTRONIC WALLETS IN VIETNAM IN THE FOURTH INDUSTRIAL REVOLUTION	
	Tran Thi Hien, Ho Thi Hoa	589

64. PROMOTING THE ROLES OF THE INTELLECTUALS IN VIETNAM
Luong Quang Hien..... 597

65. THE ROLE OF TRAINING IN BUILDING JOB SATISFACTION AND EMPLOYEE
COMMITMENT AT COMMERCIAL BANKS IN HO CHI MINH CITY
Ha Van Dung 602

66. EXPERIENCES IN GREEN ECONOMIC DEVELOPMENT OF SOME COUNTRIES IN THE WORLD AND LESSONS FOR VIETNAM
Nguyen Van Nghia, Dong Thi Ha, Vu Thi Thanh Huyen 616

67. SOLUTIONS TO DEVELOP THE SYSTEM OF MICROFINANCE INSTITUTIONS TOWARDS COMPREHENSIVE AND SUSTAINABLE
FINANCIAL DEVELOPMENT
Vu Duy Vinh, Tran Thi Thu Nga 625

68. ATTRACTING FDI INTO THE SUPPORTING INDUSTRIES IN VIETNAM IN THE CONTEXT OF INDUSTRY 4.0
Phi Thi Thu Huong..... 635

69. THE FOURTH INDUSTRIAL REVOLUTION CHALLENGES FOR VIETNAM REAL ESTATE ENTERPRISES?
Nguyen Ho Phi Ha, Vu Quynh Nga 647

70. ASSESSING THE SUSTAINABILITY PERFORMANCE OF THE PHARMACY SECTOR
Nguyen Phu Hung, Bui Duy Toan 655

71. PUBLIC EXPENDITURE ON SOCIAL PROTECTION IN VIETNAM: A REVIEW
Nguyen Ngoc Toan..... 671

72. DISTRIBUTION OF THE STATE BUDGET TO THE MILITARY HOSPITALS IN VIETNAM IN THE CURRENT CONDITIONS OF FINANCIAL AUTONOMY
Do Manh Hung 677

DEVELOPMENT OF FINANCIAL TECHNOLOGY (FINTECH) FOR FINANCIAL MARKET IN VIETNAM

Tran Quang Phu, Nguyen Lan Huong*

ABSTRACT

Financial industry (Fintech) is a common term that describes the advancement of information technology applied in the financial field. Research on Fintech application situation in some developed countries and in Vietnam shows that: based on high-tech platform, Fintech application brings more efficiency in the field of investment; however, it also has potential of unpredictable system risks. Therefore, each country, including Vietnam, needs to formulate and complete a strict legal system not only to ensure the stable operation of the financial market applying Fintech but also to create protection for investors.

This research presents basic contents of Fintech and opportunities and challenges in Fintech development in Vietnam.

Keywords: *fintech, application of digital technology in investment, effective capital mobilization,*

JEL: G10, G14

1. OVERVIEW OF FINTECH

The impact of the Digital Technology Revolution on the development of the banking system is increasingly evident with the emergence of a series of innovative banking products and services, as well as the introduction of new banking service distribution channels based on the platform of financial technology. This gives financial institutions and banks opportunities for change as well as new challenges. 1) Expanding the bank branch networks is no longer a priority in the competition between financial institutions and banks; 2) Movement of customers using services from traditional channels to electronic and online channels. However, the reality shows that Vietnam's management policies have not kept up with the development and demand of using Fintech in Vietnam financial market. This has created the necessary needs for the completion of policy system for Fintech in the coming time to take advantage of the great economic benefits of digital economy during the 4th industrial revolution.

1.1. Concept about Fintech

Fintech is currently a relatively new concept for many countries, including Vietnam. Fintech is a term formed by two elements which are "Financial" and "Technology". Therefore, Fintech can be understood in the most general way as innovations and advances of information technology applied in the financial field.

* Institute of Economics, Ho Chi Minh National Academy of Politics.

According to the definition of PwC (2016), “*Fintech is a field of interference between financial services and technology in which startups use technology to improve and renovate products and services being provided by traditional financial institutions.*” In addition, IOSCO (2017) also provides the following definition: “*Fintech is the term used to describe innovative business models and emerging technology that can transform the financial service industry.*”

According to the Basel Committee’s classification of Banking Supervision, Fintech is mainly applied in the following 4 areas:

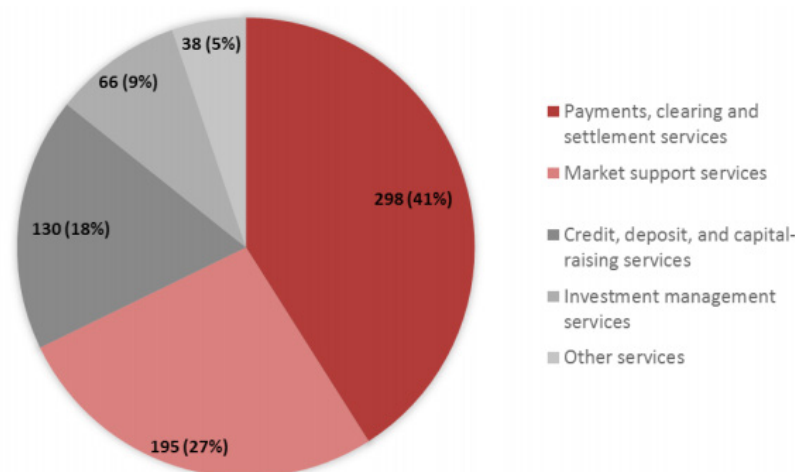
+ **Payment and setoff:** This is the field that accounts for the largest proportion of suppliers (41%) including internet payment services, e-wallets, peer-to-peer transfers, cryptocurrencies and value transfer networks. value transfer networks, FX, electronic exchanges.

+ **Market support services** (27%): includes technological applications in information collection, ecosystem, data mining, confidentiality, fraud protection, cloud computing, artificial intelligence (AI), etc.

+ **Credits and capital mobilization** (18%): includes forms of crowdfunding, online micro loan and credit scoring.

+ **Investment management** (9%): high frequency trading, copy-trading, electronic trading, robot advisor.

Figure 1: Percentage of suppliers by Fintech service segment



Source: Basel Committee on Banking Supervision

1.2. Fintech’s impact on world financial markets

1.2.1. Positive effects

Being born in the context of the Fourth Industrial Revolution (Industrial Revolution 4.0) with increasingly strong development, Fintech is expected to make a breakthrough in the world financial markets. Along with that, the 2008 global financial crisis has greatly reduced the confidence of market members in the traditional banking systems and financial services. Popularity of the Internet, social networks and high-tech platforms such as blockchain, big data, cloud computing,

etc. has facilitated Fintech to rapidly become an integral part of the financial markets.

Rapid development of Fintech enterprises has changed the ways of performing the financial system functions, promoted circulation of capital flows in the market, created new value, transferred value and managed risks. In particular, the introduction of online payment services and the concept of e-wallets and cryptocurrencies have created new tools in trading, payment, and eliminated the distance of space and time. Or blockchain technology not only resists data changes but also allows storage and transmission of information by blocks interconnected and expanded over time. Blockchain technology is highly confidential, prevents financial fraud, and increases the efficiency of the financial system because data is only added when there is a consensus of all nodes in the system while the server system is distributed in many parts of the world to maintain stable and safe operation for the whole system in case a part of blockchain collapses, other nodes still exist and operate normally.

Based on the technology platform created by Fintech companies, the sales and service provision channels are improved and modernized in the direction of personalizing financial services based on the needs of each customer, which facilitates customers to easily and quickly select the appropriate services. Currently, online banks which are designed according to the traditional banking system model and provide similar products and services but at a much lower cost due to a large reduction in costs of premises, utilities and labours. Such savings constitute a fund for the banks to upgrade their trading systems which thereby increases the business efficiency and revenue for these financial institutions. Being similar to the banking system, the current stock exchanges are also transferred into a completely electronic model. In fact, the first real stock exchange in the world which was built in 1971 was NASDAQ, the next stock exchange was Tokyo (1999), Singapore (2006), and most recently Hong Kong Stock Exchange has been built (October 2017).

1.2.2. The risks come from fintech

Besides the opportunities Fintech brings back, this field is still new and complex, potentially risky and can cause great losses in the market.

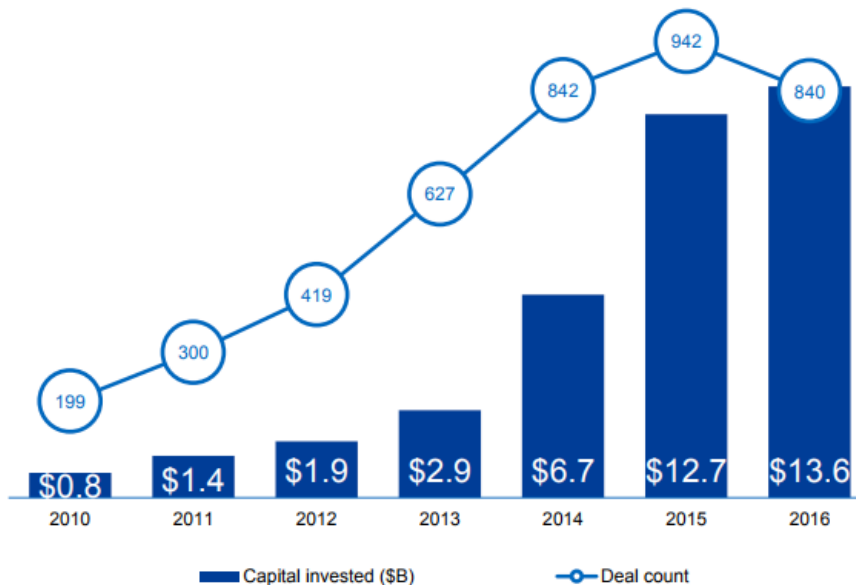
First of all, there are risks for investors and depositors through lending P2P Lending forms. The peer-to-peer lending forms (P2P Lending) are based on a number of online platforms where there are almost no or very few disclosure requirements, resulting in non-transparency of data and lending portfolios. In addition, P2P Lending is a new lending form that has not really experienced a full economic cycle, so no necessary adjustments have been made. Therefore, when the market has strong fluctuations, interest rates will rise sharply or fall deeply. There is no specific protection mechanism leading to very high insolvency rate of these lending platforms.

In the crowdfunding form, when investors have decided to invest in Fintech startups, it means that they have accepted a huge risk rate. According to statistics of IOSCO (2017), the bankruptcy rate in these companies can be up to 50-90%. The long-term investment period (since the enterprise has not been established yet) is also a factor that increases risks for investors. Moreover, startups through crowdfunding often do not meet the IPO standards, so investors' profits are often limited.

In addition, risks in Fintech also come from the lack of necessary legal regulations to stabilize

the market. Traditional financial institutions are always subject to many constraints to ensure the safety of the financial system. However, the regulations for Fintech are still very limited. This not only creates an unfair playing field between Fintech companies and organizations trading traditional financial services, but also increases the risk of fraud and misuse of customer information. Take examples from the cryptocurrency. This currency is attracting the attention of many investors, especially when the price of Bitcoin recently hit a record high, within one year the price of this currency has increased by more than 850%, approaching the \$10,000 mark. While the cause of this price spike is still a subject of debate among many experts in the world, the cryptocurrency is becoming more and more widely accepted in many countries, which creates an independent monetary tool and is not controlled by any country's financial or legal system. However, due to the lack of management, the cryptocurrency is being abused as a money laundering tool and it is a means to conduct some illegal business activities.

Figure 2: Venture capital into Fintech companies around the world from 2010 to 2016



Source: KPMG International, *The Pulse of Fintech Q4, 2016*

2. APPLICATIONS OF FINTECH IN THE FIELD OF FINANCIAL INVESTMENT

2.1. Crowdfunding

According to the definition of IOSCO (2014), *Crowdfunding is a term that describes the use of contributions by large numbers of individuals and organizations, to raise funds for a project, a personal loan, or for business purposes or other financial support needs via online website technical platforms.* In other hand, according to the World Bank (2013), Crowdfunding is defined as *a way to use the Internet for other enterprises or organizations to raise capital - usually from \$1000 to \$1,000,000 - in the form of contributions or investments of many individuals.*

According to IOSCO's classification, Crowdfunding is divided into 4 main categories: donation-based, reward-based, lending-based and equity-based.

+ **Donation-based**: Is the form of which social organizations, non-governmental organizations often use when they mobilize donations to help natural disaster areas, people in special circumstances or sponsor centers, etc. This form does not consider having to have grateful gifts, profits or shares in return for the above financial support.

+ **Reward-based**: Is a form of capital mobilization to implement new, breakthrough and never-before ideas. The grant amount is divided into packages; each of such packages is a corresponding gift. Sponsors will receive such gifts when the project is successful.

+ **Lending-based**: This form of capital call up is suitable for established enterprises but their collaterals are not enough to convince any bank. The loan capital comes from capital contributed by community or from people who have done business successfully in this form to create a large flow of capital to help small and medium-sized enterprises.

+ **Equity-based**: This form is not different from buying stocks of a potential new company. The investors receive the shares and profits if the company makes a profit.

In Vietnam, the concept of Crowdfunding is quite new. Popular forms of crowdfunding are donation-based and reward-based. The first successful Crowdfunding project in Vietnam was the one that supported the publication of the comic book named “Long Than Tuong” in the middle of 2014. Then, there are some capital mobilization website platforms that have attracted the attention of the community such as Firststep, Betado, Comicola and Fundstart. According to foreign experts, the crowdfunding forms are not popular in Vietnam yet, derived from three factors:

Firstly, due to cultural ideology, Vietnamese people are often affected by the fear of failure, fear of criticism by the public when a new idea is given. It is for this reason that sharing such new ideas widely on social networks to call for investment is hampered.

Secondly, personal relationships play a very important role not only in daily life but also in the business of Vietnamese people. This has created a psychological barrier, apprehension when investing capital for “strangers” on the Internet.

Finally, there are legal obstacles: Vietnam lacks a legal framework that regulates processes, manages procedures related to crowdfunding, as well as measures to protect investors in case the project fails or detects signs of fraud.

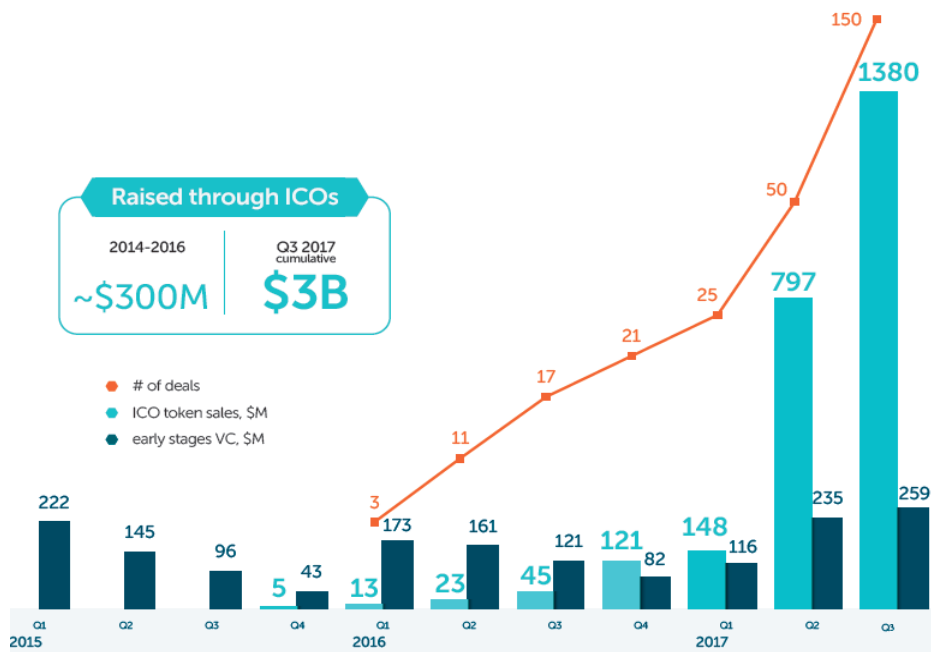
2.2. Capital mobilization from cryptocurrency tools (ICO)

ICO (Initial Coin Offering) is a form of capital mobilization for startups through cryptocurrency. To conduct an ICO, these startups will issue a cryptocurrency under a token along with a detailed business plan on how the funds will be used for investment and how profits will be divided for investors. After researching the above information, investors will buy these tokens by widely accepted cryptocurrency (it is usually Bitcoin or Ethereum). The proceeds will be used to invest in the projects of these companies. If the proceeds do not meet the required minimum funds raised (announced in the project to the investors), the raised funds will be returned to the investors and the ICO will be deemed unsuccessful. If ICO is successful, the cryptocurrency issued by the company will be able to be traded on the secondary market through cryptocurrency exchanges or other technology platforms in exchange for the cryptocurrency. The cryptocurrency/token represents the

interests of investors in startup projects, which are the rights to be entitled to future services and products of the company or the right to be entitled to dividends.

However, because ICO is not subject to the management of laws, so the risks in this form of investment are huge, frauds in ICO is very popular. The absence of support tools as well as the lack of guarantee in information disclosure can distort investors' judgment in the project. When investing in fraudulent projects, investors will not receive funds back because there is currently no mechanism to protect investors. ICO is associated with the most advanced technology applications, so the process of buying and selling the cryptocurrency is easily affected and interrupted when encountering technical problems or being stolen by the hackers' fraudulent tricks. While ICO is increasingly becoming a popular form of capital mobilization due to the wider and wider recognition of the cryptocurrency, according to statistics most of the ICO activities are fraudulent or failed; the investors are mainly small individuals who lack the professionalism and the ability to lead the market. Therefore, a strict legal framework is required to protect investors and stabilize the market.

Figure 3: Comparison between investments in venture capital (VC) and ICO



Source: Life.SREDA

2.3. Fintech applications in stock trading

At present, the impact of technological advances including high frequency trading and algorithm trading on securities trading activities is becoming increasingly clear, especially in the developed stock markets.

Algorithmic trading: Algorithms have been applied in stock trading since many years ago but only in the last 20 years their diversity, complexity and scope of use have expanded along with the development of technological advances. In a simple understanding way, algorithmic trading is trading based on mathematical formulas and mathematical models in order to make investment decisions along with high-speed trading orders in the financial market.

Algorithmic trading requires fast computer programs and complex algorithms to determine fast trading strategies and to earn optimal profits. An algorithm can place orders on its own with a set condition of price, market volume, and time. Algorithmic trading is more often used by institutional investors than individuals, as they often trade in large volumes every day. Complex algorithms can help organizations achieve the best prices and the lowest transaction costs, and do not have a strong impact on forming prices of traded products. With the constant changes of the market, the algorithms are also constantly being changed, leading to the life cycle of an algorithm in trading only to be calculated in weeks or months. Academic studies¹ and anecdotal evidence show that thanks to algorithmic trading, the market has good liquidity because the algorithms find the price difference among markets.

However, some market participants believe that the emergence of institutional investors using such complex trading techniques makes them no longer want to participate in trading on the market because they feel that they are too unfavorable to be compared to superior trading technologies. Moreover, market shocks can be transferred from one market to another because the markets are closely interconnected and the algorithmic trading will contribute to make such shocks be transmitted more intense and faster. This is the potential place for many systemic risks for the stock market.

High frequency trading – HFT: The definition of HFT is very difficult and no one is widely accepted. Basically, HFT is a high-volume trading type and extremely fast trading time which is measured in microseconds-millionths of a second, used by proprietary traders, through modern electronic trading devices, often held by private businessmen. This trading type aggregates information faster than normal orders, because they use complex trading algorithms and strongly configured computers, often located near electronic order matching systems of the stock exchanges. By placing trading systems near the order matching systems of the Stock exchange, high frequency trading investment companies can increase order speed, even within milliseconds, thus, it can create a competitive advantage compared to other traders who have slower order placement system.

High frequency trading order systems are not only faster but also more complex about buy and sale order placement strategies, and even they allow cancelling trading orders in milliseconds. In this way, high frequency trading companies can detect and forecast changes in the direction of order placement from financial institutions or retail investors. High frequency traders can place massive trading positions to benefit from asymmetric orders, or price fluctuations during the trading day, by placing a low buy order first, then placing a sale order at a bit higher price within seconds.

High frequency trading is often interpreted as an algorithmic transaction type, however, neither all types of algorithmic trading are high frequency trading. Compared to high frequency trading, algorithmic trading has existed since a long time ago as a tool to decide how the trading will take place after considering all factors which are time, price, and volume and trading location.

3. FINTECH DEVELOPMENT IN VIETNAM FINANCIAL MARKET

¹ (i) Jonathan A. Brogaard, *High frequency trading and its impact on liquidity of the market*, Northwestern University, 2010; (ii) Terrence Hendershott, Charles M. Jones, & Albert J. Menkyeld, *Does algorithmic trading improve liquidity?*, Journal of Finance, 2011; and (iii) Albert J. Menkyeld, *High Frequency Trading and New Market Makers*, VU University Amsterdam, 2010.

As a country where there is a young population structure and quite adequate Internet system, the potential for development of Fintech enterprises in Vietnam financial market is enormous. However, financial services have not really developed correspondingly. According to statistics, it shows that only 30% of the Vietnamese population has bank accounts, in rural areas, this data only stands at 16%. The percentage of people using other financial services such as insurance, securities and asset management is even much lower.

As of 2018, the number of startups in Fintech field in Vietnam is limited to 48 companies (the number of companies is quite low compared to the number of more than 500 companies in Southeast Asia separately - according to statistics of Life SREDA VC Singapore). The enterprises applying Fintech in Vietnam are mainly in the banking field related to online payment and mobile payment solutions. In terms of legal aspect in the field of Fintech, since 2008, the State Bank of Vietnam has allowed many non-bank companies to provide payment services on a pilot basis to meet the development needs of the market.

The State Bank of Vietnam has licensed operation for 20 payment intermediary service providers by February 2018. However, this, basically, only satisfies a part for the financial technology field in payment, there is no complete and synchronized legal framework for other financial fields. In addition to the field of payment, some startups operate in other types of Fintech such as fund raising (FundStart, Comicola, Betado, FirstStep, etc.), online lending services (LoanVi, Trust Circle), remittance (remit.vn), management of personal financial data (BankGo, Moneylover, Mobivi, etc.).

In the field of securities in Vietnam today, the distribution of fund certificates to raise capital for investment funds is carried out by fund management companies through distribution agents or at the company mainly by direct mode (the investors directly do trading at the distribution agents).

Clause 5, Article 14 of the Circular on Electronic Trading No. 134/2017/TT-BTC provides that *“Fund management companies and fund certificate distribution agents must report documents specified in Clause 3 of Article 11 of this Circular to the State Securities Commission of Vietnam at least five (05) working days prior to the implementation of the online securities trading system for investors;”*. However, up to now, no fund management company has conducted online fund certificate trading for investors.

The Securities Company (TCBS) has deployed robo-advisors (TC Wealth) with the technology to automate the process of long-term financial planning for investors, automatically allocating the portfolio. Currently, Robo-Advisor service is being provided free of charge for the aim of introducing and orienting Vietnamese families who are interested in long-term financial plans. HFT Securities Corporation has implemented many activities in order to not only research to complete models of consultancy and investment via robots but also bring trading models via robots to a large number of people in the community and investors in the future through organizing the first robotics conference of securities trading in Vietnam (ROBO ARENA 1.0) in 2017. Through practical application process, HFT's trading robots as well as other testing robots have achieved positive results. The results were verified through two test transactions to find the most effective robots. In just one month, there are robots that

traded tens of percent and their accuracy signed above 50%. HFT intends to put the robots into operation in the near future.

4. RECOMMENDATIONS FOR FINTECH MANAGEMENT IN THE FINANCIAL SECTOR IN VIETNAM

Regarding the legal framework, the regulations on Fintech in Vietnam are only limited in the field of payment, namely the Law on Electronic Transactions No. 51/2005/QH11, Decree No. 35/2007/ND-CP guiding non-cash payments; the State Bank of Vietnam's Circular No. 30/2016/TT-NHNN on providing payment services and intermediary payment services; Regulations on bank cards, risk management and security in e-banking, etc. (Circular No. 19/2016/TT-NHNN, Circular No. 35/2016/TT-NHNN); Regulations on customer protection in electronic payment and money laundering prevention (Decree No. 96/2014/ND-CP, Decree No. 25/2014/ND-CP).

The government has set an objective of reducing the volume of cash payments to less than 10% by 2020, while developing new payment methods, eliminating geographical disparities among regions; it is expected that 70% of Vietnam's population will use bank accounts by 2020. In order to realize the above objective, the National Financial Supervisory Commission needs to coordinate with the State Bank of Vietnam and relevant authorities to develop a National Financial Development Strategy which takes Fintech as the most important factor to decide the success of the whole Strategy.

For the development of Fintech technology in the field of securities, the State Securities Commission of Vietnam needs to study the applications of Fintech in the field of securities such as crowdfunding, ICO, and introducing regulatory regulations on new translations on technology platforms (HFT, robot-advisor). The Vietnam Securities Market Regulatory Authority needs to conduct research on the new trading types that will appear on the market to offer ways to manage and monitor fluctuations and build accurate electronic databases to identify real customers for anti-money laundering.

REFERENCES

- Albert J. Menkyeld, *High frequency trading and new market makers*, VU University Amsterdam, 2010.
- Jonathan A. Brogaard, *High frequency trading and its impact on market liquidity*, Northwestern University, 2010.
- Terrence Hendershott, Charles M. Jones, & Albert J. Menkyeld, *Does Algorithmic Trading Improve Liquidity?*, Journal of Finance, 2011.
- <http://www.eifr.eu/news/2984/iosco-publishes-recommendations-on-market-integrity> accessed on August 10, 2017, some IOSCO's recommendations on market integrity.
- <http://tinnhanhchungkhoan.vn/chung-khoan/mua-ban-chung-khoan-tai-viet-nam-nha-dau-tu-sap-thua-robot-198165.html>: Buying and selling securities in Vietnam: Investors are about to lose ... robots, posted on Monday, August 21, 2017.
- <http://tinnhanhchungkhoan.vn/chung-khoan/lo-dien-10-robot-giao-dich-chung-khoan-tham-gia-thi-dau-giao-dich-199132.html> accessed on October 16, 2017, Revealing 10 Securities Trading Robots participating in the trading competition.
- <http://mekongsecurities.com.vn/vi/tin-hoat-dong/robo-arena-10-cup-vo-dich-da-co-chu> accessed on October 16, 2017 ROBO ARENA 1.0: The championship cup has had its holder.

TAX POLICY FOR INNOVATIVE START - UP IN VIETNAM

Nguyen Thi Thanh Hoai¹, Chu Van Hung²

ABSTRACT

In Vietnam, in recent years the number of startups has increased rapidly. To promote the development of startup activities, it is necessary to use different tools and policies, one of which is to use tax policies. Tax policy affects investors and entities directly involved in starting a business. Although the tax policy in Vietnam has recently been amended and improved to create favorable conditions for start-up activities, it has not yet met the requirements, so it is necessary to continue to improve next time. The paper focuses on evaluating and making some recommendations to complete the tax policy in Vietnam for start-up activities.

Keywords: *Start - up activity, Tax policy*

1. INTRODUCTION

Tax policy affects the decision-making of entities, investment, production and business activities. Countries that want to facilitate certain production and business activities will apply tax incentives. Innovative start-up activities have been particularly interested in many countries in recent times. Tax policy is one of the tools used by the state to promote innovation startups. The problem is how to use tax policy? Through which means to achieve the best results is a matter of concern.

Research is aimed at assessing current tax policy in Vietnam for innovative startups, pointing out the limitations, thereby proposing some solutions to change the tax policy to create more favorable conditions for business activities start - up in Vietnam.

2. CURRENT TAX POLICY FOR INNOVATIVE START - UP IN VIETNAM

2.1. Tax policy for innovative start-up businesses and individuals start - up

2.1.1. Tax policy for innovative start-up businesses

Start-up businesses are entitled to tax incentives for newly established businesses. Incentives of the current tax policy in Vietnam in the direction of supporting businesses by location, field so any business that meets the preferential conditions will be entitled to the corresponding incentives. Therefore, if the start-up enterprise conducts start-up activities in the fields and geographical areas eligible for tax incentives, it is eligible for incentives. If they do not conduct activities in tax-favored areas and do not meet the standards in the current fields of investment promotion, they will not be given tax support.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: hoaiaf@gmail.com

² VNU-Intenational School, 79 Nguy Nhu Kon Tum, Thanh Xuan, Ha Noi

Currently, basic content of corporate income tax policy incentives for newly established businesses include:

Firstly, Tax exempt for some kind of income. Corporate income tax law regulated some kinds of income are exempt, in which: (i) income from the performance of scientific research and technological development contracts; the sale of products turned out from trial production and production with technologies applied for the first time in Vietnam; (ii) Aid received for educational, scientific research in Vietnam and (iii) Incomes from technology transfer in the prioritized fields of transfer of technology to organizations and individuals in geographical areas with particularly difficult socio-economic conditions.

Secondly, Enterprises established and operating under Vietnamese law may deduct up to 10% of taxed income for setting up their scientific and technological development funds. In the case if enterprises not set up this fund but spend for scientific and technological activities, these expenses can be deducted if they meet conditions for deduction.

Thirdly, preferential tax rates. Currently there are three preferential tax rates: 10%, 15% and 17%:

- *10% rate for 15 years is applied to:*

- Incomes of the enterprise from execution of new projects of investment in extremely disadvantaged areas, economic zones, hi-tech zones.

- Incomes of the enterprise from execution of new projects of investment in: scientific research and technology development; application of high technologies given priority according to the Law on High Technology; cultivation of high technology, cultivation of high-tech enterprises; venture capital investment in development of high technologies on the list of high technologies given priority; investment in construction, operation of facilities for cultivation of high technologies, cultivation of high-tech enterprises; investment in development of water plants, power plants, water supply and drainage system; bridges, roads, railroads, airports, seaports, air terminals, train stations, and other particularly important infrastructural works decided by the Prime Minister; software production; manufacture of composite materials, light building materials, rare and valuable materials; production of renewable energy, clean energy, waste-to-energy process, development of biotechnology.

- Incomes of enterprises from execution of new projects of investment in environmental protection, including: manufacture of environmental pollution reduction devices, environment monitoring and analysis devices; pollution reduction and environmental protection; collection, treatment of wastewater, exhaust, solid wastes; recycling or wastes.

- High-tech enterprises, agriculture enterprises applying high technologies as prescribed by the Law on High Technologies.

- Incomes of enterprises from execution of new projects of investment in manufacturing (except for manufacturing of products subject to special excise tax and mineral extraction projects) that satisfy any of the following criteria:

- + The project's initial capital is at least VND 6,000 billion disbursed within 03 years from the date of investment license according to regulations of law on investment, and the total revenue is at

least VND 10,000 billion per year after not more than 3 years from the first year in which revenues are generated by the project (the enterprise must have a total revenue of at least VND 10,000 billion per year in the 4th year from the first year in which revenues are generated).

+ The project's initial capital is at least VND 6,000 billion disbursed within 03 years from the date of investment license according to regulations of law on investment, and project regularly has over 3,000 employees after not more than 3 years from the first year in which revenues are generated by the project (the enterprise's annual average number of employees is at least 3,000 in the 4th year from the first year in which revenues are generated).

- Incomes of an enterprise from execution of projects of investment in manufacturing (except for manufacturing of products subject to special excise tax and mineral extraction projects) whose capital is VND 12,000 billion or over, using high technologies that must be appraised in accordance with the Law on High Technologies, the Law on Science and Technology, and capital of which is disbursed within 05 years from the date of investment licensing.

- Incomes of an enterprise for execution of a new project of investment in manufacturing of products on the list of ancillary products given priority that satisfy any of the following criteria:

+ Ancillary products are meant to support high technologies according to regulations of the Law on High Technologies;

+ Ancillary products are meant to support manufacturing of: textile and garment; leather and footwear; electronics and IT products; manufacturing of cars; fabricating mechanics that, up to January 01, 2015, they can not be manufactured in Vietnam or can be manufactured in Vietnam and satisfy technical standards of EU or equivalent standards.

• *10% tax is applicable throughout the operation duration to:*

- Incomes of enterprises from socialized education and training, job training, health care, culture, sports and environmental protection activities (below referred to as socialized fields).

+ Incomes of enterprises from the implementation of projects on investment and trading in social houses for sale or lease to or hire-purchase.

+ Incomes of publishing houses from publication activities in accordance with the Law on Publication.

+ Incomes of press agencies from printed newspapers (including advertisements on printed newspapers) in accordance with the Law on Publication.

+ Incomes of enterprises from planting, cultivating, protecting forests; farming, husbandry, aquaculture in disadvantaged areas; forestry in disadvantaged areas; production, propagation and cross-breeding of plant varieties, animal breeds; production, extraction, and refining of salt; investment in post-harvest preservation of agriculture products; preservation of agriculture products, aquaculture products, and foods, including direct investment in preservation and lease of preservation equipment.

- Incomes of cooperatives engaged in agriculture, forestry, fisheries or salt production and not located in geographical areas with difficult or particularly difficult socio-economic conditions.

- *15% tax rate*: is applied to incomes of enterprises from farming, husbandry, processing of agriculture and aquaculture products in areas other than disadvantaged areas and extremely disadvantaged areas.

- *17% tax rate* for 10 years is applied to:

- + Incomes of enterprises from the implementation of new investment projects in geographical areas with difficult socio-economic conditions;

- + Incomes from enterprises from the implementation of new investment projects on production of hi-class steel, energy-conserving products, machinery and equipment for agriculture, forestry, fisheries and salt production, irrigation and drainage equipment, livestock and aquatic animal feed; and development of traditional crafts and trades (including building and development of traditional handicraft production, farm produce and food processing and production of cultural products);

- *17% tax rate* is applicable throughout the operation duration to people's credit funds, co-operative banks and micro-finance institutions.

Fourthly, tax holidays

- Tax exemption for 4 years and 50% tax reduction for the next 9 years are applied to incomes which applied 10% rate for 15 years, for incomes of enterprises from socialized education and training, job training, health care, culture, sports and environmental protection activities and High-tech enterprises, agriculture enterprises applying high technologies.

- Tax exemption for 2 years and 50% tax reduction for the next 4 years are applied to incomes which applied 17% tax rate for 10 years and incomes of enterprises from the implementation of new investment projects in industrial parks (except industrial parks in favorable socio-economic conditions).

2.1.2. Tax policy for innovative individuals start - up

When individuals start - up business activity, they have to pay personal income tax on percentage on turnover. Currently, the percentages to turnover are:

- Distribution, supply of goods: 0,5%;

- Service provision, construction exclusive of building materials: 2% (except for Asset lease, insurance brokerage, lottery brokerage, multi-level marketing brokerage: 5%);

- Manufacturing, transport, services associated with goods, construction inclusive of building materials: 1,5%;

- Other business activities: 1%.

2.2. Tax policy for investors in start up businesses

Vietnam has no specific regulations on tax policy for investment activities for startups. The tax policy for investors investing in startups is the same as investing in any other business.

- For institutional investors, when contributing capital to an innovative start-up enterprise receiving income after the capital-contributing unit has paid CIT, they are entitled to CIT exemption.

When the investor transfers the capital, the income from capital transfer will be subject to CIT with 20% rate.

- For individual investors:

(i) When investing in a company, individual receives income from capital investments, this income will be subject to PIT with rate 5%.

(ii) When transferring capital: For resident person: income from capital transfer will be subject to PIT with rate 20% on the income from from capital transfer. For securities transfer, PIT is calculated 0,1% on the selling price. For resident person: income from capital transfer will be subject to PIT with rate of 0,1% on selling price.

2.3. Tax policy for start - up support organization

Incubators can provide businesses with a low-cost (or free) environment, support and supplement the necessary knowledge, skills and resources, reduce investment and business risks, reducing the risk of bankruptcy for startups, so creating favorable conditions for the establishment and development of incubators is essential to support startups. In Vietnam there are some tax incentives for start-up support organizations such as tax incentives for technology incubators. The Prime Minister issued Decision 1193/QD-TTg on piloting a number of specific mechanisms and policies for the development of Vietnam-Korea Industrial Technology Incubator in Can Tho City. The Ministry of Finance issued Circular 214/2015/TT-BTC dated 31/12/2015 Guiding preferential mechanisms and policies on state budget support, tax and development investment credit of the State according to Prescribed in the Decision 1193/QD-TTg of the Prime Minister on piloting a number of specific mechanisms and policies for the development of Vietnam-Korea Industrial Technology Incubator in Can ThoCity. Tax incentives for nurseries include:

- Imported goods that cannot be domestically produced: machines, equipment, spare parts, supplies and means of transport; domestic technology has not been created; documents, books, newspapers, scientific journals and electronic information sources on science and technology of importing enterprises to directly serve the technology incubation activities at incubator are exempt from import duty.

- Incomes of enterprises implementing new high-tech incubation projects in incubator fields or incomes from the execution of new high-tech investment projects on the list of technologies Priority is given to development investment (in accordance with the Law on High Technology), which are successfully created at incubator and are subject to a preferential CIT rate of 10% for 15 years and tax exemption for 4 years and reduction of 50% of payable tax amount for the next 9 years.

2.4. Limitations of tax policies for start-up activities

Currently in Vietnam, startup activities have not been given higher tax incentives than other business activities.

Firstly, there has not yet a specific policy for start-up enterprises in general, regulations on tax policies for start-up enterprises in particular. Currently, only the SME Support Law was enacted in 2017 and Decree No. 39/2018 / ND - CP dated March 11th, 2018 detailing the SME Support Law. Although the SME Support Law provides for tax and accounting support for SMEs, there are no

regulations for start-up enterprises. Decree No. 39/2018 / ND - CP also did not mention this issue. Besides, the regulations on venture capital funds have not been stipulated. Although Decree No. 39/2018 / ND-CP dated March 11, 2018 has detailed provisions on investing in innovative start-up SMEs, there are no specific provisions on investors' tax obligations.

Secondly, although there has been a preferential treatment in tax rates for start-up enterprises in the SME Support Law, the tax policy has not discriminated in the direction of giving higher tax incentives for start-up enterprises. Specifically, the current corporate income tax rate applicable to startups is as common as any other enterprise, at 20%. The preferential tax rates or exemption or reduction of corporate income tax for a limited period of time for income from activities of a number of industries and sectors entitled to incentives are the same as any newly established enterprises from new investment projects.

Thirdly, there is no specific tax policy for investors investing in start-up businesses when transferring capital. Tax policy stipulates tax for each capital transfer, each sale of securities for investing in any enterprise then transferring capital. Investing in innovative startups carries a high level of risk, as the transfer of capital may result in returns from a number of deals, but may result in losses in many other investments. Tax policy has not yet been set to allow investors to offset losses from investing in some start-ups with profits from investing in some other start-ups. This has a certain effect on attracting foreign investment capital into start-up businesses.

The regulations on personal income tax for individual investors investing in start-up businesses have not received any incentives yet they still provide general regulations for individuals earning income.

Fourthly, specific policies and mechanisms for new Incubators are in the pilot application stage, applied to Vietnam-Korea Industrial Technology Incubator in Can Tho City, which have not been widely applied to all Incubators in general.

3. SOME RECOMMENDATIONS

Firstly, tax incentives for innovative start-up businesses and innovative start-up individuals are much higher than for other businesses. Specifically:

- Applying a CIT rate for innovative start-ups lower than other small and medium-sized businesses. In Vietnam, in the coming time, while the general corporate income tax rate is 20%, the corporate income tax rate for innovative startups should be 15%.

- Allow innovative start-ups businesses and innovative start-up individuals to be exempt from income tax during the first 5 years of operation.

The application of lower corporate income tax rates to innovative startups, the income tax exemption for a period of start-up activities may have the following effects:

- Positive impact:

- + Contributing to support innovative and creative start-up businesses, creating conditions for them to accumulate capital to develop production and business, improve the competitiveness of businesses, which is the premise help startups innovate and develop.

+ Creating motivation to set up more and more innovative and creative start-up businesses. Because when the corporate income tax rate decreases, the after-tax profit of startups increases, helping businesses increase capital accumulation, thereby increasing investment. When reducing the CIT rate, extending the tax exemption and reduction period, it will be an incentive to realize creative ideas and encourage the establishment of more and more startups.

- Negative impact: The reduction of general corporate income tax rates and the extension of the period of exemption and reduction of CIT for innovative and creative start-up businesses, in the short term, will reduce the collection of corporate income tax, leading to the reduction of general state budget revenue, this also has adversely affecting the implementation of state budget spending commitments. However, the reduction in revenue from startups support will probably be offset by indirect taxes and other budget revenues, as once the development of start-up businesses is able to spend more. Moreover, in the long term, as the development of new start-up businesses develops, they will contribute to the increase in income from the CIT in the next period due to the fact that startups have resources to reinvest and develop production and business.

Secondly, tax incentives for investors investing in innovative startups: should study the plan to allow investors to be exempt from income tax from capital transfer at startup businesses, in case the startup businesses have not had taxable profits yet, extending the period of carrying forward losses of 7 years from the year following the year when losses arise. In addition, it is advisable to study the plan to allow investors to offset losses from investing in start-up projects with other investment projects.

- Positive impact:

+ The characteristics of innovative and creative start-up activities are highly risky, the possibility of profitability is uncertain, and there are also many non-profit startup businesses in the first years of operation. Limiting the period of 5 years of loss transfer will cause certain difficulties for startup businesses and make investments in startup businesses unattractive. The amendment of the CIT Law, which stipulates that allowing a startup business to carry forward losses up to 7 years of loss transfer, instead of the current 5-year loss transfer period, will have a positive impact on ensuring maximum support for the startup businesses.

+ An investor may invest in several innovative and creative startup projects and some of them may only have a few profitable operations, and there may be many large losses. An investor can not only invest in creative startup projects and may also invest in other investment projects at the same time. If it is not allowed to offset the losses from investing in start-up projects with other projects, it will not work to attract investment. Amending the Law on Corporate Income Tax, which allows the clearing of losses of investment projects for start-ups with other projects will reduce the risks for investors, encourage investors to invest capital in startup businesses.

- Negative impact: The prolongation of the time of loss transfer, the permission to offset losses of investment projects for start-up with other projects, may affect the reduction of state budget revenues. Moreover, the prolongation of the time of loss transfer can be taken advantage of, may create a dependence mentality of startup businesses that rely on the support of the State, do not try to rise up to operate more effectively, not only exit losses but also be profitable.

Thirdly, stipulate personal income tax exemption for income that individuals receive from research and development (R&D) activities in innovative and creative start-ups.

- The positive effect: The personal income tax exemption will work to create an incentive for individuals to carry out innovative research, thereby contributing to improving the operational efficiency of these startup businesses.

- Negative impact: does not guarantee the fairness of tax obligations among individuals who receive income from various activities. In addition, the negative impact is to reduce the state budget revenue.

Fourthly, supplement the regulation that innovative and creative startup entrepreneurs are entitled to a 50% reduction of payable personal income tax, equal to the personal income tax incentives for high-tech human resources working in Information technology field according to the Government's Resolution 41 in 2016.

- Positive impact: Encouraging individuals to start a business.

- Negative impact: does not guarantee the fairness of tax obligations among individuals who receive income from various activities. In addition, the negative impact is to reduce the state budget revenue.

Fifthly, supplement the tax exemption policy for income from surplus capital, transfer of capital, transfer of right to contribute capital, at innovative and creative start-up businesses, in the case when the business has not yet started taxable profits. Applicable to investors, especially angel investors in the fields of encouraging development such as information technology, nano technology... because of the main driving force, leading the economy during the Industrial Revolution 4.0.

- Positive impact: Allowing the above-mentioned incomes to be exempted from tax will have the effect of encouraging investment in innovative and creative start-up businesses, especially important enterprises, having a leading role in the economy. The increase in investment in these businesses will create the foundation for these businesses to survive and develop, thereby creating momentum for the entire economy to develop.

- Negative impact: in the short term, tax exemption will reduce state budget revenue.

Sixthly, simplify tax administrative procedures. Let tax incentives give real meaning to entrepreneurship, besides the amendment of tax policy, it is necessary to simplify the procedures and conditions so that the incentives for start-up activities actually have practical effects. Tax authorities also need to strengthen more to guide businesses to implement tax procedures to make it more convenient for businesses.

REFERENCES

1. Dan Senor and Saul Singer (2013), *Start-up Nation, The Story of Israel's Economic Miracle* World Publishing House.
2. Decision 1193/QĐ-TTg on piloting a number of specific mechanisms and policies for the development of Vietnam-Korea Industrial Technology Incubator in Can Tho City Decree No. 39/2018 / ND - CP dated March 11, 2018 detailing the SME Support Law.

3. Donald Marron and Joseph Rosenberg (March 9, 2015), *How much do taxes affect startup investment incentives*, Tax Policy Center (TPC), Urban Institute & Brookings Institution
4. Circular 214/2015/TT-BTC dated 31/12/2015 Guiding preferential mechanisms and policies on state budget support, tax and development investment credit of the State according to Prescribed in the Decision 1193 / QD-TTg of the Prime Minister on piloting a number of specific mechanisms and policies for the development of Vietnam-Korea Industrial Technology Incubator in Can ThoCity
5. Le Minh Huong (2017), *Tax policy for startup: international experience and recommendation for Vietnam*.
6. Nguyen Viet Loi (2016), *Support for Startup businesses from financial policy*, Institute of Strategy and Financial Policy.
7. Corporate income tax Law.
8. Investment Law 2014.
9. Law supporting SMEs 2017.
10. Personal income tax Law.
11. VCCI (2017), Research Report “*Mechanism supporting innovative start-ups - International experience - proposing solutions for Vietnam*.”
12. University of Economics-Hanoi National University (2018), *Attracting foreign business angels’ investment for startup development in host countries: International experience and implications for Vietnam*, International conference.

THE IMPACT OF INFORMATION DISCLOSURE ON FINANCIAL RISK: CASE STUDY IN LISTED CONSTRUCTION FIRMS IN VIETNAM'S STOCK MARKET

Diem Thi Thanh Hai*, Nguyen Ha My**, Nguyen Thi Anh Thi**, Bui Minh Trang**

ABSTRACT

This article presents the status of information disclosure and financial risk situation in listed companies in construction industry in Vietnam. With that viewpoint in mind, the researchers investigate the relationship between the amount of information disclosed with financial risks that such companies may face by studying thoroughly the impacts of the amount of financial information (FI) and non-financial information (NFI) on the quick ratio (QR). The results show that: the more information is published, the more effective the quick solvency of enterprises will be, which contributes in reducing financial risks. On that basis, the authors propose solutions to advance the information disclosure activities on Vietnam's stock market.

Keywords: Information disclosure, financial risk, liquidity risk, listed companies, construction industry

1. INTRODUCTION

Information disclosure is commonly believed to contribute to information transparency, thereby reducing financial risks. However, this is still a contentious issue. On a global scale, this field has not witnessed much professional and in-depth contribution. Study of Truong H. Trinh, Thai T. T. Duyen and Nguyen T. Thao (2015) – “*The Impact of Corporate Governance on Financial Risk in Vietnamese Commercial Banks*”. International Journal of Economics and Finance, Vol.7, No.7) indicates directly that businesses with excellent corporate governance and risk management capability will publish more information than poorly managed ones. Information disclosure is mainly considered in relation to the cost of capital - Wang (1993); Akins, Ng, & Verdi (2012); Armstrong, Core, Taylor & Verrecchia (2009) or in correlation to the company's market value as research by Qiu (2016).

By studying the relationship between the information disclosure and corporate financial risks with the case study involved in listed companies in construction sector in Vietnam, we would like to contribute a piece of research on the theme and discuss about related current issues in an emerging market like Vietnam. We selected the data in the listed construction joint stock companies in

* Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: diemthanhhai@hvtc.edu.vn.

** Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam.

Vietnam since this is a market-sensitive industry with large-scale enterprises, favorable information transparency and strict compliance with law on information disclosure. In addition, such firms are now facing financial risks, including market risks (42.4% of total enterprises), credit risks (30.3% of total enterprises) and liquidity risks (27.2% of total enterprises). Since then, the authors decide to do a research on the relationship between information disclosure and financial risks, specifically liquidity risk, in order to assess the direction and extent of the impact of information disclosure on financial risks of listed Vietnamese construction companies.

The structure of our study included into 4 following sections: Introduction, Data and methodology, Findings and discussion, Conclusion

2. DATA AND METHODOLOGY

2.1. Theoretical basis

2.1.1. Definition of Information disclosure on stock market

Information disclosure is one of the basic principles in the operations of the stock market. Information disclosure is understood as informing the public of all information related to the operation of securities issuing organizations, listed organizations, public companies, ... and information about the market situation.

2.1.2. Definition of financial risks

- Risk: is a random (measurable) event that appears as an actual result which is not the same as expected (planned) result.

- Financial risk: is the type of risk stemming from the capital structure and changes in prices, interest rates, exchange rates that make changes in profitability rates during the operation of enterprises.

2.1.3. The theory of Information disclosure

- Representative theory:

This is the theory developed by Jensen and Meckling in a 1976 publication, studying about the relationship between the authorizing party and the authorized party. Information asymmetry is emphasized in this theory, whereby agency costs and information asymmetry arise due to the separation between ownership (investors) and control (manager). According to this theory, firm size, financial leverage, profitability, listing issues and management structure affect the level of information disclosure of businesses.

- + Managers and shareholders' relationship: The solutions to reduce authorization costs is encouraging managers to maximize the company's market value and maximize company profits through contracts between shareholders and managers. Most of these bonus schemes are based on accounting numbers, therefore, managers will seek to impact the financial statements through the application of accounting policies to achieve the personal benefits.

- + Shareholder and creditor relations' relationship: In order to reduce authorization costs, creditors may include limited terms such as: controlling dividends, controlling investment activities,

requesting information for contracts. supervise the situation of business activities. The use of such restrictive provisions must be based on the enterprise's accounting data. Therefore, managers will find ways to apply accounting policies when preparing financial statements, which are most beneficial to businesses if the enterprises are close to violating loan contracts.

Representative theory states that conflict will arise when there is incomplete and asymmetric information between the subject and the representative in the company. Both parties have different interests and this problem is mitigated by using appropriate mechanisms to minimize the divergence of interests between shareholders and managers, through implementing appropriate remuneration for managers, and establishing effective monitoring mechanism to limit the abnormal behavior or self-interest of the company manager.

- Signal theory:

Signal theory describes the behavior of a party which holds information and announce its signals to the market and the other party using that information. This theory shows that companies with higher profitability tend to disclose more information.

- Political costs theory:

This theory was first introduced by Watts and Zimmerman in 1978. Its content is: Big businesses will have greater political costs than small businesses, companies will disclose more information to reduce this type of costs. The study argues that the importance of political costs depends heavily on firm size. Firm size is a proxy for political attention. The theory states that managers can make decisions that affect the interests of the company based on the information published by the company. According to Lang and Lundholm (1993), a large amount of information disclosure will increase profitability, thus avoiding liability as well as a justification for the level of profitability of the company. Political costs and the competitive environment also affect the level of profit management, the relationship between political costs and the level of profit management in information disclosure has been presented through studies of Cooke, TE, (1989), Dumontier, P., and B. Raffournier (1998), Inchausti, BG (1997).

- Capital needs theory:

Companies aim to attract external financing to increase their capital, either by debt or equity. The theory of capital needs shows that increasing the level of disclosure helps to achieve the company's need for low-cost capital mobilization (Choi, 1973). The relationship between the level of disclosure and the cost of capital is thought to be positive; the higher of the level disclosure, the lower the cost of capital. However, as Botosan (2006) emphasized, "another line of research indicates that certain types of information published may have the opposite effect".

- Cost of ownership theory:

The theory of cost of ownership shows that the reason is considered the biggest barrier affecting the disclosure of information of enterprises: that is the position in competition of enterprises. Small-scale enterprises, if disclosing a large amount of information or publishing more information, will adversely affect their competitive advantage in the market.

- Information economic theory:

This theory has been applied since the 1970s, to assess the extent to which financial markets as well as other institutions process and communicate information (Stiglitz, 2008). This theory was formed on the basis of three classic studies by Akerlof (1970), Spence (1973), and Rothschild and Stiliglitz (1976). The information economics theory is very suitable for application in empirical studies on voluntary information disclosure because it explains the phenomenon of voluntary information processing enterprises to reduce information asymmetry between managers and owners. In addition, it reduces the costs of stock trading transactions, minimizes the estimated risks (in terms of profit and cash flow) of investors, thereby reducing capital costs (Diamond & Verrechia, 1991; Botosan). 1997; Healy & Palepu, 2001). Furthermore, although voluntary information disclosure is basically intended to reduce information asymmetry arising from management representation for owners, the disclosure of this information always faces a cost barrier. (Meek, Roberts & gray, 1995; Depoers, 2000; Shi, Magnan & Kim, 2002). As such, it is reasonable to assume that firms only provide optional information, if the benefits outweigh the costs associated with the disclosure of such information (Hayes & Lundholm, 1996; Shi et al., 2012).

2.2. Data and methodology

The study involved 74 listed companies in Vietnam construction industry in 7 years from 2011-2017, which went through 3 periods of economic changes. We assessed the level of firm’s risk in relationship with information disclosure through the correlation regression method and necessary tests.

The financial statement data of the enterprise is collected from the website Cafef.vn; Cophieu68.vn; Vietstock.vn and the homepage of businesses. The industry averages are aggregated based on the financial figures of 74 companies in the sample and based on specific grouping criteria. In addition, a combination of traditional methods is taken into this research, such as: statistical analysis, comparison, synthesis,... on the basis of dialectical materialism and historical materialism so as to examine, assess and solve problems raised in this study.

❖ *Variables used in the model*

Table 1: Variables used in the model

Variable types	Name of Variable	Data types	Unit
Dependent variable	Quick ratio (QR)	Decimal	Times
Independent variables	The amount of financial information (FI) and non-financial information (NFI) published every year	Decimal	Items
	Total assets (TA)	Decimal	Million VND
	Debt/Equity ratio (D/E)	Decimal	Times
	Earnings before interest and taxes/Total assets ratio (EBIT/TA)	Decimal	Times
	Effectiveness of assets use efficiency (EAU) (Total Income/Total Assets)	Decimal	Times

❖ *Baseline model*

$$QR = \beta_0 + \beta_1 FI + \beta_2 NFI + \beta_3 \ln(TA) + \beta_4 DE + \beta_5 EBITTA + \beta_6 EAU + e_{it}$$

The researchers performed logarithm of Total asset (TA) and created the variable SIZE = $\ln(TA)$ to have a consistency because the unit of this variable is million, while the unit of other independent variables is times.

Then, we have:

Model 1:

$$QR = \beta_0 + \beta_1 FI + \beta_2 NFI + \beta_3 SIZE + \beta_4 DE + \beta_5 EBITTA + \beta_6 EAU + e_{it}$$

(e_{it} : error with standard normal distribution, varies with i and t).

Descriptive statistics and correlation matrix between variables**- Descriptive statistics**

Table 2: Variables descriptive statistics in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
QR	518	.9085328	.8308155	.04	8.89
SIZE	518	13.03014	1.410354	9.547384	17.22086
FI	518	18.16216	17.98142	1	121
NFI	518	9.202703	7.055146	1	48
EBITTA	518	.0915785	.1711678	-.6855368	1.781674
EAU	518	1.221576	1.298211	.001967	15.1843
DE	518	1.723038	11.64371	-154.6166	90.02447

Source: Results of running Stata Software

Table 3: Correlation matrix between variables

	FI	NFI	EBITTA	EAU	DE	SIZE
FI	1.0000					
NFI	0.2056 0.0000	1.0000				
EBITTA	0.1090 0.0131	0.0696 0.1136	1.0000			
EAU	-0.1098 0.0124	-0.0405 0.3572	0.5773 0.0000	1.0000		
DE	0.0300 0.4956	0.0178 0.6864	0.0039 0.9292	-0.0032 0.9414	1.0000	
SIZE	0.4922 0.0000	0.2186 0.0000	-0.0568 0.1966	-0.2655 0.0000	0.1097 0.0125	1.0000

Source: Results of running Stata Software

The correlation coefficient among variables in the model is determined to predict the direction of the impact. As the table above, the variables are correlated with each other at the 1% significance

level as variables NFI and FI, variables SIZE and FI; variables SIZE and NFI; SIZE and EAU. However, the correlation level is not strong, the correlation coefficient among variables is less than 0.6 and this level is acceptable. Therefore, multi-collinearity is less likely to occur when performing regression models.

3. FINDINGS AND DISCUSSION

The legal framework for information disclosure on Vietnamese stock market, which all enterprises must follow, is close and progressive to that one in the world. However, for mandatory disclosure, according to the survey of the actual quality of the administration of periodic information disclosure of listed construction companies in Vietnamese stock market, we discover the following issues: The content of information on financial statements must be disclosed in accordance with regulations is still incomplete; the truthfulness of published information has not been ensured - there is a significant difference of financial data before and after auditing together with the announcement of ignorance and even failure to publish extraordinary information; several companies have not yet implemented information disclosure timely. For voluntary information disclosure, those firms have announced very little. Only 5-10 out of 30 businesses issue voluntary information, but only 3-5 news per year, accounting for only 1-2% of the total amount of information published by enterprises. Besides, voluntary quality of information disclosure is quite low.

Current financial risk situation

Financial risks consist of market risk (including exchange rate risk, interest rate risk and price risk), credit risk and liquidity risk. According to the survey results on the rate of financial risks collected from the annual report of listed companies in construction industry, we found that market risk is the issue that most enterprises have to deal with. Indeed, since the construction industry is directly affected by changes in the financial market and the macroeconomic situation, the unfavorable fluctuations of the economy may lead to a decline in liquidity capability of the market as well as adversely affect the selling price of projects' products. In addition, such companies have to face credit risks - as the partners do not meet the repayment obligations in the contract, causing financial losses for the company, and liquidity risk - as many businesses have lots of receivables, leading to capital backlog and payment difficulty.

Estimating and testing models

Pre-adjustment model according to fixed effect regression - FEM

Table 4: Result of running re-adjustment model according to fixed effects regression – FEM

QR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+						
SIZE	-.323529	.0881032	-3.67	0.000	-.4966867	-.1503714
FI	.0025808	.0026796	0.96	0.336	-.0026856	.0078472
NFI	.004836	.004756	1.02	0.310	-.0045114	.0141834
EBITTA	.2708136	.2866531	0.94	0.345	-.292573	.8342001
EAU	-.0068899	.0447608	-0.15	0.878	-.0948625	.0810827
DE	-.001246	.0021028	-0.59	0.554	-.0053788	.0028869
_cons	5.018547	1.157566	4.34	0.000	2.743472	7.293621
-----+						
sigma_u	.72390047					
sigma_e	.50106293					
rho	.67608647	(fraction of variance due to u_i)				

F test that all u_i=0:		F(73, 438) =	11.96	Prob > F = 0.0000		

Source: Results of running Stata Software

- Re-adjustment model according to random effects regression – REM

Table 5: Result of running re-adjustment model according to random effects regression – REM

QR	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
SIZE	-.1898092	.0515398	-3.68	0.000	-.2908254	-.088793
FI	.0041396	.0024446	1.69	0.090	-.0006517	.0089309
NFI	.0039306	.0045503	0.86	0.388	-.0049879	.0128491
EBITTA	.1316494	.2615329	0.50	0.615	-.3809457	.6442446
EAU	.0253332	.0379002	0.67	0.504	-.0489498	.0996162
DE	-.0011577	.0020882	-0.55	0.579	-.0052505	.0029352
_cons	3.229408	.6764856	4.77	0.000	1.903521	4.555296
-----+-----						
sigma_u	.64533661					
sigma_e	.50106293					
rho	.62388725	(fraction of variance due to u_i)				

Source: Results of running Stata Software

- Hausman test to choose the model

$$\begin{aligned}\chi^2(6) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 8.58\end{aligned}$$

$$\text{Prob} > \chi^2 = 0.1989$$

Source: Results of running Stata Software

Because $p\text{-value} > 0.05$, the researchers conclude that there is no difference between the FEM fixed effects model and the REM random effects model statistically. This result also shows that the errors are not correlated with the independent variables in the model and using the random effects model (REM) will be more effective.

- Test for the model specifications
- Test for the presence of multicollinearity

Table 6: Testing for the presence of multicollinearity

Variable	VIF	1/VIF
-----+-----		
EAU	1.65	0.607251
EBITTA	1.58	0.633037
SIZE	1.45	0.690093
FI	1.38	0.725693
NFI	1.07	0.934463
DE	1.01	0.986427
-----+-----		
Mean VIF	1.36	

Source: Results of running Stata Software

The test shows the variance inflation factor (VIF) of all variables are lower than 10, which means there is no presence of multicollinearity in the model.

- + Test for the presence of heteroscedasticity

Table 7: Test for the presence of heteroscedasticity in model REM

Breusch and Pagan Lagrangian multiplier test for random effects

$$QR[Firm1,t] = Xb + u[Firm1] + e[Firm1,t]$$

Estimated results:

	Var	sd = sqrt(Var)
-----+-----		
QR	.6902543	.8308155
e	.2510641	.5010629
u	.4164593	.6453366

Test: $Var(u) = 0$

$$\begin{aligned} \text{chibar2}(01) &= 549.57 \\ \text{Prob} > \text{chibar2} &= 0.0000 \end{aligned}$$

Source: Results of running Stata Software

The command `xtest0` was in use to test for the presence of heteroscedasticity. The result table indicates P-value is lower than 0.05, which means heteroscedasticity is detected in the model.

+ Test for the presence of autocorrelation

Table 8: Test for the presence of autocorrelation

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

$F(1,73) = 24.770$

Prob > F = 0.0000

Source: Results of running Stata Software

The test shows the P-value is lower than 0.05, which means there is presence of autocorrelation in the model.

- Model after adjustment

The research team use robust standard error method to fix specifications in the model.

Table 9: Random effects model after adjustment

	Robust						
QR	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]		
FI	.0041396	.0018382	2.25	0.024	.0005368	.0077424	
NFI	.0039306	.0041468	0.95	0.343	-.004197	.0120582	
SIZE	-.1898092	.0612834	-3.10	0.002	-.3099225	-.0696959	
DE	-.0011577	.0012282	-0.94	0.346	-.0035648	.0012495	
EBITTA	.1316494	.3089664	0.43	0.670	-.4739136	.7372124	
EAU	.0253332	.0571113	0.44	0.657	-.0866029	.1372693	
_cons	3.229408	.8290564	3.90	0.000	1.604487	4.854329	
sigma_u	.64533661						
sigma_e	.50106293						
rho	.62388725 (fraction of variance due to u_i)						

Source: Results of running Stata Software

From the results of the selected model, it is possible to conclude the impact of factors on the quick ratio of construction enterprises as follows:

Based on the results of the table above, it can be seen that the variables which are statistically significant and have an impact on the ability to Quickly QR payment, are the amount of financial information published - FI (significance level of 1%) and the Total assets has been logged, which is symbolized as SIZE. The impact of these two margins on the quick ratio of construction enterprises is as follows:

- The amount of published financial information (FI) has a positive relationship with the quick ratio of construction enterprises (significant level of 1%). The impact of the amount of financial information published - FI on quick ratio can be stated as follows: This ratio will increase by 0.0041396 units in the condition of the amount of financial information published increased by 1 unit.

- The total assets of the enterprise have a negative relationship with the enterprise's quick ratio (significance level of 1%). This means that when the total assets increase by 1%, the QR decreases = 0.0019 units.

Analysis results for baseline model 2

The researchers perform logarithm of 3 variables: Total Assets (TA), the amount of financial information published (FI) and the amount of non-financial information published (NFI).

$$QR = \beta_0 + \beta_1 \ln FI + \beta_2 \ln NFI + \beta_3 \ln TA + \beta_4 DE + \beta_5 EBITTA + \beta_6 EAU + e_{it}$$

In which:

- SIZE = $\ln(TA)$

- FID = $\ln(FI)$

- NFID = $\ln(NFI)$

Then, we have:

Baseline Model 2:

$$QR = \beta_0 + \beta_1 FID + \beta_2 NFID + \beta_3 SIZE + \beta_4 DE + \beta_5 EBITTA + \beta_6 EAU + e_{it}$$

(e_{it} : error with standard normal distribution, varies with i and t).

Descriptive statistics and correlation matrix between variables

From the above tables (Table 2,3), it can be seen that the quick ratio (QR) of listed construction companies in the period of 2011 - 2017 has an average value of 0.9085328, a min value of 0.04 and a maximum of 8.89 units. For the independent variables, the amount of financial information published after being logged has an average of 2,536881 units. The average number of non-financial information after being logged is 1.974462 units. In particular, the value of min in both variables is 0, this shows that some businesses only publish 1 financial / non-financial information a year. Besides, the debt to equity ratio (D/E) has an average value of 1.723038; the SIZE variable has an average of 13,03014 units; the EBITTA and EAU variables, respectively, have average values of 0.0915785 and 1.221576 units.

- Correlation matrix between variables

Table 10: Correlation matrix between variables

	EBITTA	EAU	DE	SIZE	NFID	FID
EBITTA	1.0000					
EAU	0.5773	1.0000				
DE	0.0039	-0.0032	1.0000			
SIZE	-0.0568	-0.2655	0.1097	1.0000		
NFID	0.0743	-0.0262	-0.0053	0.2119	1.0000	
FID	0.0912	0.5518	0.9036	0.0000		1.0000

Source: Results of running Stata Software

As the table above shows, the variables which are correlated with each other at the 1% significance level are variables EAU and EBITTA, variables SIZE and EAU; variables SIZE and NFID; variables SIZE and FID. However, the correlation level is not strong, the correlation coefficient between variables is less than 0.6 and this level is acceptable. Therefore, multi-collinearity is less likely to occur when performing regression models.

- Estimating and testing models

- Pre-adjustment model according to fixed effect regression – FE

Table 11: Result of running re-adjustment model according to fixed effects regression – FEM

QR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
FID	.024034	.0457642	0.53	0.600	-.0659107 .1139787
NFID	.0468049	.0446675	1.05	0.295	-.0409844 .1345943
SIZE	-.30274	.0853167	-3.55	0.000	-.4704209 -.135059
EBITTA	.2635187	.2868415	0.92	0.359	-.3002381 .8272754
EAU	-.0009519	.0445456	-0.02	0.983	-.0885016 .0865977
DE	-.0011754	.0021075	-0.56	0.577	-.0053174 .0029667
_cons	4.678945	1.126782	4.15	0.000	2.464375 6.893516
sigma_u	.72186579				
sigma_e	.50153268				
rho	.6744411				(fraction of variance due to u_i)
F test that all u_i=0: F(73, 438) = 12.08 Prob > F = 0.0000					

Source: Results of running Stata Software

- Re-adjustment model according to random effects regression - REM

Table 12: Result of running re-adjustment model according to random effects regression – REM

QR	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
FID	.055105	.0434139	1.27	0.204	-.0299847	.1401947
NFID	.0443364	.0431178	1.03	0.304	-.0401729	.1288456
SIZE	-.1737864	.0497852	-3.49	0.000	-.2713636	-.0762092
EBITTA	.1314507	.2618988	0.50	0.616	-.3818615	.6447629
EAU	.0296676	.037897	0.78	0.434	-.0446092	.1039444
DE	-.001057	.0020931	-0.50	0.614	-.0051593	.0030454
_cons	2.8992	.6527975	4.44	0.000	1.61974	4.178659
-----+-----						
sigma_u	.64592791					
sigma_e	.50153268					
rho	.6238773	(fraction of variance due to u_i)				

Source: Results of running Stata Software

- Hausman test to choose the model

$$\begin{aligned} \text{chi2}(6) &= (b-B)'[(V_b-V_B)^{-1}](b-B) \\ &= 8.83 \\ \text{Prob}>\text{chi2} &= 0.1831 \end{aligned}$$

Source: Results of running Stata Software

Because p-value> 0.05, the researchers conclude that there is no difference between the FEM fixed effects model and the REM random effects model statistically. This result also shows that the errors are not correlated with the independent variables in the model and using the random effects model (REM) will be more effective.

After making necessary defect tests, the researchers found that the model suffered from heteroscedasticity and autocorrelation. After implement of the adjusting model, only the SIZE variable is statistically significant and affects the Quick ratio (QR) as follows: Negative relationship with this ratio of the enterprise (significant level of 1%). This means that when the total assets increase by 1%, the QR decreases = 0.00174 units.

Analytical results for baseline model 3:

The researchers perform logarithm of 3 variables: Total Assets (TA), Financial information published (FI), Non-financial information published (NFI) and use log model.

$$QR = \beta_0 + \beta_1 \ln FI + \beta_2 \ln NFI + \beta_3 \ln TA + \beta_4 DE + \beta_5 EBITTA + \beta_6 EAU + \beta_7 \ln^2 FI + \beta_8 \ln^2 NFI + e_{it}$$

To facilitate the process of running the model and analyzing of the results, we create new variables with the corresponding formula.

In which:

- SIZE = $\ln(\text{TA})$

- FID = $\ln(\text{FI})$

- NFID = $\ln(\text{NFI})$

- FIDS = $\ln^2\text{FI}$

- NFIDS = $\ln^2\text{NFI}$

- Then, we have:

Baseline Model 3:

$$\text{QR} = \beta_0 + \beta_1 \text{ FID} + \beta_2 \text{ NFID} + \beta_3 \text{ SIZE} + \beta_4 \text{ DE} + \beta_5 \text{ EBITTA} + \beta_6 \text{ EAU} + \beta_7 \text{ FIDS} + \beta_8 \text{ NFIDS} + e_{it}$$

(e_{it} : error with standard normal distribution, varies with i and t).

Descriptive statistics and correlation matrix between variables

- Descriptive statistics

Table 13: Variables descriptive statistics in the model

Variable	Obs	Mean	Std. Dev.	Min	Max
-----+					
QR	518	.9085328	.8308155	.04	8.89
NFID	518	1.974462	.7117364	0	3.871201
FID	518	2.536881	.8541823	0	4.795791
NFIDS	518	4.404089	2.829605	0	14.9862
FIDS	518	7.163985	4.453986	0	22.99961
-----+					
SIZE	518	13.03014	1.410354	9.547384	17.22086
EBITTA	518	.0915785	.1711678	-.6855368	1.781674
EAU	518	1.221576	1.298211	.001967	15.1843
DE	518	1.723038	11.64371	-154.6166	90.02447

Source: Results of running Stata Software

Table 14 : Correlation matrix between variables

	EBITTA	EAU	DE	FID	NFID	SIZE	FIDS
EBITTA	1.0000						
EAU	0.5773	1.0000					
DE	0.0039	-0.0032	1.0000				
FID	0.1793	-0.0900	0.0380	1.0000			
NFID	0.0743	-0.0262	-0.0053	0.1995	1.0000		
SIZE	-0.0568	-0.2655	0.1097	0.4490	0.2119	1.0000	
FIDS	0.1604	-0.1025	0.0397	0.9739	0.2190	0.4843	1.0000
NFIDS	0.0810	-0.0341	0.0091	0.1928	0.9650	0.2313	0.2178

Source: Results of running Stata Software

- Estimating and testing models

- Pre-adjustment model according to fixed effect regression - FEM

Table 15: Result of running re-adjustment model according to fixed effects regression - FEM

QR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
NFID	-.0128279	.139078	-0.09	0.927	-.2861747 .2605188
FID	-.0978773	.1656287	-0.59	0.555	-.4234072 .2276525
NFIDS	.0159503	.036737	0.43	0.664	-.0562534 .088154
FIDS	.0263577	.0347431	0.76	0.448	-.0419271 .0946425
SIZE	-.318093	.0873355	-3.64	0.000	-.489744 -.1464419
EBITTA	.2570432	.2875506	0.89	0.372	-.3081146 .8222009
EAU	-.0039128	.0447261	-0.09	0.930	-.0918184 .0839928
DE	-.001281	.0021139	-0.61	0.545	-.0054357 .0028736
_cons	5.051334	1.203696	4.20	0.000	2.685566 7.417102
sigma_u	.72312137				
sigma_e	.50220983				
rho	.67461172	(fraction of variance due to u_i)			
F test that all u_i=0: F(73, 436) = 11.87 Prob > F = 0.0000					

Source: Results of running Stata Software

- Re-adjustment model according to random effects regression – REM

Table 16: Result of running re-adjustment model according to random effects regression – REM

QR	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
NFID	.0158464	.1371122	0.12	0.908	-.2528885	.2845813
FID	-.106736	.1578908	-0.68	0.499	-.4161963	.2027243
NFIDS	.0069621	.0359746	0.19	0.847	-.0635468	.077471
FIDS	.0347718	.0327588	1.06	0.288	-.0294344	.0989779
SIZE	-.1862809	.0511619	-3.64	0.000	-.2865563	-.0860054
EBITTA	.1191276	.262429	0.45	0.650	-.3952238	.633479
EAU	.0283315	.0379638	0.75	0.455	-.0460761	.1027391
DE	-.0011762	.0020961	-0.56	0.575	-.0052845	.0029321
_cons	3.252029	.7300988	4.45	0.000	1.821061	4.682996
-----+-----						
sigma_u	.65070508					
sigma_e	.50220983					
rho	.62669799	(fraction of variance due to u_i)				

Source: Results of running Stata Software

Because p-value > 0.05, the researchers conclude that using the random effects model (REM) will be more effective.

After making necessary defect tests, the researchers found that the model suffered from multicollinearity, heteroscedasticity and autocorrelation. After implement of the adjusting model, only Total Assets has negative relationship with this ratio of the enterprise (significant level of 5%).

4. CONCLUSION

The research investigates the impact of the amount of financial accounting information published to financial risks of listed companies in construction industry on Vietnam's stock market. Research data includes 74 listed companies in the construction industry of Vietnam's stock market in the period 2011-2017. The thesis analyzed the influence of the amount of financial information and non-financial information (FI and NFI) that listed companies disclose each year on quick ratio, which represents firm's financial risks.

The impact of the amount of financial and non-financial information published on the quick ratio (representing financial risk in the listed construction companies) presented in the three models above shows that the amount of financial information published has a positive relationship with the quick ratio of the enterprise, or in other words, this type of information has an opposite relationship with the financial risks that businesses face. In terms of the amount of non-financial information, in all three models, the amount of this one is not statistically significant with the dependent variable – quick ratio. It is because the amount of this type of information are still very modest and limited, it is not possible to conclude about the relationship between information types and financial risks, requiring more studies with larger and more in-depth samples to draw appropriate results.

As conclusion from this research, we do believe that enterprises and related entities should have a good sense of compliance with the regulations on information disclosure, enhancing voluntary information and extraordinary information disclosure, actively implement and monitor information disclosure procedures, improving internal audit and independent auditing activities. In the next context that all listed companies must apply IFRS principles after 2025, information disclosure may produce a higher level of transparency in stock markets in Vietnam and improve the control of firms' financial risks.

REFERENCES

1. Abderrahim Boussanni, Jean Desrochers and Jacques Préfontaine (2008), Liquidity Risk Financial Disclosure: The Case of Large European Financial Groups, *International Business & Economics Research Journal – July 2008*, Vol. 7, No. 7.
2. Albitar, K., (2015). Firm characteristics, governance attributes and corporate voluntary disclosure: A study of Jordanian listed companies, *International Business Research*, Vol. 8, No. 3.
3. Arsalan Chamangard Khoram Abadil, Mohammad Hassan Janani (2013), The role of disclosure quality in financial reporting, *European Online Journal of Natural and Social Sciences 2013*, Vol. 2, No. 3.
4. Aymen Ajina, Danielle Sougne, Faten Lakhali (2015), Corporate Disclosures, Information Asymmetry and Stock-Market Liquidity in France, *The Journal of Applied Business Research – July/August 2015*, Vol. 31, No. 4.
5. Benjamin E. Hermalin and Michael S. Weisbach (2012), Information Disclosure and Corporate Governance, *The Journal of Finance: The Journal of The American Finance Association – February 2012*, Vol. 67, No.1.
6. Domadar N. Gujarati. (2011). *Econometrics by example*, Macmillan Publisher.
7. Douglas W. Diamond and Robert E. Verrecchia (1991), Disclosure, liquidity, and the cost of capital, *The Journal of Finance - September 1991*, Vol. 97, No. 4.
8. Dung Viet Nguyen and Lan Thi Ngoc Nguyen (2017), Impact of Corporate Disclosure on Cost Equity Capital in Vietnam, *International Journal of Financial Research*, Vol. 8, No.4.
9. Karim, A. K. M. W., (1996), The association between corporate attributes and the extent of corporate disclosure, *Journal of Business Studies*, Vol. 17, No.2.
10. La Soa Nguyen and Manh Dung Tran. (2019). Disclosure levels of environment accounting information and financial performance: The case of Vietnam, *Management Science Letters*, Vol. 9.
11. Luis Rayo and Ilya Segal (2010), Optimal Information Disclosure, *Journal of Political Economy – October 2010*, Vol.18, No. 5.
12. Mónica Espinosa, Mikel Tapia, and Marco Trombetta (2005), Disclosure and liquidity, *Working Paper 05-02, Business Economics Series - January 2005*.
13. Peter F. Christoffersen (2012), *Elements of financial risk management - Second edition*, Elsevier Science Publisher.
14. Trinh H. Truong, Duyen T. T. Thai and Thao T. Nguyen (2015), The Impact of Corporate Governance on Financial Risk in Vietnamese Commercial Banks, *International Journal of Economics and Finance*, Vol.7, No.7.
15. Yosha, Oved. (1995). Information Disclosure Costs and the Choice of Financing Source, *Journal of Financial Intermediation - January 1995*, Vol. 4, No. 1.

THE IMPACT OF THE GLOBAL FINANCIAL CRISIS ON BANK PROFITABILITY: EVIDENCE FROM VIETNAM

Ha Van Dung*, Pham Hai Nam**

ABSTRACT

This paper investigates the effects of the global financial crisis on bank profitability in Vietnam. The paper uses the return on assets (ROA) and the return on equity (ROE) as the bank profitability for the period from 2007 to 2018. By employing a sample of thirty commercial banks, the impact of the global financial crisis as well as internal and external bank factors on profitability of the banking sector was analyzed. The results of this research were obtained from the fixed effect model. The findings show that loan rate, liquidity assets, capital structure, bank size have positive effects on both ROA and ROE of banks while operating expense is strongly negative to ROA and ROE. Interestingly, this study finds that the global financial crisis (period 2007 – 2011) have a significant positive impact on the bank profitability. Vietnamese banks have been relatively less profitable after the crisis.

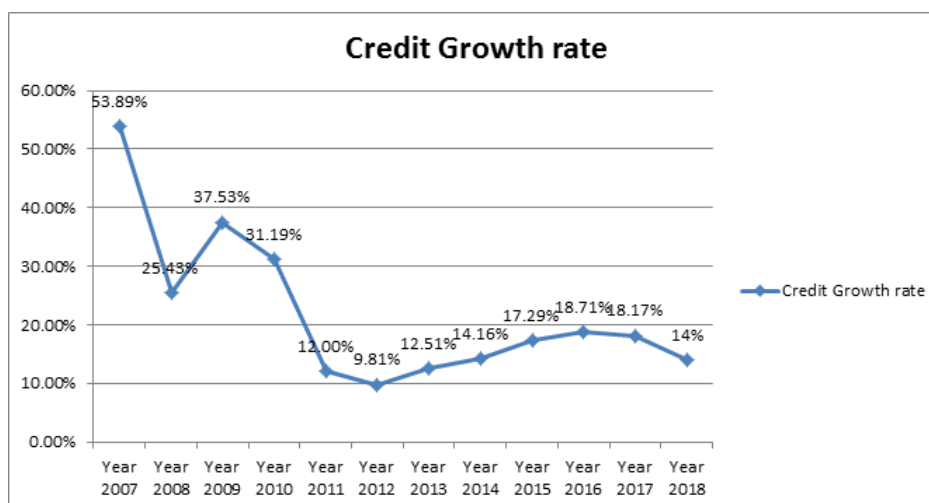
Keywords: *financial crisis, profitability, banking system, fixed effects, loan, assets.*

1. INTRODUCTION

The consequences of the global financial crisis require commercial banks in Vietnam improve credit risk and operation strategies. Particularly, the absence of effective operation and credit risk is one of the determinants that generated the current financial crisis. Higher capital requisites and liquidity protections are targeted by supervisory bodies. Hence, there is global increase in the cost of banking business. During the global financial crisis, the banking system and the government as well cannot keep pace with the dramatical change of economic environment. Then, wrong decisions were made. Many adverse things, which can harm economy, appear such as sharp growth of loan level, high risk portfolios, absence of liquidity assets, high leverage, real estate bubbles, high concentration of credit in particular sectors, etc. From the year 2007 to 2011, the credit growth rates of banking system is extremely high, resulting high non-performing debt and the collation of many commercial banks.

* Banking University of Ho Chi Minh city (BUH), 56 Hoang Dieu 2, Linh Chieu, Thu Duc, Ho Chi Minh city

** Ho Chi Minh city University of Technology, 268 Ly Thuong Kiet, District 10, Hồ Chí Minh, Email: ph.nam@hutech.edu.vn

Figure 1: Credit growth rate in Vietnam from 2007 to 2018

Source: State Bank of Vietnam

The main objective of this study is to analyze the impact of global financial crisis and other determinants of bank profitability in Vietnam from 2007 to 2018. As credit financing is the main source of profit in banking industry in Vietnam. In Vietnam, companies' capital relies heavily on banking sector because of the weak role of stock market. As the result, companies, banks and the government are more eager to push credit rate very high, especially from the year 2007 to 2011.

Most of studies consider bank profitability in case of internal and external factors. In our study, when analyzing external factors, we consider the impact of global financial crisis, which carries Dummy variable, to deeply understand which factor drive bank performance for that period.

The remainder of this paper is structure as follows. Section 2 reviews the relevant literature. Section 3 outlines the data sources and methodology. Section 4 reports empirical findings. Finally, Section 5 concludes the paper.

2. LITERATURE REVIEW

The market power hypothesis (MP), also referred to as the structure-conduct-performance hypothesis (SCP). This theory was developed by Bain (1951), which was implied that in a market with high concentration, banks are more likely to show collusive behavior and their oligopoly rents would increase their profitability. High concentration meant less competition and hence to higher profitability. In an empirical study, Karim et al. (2010) found the positive relationship between industry structure and bank performance, which supported SCP theory. Lloyd-William et al. (1994) also supported this theory for Spanish banks from 1986 to 1988. Another case of the MP theory was the relative-market-power theory (RMP), which was pioneered by Smirlock (1985). Smirlock supposed that bank with large share and well-differentiated products could control the market and earning more. Largest bank with good brand name and high quality of service and product could raise their price, thus gaining more profit.

Another theory of bank profitability was the structural efficiency theory (ES - efficient structure), which was developed by Demsetz (1973). This theory states that if banks running

their business more efficient than other, they can take over and dominate the market due to the price cut. Anyanwaokoro (1996) insisted that bank profit played an important role when customers decide to deposit their money in bank. A version of ES theory, X-efficiency version, suggested that if banks improved their managerial efficiency and cut operating cost to reduce the price, they could get more market share, and hence, more profitable. Another version of ES theory, Scale–Efficiency version, insisted that a bank with large scale could reduce cost, thus more profitable (Olweny and Shipho, 2011).

Many studies focusing on macroeconomic determinants on bank profitability, found that there was positive relationship between bank profitability and macroeconomic factors, such as inflation rate (Bikker and Hu, 2002). The global financial crisis and low interest rate in developed countries caused the intensification of research concerning how monetary policy impacted on bank profitability.

Sufian (2011) analyzed the profitability of banks in Korea, while controlling for a set of bank specific and macroeconomic determinants, including financial crisis factor. The result found that Korean banks with lower liquidity levels tend to exhibit higher profitability. Furthermore, higher diversification regarding banks' income sources towards derivative instruments and other fee-based activities shows a positive effect. The impacts of credit risk and overhead costs were always negative whether macroeconomic and financial conditions controlled or not. Business cycle, particularly inflation, displayed a substantial pro-cyclical impact on bank profitability. The industry concentration of the national banking system positively and significantly affected bank performance. The impact of the Asian financial crisis was negative.

Khilji et al. (2010) estimate the impact of financial crisis on Pakistan banking system performance from period 2000 to 2009. The estimated regression equation showed that profit is influenced by net investment; net advances and operating fixed assets significantly. Borrowing from financial institution, deposits and other accounts, number of employees also influenced profit but insignificantly. Financial crisis also had negative impact on profit but it is insignificant.

Gyulai (2017) analyzed the effect of the economic crisis on bank profitability in V4 countries (including Czech Republic, Hungary, Poland and Slovakia) from 2005 to 2014, with special attention on the effects of the financial crisis. Using Fixed effect model, the paper concludes that performance of the Hungarian commercial banks – at least in case of the profitability- was in a steady decline and far away from the V3 numbers. There was no evidence that the higher profitability delivers only advantages for the affected national economies. However it was presumed that the interests of the shareholders had an effect on the quantity and quality of the debts, indirectly on the development of the total economy.

Lindblom et al. (2010) examined the impact of the financial crisis on the profitability of Swedish banks from 2007 to 2009. This study concluded that that, in general, banks had performed well during the time period, with exceptions of credit losses, mainly from credit positions in the Baltic countries. These results were also related to the use of the guarantee program imposed by the central bank, which had shifted the banks from facing liquidity risk towards credit risk.

Amba and Almukharreq (2013) examined the impact of the financial crisis on profitability of the Islamic banks and conventional banks in Gulf Cooperation Council (GCC) from 2006 to 2009. The

results showed that the financial crisis had a negative impact on profitability of both Islamic and conventional bank but the Islamic banks were more profitable than conventional bank during the financial crisis but not statistically significant. It was also found that the Islamic banks had better capital structure than the conventional banks during the financial crisis while the conventional banks had better liquidity and liability ratios than the Islamic banks. No strong statistical evidence found that Islamic banking has weathered the financial crisis than conventional counterparts in all performance measures.

Pawlawska (2016) examines the impact of banking-sector structure and macroeconomic changes on bank profitability in the Polish banking sector from 1997 to 2012. This paper found that foreign ownership and disintermediation had a positive effect on bank profitability in the period 1997–2012. Another result was that bank profitability was strongly influenced by cyclical developments and this paper finds a positive correlation between GDP growth and bank profit – the same effect was found for CPI indices. Also, this paper found a negative correlation between WIBOR 3M and bank profit. Finally, the crisis had a negative impact on bank profitability.

Caporale et al. (2016) examined the impact of the global financial crisis on the banking sector in the Middle East and North Africa (MENA) region, as well as the main determinants of the profitability of both domestic and foreign banks during the period 2000–2012. The empirical findings suggest that during the crisis, negative impact is investigated but the former outperformed the latter in that region. As for the determinants of profitability, size does not appear to play a role, whilst the liquidity ratio and net interest revenues seem to have a negative and positive effect respectively; GDP has a positive effect in the case of domestic banks.

Mongid (2016) studies the impact of the global financial crisis on Islamic banks profitability from MENA Countries. The study concludes that the financial crisis had a negative impact on profitability of selected Islamic banks from the MENA region. Another conclusion is that profitability of Islamic banks in the MENA countries is determined positively by asset size, equity to total asset, liquidity risk and negatively by capital adequacy ratio, innovation. Positive and significant of asset size, underline the viability of economies of scale and scope. Not well developed Islamic money market make the liquidity position a hinder to profitability. The finding also indicates that regulatory capital ratios play negative role in explaining the profitability of Islamic banks. Regulatory capital is merely serving an artificial function in Islamic bank and does not always reflecting the strength of bank capital.

Tu Le (2017) investigates determinants of bank profitability of banks in Vietnam, while controlling crisis factor for the period 2005 – 2015. The results show the persistence of profits over time. More x-efficient banks appear to be more profitable, supporting the efficient-structure hypothesis. The same is true for banks with greater lending specialization; for those with lower liquidity risk; for more diversified banks; smaller banks; and for listed banks. The findings also demonstrate that a less concentrated banking system improves bank profitability. Finally, Vietnamese bank profitability is also affected by the economic growth and inflation and the impact of financial crisis (period 2007 – 2008) is negative.

Nguyen Anh Tu and Pham Tri Nghia (2019) analyze the impact of bank-specific, macroeconomic factor, financial structure on Vietnamese banks' net interest margin (NIM) during the period from 2005 to 2017. They use FEM (Fixed Effect model) to investigate factors of NIM.

The findings show that credit risk, risk aversion and capital structure have positive impact on NIM, while liquidity, operating expense and financial crisis (period 2007 – 2008) have negative impact.

3. DATA AND METHODOLOGY

3.1 Data sources

This research used panel dataset of 30 commercial banks in Vietnam. We collect bank-specific variables from financial reports of 30 domestic Vietnamese commercial banks for the period from 2007 to 2018. The macroeconomic variables are collected from the State Bank of Vietnam and the Vietnam Bureau of Statistics.

3.2 Methodology

To empirically test the effect of bank-specific and macroeconomic as well as global crisis factors on bank profitability, we use both fixed effect method and random effect method. Then we apply Haumans tests to select fixed effects or random effects. In case of problem with choosing fixed effects or random effects when applying Hausman tests, we conduct Sargan – Hansen tests to decide whether fixed effects or random effects are better.

Table 1: Variables summary

Variable		Formula	Notation
Dependent	Return on assets	Net income/total assets	ROA
	Return on equity	Net income/equity	ROE
Independent	Capital rate	Equity/total assets	CAP
	Loan loss provision rate	Loan loss provisions/ total loans	LLP
	Loan rate	Total loans/total assets	LOAN
	Bank size	Log(total assets)	SIZE
	Deposit	Deposit/total assets	DEP
	Liquidity	Cash and securities/total assets	LIQUI
	Interest expenditure	Interest expense/ total debt	INT
	Operating expenditure	Operating expense/total assets	OPE
	CRISIS DUMMY	Takes a value of 1 for the crisis period and 0 otherwise	DUMMY
	Inflation rate	Inflation rate each year	INFLAT
	GDP growth rate	GDP growth rate each year	GGDP

Source: Author

4. EMPIRICAL RESULTS

4.1 ROA

Return on assets (ROA) is the simplest measure of bank profitability. It reflects the capability of a bank to generate profits from its asset management functions. ROA represents how profitable company assets are in generating revenue. A high ROA means that a bank has good operational performance. Therefore it is frequently used as the key ratio for evaluation of bank profitability.

Table 2: Determinants of ROA

Independent var.	Coef.	P>t	[95% Conf. Interval]	
Capital rate	.0951925	0.000	.0768554	.1135296
Loan loss provision rate	-.0414233	0.590	-.1925798	.1097332
Loan rate	.0172211	0.002	.0065396	.0279025
Bank size	.0041768	0.000	.0025829	.0057707
Deposit	-.0042912	0.225	-.0112317	.0026493
Liquidity	.0093353	0.100	-.0018054	.020476
Interest expenditure	-.0098273	0.659	-.0536374	.0339828
Operating expenditure	-.4084108	0.000	-.5813115	-.2355101
CRISIS DUMMY	.006166	0.000	.0035936	.0087385
Inflation rate	-.0049125	0.620	-.024385	.0145599
GDP growth rate	-.0448314	0.304	-.1305531	.0408903

Source: Authors' calculation

The fixed effect model applied after running Hausman test. The probability value of this model is less than 5% so this model is fitted to explain ROA. Capital rate, loan rate, bank size, liquidity, operating expenditure, crisis are significant while Loan loss provision rate, deposit, interest expenditure, inflation rate, GDP growth rate are not significant. According to the results, capital rate, loan rate, bank size, liquidity, global crisis effect are positively impact on ROA, while operating expenditure is negatively impact. The strongest positive factor of ROA is loan rate. In case of loan rate increases 1%, ROA will increase 0,095%. It is easy to understand because Vietnamese banks' profit depends heavily on credit. Whereas is the solely and operating expenditure negative factor of ROA. If operating expenditure increases 1%, ROA will decrease 0,4%. It is implied that banks should cut operating cost to be more effective. An important result is that during crisis period, banks are more profitable. It seems strange but consistency with loan rate because during period 2007 – 2011, the credit growth rate of Vietnam banking system is really high, 53,89% for the year 2007 and 37,53% for the year 2009.

4.2 ROE

ROE is defined as the ratio between net profits and equity capital expressed as a percentage. This is the return to the shareholders on their equity capital. ROE measures the rate of return on ownership interest of common stock owners and a firm's efficiency at generating profits from every unit of shareholder equity at any given period of time.

Table 3: Determinants of ROE

Independent var.	Coef.	P>t	[95% Conf. Interval]	
Capital rate	.2867586	0.005	.0876776	.4858396
Loan loss provision rate	-.7463627	0.371	-2.387433	.8947071
Loan rate	.2673762	0.000	.15141	.3833424
Bank size	.0411761	0.000	.0238716	.0584806
Deposit	-.0641357	0.095	-.1394868	-.1394868

Independent var.	Coef.	P>t	[95% Conf. Interval]	
Liquidity	.1180427	0.056	-.0029091	.2389945
Interest expenditure	.0240208	0.921	-.4516151	-.4516151
Operating expenditure	-6.706473	0.000	-8.583614	-8.583614
CRISIS DUMMY	.0480279	0.001	.0200995	.0200995
Inflation rate	.0070497	0.948	-.2043582	-.2043582
GDP growth rate	-.9778505	0.040	-1.90851	-1.90851

Source: Authors' calculation

According to the Hausman test and Sargan – Hansen test, the fixed effect model is suitable for the explanation of the ROE. The result shows that capital rate, loan rate, bank size, deposit, liquidity, operating expenditure, global crisis effect, GDP growth rate are significant because the p-value of these variables is less than 5% while Loan loss provision rate, interest expenditure, inflation rate are not significant to explain ROE. In terms of result, capital rate, liquidity, loan rate, bank size, global crisis effect have a positive effect on the ROE while deposit rate, operating expenditure, GDP growth rate has a negative impact on the ROE. 1% increase in capital rate, liquidity, loan rate, bank size, global crisis effect indicates that there is 0,12%, 0,28%, 0,27%, 0,04%, 0,05% increase in ROE, respectively. On the other hand, 1% increase in deposit, operating expenditure, GDP growth rate means that there is a 0.06%, 6.7%, 0.97% decrease in the ROE, respectively.

5. CONCLUSION

By using unbalanced panel data, this study tries to investigate the determinants of bank profitability and the impact of global financial crisis in Vietnam as well. Empirical analyses conclude that there is a relationship between independent variables and bank profitability in Vietnam. Also, the impact of global financial crisis on the Vietnam banks' profitability was investigated by this study. The result finds that there is positive relationship between bank profitability and global financial crisis. It sounds strange but reasonable because the Vietnam government tried to stimulate the investment and consumption to avoid the global financial crisis impact. As the result, high level but low quality of credit growth. Another result of this study indicates that capital rate, loan ratio, liquidity, bank size results in better bank performance. This result was supported by most of the prior studies. Also operating expense has a negative on bank profitability. During the period 2007 to 2011, banks are more profitability. This results from very high credit growth in Vietnam. The consequences are really serious so that the State Bank of Vietnam still faces with until now. Finally, financial supervisors and banks as well should strengthen their bank capital, asset quality, liquidity assets, bank size, suitable profitability and credit growth to manage future financial crises.

The findings of this study also offer suggestion to policymakers. It is reasonable to care about the quality of loans, not the quantity. High level of credit growth could result more profitable for bank in short term. But in the long term, the result is extremely negative. Further research could be more variables such as exchange rates, state-run and private banks as well as listed and unlisted banks.

REFERENCES

1. Amba, M., Almukharreq, F. (2013). Impact of the financial crisis on profitability of the Islamic banks vs conventional banks – evidence from GCC. *International Journal of Financial Research*, 4, 83-93.
2. Anyanwaokoro, M. (1996). Banking methods and processes. *Enugu: Hosanna Publications*.
3. Bain, S. (1951). Relation of profit rate to industry concentration: American manufacturing, 1936–1940. *The Quarterly Journal of Economics*, 65(3), 293-324.
4. Bikker, J.A., Hu, H. (2002). Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements. *BNL Quarterly Review*, 55, 143-75.
5. Caporale, G., Lodh, S., Nandy, M. (2016). The Performance of Banks in the MENA Region during the Global Financial Crisis. *Discussion Papers of DIW Berlin*.
6. Gyulai, L., Szues, G. (2017). The effect of the economic crisis on the bank profitability in the V4 countries. *Management, Enterprise and Benchmarking in the 21st century Journal*, 97-109.
7. Karim, B. K., Sami, B. A. M., Hichem, B. K. (2010). Bank-specific, Industry-specific and Macroeconomic Determinants of African Islamic Banks' Profitability. *International Journal of Business and Management Science*.
8. Khilji, B., Farrukh, M., Iqbal, M., Hameed, S. (2010). The Impact of Recent Financial Recession on the Banking sector of Pakistan. *MPRA Paper 30558, University Library of Munich, Germany*.
9. Lindblom, T., Olsson, M., Willeson, M. (2010). *Financial crisis and bank profitability*. Wolpertinger 2010 Conference, Bangor University, UK
10. Lloyd-Williams, M., Molyneux, P. and Thornton, J. (1994). Market structure and performance in Spanish banking. *Journal of Banking and Finance* (18), 433-443.
11. Mongid, A. (2016). Global financial crisis (GFC) and Islamic banks profitability: Evidence from MENA countries. *Journal of Emerging Economies and Islamic Research*, 4, 1-16.
12. Nguyen Anh Tu, Pham Tri Nghia. (2018). Net interest margin of commercial banks in Vietnam from 2005 to 2017: An empirical study. *Banking review*.
13. Olweny, T., Shipho, T. M. (2011). Effects of banking sectoral factors on the profitability of commercial banks in Kenya. *Economics and Finance Review*, 1(5), 1-30.
14. Pawlowska, M. (2016). Market structure, business cycle and bank profitability: evidence from Polish banks. *Journal of Bank and Credit*, 47(4), 341 – 364.
15. Smirlock, M. (1985). Evidence on the (non) relationship between concentration and profitability in banking. *Journal of Money, Credit, and Banking* 17 (1), 69-83.
16. Sufian, F. (2011). Profitability of the Korean banking sector: Panel evidence on banking-specific and macroeconomic determinants. *Journal of Economic and Management*, 7, 43-72.
17. Tu Le. (2017). The determinants of commercial bank profitability in Vietnam. *SSRN Electronic Journal*, 1-30.

MODEL OF IMPACT FACTORS ON VIETNAM COMMERCIAL BANKS' INVESTMENT CAPITAL CREATION

Do Thi Lan Dai*, Nguyen The Khai**

ABSTRACT

The objective of the paper is to study the impact factors on Vietnam commercial banks' capital creation, with a 450 - sample sample survey for some banks and customers, bank managers. The study using linear regression model, reveals that there are 6 impact factors on the investment capital creation of commercial banks, including: Business environment; Banking capacity; Customer capacity; State policy; Process and procedure; Credit information and a dependent variable is Vietnam commercial banks' investment capital creation.

The result of the study provides policy implications for Vietnam commercial bank administrators. It also recommends that bank administrators' solutions to be made should be put in an impact relationship among the factors on their bank's investment capital creation.

Keywords: Investment capital creation; impact factors on investment capital creation; Commercial banks, Vietnam.

1. INTRODUCTION

The issue of capital creation via the commercial banking system, has been researched and mentioned a lot by scientists from different perspectives.

In Vietnam, the issue of capital creation through Vietnam commercial banks has been concerned by researchers. It was quite widely mentioned in even the Party's documents, economic - financial journals. Typically, right from 1994, the Nhan Dan (People) Newspaper in collaboration with the State Bank held a column on the Nhan Dan Newspaper "How to mobilize domestic capital for socio-economic development" and since then, there have been various different studies on Vietnam commercial banks' capital creation. Due to practical requirements, however, more research projects on Vietnam commercial banks' capital creation in a more comprehensive and systematic manner are needed. Multiple researches on capital creation of commercial banks have been given, but with regard to the research on building capital creation models through the impact of factors, which is studied by only a few works for individual aspect, such as model of impact factors on depositors, savings, capital mobilization in the population, individual deposits, business deposits, ...

The objective of the paper is to identify factors that impact on the investment creation of Vietnam commercial banks. Thereby, providing bank administrators with scientific bases to build appropriate and effective investment creation strategy.

* Lac Hong University, 15/3B Huynh Van Nghe, Bien Hoa, Dong Nai, Vietnam. E-mail: dolandai@lhbs.vn.

** Lac Hong University, 15/3B Huynh Van Nghe, Bien Hoa, Dong Nai, Vietnam. E-mail: nguyengkhai2005@gmail.com.

2. THEORETICAL BASIS AND RESEARCH MODEL

2.1. Overview of capital creation of commercial banks

Concept

Capital is a vast category of currencies, materials, assets, resources, natural resources, geographical location and many other types of tangible or intangible capital such as inventions, patents and business copyrights, worker qualification, ...

Commercial banks are a financial institution that performs the function of currency trading, taking money as a business product, in other words, the capital of a commercial bank is money capital. The capital of a commercial bank has an organic relationship, interacting with tangible and intangible capitals. This is most clearly affirmed in the condition of a developed market economy, an economy in which goods-currency relations are developed at an unprecedented high level in the evolutionary history of mankind.

In the context of the monetary commodity economy, if there is no money capital, tangible and intangible capitals also do not become really useful.

Capital of commercial banks: is the monetary value created by commercial banks through mobilizing loans to lend, invest or perform other business services.

Capital of a commercial bank includes equity and borrowed capital: capital owned by the Bank, mobilized capital, borrowed capital and other capital.

Capital creation characteristics of commercial banks

Capital creation of a commercial bank must be based on the effective performance of its professional activities:

Practical operation of the commercial banking system has shown that any results achieved on one business activity cannot be separated from the operational results of other business activities. For example, credit activities in the field of raising capital to create capital for commercial banks cannot be without the support of payment operations. Bank customers who want to make a payment must have money on their account (regardless of its origin). From the time the money is on the account until the money is transferred to pay other beneficiary customer; during that time the bank managing the customer's account can use that money. The bank that manages the customer's account is entitled to the payment before the customer uses it (using that same money). The more developed the Bank's payment operations, the more conditions the bank can create capital, considering each bank or the whole banking system, not including payment work through which, the Bank also receives commissions. These amounts also constitute capital for the bank.

Foreign exchange operations (trading in foreign currencies, gold, silver, etc.) also contribute to creating capital for the bank.

In addition to business activities in market economic conditions, service activities, such as consulting activities of the bank, also make contribution to the bank's capital.

The above perception shows that the capital creation activities of commercial banks only really reach the set targets when there are effective solutions to implement the banking operations in a synchronized view.

- Capital creation of commercial banks is not separable from timely and synchronized implementation of legal documents, management policies and professional regulations in the macro sector:

It is shown through the above analytical generalization, and assessment:

+ In the modern economy, the capital category has been changed from perception to practical action and with such right perspective of capital category will bring tremendous benefits to all the banks, the customers and the economy;

+ Capital creation of commercial banks only brings about the desired effect when it is done on the basis of effective implementation of the activities of commercial banks; at the same time with the synchronous and timely implementation of issues in the field of macro management.

2.2. Impact factors on capital creation of commercial banks

In consideration of each specific factor impacting on the capital creation of commercial banks that is numerous and varied, but from the internal and external perspective, it is divided into two types:

Firstly, external factors

External factors can be classified into 3 groups:

Group of economic and macro management factors:

Whether or not capital creation is effective depends primarily on the mobilization and lending of capital. Business activities of a commercial bank are on the basis of performing the operation of “borrowing to lend” in service of customers’ production and business activities. Consequently, every good or bad expression in customer activities will have a corresponding effect on the bank’s operations through market impact mechanisms. With the appropriate credit policy mechanism, commercial banks will find out good customers to lend, creating a reasonable correspondence between the mobilized capital source and meeting customers’ loan demand.

The economic development cycle also has an impact on commercial banks’ capital creation operation. During the recession of downsized production - business, the bank’s capital creation operation will face difficulties in all areas of both mobilization and use. For example, when capital is needed to lend, it cannot be mobilized, or sometimes it is mobilized without lending successfully, etc., resulting in an imbalance between supply and demand. In contrast, during the development period of increased demand for credit capital, less credit risk, other activity aspects of the banks are also developed, obviously the capital creation in this period gets favorable.

The compatibility between bank interest rates and profits of production and business enterprises in the social economy also affects the bank’s capital creation activities. Because, the bank’s income from credit activities is limited by the profits of these businesses when using bank loans.

Group of social factors:

Factors that directly affect the capital creation activities of commercial banks are customers directly involved in the bank, such as depositors and borrowers, opening payment accounts, ...

Credit and payment relations are formed on the basis of trust and confidence. That means that the bank's capital creation activity is a combination of factors: Demand, ability and mutual trust between banks and customers.

Apart from the above factors, there are also factors affecting capital creation such as social morality related to credit risk, in the case of benefiting trust to cheat. The fluctuation of economic, socio-political situation at home and abroad also affects the amount of capital generated by the bank.

Besides, the capital creation of commercial banks also depends heavily on factors of natural resources and geography.

Group of legal factors:

The legal factors show the consistency, completeness, timeliness of the legal system, from the Law to the by-laws. At the same time, they must be consistent with the intellectual level of the law compliance process.

The law is an indispensable part of the market economy regulated by the State. In case of no laws or inappropriate laws, any economic activity will not be able to proceed smoothly. The law is tasked to create a legal environment for all production and business activities to conduct conveniently and achieve high results. Therefore, the legal factor plays an important role in the bank's capital creation. Only in the conditions of law compliance by customers involved in relations with the bank, the activity of capital generation is developed and beneficial for both the Bank and the customer.

Secondly, bank pertained factors

Bank pertained factors are all aspects of banking operations. From the perspective of the topic, which only studies the direct impact factors, mainly lending and capital mobilization activities to the capital creation process of commercial banks from different angles.

Credit policy factor:

This factor is studied from the perspective of capital mobilization and lending. Business activities of the bank are mainly credit activities. A proper credit policy will attract many customers, ensuring profitability on the basis of risk minimization, law compliance.

Bank organization model:

The organizational model of scientific construction must create conditions to promptly meet the requirements of customers, helping the bank to monitor and strictly manage loans, capital mobilization, and well implement various types of banking services. This is the basis for conducting expanded capital creation operations.

Human resource quality:

People are the decisive factor for the success or failure in professional operations and banking business management.

An increasingly developed society requires a higher and higher quality of personnel to be able to respond promptly and effectively to the elevated requirements of capital mobilization, investment and services with different situations of capital generation activities.

Information work:

Information plays an important role in capital creation activities. Thanks to the information, can managers make the necessary decisions related to capital mobilization and lending? How to track and manage customers? How to perform the services? ... Information can be obtained from various sources such as in banks, outside banks, from customers, from the media.

Thus, the more complete, agile, accurate and comprehensive the information is, the more effective the commercial bank's ability to generate capital is.

Internal control:

In the field of capital creation, control activities include:

+ Control of credit policies, payment policies, business policies, customer policies, ... and professional procedures and processes related to capital creation (management and supervision competence of loans, loan procedure records, interest rate policy, marketing, ...).

+ Regular and irregular inspections of implementation of professional and operational regulations and procedures related to the bank's capital generation. The quality of capital creation depends on the quality of internal inspection and control.

In addition to the above factors, a series of other internal factors also have an impact on the capital creation of commercial banks, such as technological level, technical facilities, management and administration, banking marketing, etc.

2.3. Empirical research directly related to the topic

There have been many studies on capital creation of Vietnam commercial banks through different angles:

Ngo Duc Duy (2018), "*People's Credit Fund System for Vietnam Rural Economic Development*", Doctoral thesis, Banking University Ho Chi Minh City. In his study of impact factors on the use of capital, the author offered a general research model on the impact of factors such as: Customers, Credit Funds, State Policies, Processes, Credit operations.

Vo Minh Duc (2019), "*Bank credit for economic structure transition in Ho Chi Minh City*", Doctoral thesis, Banking University Ho Chi Minh City, in which the author has studied Factors that impact on bank credit with economic structure transition. With 6 factors from the perspective of lending, borrowing capacity, lending capacity, state policy, lending modality and credit information. The author has studied from the perspective of the role of bank credit in economic restructuring

Nguyen Thi Giang (2010), "*Mobilizing and using investment capital for economic development in the Mekong Delta region*", Doctoral thesis, University of Economics, Ho Chi Minh City. The research content systematically evaluates the successes and limitations in attracting capital for the Mekong Delta and their causes. The author used the regression equation: $Y = B_0 + B_1 \cdot I$, where Y is a dependent variable (GDP value), I is an independent variable (investment capital value), and

lists the impact factors on investment capital attraction in the Mekong Delta. Proposed solutions to attract and effectively use investment capital for Mekong Delta economic development through estimating capital by the regression model.

Nguyen Ngoc Anh and Nguyen Thang (2007) studied the determinants of FDI inflows in Vietnam's provinces, showing that market size, labor and infrastructure have a significant impact on FDI while the government policy through provincial competitiveness index does not have significance.

Research by Grant Thornton (2010) gave the view on the important role of both issues of borrowing - lending in the bank credit capital market, to provide effective capital raising solutions as a contribution to enhancing efficiency of capital use in business. The author used 14 online questions to interview 250 financial executive directors of both state and private enterprises in business sectors such as banking, construction, healthcare, education, finance, catering services, ...

Generalizing the theoretical basis for capital creation of commercial banks and the above mentioned reference works, the author references and inherits to build a model to study the impact factors on Vietnam commercial banks' investment capital creation.

2.4. Research model

Pursuant to the capital generation theory of commercial banks, experimental studies on capital generation, at the same time with the practice of capital creation of Vietnam commercial banks today, the author proposes the model of investment capital creation as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

In which:

Dependent variable Y: Investment capital creation of Vietnam commercial banks (TVDT).

β_0 : Constant

X_1 : Business environment (MTKD)

X_2 : Operational capacity of the bank (NLNH)

X_3 : Customer capacity (NLKH)

X_4 : State policy (CSNN)

X_5 : Credit information (TTTD)

X_6 : Process, procedure (QTTT)

ε : Error

The proposed research hypotheses are as follows:

H₁: Favorable business environment has a positive relationship with capital creation of commercial banks.

H₂: The bank's operating capacity is positively related to commercial bank's capital creation.

H₃: Customer capability has a positive relationship with commercial bank's capital creation.

- H₄: Appropriate State policies have positive relations with commercial bank's capital creation.
- H₅: Credit information has a positive relationship with capital creation of commercial banks.
- H₆: Good processes and procedures have a positive relationship with commercial banks' capital creation.

3. RESEARCH METHODOLOGY

The topic uses qualitative research in combination with quantitative research.

The 5-step Likert scale was used to measure the impact of the factors on capital creation of Vietnam commercial banks under the steps: 1- Very little impact; 2- Little impact; 3- Medium; 4- High impact; 5- Tremendous impact.

Used the customer survey questionnaire with a sample count of 450.

After the data was collected, the author cleaned, removed invalid votes, and the data was processed using SPSS software. Next, assessed the reliability of the scale through Cronbach's Alpha coefficient and the exploratory factor analysis (EFA). Finally, performed a correlation matrix and linear regression analysis to test the model and hypotheses, thereby determining the impact of factors on Vietnam commercial banks' investment capital creation.

4. RESEARCH RESULTS

4.1. Testing of the scale reliability by Cronbach's Alpha coefficient

Table 1. Results of testing scales

Ordinal numbers	Code	Cronbach's Alpha	Variables are eliminated	The remaining variables
1	MTKD	.874	-	MTKD1, MTKD2, MTKD3, MTKD4, MTKD5, MTKD6
2	NLNH	.818	NLNH4	NLNH1, NLNH2, NLNH3
3	NLKH	.848	NLKH6	NLKH1, NLKH2, NLKH3, NLKH4, NLKH5
4	CSNN	.795	-	CSNN1, CSNN2, CSNN3
5	TTTD	.824	-	TTTD1, TTTD2, TTTD3, TTTD4
6	QTTT	.814	-	QTTT1, QTTT2, QTTT3
7	TVDT	.899	-	TVDT1, TVDT2, TVDT3

Source: The researcher's collecting data and SPSS

Testing the scale reliability by Cronbach's Alpha coefficient allows eliminating the non-conforming variables in the research model. In fact, the study cannot know the exact variance as well as the error of the variables. Therefore, only variables with an appropriate total correlation coefficient greater than 0.3 and with a Cronbach's Alpha coefficient greater than 0.6 are accepted and suited for subsequent step analysis (Nunnally and BernStein, 1994). Under the research results, there are 2 excluded variables (NLNH4, NLKH6) out of 26 (including dependent variables) observed variables. The remaining 24 observed variables continue to be included in the exploratory factor analysis.

The scale of investment capital creation with Cronbach's Alpha coefficient reaching $0.899 > 0.6$ is satisfactory and the total correlation coefficient of 3 observed variables is greater than 0.3. Thus, these 3 observed variables are retained for inclusion in factor analysis.

4.2. Exploratory factor analysis (EFA)

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.897
Bartlett's Test of Sphericity	Approx. Chi-Square	4615.588
	Df	253
	Sig.	.000

Source: The researcher's collecting data and SPSS

The scale of the components of impact factors on Vietnam commercial banks' investment capital creation, with 24 observed variables, after an evaluation of reliability satisfied with Cronbach's Alpha, is put into the exploratory factor analysis. From the research results, it is shown that there is one excluded variable (TTTD2). KMO coefficient (Kaiser-Meyer-Olkin) reaches $0.897 > 0.5$ so EFA factor analysis is suitable in this study. Bartlett's test is statistically significant ($\text{Sig.} < 0.05$) indicating that the observed variables are correlated with each other in the overall.

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.744	33.670	33.670	7.744	33.670	33.670	3.732	16.224	16.224
2	2.150	9.349	43.019	2.150	9.349	43.019	3.221	14.004	30.228
3	1.583	6.884	49.903	1.583	6.884	49.903	2.205	9.587	39.815
4	1.432	6.226	56.129	1.432	6.226	56.129	2.174	9.452	49.266
5	1.367	5.942	62.072	1.367	5.942	62.072	2.169	9.432	58.698
6	1.275	5.544	67.615	1.275	5.544	67.615	2.051	8.917	67.615
Extraction Method: Principal Component Analysis.									

Source: The researcher's collecting data and SPSS

The Eigenvalues coefficient = $1.275 > 1$ represents the variance explained by each factor, meaning that the drawn factors have a meaning that represents the other variables. Total variance explained: Rotation Sums of Squared Loadings (Cumulative%) reaches $67.615\% > 50\%$. This shows that 67.615% of data variation is explained by 6 factors.

Factor Loading of all observed variables is greater than 0.5, so it meets the requirements, or the scale reaches the convergent value. Thus, with the initial 26 observed variables, after checking Cronbach's Alpha reliability, there are 24 observed variables, and through the EFA factor analysis step, there remain 23 observed variables and 6 key factors are extracted.

The scale of investment capital creation including 3 observed variables, after an evaluation of reliability satisfied with Cronbach's Alpha, is included in the EFA factor analysis. The analytical

result for the KMO coefficient reaches $0.746 > 0.5$, so the EFA analysis is appropriate. Bartlett test with significance level $0.000 < 0.5$, therefore this test is statistically significant and the observed variables are correlated in the whole. At the same time, the variance explained = $83.165\% > 50\%$ at Eigenvalue = $2.495 > 1$, hence the model is eligible for exploratory analysis.

4.3. Correlation analysis

Table 4. Correlations

		TVDT	MTKD	NLNH	NLKH	CSNN	TTTD	QTTT
TVDT	Pearson Correlation	1	.669**	.693**	.678**	.668**	.537**	.574**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	450	450	450	450	450	450	450
MTKD	Pearson Correlation	.669**	1	.414**	.383**	.407**	.478**	.465**
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.000
	N	450	450	450	450	450	450	450
NLNH	Pearson Correlation	.693**	.414**	1	.396**	.368**	.295**	.375**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	450	450	450	450	450	450	450
NLKH	Pearson Correlation	.678**	.383**	.396**	1	.361**	.323**	.411**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	450	450	450	450	450	450	450
CSNN	Pearson Correlation	.668**	.407**	.368**	.361**	1	.332**	.392**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	450	450	450	450	450	450	450
TTTD	Pearson Correlation	.537**	.478**	.295**	.323**	.332**	1	.342**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	450	450	450	450	450	450	450
QTTT	Pearson Correlation	.574**	.465**	.375**	.411**	.392**	.342**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	450	450	450	450	450	450	450
**. Correlation is significant at the 0.01 level (2-tailed).								

Source: The researcher's collecting data and SPSS

The result from the Pearson correlation coefficient matrix shows that six factors including: MTKD, NLNH, NLKH, CSNN, QTTT and TTTD are linearly related to the investment capital creation (TVDT) of Vietnam commercial banks with a significance level Sig being less than 0.05. As such, the independent variables have strong linear relationship and have the same directional impact as the dependent variable, investment capital creation.

4.4. Regression analysis

Table 5. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.930 ^a	.865	.863	.251	1.950
a. Predictors: (Constant), QTTT, TTTD, NLNH, CSNN, NLKH, MTKD					
b. Dependent Variable: TVDT					

Source: The researcher's collecting data and SPSS

The result for the adjusted R^2 coefficient = 0.863 indicates that the model suitability is 86.3% ($> 50\%$) or in other words, 86.3% of the change of the dependent variable, Investment capital

creation (TVDT) is explained by the 6 independent variables above, the remaining 13.7% of the change is due to other factors outside the research model.

Table 6. Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.199	.067		-2.971	.003		
	MTKD	.161	.017	.211	9.404	.000	.607	1.647
	NLNH	.229	.015	.317	15.435	.000	.724	1.382
	NLKH	.227	.016	.295	14.318	.000	.718	1.393
	CSNN	.219	.016	.286	13.962	.000	.727	1.375
	TTTD	.094	.015	.126	6.136	.000	.728	1.374
	QTTT	.059	.016	.080	3.788	.000	.677	1.478
a. Dependent Variable: TVDT								

Source: The researcher's collecting data and SPSS

The results of regression analysis show that there are 6 impact factors on investment capital creation (TVDT), including: MTK, NLNH, NLKH, CSNN, TTTD, QTTT all of which have a value Sig< 0.05 satisfied.

From the regression analysis table, the relationship between the dependent variable, investment capital creation (TVDT) of Vietnam commercial banks and 6 independent variables is shown in the following standardized regression equation:

$$TVDT = 0.211*MTKD + 0.317*NLNH + 0.295*NLKH + 0.286*CSNN + 0.126*TTTD + 0.080*QTTT$$

The regression equation shows that the investment capital creation of Vietnam commercial banks is affected by 6 factors with the following specific level of influence:

The first is the Banking Capacity factor: Coefficient $\beta_{NLNH} = 0.317$

The second is the Customer Capability factor: Coefficient $\beta_{NLKH} = 0.295$

The third is the State Policy factor: Coefficient $\beta_{CSNN} = 0.286$

The fourth is the Business Environment factor: Coefficient $\beta_{MTKD} = 0.211$

The fifth is the Credit Information factor: Coefficient $\beta_{TTTD} = 0.126$

The sixth is the Process and Procedure Factor: Coefficient $\beta_{QTTT} = 0.080$

From the above, it is revealed that the coefficients $\beta > 0$ show that the independent variables positively impact on capital creation of Vietnam commercial banks. Through the above results, confirm the hypotheses made initially (H_1 to H_6) are accepted and tested appropriately.

4.5. T-Test and One-Way ANOVA Testing

The purpose of this testing is to test the average difference between demographic variables affecting investment capital creation of Vietnam commercial banks.

T-Test: Testing two variables of gender and marriage that have a value $\text{Sig} = 0.000 < 0.05$, so there is a difference in the impact on capital creation of Vietnam commercial banks between gender and marriage groups.

One-Way ANOVA Testing: Age variable with a value $\text{Sig} = 0.000 < 0.05$; Education variable with $\text{Sig} = 0.041 < 0.05$; Income variable with $\text{Sig} = 0.000 < 0.05$. Thus, all qualitative variables in the survey sample have differences on the impact on investment capital creation of Vietnam commercial banks.

5. CONCLUSION

With the above research results, the author has built a model of impact factors on Vietnam commercial banks' investment capital creation with the goal of finding the main impact factors on the effective investment capital creation of Vietnam commercial banks.

After following the research process with qualitative and quantitative methods, the topic conducted descriptive statistical analysis, testing of the scale reliability, exploratory factor analysis and regression analysis, and the quantitatively proven hypotheses, the author has identified all 6 impact factors on the investment capital creation of Vietnam commercial banks, including: Business Environment, Bank's Operational Capacity, Customer Capacity, State Policy, Credit Information, and Process and Procedure. In which factors: Bank operational capacity, Customer capacity, State policy have a strong impact on generating capital of Vietnam commercial banks, so they play an important role in building a investment capital creation strategy for the bank.

Administrators are always limited in resources: money, time and manpower to set up their capital creation strategy, so this study will help them prioritize and allocate resources appropriately based on the extent of the impact of factors on their bank's investment capital creation.

It depends on the specific conditions of each bank to build a suitable capital creation strategy through the impact of each factor. However, when formulating policies to create capital through the impact of factors, they should be put in the close impact relationship of factors, depending on each condition, one factor may be emphasized and other factors lessened, but the relationship between them cannot be separated.

In the bounds of a Seminar paper, limited by regulation, many contents only raise the main features, so the persuasion of some content has not yet carried the profound connotation of a problem. This is a major problem in scientific research in the study field of capital creation of commercial banks, so the next study needs to expand the scope of research, increasing the research sample.

REFERENCE

1. Hoang Trong and Chu Nguyen Mong Ngoc (2008). *Analysis of research data with SPSS, Volume 1 & Volume 2*. Ho Chi Minh City: Hong Duc Publishing House.
2. Ngo Duc Duy (2018). *People's Credit Fund System for Vietnam Rural Economic Development*, Doctoral thesis, Banking University Ho Chi Minh City
3. Nguyen Thi Giang (2010). *Mobilizing and using investment capital for economic development in the Mekong Delta region*. Doctoral thesis. University of Economics, Ho Chi Minh City.

4. Nguyen Van Bon and Nguyen Minh Tien (2014). *Determinants of FDI inflows in Asian countries*. Science Journal of Can Tho University, 31 (2014): 124-131.
5. Tran Nha Tran (2012). *Fund mobilization at Joint Stock Commercial Bank for Foreign Trade of Vietnam - Da Lat Branch*. Master thesis. Vietnam National University, Hanoi.
6. Vo Minh Duc (2019). *Bank credit for economic structure transition in Ho Chi Minh City*. Doctoral thesis. Banking University Ho Chi Minh City.
7. Vu Duc Khoan (2015). *Efficiency of creating capital sources at the Bank for Agriculture and Rural Development of Vietnam - Bac Lieu Branch*. Master thesis. Banking University Ho Chi Minh City.

EXPERIENCES OF BANGLADESH IN IMPROVING GREEN BANKING AND LESSONS FOR VIETNAM

Nguyen Quoc Viet^{*1}

ABSTRACT:

Green banking is a form of banking from which the country or nation gets environmental benefits. A conventional bank becomes a green bank by directing its core operations toward the betterment of environment. Green banking has become a buzz word in today's banking world. It means developing inclusive banking strategies which will ensure substantial economic development and promoting environmental – friendly practices as well. This paper focuses on the experiences of Bangladesh in improving green banking, which enables the author to suggest some recommendations for Vietnam.

Keywords: *green banking, sustainable development, commercial bank.*

1. INTRODUCTION

There is no universally accepted definition of the term “green banking”, although it has been widely used both in scientific and in popular literature, and is gaining more and more importance at present times.

The importance of green banking stems from a number of factors. The dominant one is definitely the role that banks are called to play in the modern economy worldwide. Banks are the main providers of liquidity and credit the business, to the individuals and to the public sector. In this role, they have enormous capacity to influence all types of actors in the economy. In this respect, banks cannot stay aside of the processes that are taking place at macroeconomic policy level. For the last 20 and more years, the awareness of climate change and pollution has been gaining strength due to the adverse effects from the phenomena and the increasing research activity dedicated to them. The findings of numerous research papers prove that climate change is due to human activities causing pollution. Thus the vital importance of the fight with climate change and pollution came to the forefront not only through the work of researchers but policymakers as well.

Currently there is common understanding that efforts at all levels are needed to ensure that humanity is not to be destroyed in the near future by its own actions. Macro policy has been defining specific targets at micro and macro level with the aim of attaining constraint of spreading of the already existing adverse effects from climate change and pollution.

As a natural result from this, banks are required to operate that showing a responsible attitude towards everything that has to do with the preservation of environment. To implement green

^{*} Trade Union University, 169 Tay Son, Dong Da, Hanoi, Vietnam. E-mail: quocviet4189@gmail.com.

banking, Bangladesh Bank – the World’s first central bank, which has in-depth and apparent knowledge on green banking, has developed the regulations of green banking in 2011. Therefore, doing research on the experiences of Bangladesh is the basis for the author recommend some lessons for Vietnam.

2. THE DEFINITION OF GREEN BANKING

To date, there is no commonly accepted definition of the term “green banking” outlining its precise meaning and scope. For the past ten years, there are numerous scientific publications related to the importance of various aspects of green business – green marketing, corporate entrepreneurship as a means to achieving sustainable banking, etc.

As part of the research centered around other topic, few papers provide definitions on green banking. In this respect Lalon (2015) defines green banking as “any form of banking from which the country and nation gets environmental benefits. A conventional bank becomes a green bank by directing its core operations toward betterment of environment”. Bhardwaj and Malhotra (2013) define it as “an effort by the banks to make the industries grow green and in the process restores the natural environment.” Papastergiou and Blanas (2011) in essence discuss green banking restores the natural concept of sustainable banking and explain the connection among the various organizational initiatives (including HR, marketing, internal resource management) to achieve sustainability in the services the banks are offering. They build their analysis on the basis of Jeucken (2001) four stage model. Isalm and Das (2013) point out that green banking “indicates endorsing environment – friendly practices and reducing carbon footprint from banking activities”.

The definition proposed by the authors is that green banking is banking in all its business aspects (deposit gathering, credit disbursement, trade finance, leasing operations, mutual funds and custodian services, etc.) which is oriented towards preservation of environment. And here a strict delimitation needs to take place so that the term is understood and used correctly. Green banking in its essence is actually the provision of loans, deposits and other banking products (mutual funds and other investment products, custodian services, etc.) that would positive impact on the environment. Activities such as introduction of paperless statements, electronic communication with clients, internal efforts to save energy, paper and toners, various internal campaigns targeting the building and sustaining of staff awareness of environmental issues. This is true because all these efforts, though highly important for the organization and for the society, do not represent core banking practices, and could be, and are deployed in many other types of organizations, despite the fact that the latter are not banks. The proposed definition of green banking is more narrow compared to the one proposed by other authors, such as Lalon (2015) who states that all kinds of banking activities, including internal operations generating consumption of paper and other resources could go under the definition of it.

One of the reasons why the understanding and usage of the term green banking is related to the practices described above, and not to the core banking activities, is that these practices are comparatively easy to put in place, and banks use the information on them for PR purposed. At the same time, the implementation of product lines targeting the specific and wide – raging environmental needs requires huge effort inside the bank, level of education and awareness

especially among corporate and risk officers, and last but not least, a lot of time for implementation. Another important hurdle for the fast deployment of such kind of products and services is the fact that oftentimes they are related to accepting higher financial risks on the part of the banks and lower interest rate margin, and in certain cases, even customers' attrition (due to increase requirements from the customers which are required to ensure that they operate in an environmentally – friendly way). Also, this is against the interests not only of the bank as a whole but also of the individuals who are supposed to sell those products and services, and whose bonuses depend on the income they have generated.

3. SCOPES OF GREEN BANKING

The scope of green banking, as understood by most authors, could be delineated on the basis of the activities of the banks related to the environment. These activities could be divided into two groups, related to the two types of aspects and hence the two types of impacts on the environment: direct and indirect ones. In the opinion of the author, the indirect ones are actually the important ones and to them the attention of the bank management should be concentrated.

The direct aspects and consequently – impacts – are related to the usage of resources by the banks for the purpose of its operations – electricity, oil, heating, paper, toners and others, and the waste related to their consumption, where relevant. Indirect impacts are related to all kinds of activities through which banks can indirectly have influence on the environment.

Green banking implies not only the creation of green products, but also the incorporation of environmental indicators in the risk assessment and control process. This requires the existence of a pertinent environmental risk management procedure, where the following need to be defined: (i) environmental risk assessment method; (ii) importance of environmental risk assessment outcome for the loan approval; (iii) environmental risk follow – up upon loan disbursement; (iv) measures that are going to be taken by the bank in case the client proves to fall out of compliance with the environmental requirements of the bank related to his risk performance; (v) Roles and responsibilities related to environmental risk management in the bank; (vi) Reporting to the top management on the exposure the loan portfolio has to this risk, etc.

By implementation of such a procedure, the bank, even if does not support a line of green products, actually act as a green bank, because it places specific requirement on its client to abide by certain environmental criteria. In such a way, depending on the strictness of these criteria, the bank has the power to restrict access to finance to polluting industries and to give preferential terms to businesses that are environmentally – friendly.

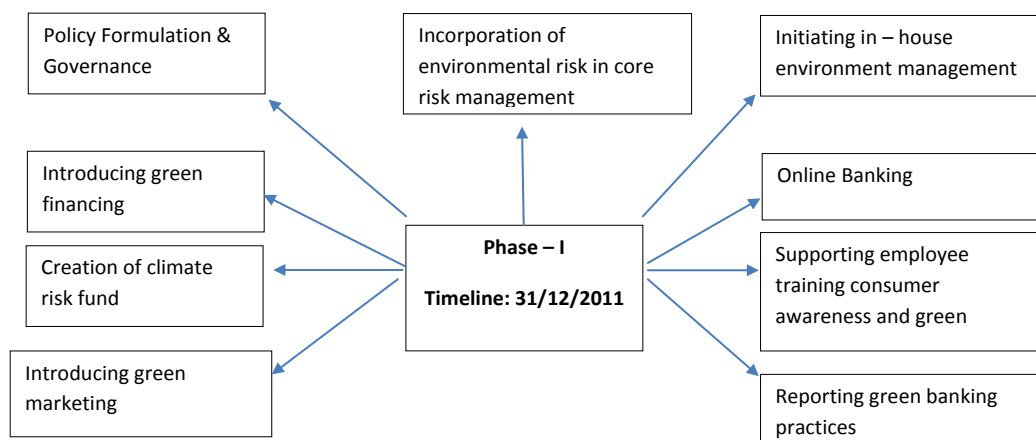
4. EXPERIENCES OF BANGLADESH IN IMPROVING GREEN BANKING

4.1. Roadmap for green banking implementation

Bangladesh Bank introduce the green banking policy that needs to be covered through time frame work. The framework is segregated into 3 phases as following.

Phase 1

Diagram 1: Phase 1 on green banking of Bangladesh Bank



Source: Annual Report on green banking of Bangladesh Bank

(1) Policy formulation and Governance

Bank shall formulate and adopt broad environmental or green banking policy and strategy approved by their Board of Directors. Moreover, bank shall approve a considerable fund in their annual budget allocation for green banking. Banks are required to establish a separate green banking unit or cell having the responsibility of designing, evaluating and administering related green banking issues of the bank.

(2) Incorporation of environmental risk in CRM

Banks shall comply with the instructions stipulated in the detailed guidelines on Environmental Risk Management (ERM) in consideration of a part of the green banking policy. Bank shall incorporate environmental and climate change risk as part of the existing credit risk methodology prescribed to assess a prospective borrower. This will include integrating environmental risks in the checklists, audit guidelines and reporting formats, which enables banks to cover possible sources of environmental risk.

(3) Initiating in-house environment management

Banks shall prepare an inventory of the consumption of water, paper, electricity, energy, etc. by its offices and branches in different places. Then it should take measures to save electricity, water and paper consumption. Furthermore, banks should make plan to use solar energy at their premises to save electricity.

(4) Introducing green finance

Eco friendly business activities and energy efficient industries will be given preference in financing by bank. Environmental infrastructure such as renewable energy project, clean water supply project, wastewater treatment plant, solid & hazardous waste disposal plant, etc. should be encouraged and financed by bank. Customer loan programs may be applied for promoting environmental practices among clients.

(5) Creation of climate risk fund

Bank should finance the economic activities of the flood, cyclone and drought prone areas at the regular interest rate without charging additional risk premium. However, banks should assess their environmental risk for financing the sectors in different areas for creating a climate change risk fund. This will be used in case of emergency. The bank would ensure regular financing flows in these vulnerable areas and sectors. The fund could be created as part of banks’ CSR expenses.

(6) Introducing green Marketing

Green marketing is the marketing of products that are presumed to be environmentally safe. Green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising. It refers to the process of selling products and/ or services based on their environmental benefits. Such a product or service may be environmentally friendly in itself or produced and/or packaged in an environmentally friendly way. Green marketing is expected to raise awareness development among common people.

(7) Online banking

Online banking is the practice of making banking transactions or paying bills via the Internet on a secure website of the respective bank that allows the customers to make deposits, withdrawals and pay bills. Banks should give more emphasis to make the easiest way to help environment by eliminating paper waste, saving gas and carbon emission, reducing printing costs and postage expenses.

(8) Supporting employee training, consumer awareness and green event

Employee awareness development, training on environmental and social risk and the relevant issues should be continuous process as part of the bank’s human resource development. Awareness development among consumers and clients would be a continuous job of a bank under its public relation department.

(9) Disclosure and reporting of green banking activities

Banks shall report on the initiatives/practices to BB and disclose in their respective websites.

Phase 2

Diagram 2: Phase 2 on green banking of Bangladesh Bank



Source: Annual Report on green banking of Bangladesh Bank

(1) Sector specific environmental policies

Banks need to formulate strategies to design specific policies for different environmental sensitive sectors such as agriculture, agro-business, agro-farming leather, fishers, textile and apparels renewable energy, etc.

(2) Green strategic planning

A bank should determine green targets to be attained through strategic planning. Bank should determine a set of achievable targets and strategies, and disclose these in their annual reports and websites for green financing and in – house environment management as well. For in – house environment management, the target areas should cover attaining energy efficiency in the form of the use of renewable energy, reduction of electricity, gas and petrol consumption, reduction of greenhouse gas (GHG) emission, issuance of e-statements, electronic bill pay, saving papers, environment friendly office building, etc. For Green Financing, the target areas should cover reducing loans for certain environmentally harmful activities, attaining a particular percentage of environmental loans as percentage of total, introducing eco-friendly financial products, etc.

(3) Setting up green branches

A green branch should be featured by the provision of the maximum use of natural light, use of renewable energy, use of energy saving bulbs and other equipment, reduced water and electricity use, use of recycled water, etc.

(4) Improved in-house environment management

Strategy of reuse, recycling of materials and equipment, and source reduction and waste minimization strategy should be part of in – house environmental management in Phase 2. Banks should increasingly rely on virtual meeting through the use of video conferencing instead of physical travel which would help saving cost and energy.

(5) Formulation of Bank Specific Environmental risk management plan and guidelines

A bank should develop and follow an environmental risk management manual or guidelines in their assessment and monitoring of project and working capital loans. In addition to the compliance of national regulation the bank may set internationally accepted higher environmental standards. In this connection, green initiatives by a groups of banks will not only be effective but will also offer competitive advantage. Bank alliances may prepare standard and guidelines for themselves for improving green banking practices.

(6) Rigorous Programs to Educate clients

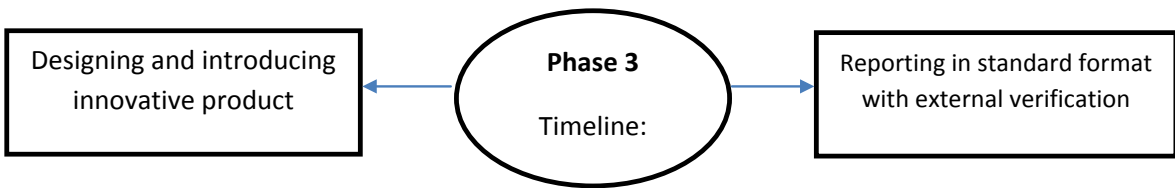
Clients and business houses should be encouraged and influenced to comply with the environmental regulations and undertake resource efficient and environmental activities. Banks should introduce rigorous program to educate clients.

(7) Disclosure and reporting of green banking activities

Banks should start publishing independent green banking and sustainability reports showing past performances, current activities and future initiatives. Updated and detailed information about banks environmental activities and performances of major clients should be disclosed.

Phase 3

Diagram 3: Phase 3 on green banking of Bangladesh Bank



Source: Annual Report on green banking of Bangladesh Bank

A system of environmental management should be in place in a bank before the initiation of the activities of Phase 3. Banks are expected to address the whole eco – system through environment friendly initiatives and introducing innovative products. Standard environmental reporting with external verification should be part of the phase.

(1) Designing and introducing innovative products

Alongside avoiding negative impacts on environment through banking activities, banks are expected to introduce environment friendly innovative green products to address the core environmental challenges of the country.

(2) Reporting in standard format with external verification

Banks should publish independent green annual report following internationally accepted format like Global Reporting Initiatives (GRI) targeting their stakeholders. There should be arrangement for verification of these publications by an independent agency or acceptable third party.

4.2. Green banking development support policies of Bangladesh Bank

- To foster green banking practices in the country, Bangladesh Bank (BB) formulated the “Green Banking Policy and Strategy framework” and “Environmental Risk Management Guidelines” in a consultative manner. Many banks are now financing environmental friendly projects.

- BB has introduced a refinance scheme worth BDT 2 billion (USD 25 million) to refinance loans to effluent treatment plants, solar panels, bio – gas plants and Hybrid Hoffman Kiln technology in brick making industry at a 5% interest rate provided by banks and non-bank financial institutions.

- BB has installed a 20-kilowatt solar panel on the rooftop of its own building.

- BB started Automated Clearing House, e-Banking, e-Commerce, Mobile Banking, e-Tendering, e-recruitment, e-Noting, etc. in order to reduce unnecessary wastage of papers.

- Preferential treatments for environmental compliant banks have been taken into consideration. BB will award points to banks on the criteria of management while computing CAMELS rating where there will ultimately be a positive impact on overall rating of a bank.

- BB will actively consider green banking activities/practices of a bank while according permission for opening new bank branches.

- BB will declare the names of the top ten banks for their overall performance in green banking activities on the BB website

5. LESSONS FOR VIETNAM

- The State Bank of Vietnam (SBV) should establish a detailed roadmap for green banking implementation with timeline and tasks which is compulsory for all commercial banks. Moreover, BB must monitor the green banking practices of commercial banks.

- SBV only allow the commercial banks which have excellent performance in green banking activities to open new bank branches.

- SBV should apply the preferential refinancing policy for green banking activities.

- Government should encourage and try to create awareness about green banking among mass people as well as introduce supporting policies for green projects like reducing taxation rate.

6. CONCLUSION

Green Banking has become a buzz word in today's banking world. For going green products, electronic compliances, motor vehicles, etc. for eco-friendly atmosphere. Automation and improved in house green activities, required and rigorous training program for top/ mid/ lower level management and at the same time clients as well need to be carried on. Board authority should be aware and updated of the current green banking activities and development. Green Banking now is not only limited to awareness but also in practice. It is now expected from all scheduled banks that they would not only allocate budget for green finance, green event or green projects under CSR activities, green marketing and capacity building but ensure the efficient utilization of budget allocation. Finally, we can say that going green should be the motto of all commercial banks.

REFERENCES

1. Annual Report on green banking (2012), Bangladesh Bank
2. Banking Regulation and Policy Department, Bangladesh Bank
3. Bhardwaj, B. R., and Malhotra, A. Green Banking Strategies: Sustainability through Corporate 4. Entrepreneurship, *Greener Journal of Business and Management Studies*. Vol.3 (4), pp. 180 – 183.
4. Islam S, Das PC (2013) "Green Banking Practices in Bangladesh", *Journal of Business and Management*, pp 39-44.
5. Jeucken M., "Sustainable Finance and Banking: Slow Starters are gaining pace", available at <http://www.sustainability-in-finance.com/ifi.pdf>, 2001, retrieved 10 May 2015
6. Lalon. Raad Mozib, Green Banking: Going Green. *International Journal of Economics, Finance and Management Sciences*. Vol.3, No.1, 2015, pp.34 – 42.
7. Papastergious, A. and Blanas, G. Sustainable Green Banking. The case of Greece. MIBES. 2011, available at <http://mibes.teilar.gr/proceedings/2011/oral/16.pdf>, retrieved 10 May 2015.

FACTORS THAT DETERMINE FIRM PERFORMANCE - EMPIRICAL EVIDENCE FROM THE FIRMS LISTED ON THE VIETNAM STOCK EXCHANGE

Vu Van Ninh*, Pham Thi Thanh Hoa**

ABSTRACT

The study empirically identifies the factors significantly affecting the financial performance of Vietnamese listed firm for the period 2009 to 2017. The researcher used panel data set and fixed effect model due to the presence of cross-sectional fixed effect in the regression results. The dependent variable was ROA as a measure of firm's financial performance while the independent variables were leverage, firm size, growth, tangibility and liquidity. Findings from empirical model expresses the leverage, firm size and growth are the factors significantly affecting the firm's financial performance.

Keywords: *firm performance, factors, Vietnam stock exchange.*

1. INTRODUCTION

In the process of interaction and integration among companies and governments worldwide, competition has become fiercer than ever. The economic changes in the world requires each country have to improve the competitiveness of national industries and also requires firms to improve their financial performance. This is especially true for Vietnam where profitability can allow firms achieve the development and improve their competitiveness.

During the pass time, Vietnamese firms have met a lot of difficulties in the business due to economic recession. Such difficulties have made the performance of firms in other industries reducing.

The international business literature is replete with empirical works pertaining to financial performance. A few studies have investigated the factors effecting the financial performance of the Vietnamese firms in each industries or in Vietnamese province (Nguyen Le Thanh Tuyen, 2013; Nguyen Van Duy and Pham Van Hung, 2017).

No study has been done to examine the factors effecting the financial performance of the Vietnam firms listed on the exchange. Hence, this study will provide the empirical evidences on the factors effecting the financial performance of the listing Vietnamese firms.

We constructed this paper into five parts: the second section reviews literature related to financial performance and the factors; the third section presents the methodological framework; the fourth section deals with the result and discussion; the main conclusion are discussed in the last section.

* Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: vuvanninhhvtc@gmail.com.

** Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: phamthithanhhoa@hvtc.edu.vn

2. LITERATURE REVIEW

2.1 Financial performance

Naz, Ijaz and Naqvi (2016) stated that financial performance principally reflects business sector outcomes and results that show overall financial health of the sector over a specific period of time. It indicates that how well a firm is utilizing its resources to maximize the profitability and the shareholder wealth.

Financial performance is the achievement of the firm's financial performance for a certain period covering the collection and allocation of finance, is the firm's ability to manage and control its own resources. Resources can be labors, assets, capital... The results can be sales, profits, firm value, environment protection...

Measures of financial performance

A number of researchers investigate how to measure firm's financial performance. There have been various measures of financial performance, such as return on sale reveals how much a firm earns in relation to its sales; return on assets determines a firm's ability to make use of its assets and return on equity reveals what return shareholders take for their investment. The advantages of financial measures are the easiness of calculation and that definitions are agreed worldwide (Panagiotis and Konstantinos (2016). Traditionally, the success of manufacturing system or company has been evaluated by the use of financial measures (Tangen, 2003).

The use of financial performance measures will be influenced by the goals of the business and the development of the financial market. For example, if the financial market is not yet developed and dynamic, measuring efficiency based on market data will not yield accurate results, so indicators based on book data are often used. Use as: ROA, ROE, ROI. (Demsetz and Lehn, 1985; Gorton and Rosen, 1995; Mehran 1995, Ang, Cole and Line 2000).

However, if the stock market develops, indicators based on market data are often used as price-to-earnings (P/E) (Abdel Shahid, 2003), market value per value books (MBVR) and Tobin's Q (Zhou 2001). ROA is also used by many studies to measure the performance of enterprises (Reese and Cool, 1978, Abdel Shahid 2003, R. Zeitun, G.G Tian 2007).

Factors affecting the financial performance

A strand of empirical literature examines how financial and non financial factors, such as debt leverage, liquidity, investment, firm size, age, location, tangibility and managerial efficiency have an influence on the firm's firm performance.

Financial leverage

Financial leverage is measured by the ratio of total debt to total asset. It shows the degree to which a firm is utilizing borrowed money. The use of debt can increase the shareholder's return on their investment due to using the tax advantages associated with borrowing. However, firm is highly leveraged may be at risk of bankruptcy if it is unable to make payments on its debt.

The Modigliani & Miller Theory of Capital Structure MM (1958) stated that if the capital market is perfect, capital structure does not affect on the firm value. In other words, a firm cannot

increase its value by changing its capital structure. According to Modigliani and Miller, with corporate income tax, the use of debt will increase the value of the business.

The optimal capital structure theory states that the capital structure has an impact on the average cost of capital and firm value or, in other words, an optimal debt ratio, where the average cost of capital of the smallest enterprise and the value of the largest enterprise. Thus, according to the theory of Modigliani & Miller and the theory of optimal capital structure, the use of capital structure will have an impact on the financial performance.

Previous studies by Zeitun & Tian (2007), Margaritis & Psillaki (2007); Abbasali Pouraghajan & Esfandiar Malekian (2012) have found that capital structure has a negative effect on the business performance of enterprises. To reflect the capital structure, previous studies all used leverage ratio. Leverage is the ratio of debt to equity in the capital structure of a business, used to measure the ratio of debt mobilization to total assets. This ratio is also used as a measure of operational and financial risk of the enterprise.

The conclusion of a study on the relationship between capital structure and profitability of Shubita and Alsawalhah (2012) shows that although financial leverage will help businesses receive tax incentives, it is also while increasing default risks for lenders such as banks, credit institutions and other private lenders. When financial leverage increases, not only affects the potential profits of businesses, but also the ability to repay the debts also decreases, credit risk increases.

Thus there is either a positive or negative influence of leverage on firm's performance.

Liquidity

Liquidity refers to the degree to which debt obligations coming due in the next 12 months can be paid from cash or assets that will be turned into cash. It is measured by the current assets to current liabilities. It shows the ability to convert an asset to cash quickly and reflects the ability of the firm to manage working capital when kept at normal levels (Panagiotis and Konstantinos 2016).

Liquidity plays an important role in the financial situation of the company, this is shown through research by Amalendu, Bhunia 2010. The ability to pay short-term low and prolonged will lead to the risk bankruptcy. However, if the short-term solvency is too high, it also affects the performance of the business. Because when the current solvency ratio is high, it shows that the company is investing too much in short-term assets such as cash, short-term financial assets, inventory, and receivables, thereby increasing additional costs for businesses such as opportunity costs of cash reserves, inventory management costs and receivables ... Therefore it will reduce profits and thereby affect operating efficiency.

A study by Agrawal and Knoeber (1996) showed that the increase in corporate solvency is a manifestation of wasted cash and negatively affects the firm performance. Hvide and Moen (2007) suggest that a moderate amount of liquidity may propel entrepreneurial performance, but that an abundance of liquidity may do more harm than good. Therefore, the effect of liquidity on firms' financial performance is ambiguous.

Firm size

The firm size can be interpreted as the level of revenue, the level of assets, the capital, the number of workers. Large-scale businesses will have favorable conditions on prestige, brand, market

share, financial strength, so they have better access to capital (for example, easier to mobilize, higher loans, lower interest rates). These businesses with financial strength, assets and management ability will easily exploit economies of scale to minimize input costs and increase output efficiency.

The size of the firm affects its financial performance in many ways. Large firms can exploit economies of scale and scope and thus being more efficient compared to small firms. In addition, small firms may have less power than large firms; hence they may find it difficult to compete with the large firms particularly in highly competitive markets (Panagiotis and Konstantinos (2016).

In the study of Zeitun& Tian (2007), Margaritis&Psillaki (2007); AbbasaliPouraghajan&EsfandiarMalekian (2012); Maja Pervan&JosipaVišić (2012); firm size has a positive impact on firm performance.

According to a study by Mesut Dogan conducted in Turkey on the correlation between firm size (based on three indicators: total assets, total revenue and number of employees) and profitability and observation indicate the support relationship between firm size and profitability when assessed based on all three variables. Firms listed in Turkey recorded greater profits as they grew in size, as large firms were better able to take advantage of economies of scale.

Tangibility

Deciding to invest and use appropriate capital will help the company increase business efficiency. In this paper, the author chooses the asset structure variable that represents the firm's investment decision. (Memba and Nyanumba 2013).

Investing in equipment, modern production technology to best meet the needs of customers, expanding the market and increasing the competitiveness in the market. The technical level and production technology level of an enterprise affect productivity, product quality, affect the level of saving or increase in material costs, thus affecting the production and business efficiency of enterprise.

The fixed assets to total assets ratio affects firm's performance negatively (Notta O. and Vlachvei A., 2007; Agiomirgiannakis et al., 2006). This can be attributed to the reduced level of current assets which could lead to a lower level of sales, since the firm will be short of the necessary materials, stocks, etc., with a reduced level of activity overall.

Tangible assets also represent protection to lenders against moral hazards resulted by the shareholder-creditor conflict (Jensen and Mekling, 1976). Therefore firms with the higher level of tangible assets are more likely to employ higher levels of leverage. According to Wessel and Titman (1988), Raghuram and Zingales (1995) there is a strong negative relation between a firm's operating performance and tangibility but a positive association with long term debt .

Growth

Growth helps businesses accumulate capital and facilities to invest in expanding production. Growth also helps businesses improve their competitiveness in the market to ensure the existence and development in today's fierce competition.

Studies also show that the growth rate has a positive impact on the efficiency of production and business activities of enterprises.

According to Jovanovic (1982), firms that grow experience increasing profitability while those making losses contract and eventually exit the market. Frank (1988) finds that recent growth is a good signal of the firm's performance expectations and hence implies a positive correlation between firm's survival and recent growth.

3. METHODOLOGICAL FRAMEWORK

3.1 Hypotheses

Previous empirical studies have shown that many factors affect the business performance of enterprises on the financial perspective: capital structure, firm size, growth rate, facilities, equipment and technology and liquidity. Therefore, based on the theory and previous studies, the hypothesis of the research model is given as follows:

H1: There is a significant relationship between debt ratio and business performance of the enterprise.

H2: There is a significant relationship between liquidity and business performance of the business.

H3: There is a significant relationship between firm size and firm's performance.

H4: There is a significant relationship between facilities, equipment and business performance of the business.

H5: There is a significant relationship between growth rate and business performance of the business.

The research will build a regression model based on linear equations. The regression model has the following form:

$$P_{it} = \alpha + \beta F_{it} + \varepsilon_{it} \quad (1)$$

Inside:

P_{it} is the business performance of the company i year t

F_{it} is a set of factors representing factors affecting business performance observed at the firm i year t .

3.2 Variable and Regression model

Dependent variable: There are various measurements of a firm's performance. The popular form of these measurements is ROA, which is measured by dividing net income by total assets (Demsetz and Lehn, 1985; Gorton and Rosen, 1995; Mehran 1995, Ang, Cole and Line 2000). Based on the literature and empirical studies, ROA is selected as the proxies for financial performance in this paper.

Independent variable:

The independent variables include the debt ratio representing the capital structure, current ratio representing liquidity, total logarithm of assets representing size of enterprises, structure of fixed assets representing factors of facilities, machinery and technology, revenue growth represents the growth of businesses.

Table 1: The explanation of variables

The Dependent variable		
ROA	Return on asset	= Net income / total assets
The Independent variables		
SIZE	Logarithm of total assets	= Logarithm of total assets
DEBT	Leverage	= Total debt/Total assets
GROWTH	Sales Growth	= (Sales ₁ – Sales ₀)/ Sales ₀
LIQUID	Current ratio	= Current assets/ Current liabilities
TANG	Tangibility	= Fixed asset/total assets.

Thus, the model of researching factors affecting business performance of listed enterprises is described as follows

$$\text{Performance}_{it} = \beta_0 + \beta_1 \text{TANG}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{TDTA}_{it} + \beta_4 \text{GROWTH}_{it} + \text{LIQUID}_{it} + \varepsilon_{it}.$$

The subscript i denotes the nth company and the subscript t denotes the tth year.

ε_{it}: the error term

3.3 Data and Methodology

This paper used the secondary data of the listed firms to determine the factors impact on the financial performance of these firms. We used panel data from 381 listed companies on the Vietnam Stock exchange in the period from 2009 to 2017. Data were collected from financial statements officially published for a fiscal year on both Hanoi Stock Exchange and Ho Chi Minh Stock Exchange. Since we controlled for the condition of ongoing business in this period, our sample was well balanced.

Data are analyzed using descriptive analysis, correlation coefficient presented for all dependent, explanatory variables and panel data methodology in Stata 12.0. In panel data analysis, fixed effects model (FEM) and random effects model (REM) are used. Hausman test is used to select the appropriate model. The result shows that the FEM estimation is the most relevant estimation method.

4. RESULTS AND DISCUSSIONS

4.1 Descriptive analysis

Table 2 presents the descriptive statistics for 381 firms listed on the Vietnam Stock exchange for a period from 2009 to 2017.

Table 2: Descriptive Statistics

Variables	Mean	Min	Max	SD
ROA	0.06446	-1.6267	1.8978	0.0967
TDTA	0.50529	0	4.7871	0.2427
GROWTH	0.26921	-0.8736	308.448	5.3111
TANG	0.23041	0.00005	0.9764	0.2083
LIQUID	2.29735	0.0025	229.57	4.7022
SIZE	5.73869	4.0535	8.3299	0.6702

Table 2 shows that the average rate of profit after tax on asset (ROA) is 6.4%. The average debt ratio is 0.49 at the average level and fluctuates in the range (0; 4.78), this shows that in addition to the businesses with almost absolute financial leverage, there are still businesses using the majority of equity to minimize risk.

The average growth rate of enterprises is about 26.9%. The level of variation of this indicator is 5.3%. Firms in the research sample have an average fixed asset structure of about 23%, the average current solvency ratio is 2.29.

4.2 Correlation analysis

Table 3: Correlation analysis for dependent and explanatory variables

	ROA	TDTA	GROWTH	TANG	LIQUID	SIZE
ROA	1.0000					
TDTA	-0.4151	1.0000				
GROWTH	0.0016	-0.0085	1.0000			
TANG	0.0070	-0.0514	0.0018	1.0000		
LIQUID	0.1054	-0.2797	0.0002	-0.0763	1.0000	
SIZE	-0.0721	0.2826	0.0142	-0.0508	-0.0765	1.0000

Table 3 presents the correlation coefficients for all variables considered. It can be seen from the table 3, ROA has a positive correlation with growth rate, asset structure and solvency, and has a negative correlation with debt ratio and firm size.

4.3 Regression results

Table 4: The summary of regression

	(FEM)	(REM)
VARIABLES	ROA	ROA
TDTA	-0.132*** (0.00961)	-0.144*** (0.00817)
GROWTH	0.000526** (0.000237)	0.000411* (0.000237)
TANG	-0.00302 (0.0129)	-0.000391 (0.0100)
LIQUID	-9.49e-05 (0.000314)	-0.000152 (0.000307)
SIZE	-0.0522*** (0.00677)	-0.0103*** (0.00385)
Constant	0.432*** (0.0394)	0.197*** (0.0223)
Observations	3,429	3,429
R-squared	0.079	
Number of id	381	381

Note: ***, ** and * show the significant level at 1%, 5% and 10% respectively

Table 4 indicates that TDTA negatively associated with ROA at the p-value 1%. This means the higher debt ratio leads to the lower financial performance. For the period 2009-2017, the Vietnamese listed firms met a lot of difficulties: the crisis of real estate, inflation, change in interest etc. The use of borrowed money is not effective, at this time financial leverage has an adverse effect on the performance of the business. Therefore, the higher the debt ratio, the lower the operating efficiency. This regression result corresponds to the prior empirical studies of Muhammad Umar et al 2012, R.Zeitun, G.G Tian 2007.

Firm size is negatively correlated with ROA with statistical significance of 1%. This shows that the expansion of the scale but the cost is too large, the management is not good, leads to the reduction of business efficiency. This result is opposite of the prior empirical studies of Zeitun & Tian (2007), Margaritis & Psillaki (2007); Abbasali & Esfandiar (2012); Maja Pervan & Josipa Višić (2012).

The positive sign of growth could be seen for ROA at p-value <0.05 . This means that listed firms could improve their financial performance by increase sales. This regression result corresponds to the prior empirical studies of Jovanovic (1982) and Frank (1988).

5. CONCLUSION

This research paper tested five firm factors and their influence on firm performance represented by ROA. These results explain what factors were associated with firm level operating performance. The study concludes that firm's performance in Vietnamese listed firms is significantly affected by leverage, firm size and growth. The Vietnamese listed firms should keep in mind the above factors while making financial decision regarding firm's performance.

Data availability is a major issue in finance studies of the Vietnamese financial market. This limits the number of observation in the entire sample, which consequently restricts the variation in findings. The factors that determine firm performance of Vietnamese listed firms therefore can be further studied and researched. The study used book value measure for dependent and independent variables. The future research on firm's performance may be made through market value measures like Tobin's Q. A study investing influence of agency cost, corporate governance on firm performance could also be a good value to the finance research.

REFERENCES

1. Abbasali Pouraghajan & Esfandiar Malekian (2012), *The relationship between capital and firm performance evaluation measures: evidence from the Tehran Stock exchange*, International Journal of Business and commerce, Vol. 1, No.9, p 166-181.
2. Abdel Shahid, S. (2003), "Does Ownership Structure Affect Firm Value? Evidence from The Egyptian Stock Market", Working Paper, [online], (www.ssrn.com).
3. Agrawal, A. and Knoeber, C.R. (1996), *Firm performance and mechanism to control agency problems between managers and shareholders*. The journal of Financial and quantitative analysis, 31, 377-397.
4. Agiomirgiannakis, G., F. Voulgaris, and T. Papadogonas (2006) "Financial factors affecting profitability and employment growth: the case of Greek manufacturing", International Journal of Financial Services Management, Vol.1 No.2/3, pp. 232-242.
5. Amalendu, Bhunia (2010), "Financial Performance of Indian Pharmaceutical Industry: A case study", Asian Journal of Management Research, No 1, vol. 2, 427-451.
6. Ang, J. S., R. A. Cole, and Lin, J. W. (2000), "Agency Costs and Ownership Structure", Journal of Finance 55, 81- 106
7. Demsetz, H., and K. Lehn, (1985), "The Structure of Corporate Ownership: Causes and Consequences", Journal of Political Economy 93, 1155-1177.

8. Frank M. (1988). *An inter-temporal model of industrial exit*. Quarterly Journal of Economics 103, 333-344
9. Gorton, G., and R. Rosen, (1995), “*Corporate Control, Portfolio Choice, and the Decline of Banking*”, Journal of Finance 50, 1377-420.
10. Hvide, H.K. and J. Moen (2007) *Liquidity Constraints and Entrepreneurial Performance*, Available at <http://ssrn.com/abstract=1012012>
11. Jovanovic B. (1982). *Selection and evolution of industry*. Econometrica 50, 649-670.
12. Margaritis and Psillaki (2010), *Capital structure, equity ownership and firm performance*, Journal of Banking and Finance, vol 34, issue 3, 621-632
13. Maja Pervan&JosipaVišić (2012), *The influence of firm size on its business success*, Croatian Operational Research Review, Vol. 3.
14. Memba.F&Nyanumba. J (2013) *Causes of Financial Distress: A Survey of Firms Funded by Industrial & Commercial Development Corporation in Kenya*. Vol 4(12)
15. Mehran, H., (1995), “*Executive Compensation Structure, Ownership, and Firm Performance*”, Journal of Financial Economics 38, 163-184
16. Modigliani, F., & Miller, M. H. (1958). *The Cost of Capital, Corporation Finance and the Theory of Investment*, American Economic Review, 48(3), 261–297.
17. Modigliani, F. and Miller, M. (1963), —*Corporate income taxes and the cost of capital: a correction*, The American Economic Review, Vol. 53, 1963, pp. 443–53.
18. Muhammad Umar, Zaighum Tanveer, Saeed Aslam, Muhammad Sajid: *Impact of Capital Structure on Firms' Financial Performance: Evidence from Pakistan*, Academic hosting & event management solutions, 2012
19. Naz, Ijaz and Naqvi (2016), *Financial performance of firms: evidence from Pakistan cement industry*, Journal of Teaching and Education.
20. Nguyen Van Duy và Pham Van Hung (2017), *Analyzing the impact of factors on production and business activities of small and medium-sized enterprises in Hai Duong province*, Vietnam Journal of Agricultural Science.
21. Nguyen Le Thanh Tuyen (2013), *Research factors affecting business performance of food processing companies listed on Vietnam's stock market*, Danang University.
22. Notta, O. and A. Vlachvei (2007) “*Vertical Markets and Cooperative Hierarchies The Role of Cooperatives in the Agri-Food Industry*”, in: K. Karantininis and J. Nilsson (Eds.) Springer., Vertical Markets and Cooperative Hierarchies, pp. 275–285.
23. Panagiotis G.Liargovas and Konstantinos S.Skandalis (2016), *Factors affecting firm's performance: the case of Greece*, Global Business and management research: an international journal, Vol. 2. No.2&3.
24. Raghuram R. G., Zingales L. (1995). *What Do We Know about Capital Structure? Some Evidence from International Data*. The Journal of Finance 50(5), 1421-1460
25. Reese, J. S., and W. R. Cool, (1978), “*Measuring Investment Centre Performance*”, Harvard Business Review 56, 28- 46.
26. Shubita and Alsawalhah (2012), *The relationship between capital structure and profitability*, International Journal of Business and Social Science, Vol.3 No.16.
27. Tangen, S. (2003) “*An overview of frequently used performance measures*”, International Journal of Productivity and Performance Management, Vol. 52 No. 7, pp. 347-354.
28. Wessel R., Titman S. (1988). *The Determinants of Capital Structure Choice*. Journal of Finance 43(1), 1-19
29. Zeitun, R., & Tian, G. G. (2007). *Capital structure and corporate performance : evidence from Jordan*. Australasian Accounting Business & Finance Journal, 1(4), 40-61.
30. Zhou,X., (2001), “*Understanding the Determinants of Managerial Ownership and the Link Between Ownership and Performance: Comment*”, Journal of Financial Economics 62, 559-571

APPLICATION OF INFORMATION TECHNOLOGY TO FINANCIAL MANAGEMENT: THE CASE OF TAXATION SECTOR

Nguyen Manh Thieu*

ABSTRACT

Application of information technology to state management in the current context is very important. In recent years, the taxation sector has achieved many results in the application of information technology in management. This paper focuses on analyzing the current situation of information technology application for taxation sector, thereby proposing some ideas and solutions to improve the efficiency of information technology application in the management of taxation sector in the new context.

Keywords: *Information technology, taxation, management, policy*

1. RATIONALE

The information technology has been determined by the Party and the State as an effective tool to implement three strategic breakthroughs in the national development, which is the key for Vietnam's economy to take off. In the period of 2013 – 2018, the Ministry of Finance always took the leading position in ministries and sectors in the Vietnam's readiness index rankings for the development and application of Information Technology (IT). In 2018, the Ministry of Finance was awarded ASOCIO 2018 by the Asia-Oceania Computing Industry Organization (ASOCIO) in the category of "Excellent IT Application Organization" for government agencies. The implementation of IT application in the Finance sector by 2020 focuses on the goal of providing online public services to people and enterprises on the basis of standardizing administrative procedures, applying IT in administrative reform; Applying various forms of support services through integrated technology devices; Building a management information system and information serving directing and administration for leaders; providing multi-dimensional information, supporting analysis, statistics and forecast: Developing databases in accordance to modern technology standard; Treasury and Budget Management Information System (TABMIS), Tax Management System (TMS), Vietnam Automated Cargo Clearance System and Vietnam Customs Intelligence Information System (VNACCS/VCIS); Step by step apply IT in the fields of financial management (prices, public assets, enterprises, insurance, etc.) according to the roadmap for reform and modernization of specialized units, etc. There are 4 basic components in IT, namely: (i) IT infrastructure includes computer networks and telecommunications; (ii) application of IT is the use of IT in socio-economic, foreign affairs, defense, security sectors and other activities in order to improve productivity and quality of

* Academy of Finance, 58 Le Van Hien, Bac Tu Liem, Hanoi, email: nguyenmanhthieu@hvtc.edu.vn.

these activities; (iii) IT industry is a high-tech economic-technology industry producing and supplying IT products, including hardware, software products, and digital information contents; (iv) IT human resources. Implementing the Resolution No. 36a/NQ-CP of the Government, the Taxation Sector continues to promote the application of IT in all stages, supporting in the process of handling administrative procedures on taxation, supporting staff in charge of taxation according to business process are the key tasks that need to be performed. The taxation sector has implemented applications such as: analyzing risk information of businesspeople paying tax under the poll tax method; applying receivables related to land and vehicles; applying the centralized asset management method; recruitment management software, inputting the data of candidates registering for recruitment; applying electronic tax refund for enterprises, investment projects, import and export business subject to electronic tax refund; deploying the information exchange system between the General Department of Taxation and Vietnam Social Security. Currently, the application of IT has supported most of steps in the tax administration process, from establishment stage, poll tax calculation for business households; non-agricultural land use tax; license tax to tax declaration, payment, handling of violation, determination of tax debts, analysis of tax debts, etc., of all organization and individual taxpayers that are all handled centralized data on unique Tax Management System (TMS) application of the taxation sector. The civil servants of taxation sector who work at the division that exploits and processes information on the application according to the access rights to solve jobs quickly, updating data has been only entered in one stage and then exporting many types of reports and books, records for other divisions to use quickly, accurately and well serve the processing and monitoring works, creating modern and professional working style. In addition, a number of application such as: TTR, TPR, QLAC, BCTC, TPH, etc., are updated regularly by the functional departments to support and search in effective tax management, etc.

2. POLICIES ON APPLICATION OF INFORMATION TECHNOLOGY TO FINANCIAL MANAGEMENT

Implementing resolution No. 36-NQ/TW dated 1 July 2014 of the Politburo on promoting IT application and development; on 15 April 2015, the Government issued resolution No. 26/NQ-CP on the Action Program to implement Resolution No.36/NQ-TW. The resolution no. 36a/NQ-CP dated 14 October 2015 of the Government on E-government; The Government has put the central task of strengthening and innovating the propaganda, dissemination and raising awareness and knowledge about IT in society. In particular, the Web portal system for State administrative agencies will be built and put into use uniformly and smoothly from the central to local levels; the information system for receiving and handling feedbacks, recommendations on administrative regulations and situation, results of handling administrative procedures at all government levels. Especially, in the current period, the Fourth Industrial Revolution is a major trend affecting the socio-economic development of all countries. The Prime Minister signed to use the Directive No. 16/CT-TTg dated 4 May 2017 on strengthening the capacity to access the Fourth Industrial Revolution. Under this directive, from now to 2020, it must focus on developing IT infrastructure, encouraging enterprises to innovate technology, etc., to take full advantages. The Resolution No.52-NQ/TW dated 27 September 2019 of the Politburo on a number of guidelines and policies to actively participate in the Fourth Industrial Revolution. The Decision No.556/QD-BTC approving the 5-year Plan on IT application in operation of the Ministry of

Finance for the period of 2016-2020. This plan is a part of the Financial Strategy for the period of 2011-2020, which has an essential role and significance for the modernization process in association with the administrative reform of the Finance sector. The Ministry of Finance focuses on studying and proposing amendments to the Law on Tax Administration (revised) that is ratified by the National Assembly; the Law amending and supplementing a number of articles of tax laws; the amended Decree on invoices and many other provisions. The Ministry of Finance signed Decision No.2369/QD-BTC approving the Plan and list of budget estimations for deploying IT application in 2019. Through summarizing, the volume of the tasks on IT application in 2019 of the whole sector and each departments/units is very large. In 2019, the sector deploys 50 projects, 23 plans – detailed budget estimations and 299 contents without budget estimation and plan. For contents that are newly deployed in 2019, they are expected to deployed under 177 bidding packages, in which, units deploying IT application with large budget estimations are: General Department of Taxation, Department of Financial Informatics and Statistics, General Department of Vietnam Customs, Vietnam State Treasury, General Department of State Reserves, State Securities Commission of Vietnam. The application of information technology to the State management in general and the taxation sector in particular has a great importance, so there are many policies to promote the development such as:

- Decision No. 201/2004/QD-TTg dated 06 December 2004 of the Prime Minister approving the “Program of Tax System Reform by 2010”; Decision No.1830/QD-BTC dated 29 July 2009 on the Pilot Project of Taxpayers filling tax declaration over Internet”.

- Decision No.1937/QD-BTC dated 12 August 2009 approving the use of digital signature authentication system of Vietnam Post and Telecommunications Group during the pilot phase of the project “Taxpayers filling tax declaration over Internet”.

- Decision No.723/QD-TTg dated 17 May 2011 of the Prime Minister approving the “Strategy on tax system reform for the period of 2011-2020”; Decision No. 2331/QD-TCT in 2014 on the Process of managing information technology requirements/incidents of the Taxation sector issued by the General Department of Taxation.

- Decision No.278.QD-TCT dated 01 March 2016 on the Action Plan of the General Department of Taxation on the expansion of the electronic invoice issuance system with the certification of the tax authorities.

- Decision No.2790/QD-BTC dated 27 December 2016 on the pilot application of receiving dossiers and return the result of solving the value added tax (VAT) refund by electronic methods.

- Circular 110/2015/TT-BTC dated 28 July 2015 of the Ministry of Finance guiding electronic transactions in the taxation field; Decision No.549/QD-TCT promulgating the regulation on information technology application in taxation sector; Decree no. 119/2018/ND-CP dated 12 August 2018 of the Prime Minister regulating e-invoices when selling goods and providing services, etc. In addition, there are many regulations and policies related to the application of information technology in tax administration such as the regulation on receiving dossiers and returning VAT refund result by electronic methods, supervising tax refund on TMS, application of risk analysis, regulation on electronic invoices, inspection works, etc.

3. CURRENT SITUATION OF INFORMATION TECHNOLOGY APPLICATION FOR MANAGEMENT WORKS OF THE TAXATION SECTOR

The strategy for tax system reform in 2011-2020 is to build a modern, effective and efficient tax sector that facilitates taxpayers. Currently, the electronic tax declaration has been implemented in 63 provinces/cities and at all taxation departments and divisions under the general department; 637 thousand enterprises use electronic tax declaration services, reaching nearly 100% of the total number of enterprises currently operating in the country. The number of electronic tax declaration dossiers received was over 45.6 million. The General Department of Taxation has completed the connection with commercial banks, which is implemented at 63 Taxation Departments. By now, the number of enterprises registered with tax authorities for using tax payment services via banks was more than 625 thousand enterprises, accounting for over 97% (of total number of currently operating enterprises). The number of enterprises that have completed the service registration with the bank is more than 600 thousand enterprises, accounting for over 96%, with the amount paid to the State budget of over VND 520.3 trillion. Moreover, in the implementation of e-government, the taxation sector provides online public services that currently reaches level 3 or higher with nearly 50% of administrative procedures. The tax system reform strategy for the period of 2011-2020 has achieved remarkable initial results. In order to meet the requirements of the new trend, the taxation sector has strongly promoted the application of information technology in tax administration. IT has been widely applied to help simplify tax administrative procedures, reduce costs for enterprises and people, and at the same time, contribute to manage, promote the collection growth in rapid and sustainable way. According to the Doing Business 2018 report of the World Bank, the Vietnam's tax payment index ranked 86/190 countries, going up 81 places, ranking 4th place in ASEAN, after Singapore, Thailand and Malaysia.

After applying and deploying information technology application in tax management, the results are as follows:

Regarding electronic tax declaration: Over recent time, the General Department of Taxation has actively implemented an electronic tax declaration system to assist taxpayers in filling most of the tax declaration documents, including first/additional declarations, declarations on each occasion, tax finalization declaration, financial statement, invoice report, charge and fee payable receipts according to regulations. In addition, the General Department of Taxation has also implemented a system of information exchange between tax authorities and land registry agency – under the ministry of Natural Resources and Environment to support Tax Departments in deploying and using information exchange system. After the pilot phase of electronic tax, the mass application is deployed in 2014-2018. In this period, the rate of enterprises filing tax declaration online was always high, over 97% of enterprises using this service. The number of electronic tax declaration has also grown tremendously, in 2014, there was more than 18 million declarations were filed into the online tax declaration system; this number doubled in 2016, reaching nearly 36 million declarations. In 2017, the number of registered enterprises was 644,737 (reaching 99.95% of total number of operating enterprises); The number of dossiers received was over 47,622,313. Regarding individual taxpayers, the tax agencies are currently managing 35,072 individual taxpayers; the number of received dossiers was 61,329. By 2018, the electronic tax declaration system has bene

implemented in 63/63 provinces/cities and 100% of Tax Departments and Divisions under the General Department of Taxation.

Table 1: Current status of electronic tax declaration in Vietnam in 2015-2018

No.	Criteria	2015	2016	2017	2018
1	The number of tax departments applying electronic tax declaration	63	63	63	63
2	The number of tax departments meeting the assigned target on electronic tax declaration	62/63	63/63	63/63	63/63
3	The number of enterprises applying electronic tax declaration	511,801	566,662	559,998	697,377
4	The number of operating enterprises	515,245	567,768	561,064	698,481
5	The rate of enterprises applying electronic tax declaration	99.3	99.8	99.81	99.84
6	The number of declarations received in the electronic tax declaration system	26,669,991	35,810,774	47,622,313	56,500,000

Source: Reports of the General Department of Taxation and synthesis of the author

The implementation of electronic tax declaration and payment services has helped tax authorities, enterprises and banks reduce the time for completing procedures; reduce costs for enterprises and society, especially, contributed to the disclosure and transparency of information for taxpayers.

Regarding electronic tax payment: The General Department of Taxation has issued documents guiding electronic transactions in the tax field, creating a legal basis for conducting electronic transactions. Implementing from 2014 by now, electronic tax payment in Vietnam has gained remarkable results. In 2014, there were 18 Tax Departments participating in the pilot of electronic tax payment, by now, there are 63 Tax Departments using this method. In 2014, 12/18 Tax Departments achieved the target on electronic payment, this number in 2015 was 42/63 and in 2018 was 61/63 finishing the targets on electronic tax payment set by the General Department of Taxation. The number of enterprises registering for the services increased sharply, from 18,835 enterprises in 2014 to more than 555,000 enterprises in 2016 after having the policy on compulsory electronic tax payment from the Ministry of Finance. The rate of enterprises finishing the registration at tax authorities and commercial banks in 2015 was 89.88%, in 2016 was 97.06%, in 2017 was 96.42% and in 2018 was 96.3%. The total amount of electronic tax payment increased rapidly, from VND 8,524 billion in 2014 to nearly VND 557,697 billion in 2018. The electronic tax payment is implemented through the main channel of commercial banks. The General Department of Taxation has implemented the policy to collaborate with commercial banks from 2013. In 2015, there were 5 banks connected with the General Department of Taxation, this number in 2015 was 33 and 43 in 2016, then 50 banks in 2018. In 2017, the number of enterprises registering with commercial banks were 621,938 (reaching 96.42%). By 31/12/2018, the number of enterprises completing service registration with banks were 672,599. In 2018, enterprises paid tax through over 3.1 million electronic tax transactions with the amount of over VND 658 trillion.

Regarding electronic tax refund: Implementing Resolution No. 36^a/NQ-CP of the Government on e-Government, Resolution no.19/NQ-CP of the Government on promoting administrative procedure reform, the General Department of Taxation has conducted analysis and upgrading applications for receiving dossiers and returning the results of value-added tax (VAT) by electronic method. To ensure the legal basis for the pilot implementation of electronic tax refund service, the Ministry of Finance issued Decision No. 2790/QD-BTC dated 27 December 2016 on the pilot application of receiving dossiers and return the result of solving the value added tax (VAT) refund by electronic methods. Basing on these legal documents, the General Department of Taxation has set up a plan to implement electronic tax refund. The General Department of Taxation piloted the electronic tax refund in Hanoi city and Haiphong city; from 12 May 2017, the taxation sector has officially implemented electronic tax refund nationwide – marking a new step in modernizing and reforming the administrative procedures of the sector.

Accordingly, the receipt of dossiers and return of results of value added tax refund by electronic methods at Tax authorities in 63 provinces/cities have been decided to apply since May 2017 by the Ministry of Finance. Additionally, the General Department of Taxation deployed a temporary solution to supervise tax refund based on the Official Dispatch No.4118/TCT-KK dated 9 September 2016 on the implementation of tax refund supervision on TMS and Official Dispatch No. 13804/BTC-TCT dated 30 September 2016 of the Ministry of Finance on VAT refund management in the last months of 2016. After 6 months of pilot, the number of registered enterprises reached 4,675; the number of dossiers processed were 9,452 (total number of dossiers received were 11,953); the total amount of money refunded was over VND 49,200 billion.

Implementing some other applications: Regarding the pilot of implementing an electronic invoice system with authentication codes; Application of IT in inspection, monitoring and internal monitoring; Regarding the implementation of online public services delivery: the number of administrative procedures provided online is 125/298, reaching level 3 or higher. Currently, 63 Tax Departments and the General Department of Taxation have their own websites providing tax information. Three level 3 or higher public services are provided, including: Electronic tax system (online invoice declaration; declaration of using receipts for online charges and fees; Online tax declaration; Electronic tax payment; Electronic tax refund); Anti-counterfeiting invoice code issuing system; Information Exchange system between tax authorities and Natural resources and environment agencies (electronic inter-door system). In addition, the General Department of Taxation also applies the Service of online paying registration fees for cars and motorbikes; Service of electronic land tax payment and household; Application of Document management software at administrative units (eDocTC).

Over last years, the taxation sector has strongly promoted the application of IT in tax administration. Electronic services such as online tax declaration, electronic tax payment, electronic tax refund, etc., have brought a lot of benefits to taxpayers; creating a breakthrough in administrative procedures reform, bringing a very positive effect to people and society. This is also the main reason and the core to help Vietnam's tax payment index increase dramatically in recent years. Applications for electronic tax management as mentioned above have been built, operated on the basis of the Tax Management System (TMS). This application is identified by

the Ministry of Finance and the General Department of Taxation as core professional application system (backbone) to support the tax administration works, which replacing tax administration application systems that had been implemented in all three levels of the taxation sector from 1998. This system has been developed and upgraded many times based on the previous application's framework. Recent reform efforts of the tax authorities have been recognized and appreciated by the Government, the Ministry of Finance and the business community. According to a survey conducted by VCCI, the satisfaction index of enterprises on tax administrative reform in 2016 was 75/100 points (compared to 71/100 points in 2014). The Advisory Council on administrative reform of the Government assesses the cost of compliance with tax administrative procedures ranking 1 in 8 groups of tax administrative procedures that are included in the assessment. The General Department of Taxation will continue to promote the application of information technology in tax administration starting from the management of electronic tax registration, tax declaration, tax payment, and tax refund, continuing to widely deploy the electronic tax declaration, tax payment, tax refund throughout country; accelerate the application of information technology in risk management, tax inspection and supervision, tax debt collection management and enforcement. The effectiveness of IT application in tax management has achieved important results, such as: implementing tax administrative reform, facilitating taxpayers, reducing costs in terms of time and paperwork in tax declaration and payment; ensuring that taxpayers' information and tax declaration are sent to tax authorities quickly, accurately, without errors and mistakes; synchronously creating necessary conditions for both tax authorities and taxpayers when doing electronic tax declaration and payment; reducing the overload at the tax offices when tax declaration time, etc. However, policies and legal documents on tax as well as input templates and forms of current application are constantly changing. The upgrading, supplementing and deploying current IT infrastructure of the Taxation sector have not met the requirements and the implementation speed. Technical errors still exist in the process of operating the application system, so sometimes, it does not serve timely the analysis of data for tax administration works. The data monitoring taxpayers' tax obligations on the computer system is not sufficient and there are many cases of discrepancies and errors but not yet regularly reviewed and double checked, and not yet resolved these discrepancies and errors, etc. Therefore, it is necessary to continue to supplement and complete more applications in the near future to meet the requirements.

4. RECOMMENDATIONS

From the real requirements of the new trend of 4.0 technology application and to overcome the limitations in deploying IT applications, implementing the national program on IT applications in the operation of State agencies for 2016-2020, the Taxation sector should continue to strongly promote the application of information technology in tax administration in the following orientations and solutions:

Firstly, applying the Blockchain technology to the taxation sector, building a national tax database to meet the requirements of e-government implementation. National data on the number of enterprises using electronic tax payment, electronic invoices with authentication codes of tax authorities; electronic tax declaration and value added tax, corporate income tax; paying registration fee for cars, motorbikes by electronic methods, etc.; publicizing processes and regulations on tax

administration for taxpayers to know, monitor and supervise; reducing, simplifying and publicizing administrative procedures for taxpayers to know and follow. For example, value added tax is a tax that contributes largely to the national budget, so tax authorities are always looking for ways to collect value added tax most effectively. However, collecting sufficient information from taxpayers is a challenge for tax authorities. On the other hand, the amount of value added tax is calculated for a certain period of time, usually by month or quarter. Therefore, the tax authorities are increasingly facing difficulties to monitor and control the collection and payment of value added tax. Thus, the Blockchain technology should be applied to the tax system to manage, track and monitor the situation of collection, payment and refund of VAT throughout the industry as well as every enterprise; there are some benefits for enterprises and tax authorities to limit fraud, errors in tax collection.

Secondly, it is necessary to have clear legal basis for electronic transactions, user verification system, technical infrastructure and especially the mechanism to encourage enterprises to voluntarily participate in electronic transactions. Completing the system of synchronized legal bases related to electronic tax transactions such as tax registration, processing tax declaration, tax payment documents, calculating late payment, debt notices, monitoring tax refund, etc., to reduce manual works and save time for tax officials. Therefore, the management and processing of tax data must be more quickly, timely and effectively. All tax officials are able to exploit information on the application to understand the situation of tax payable, each tax payment document to promptly remind tax collection and tax debt collection.

The taxation sector should expand electronic services providing to taxpayers such as: eTax, electronic tax declaration, electronic tax payment, electronic tax refund, etc. This also helps the superior tax authorities to understand the management situation of subordinates; actively supports leaders of superior tax authorities in supervising, directing, administering and managing subordinate tax authorities. In order to effectively implement electronic tax services, it is necessary to have a corresponding legal framework; by this way, the entities participating in the electronic tax services will have bases to exchange information and electronic data serving the tax administration.

Thirdly, promoting support taxpayers through the provision of expanded electronic tax services; encouraging and supporting intermediary organizations to develop tax services, meeting the requirements of socialization of some services such as tax consulting and accounting; electronic tax declaration service, etc.

Fourthly, modernizing the internal management of the taxation sector in order to improve the quality and efficiency of the operation, creating a professional and effective working environment in the application and implementation of information technology in the taxation sector.

Fifthly, urgently developing IT infrastructure with advanced, modern and synchronous equipment; the General Department of Taxation should pay attention to invest in, upgrading the technical infrastructure, unified communications network and IT equipment suitable to the requirement of working, developing software of system operating on open source software, ensuring that the software will not run in conflict with other software and ensuring the data security of enterprises. Application of 4th industrial revolution in the deployment of electronic invoices,

chatbot technology in supporting taxpayers, etc. Developing tax administration capacity for 4.0 enterprises; improving the quality of service to people, measurement and assess people's satisfaction. Ensuring IT system operate continuously, effectively with information and data security. Because, when applying IT in the collection and payment, refund of tax, the taxation sector will affect hundreds of thousands of enterprises with a large volume of operations, documents, archives and security; therefore, it is necessary to have a modern technical infrastructure system to meet the requirements of enterprises to do electronic tax payment, tax administration and information security and provision of the taxation sector.

Sixthly, promoting the training and development of IT human resources in accordance with the IT orientation and development plan of the taxation sector. In order to implement well the application of IT in all stages of tax administration, first of all, there must be qualified human resources to understand, operate, use and manage; therefore, it is necessary to actively train to upgrade the capacity of tax officials in using IT application in tax administration tasks in the period of the fourth Industrial revolution.

Seventhly, coordinating, connecting and exchanging information with units outside the taxation sector as well as linking information of relevant agencies such as banks and local authorities to help the tax authorities get comprehensive information about taxpayers and other related issues.

5. CONCLUSION

Implementing the Party's and Government's policies on promoting administrative procedures reform; modernizing the management system; improving effectiveness and efficiency in management; improving the national competitiveness; completing the E-government construction strategy. Among the ministries and sectors under the Government, especially, the Ministry of Finance is the leading unit in the application of IT in financial management, with the most typical point is in the tax administration work of the General Department of Taxation today.

First of all, the taxation sector has immediately deployed application software and built a unified communication infrastructure, contributing to the rapid settlement of contents in tax administration of the sector such as tax declaration, payment, annual tax finalization, quickly handling hundreds of thousands of tax declarations and finalization dossiers for both organizations and individuals. Secondly, continue to maintain and complete the Tax Management System across the country for all taxes; accelerate the electronic tax declaration application to further support taxpayers in filling most of tax declaration dossiers including first/additional declarations, declaration at each arising, tax finalization declarations, financial statements, invoice reports, charge and fee receipts payable according to regulations. Thirdly, thanks to information technology application, the General Department of Taxation has also implemented the system for information exchange between tax authorities and land registration department – The Ministry of Natural Resources and Environment to support the tax departments in implementing and using the information exchange system between tax authorities and land registration offices. Fourthly, the General Department of Taxation has analyzed and upgraded applications according to the process of receiving dossiers and returning results of value added tax refund (VAT) by electronic methods at all tax department nationwide. Fifthly, the General Department of Taxation expands the electronic invoice issue

system with authentication certified by the tax authorities, at the same time, support enterprises to implement the electronic invoice system with authentication codes. Promoting IT application in the inspection, examination and internal check at all levels such as adding a quick report template, instructions on making and synthesizing reports on applications, updating data into applications for tracking the inspection results, checking and applying the risk analysis method in tax inspection planning to serve the administration of tax authorities.

REFERENCES

1. Summary report on the implementation and assessment of the efficiency of the Tax Management System – General Department of Taxation
2. Report on the implementation of IT application in Taxation sector and Information Technology Department – General Department of Taxation, 2016
3. Summary report: “Summary of tax works in 2018: Tasks and solutions for tax works in 2019”, General Department of Taxation
4. Nguyen Minh Ngoc (2011): “Solutions to accelerate the application of information technology in Vietnam’s taxation sector”, Doctoral thesis – National Economics University
5. Nguyen Ton Truong (2017), Finance Magazine, “Application of information technology in taxation sector”.
6. <http://thoibaotaichinhvietnam.vn/pages/thue-voi-cuoc-song/2018-04-03/ung-dung-cong-nghe-thong-tin-cao-buoc-chuyen-tich-cuc-trong-quan-ly-thue-55668.aspx>
7. <http://tapchitaichinh.vn/su-kien-noi-bat/su-kien-tai-chinh/nganh-tai-chinh-doi-moi-ung-dung-cong-nghe-thong-tin-126473.html>
8. <http://aita.gov.vn/ung-dung-cua-cong-nghe-chuoi-khoi-blockchain-trong-nganh-thue>.
9. <http://baochinhphu.vn/Tai-chinh/Ung-dung-tot-CNTT-giam-thoi-gian-va-chi-phi-tuan-thu-cua-nganh-thue/346536.vgp/>.

CONCERNS ON CURRENT PUBLIC DEBTS IN VIETNAM

Nguyen Quoc Thai*

ABSTRACT

Public debts are defined as all pieces of outstanding loans in the public sector. Public debts might be caused by several reasons and have multi-faceted impacts on the socio – economic development of a nation. Especially, if the total loans accumulate over a specific level (also known as ‘a secured threshold’¹), it might lead to various negative, even serious, consequences on the economy such as the decrease in capital accumulation, the reduction of national savings, the shrink of private investment, the unexpected inflation, the distortion of economic activities, or damaging the welfare system. Therefore, identifying and controlling public debts have an important role in any country.

Keywords: *public debt, public debt management, Vietnam, JEL: H60, H63*

1. OVERVIEW OF THE PUBLIC DEBT SITUATION IN VIETNAM

Vietnam is a developing country in which the average per-capita income is low, capital accumulation for development is moderate, meanwhile, the demand of capital for accelerating the economic development and archiving the industrialization and modernization purpose is considerably large. As the result, issuing debts to raise funds for expenditure and investment is essential. However, in the context of continuous changes on international socio-economic conditions, the slowing down of domestic economic growth as well as the tax cut policies for integration requirement, the public debt scale in Vietnam is dramatically increasing in recent years in both net and per-capital values.

In particular, the net value of public debts in Vietnam increased five times in the period of ten years from 2001 to 2010, which is equivalent to the average increase of 15%/year². The public debts in 2016 was more than VND 2.86 billion, 2.5 times higher than in the 2010's, 7 times more than in the 2006's, and 17 times of the 2001's. Meanwhile, in the period from 2011 to 2015, the average increase in public debts is 18.4 per cent/year, which is threefold higher than the economic growth. At the end of 2018, the report published by the Ministry of Finance revealed that the net value of public debts is about VND3.2 million billion VND³.

* Institute of Economics, Ho Chi Minh National Academy of Politics.

¹ This threshold might change due to the situation of the economy in a specific period.

² The Ministry of Finance

³ Data published by the Ministry of Finance counted until December 31st, 2018

Table 1. Public debts per capita in Vietnam (in USD)

2001	2006	2008	2010	2011	2013	2015	2018
144	279.56	384.70	580.91	756.90	840.00	955.90	1,400.00

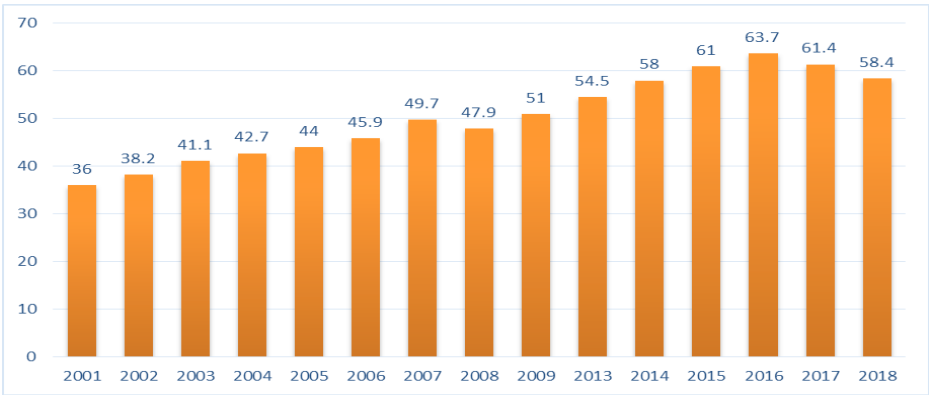
In the period from 2011-2015, the increasing speed of public debts in Vietnam is 18.4%

Source: collected from reports of the Ministry of Finance

In 2001, the per-capita public debts of Vietnam were only USD144.0 while the number of 2010 is USD580.91. It means that the public debts per capita increased by 18 per cent/year in the period from 2001 to 2010, higher than the annual economic growth of the country (equivalently to 6%/year¹). The numbers reached USD756.9² in 2011, USD955.9³ in 2015, and more than USD1,400 in 2018 (equivalent to VND 32 million⁴).

As presented in **Figure 1**, the ratio of public debts/GDP of Vietnam is about 36%, until 2016, this ratio increased to 63.7%, almost reached the public debt ceiling of 65% set by the Assembly. From 2017, the status tends to relieve. The ratio in 2018 is down to 58.4% but still at the considerable level. Comparing to other countries, the public debts of Vietnam are only at the average level in terms of both absolute values, per-capita number, and the public debts/GDP ratio⁵.

Figure 1. Public debts of Vietnam between 2001 and 2018 (% GDP)



Source: collected from published reports of the Ministry of Finance

2. SOME ISSUES RAISED FROM THE CURRENT STATUS OF PUBLIC DEBTS AND PUBLIC DEBTS MANAGEMENT IN VIETNAM

The activity of issuing debts in public sector for investment purposes in current years had positive contributions not only to deal with several problems in the economy, society, and

¹ The Ministry of Finance.
² The data of The Economist counted to September 4th 2012.
³ The Economist.
⁴ Calculated from the published data of the Ministry of Finance of Vietnam.
⁵ According to the published data of IMF in 2017, 3 economies that have the largest scales of public debts in absolute values are the U.S.A. (USD20,500 billion), Japan (USD11,588 billion), and China. In terms of public debts/GDP, 10 nations have the highest ratio are Japan (237.6%), Egypt (181,8%), Lebannon (146,8%), Italy (131,8%), Portugal (125,7%), Sudan (121,6%), Singapore (111,1%), the U.S.A. (105,2%), Belgium (103,4%), and Greece (103%).

environment; but also, to encourage the national socio-economic development. Otherwise, according to the analysis of the Ministry of Finance, the current level of public debts in Vietnam is within the secured threshold of 65% of GDP and tends to decrease. However, the public debts and public debt management in Vietnam still exist some following issues.

Firstly, the statistical method on public debts in Vietnam is different from the international standards and exists some drawbacks.

Public debts in Vietnam are considered including governmental debts, loans which are guaranteed by the Government, and debts of local governments¹. Meanwhile, there are several types of debts and loans in which final responsible stakeholder on payment duty is the state budget but are not counted on national public debts². This definition of Vietnam causes deviations on statistical data of public debts³ and might lead to negative impacts on public debt management. For instance, the public debt structure of Vietnam currently does not include the loans of state-owned enterprises except the loan guaranteed by the government. As the results, in the context of inefficient operation⁴, bad loans of these stakeholders are potentially threatening the stability of Vietnam's public debts because they are sponsored by the state budget.

Besides, the statistical data of Vietnamese data are still inadequate, incomplete, and inconsistent. It is because before the Law on Public Debt Management 2017⁵, the debt issuance and management were taken place by various ministries and agencies. These shortcomings are difficult to be throughout resolved in short-term⁶. This reality comes along with the difference in public debt calculating method against the international standards, makes the determination of public debts, obligations of liability payment complicated and difficult.

¹ The Law No. 20/2017/QH14 on public debt management promulgated on November 23rd, 2017.

² According to the World Bank, public debts include: (1) debts and loans issued by the central government and central governmental departments; (2) debts and loans issued by all levels of local governments; (3) debts and loans of state bank; (4) debts and loans issued by independent organizations which are eligible one of the following criteria: the government owns 50% of the capital or has the number of representatives more than 50% of the total members in the board of director; or the budgeting process of the organizations has to be approved by the government; or government is responsible for paying the debts if the organization is unable to pay their loans. According to UNCTAD, public debts not only include all loans and debts issued by the government, guaranteed by the government, and issued by local governments, but also include all the payment duties of state bank, department of the central governments both bureaucratic and business organizations, and other implying debts and loans (for instance, loans of retirement payment and social insurance,... According to IMF, public debts of a country include debts and loans in public finance sector and debts and loans in the non-public financial sector. According to OECD, public debts are accounted for loans of all public institutions.

³ For instance, international organizations recognized the public debt scale of Vietnam in 2016 was equivalent to 60% of the national GDP, while the rate reported by the Ministry of Finance was only 58%.

⁴ According to the report prepared by the Supervisory Delegation of the Assembly about the results of implementing laws and policies on the management and usage of state-owned capital and assets in state-owned enterprises in the period of 2011-2016, the total liabilities of state-owned enterprises were very high, increased by 26% compared to the 2011's, from VND1.2 million billion to VND1.6 million billion.

⁵ The Law No. 20/2017/QH2017 on Public Debt Management took effect on July 1st, 2018. After this time, the Ministry of Finance became the united agency in assisting the government to manage the public debts.

⁶ The Law No. 20/2017/QH2017 on Public Debt Management took effect on July 1st, 2018.

Secondly, the public debts/GDP ratio of Vietnam is higher than the rates of new industrial and developing countries.

Table 2. Public Debts of some countries in 2017

Country	Total Public Debts (in billion USD)	Public Debt/GDP (in %)
Indonesia	292,48	28,8
China	5.751,76	47,0
Thailand	148,43	32,6
Philippines	125,12	39,9
Malaysia	170,26	54,1
India	1.833,88	71,2
Singapore	363,42	112,2
Vietnam	130,91	58,5

Source: collected from IMF, Global Debt Database; UN, GDP by Type of Expenditure at current prices - USD

Although the absolute value is smaller than the public debt level of other countries in this group, the ratio of public debt to GDP of Vietnam is higher and tends to increase. According to the data provide by IMF and UN presented in Table 2, by the end of 2017, Vietnam's public debts were 130.91 billion USD, equivalent to 58.5% GDP. In the same period, Thailand's public debts were USD148.43 billion, 1.13 times higher than Vietnam's, but equivalent to only 32.6% of GDP. General public debt of Indonesia was USD292.48 billion, 2.23 times higher than Vietnam's, but only equivalent to 28.8% of GDP. Similarly, the public debt level of the Philippines was USD125.12 billion, nearly equal to the size of Vietnam's public debt, but only accounted for 39.9% of GDP. Meanwhile, China has a high level of public debt in the world with USD5,751.76 billion, 43.9 times higher than Vietnam's, but this public debt only accounts for 47% of GDP. These data imply that Vietnam's economy is bearing a larger debt than the all of the economies mentioned above.

Thirdly, the efficiency of using public debts is quite low.

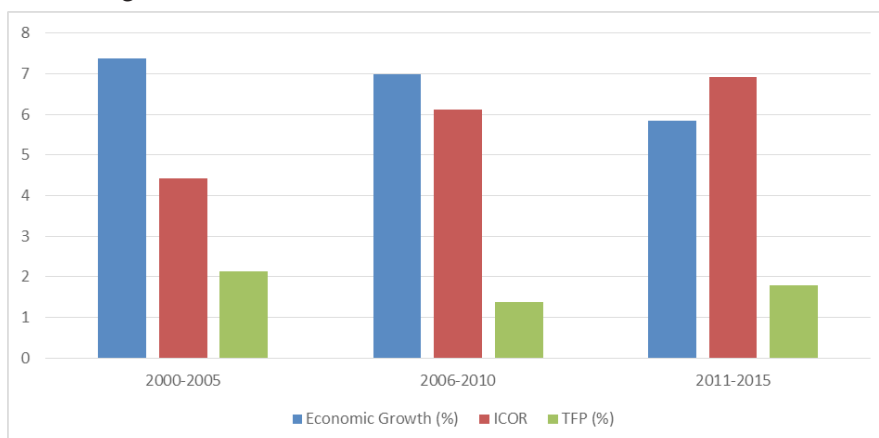
Many works and projects funded by public loans in recent years have not been effective such as the widespread investment, low-quality constructions, loss and waste¹, process delay poor business performance², etc. This issue is partly responsible to make the ICOR index of Vietnam evolve in a negative direction. As shown in Figure 2, Vietnam's ICOR index increased from 4.42 in the period of 2000-2005 to 6.12 in the 2006 – 2010 period, and 6.91 in the period of 2011 - 2015, higher than many countries in the region and worldwide. Meanwhile, in the period of 2006 – 2010, the economic growth rates of Vietnam slowed down compared to the previous period (from the average annual rate of 7.39% in the years of 2000-2005 to 7.00%/year in the period of 2006-2010 then 5.84% in the 2011-2015 period).

¹ According to some researches, each publicly invested VND only creates VND0.68 of products.

² For instance, several projects used loans guaranteed by the Government, invested on steel or concrete manufacturing reported to be lost.

In recent years, with the implementation of the Party and State's policies of renovating the economic growth model towards improving quality and efficiency, restructuring the state budget to ensure national financial safety and sustainability these indicators have been improved, but still lower than other countries in the region and around the world. This fact indicates that in the future, Vietnam might face many difficulties in financial accumulation to pay in-due liabilities.

Figure 2. The ICOR Index and Economic Growth of Vietnam in some periods



Source: collected from the General Statistic Offices

Fourthly, the foreign debt proportion in the public debt structure of Vietnam has tended to decrease in recent years, but it is still high compared to many other countries. The ratio of foreign debt guaranteed by the Government tends to rise.

Compared to the period 2006 - 2011, the proportion of foreign debt in Vietnam's public debt structure has a significantly positive change on the reducing direction. From the proportion of more than 70% in total public debt before 2011, the ratio fell to 41.7% as of 31 December 2017. However, this rate is still high when comparing with many other countries. The great share of foreign loans increases the risks for Vietnam (i.e. the exchange rate risks, other constraints from lending countries and organizations as well as the adverse fluctuations of the world market, etc. ¹).

In recent years, the scale of commercial loans in foreign debts with high interest rates tending to increase because Vietnam has overcome the middle income country's threshold. In the next 5 years, Vietnam's ODA will decrease gradually to zero. According to Ministry of Finance, the percentage of international loan with floating rate in total debt was increased from 2% in the year 2006 to 11% in year 2015. This situation has led to an increase the burden of payment for international loans.

Besides, the ratio of foreign loans being guarantee by the Government was likely increased continuously in the period of 2013 – 2017. The ratio increased from 47.6% in year 2013 to 55.4% in year 2017, while there are many public projects implementing ineffectively (slow progress, waste, low performance, lost, etc.). It partly increases the risk of public debt in Vietnam.

¹ According to the published data of IMF in 2017, Japan has the public debt/GDP ratio of 237,6%. It is an example of high public debt level but is considered as low risk of bankruptcy because most of the Japan public debt is in the hands of the citizens and domestic residents.

Table 3. Vietnam's public debt 2006 - 2011

	Foreign debt / GDP (%)	Public debt/GDP (%)	Foreign debt / Public debt (%)
2006	31,4	45,9	73,2
2007	32,5	49,7	71,3
2008	29,8	47,9	67,9
2009	39,0	51,0	79,6
2010	42,2	56,6	74,6
2011	44,5	58,7	76,9

Source: collected from reports of the Ministry of Finance

Table 4. Vietnam's public debt in the period of 2013 - 2017

	Foreign debt (Million USD)	Domestic debt (Million USD)	Total (Million USD)	Foreign debt/Public debt (%)
Government debt				
2013	36.281,66	35.999,33	72.280,99	50,2
2014	38.130,72	47.817,27	85.947,99	44,4
2015	39.644,97	54.674,26	94.319,23	42,0
2016 (R)	42.915,79	64.574,70	107.490,49	39,9
2017 (P)	46.323,14	68.922,13	115.245,27	40,2
Debts guaranteed by the Government				
2013	8.960,17	9.867,67	18.827,84	47,6
2014	9.921,97	9.970,70	19.892,67	49,9
2015	11.314,17	9.477,14	20.791,31	54,4
2016 (R)	11.552,00	9.357,27	20.909,27	55,3
2017 (P)	11.241,75	9.065,70	20.307,45	55,4
Government debt and government-guaranteed debt				
2013	45.241,83	45.867,00	91.108,83	49,7
2014	48.052,69	57.787,97	105.840,66	45,4
2015	50.959,14	64.151,40	115.110,54	44,3
2016 (R)	54.467,79	73.931,97	128.399,76	42,4
2017 (P)	57.564,89	77.987,83	135.552,72	42,5
Domestic debt of local governments				
2013		2.868,46		
2014		3.305,99		
2015		3.364,18		
2016 (R)		2.994,17		
2017 (P)		2.551,72		
Public debt				
2013	45.241,83	48.735,46	93.977,29	48,1
2014	48.052,69	61.093,96	109.146,65	44,0
2015	50.959,14	67.515,58	118.474,72	43,0
2016 (R)	54.467,79	76.926,14	131.393,93	41,5
2017 (P)	57.564,89	80.539,55	138.104,44	41,7

Source: Ministry of Finance

Fifthly, the term structure of domestic public debt raises several difficulties.

Before year 2013, the State majorly mobilizes short-terms capital from commercial banks (by issuing bonds with the terms less than three years) for long-term investments. Accordingly, short-term loans have large percentage, approximately 70% of the total issuing debts. It will likely lead to the pressure of debt payments in the short time. To overcome this situation, from year 2014, the State focused on issuing bonds with longer terms (at least 5 years)¹. However, because of incomplete market of bonds in Vietnam and the constrained financial resources of non-banking institutions, the issuing of long-term government bonds in Vietnam to financing public debts is difficult². Therefore, the structure of terms of public debts in Vietnam has put high pressure on debt payment responsibilities of the government in the following years. According to the Ministry of Finance, the responsibilities to pay internal debts will be due in the coming years³. With the international and domestic loans will be due under the circumstances of budget deficit, this will force the State to continuously borrow to refund its debts.

3. POLICY IMPLICATIONS

In the coming years, the demand on investment capital for major infrastructure projects in Vietnam is still high, while the potential of mobilizing the domestic finance is not enough, so public debt will increase significantly. To ensure the opportunities to borrow more money, the safety of public debt and the security of national financial system, it is needed to aware the following issues:

Firstly, it is needed to collect statistical data according to international standards, and enhancing the information system on public debt, performing appropriate forecast and “alarming” public debt.

It is needed to collect statistical data on public debt according to international standards that reflect all these public debts in the economy. Information on public debt must adequate, detailed, timing, easy to access, etc. Specially, the forecast and “alarming” works about public debts need to closely stick with the analysis and evaluation of the macroeconomic conditions as well as the realities of loans and the payment abilities of the borrowers who have highly affected in the economy. The international experiences of public debt management showed that public debts of a nation will likely increase when its state has to issuing debts to support or refund outstanding debts for the others actors in the economy in order to sustain the conditions of the economy.

Secondly, improving regulations and laws on public debts

Improving and institutionalizing the indicators of safely public debt threshold in the each specific period of the economy to make legal foundation for controlling the debts according to safety indicators, deciding to borrow based on abilities to pay debt, partly to reduce the risk,

¹ Therefore, the average terms of government bonds increase from 3.9 years in 2011 to 8.77 years in 2016 and 12.74 years in 2017.

² In the period of 2011 – 2016, the amount of implemented government bonds with less than 3 years terms have high percentage, approximately 50% of the total government bonds.

³ 9.3% of the domestic portfolio of the Government will be due in year 2019 and 32.7% will be due in the period of 2019 – 2021.

guaranteeing the sustainable of nationally financial ground. Currently, there are many indicators having important roles on controlling public debts that are not included in relating laws or institutionalized.

Improving legal framework to closely control all the borrowings and loan guaranteeings of the Government at both central and local levels; stick connected responsibilities and rights between borrows, allocation, spending and public debt payment; only borrow money for important projects essential for economic development, national defense, in cases that are unable to mobilize the participate of private sector to implement these projects, or financing government projects to perform controlling role of government, assure to borrow internationally when cannot borrow domestically.

Thirdly, improving risk management for public debt portfolio. Accordingly, it is needed to improve risk management for borrowing money, interests, exchange rate, and ability to pay and banking activities to minimize the cost of borrowing, partly to guarantee the security of national finance.

Fourthly, improving the allocation mechanism, utilizing sources of borrowing

Improving allocation mechanism, utilizing sources of borrowing (government bonds; ODA and the others) according to the enhancing of transparency, accountability on allocation, utilizing these loans with effective of using capital, ability of payment and reducing the burden for state budget.

Increasing responsibilities of organizations, individuals in utilizing sources of borrowing.

Increasing ombudsman activities, reviewing and checking all units using loans from the government, process and punishing all violations.

Fifthly, performing good governance and management for macroeconomics, continuously reform business environment. This has a special role in boosting economic growth, exports, constraining net import, increasing international reserve and increasing state budget to improve debt's indicators and macroeconomic balance of the economy.

Sixthly, appropriately organizing for due debt, not having overdue debts to guarantee reputation of the nation, increasing credit's indicators for the nation.

Seventhly, to reduce pressure on public loans, the State needs to perform the solutions to increase obligation on using state budget to increase the effectiveness of spending state budget, decrease budget's deficit, creating business environment to mobilize private sector to invest their capital in infrastructure projects, programs, economic development projects for the nations.

REFERENCES

1. Vũ Đình Ánh (2011), “Nhận diện nợ công ở Việt Nam”, Tạp chí *Tài chính*, tháng 12/2011.
2. Nguyễn Thành Đô (2011), “Nợ công ở Việt Nam: Thực trạng và giải pháp trong thời gian tới”, Tạp chí *Tài chính*, tháng 12/2011.
3. Nguyễn Thị Thanh Nga (2012), “Nợ vốn đầu tư xây dựng cơ bản của các địa phương, nguyên nhân và giải pháp”, Tạp chí *Kinh tế và Quản lý*, số 2 - 2012.
4. Đặng Ngọc Lợi (2013), Nợ công của Việt Nam và giải pháp phòng ngừa gia tăng nợ công, Tọa đàm khoa học “*Khủng hoảng nợ công và kinh nghiệm quốc tế*”, Học viện Chính trị - Hành chính quốc gia Hồ Chí Minh, Hà Nội, 08/01/2013.

5. Nguyễn Quốc Thái (2013), “Kiểm soát nợ công để đảm bảo an ninh tài chính quốc gia”, Tạp chí *Kinh tế và Dự báo*, số 8 (4/2013) (544).
6. Ngân hàng Thế giới (2014), *Đánh giá minh bạch tài khóa của Việt Nam: Phân tích và phản hồi của các bên liên quan về thông tin ngân sách nhà nước được công khai*.
7. Lê Thị Minh Ngọc (2011), *Nợ công - Sự tác động đến tăng trưởng kinh tế và gánh nặng của thế hệ tương lai*, tại trang <http://hvnh.edu.vn/tapchi/vi/nam-2011/no-cong-su-tac-dong-den-tang-truong-kinh-te-44.html>, [truy cập ngày 21/11/2019].
8. Bộ Tài chính (2013), *Đề án Tổng kết về vay - trả nợ công giai đoạn 2006 - 2012 và Kế hoạch vay - trả nợ công đến năm 2020*.
9. Bộ Tài chính (2015), *Báo cáo Tổng kết 6 năm thực hiện Luật Quản lý nợ công năm 2009*.
10. Hoàng Ngọc Âu (2018), *Quản lý nợ công ở Việt Nam trong hội nhập quốc tế*, Luận án Tiến sĩ kinh tế, Học viện Chính trị quốc gia Hồ Chí Minh, Hà Nội.
11. Bộ Tài chính (2018), *Bản tin Nợ công*, số 7, tháng 11/2018, Hà Nội.
12. Minh Phương (2019), *Nợ công năm 2018 bằng 58,4% GDP*, tại trang dangcongsan.vn/kinh-te/no-cong-nam-2018-bang-58-4-gdp-524852.html, [truy cập ngày 17/10/2019].
13. Lương Bằng (2019), *Thu không đủ chi, nợ công 3,2 triệu tỷ loay hoay vay mới trả cũ*, tại trang <https://vietnamnet.vn/vn/kinh-doanh/dau-tu/no-cong-3-2-trieu-ty-tinh-nguon-tra-no-541896.html>, [truy cập ngày 23/11/2019].
14. IMF (2019), *Global Debt Database*, <https://www.imf.org/external/datamapper/datasets/GDD>, [truy cập ngày 18/10/2019].
15. UN (2019), *GDP by Type of Expenditure at current prices - US dollars*, <http://data.un.org/Data.aspx?q=GDP&d=SNAAMA&f=grID%3a101%3bcurrID%3aUSD%3bpcFlag%3a0>, [truy cập ngày 18/10/2019].

IMPROVING THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN VIETNAM

Nguyen Thu Ha*

ABSTRACT

Commercial banks in Vietnam have experienced huge transformation in the last twenty years and are considered as an integral part of the economy. Financial performance is an essential element which decides the existence and development of a commercial bank. This study attempts to evaluate the financial performance of selected commercial banks in Vietnam for the period from 2014 to 2018, which enables the author to suggest some recommendations for improving financial performance of selected banks in particular, and commercial banks in Vietnam in general. The study comprises 9 commercial banks whose asset account for 68% of total assets of commercial banks in Vietnam.

Keywords: *financial performance, capital adequacy, asset quality, liquidity, profitability.*

1. INTRODUCTION

The economic progression is significantly dependent upon the utilization of resources and most importantly operational efficiency of various sectors. The banking sector is considered as an integral part of the financial system which plays a key role in the economic development of any country through stimulating of capital formation and facilitating the monetary policy. Banking business has been shaped as the global business since the functions of banking business have reached beyond the border of a country. Most importantly, rest other businesses are greatly dependent upon the stable performance of banking business.

In the context of Vietnam, the banking sector is one of the fastest growing sectors. Until the end of 2018, there are 35 domestic commercial banks, 2 joint – venture banks and 9 foreign commercial banks operating in Vietnam. Over the last twenty years, Vietnam has achieved noticeable success regarding the access to banking services. However, modern banking is becoming more complex in nature than before since the varieties of risks are getting more complex nowadays, which leads to the fact that improving the financial performance of commercial banks is a challenging task. Improving the financial performance enables commercial banks to absorb the eventual generated by manifestation of certain risk or certain significant macroeconomic imbalances. Moreover, solid financial performance gives commercial banks opportunities to expand the operation as well as the share market, which results in the existence and development of commercial banks in the future.

* Banking – Insurance Faculty, Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam.

2. LITERATURE REVIEW

Grigorian & Manole (2002) found that the commercial bank in transition economies influenced by foreign ownership and this leads to more efficient banks.

DeYoung & Rice (2004) demonstrated a number of empirical links between bank non – interest income, business strategies, market conditions, technological change and financial performance between 1989 and 2001. The result indicates that well – managed banks expand more slowly into non – interest activities, and that marginal increases in non – interest income are associated with poorer risk – return tradeoffs on average. These findings suggest that non – interest income is co – existing with, rather than replacing, interest income from the intermediation activities that remain banks' core financial services function.

Kumbirai & Webb (2010) used financial ratios for the South Africa and found that banking performance was deteriorated significantly after the global financial crisis of 2007

Ahmed (2011) examined the financial performance of five Palestine commercial banks and found that the credit risk, asset management, bank size and operational efficiency have a positive association with bank performance.

Said & Tumin (2011) investigated the impact of bank – specific factors which include the liquidity, credit, capital, operating expenses and the size of commercial banks on their performance, which is measured by return on average assets (ROA) and return on equity (ROE). The result implies that ratios employed in this study have different effects on the performance of banks in both countries, except credit and capital ratios. Operating ratios influence performance of banks in China, but this influence is not true for Malaysian banks regardless of measure of performance.

Jha & Hui (2012) compared the financial performance of different ownership structured commercial banks in Nepal based on their financial characteristics and identify the determinants of performance exposed by the financial ratios, which were based on CAMEL model. This study chose 18 commercial banks in Nepal in the period from 2005 to 2010. In addition, econometric model by formulating two regression models was used to estimate the impact of capital adequacy ratio, non – performing loan ratio, interest expenses to total loan, net interest margin ratio and credit to deposit ratio on the financial profitability namely return on assets and return on equity of these banks. This study found that return on assets was significantly influenced by capital adequacy ratio, interest expenses to total loan and net interest margin, while capital adequacy ratio had considerable effect on return on equity.

Dogan (2013) evaluated the financial performance of foreign and domestic banks in Turkey using financial ratios and found that the management effectiveness, total assets, return on equity and asset quality of domestic banks are better than that of foreign banks. However, foreign banks have higher capital adequacy ratio than domestic banks.

3. RESEARCH METHODOLOGY

The data used in this research is obtained from the annual reports of banks from my sample. The sample is composed by 9 joint stock commercial banks in Vietnam (Vietcombank, VietinBank, BIDV, MB, Techcombank, VPBank, ACB, SHB, Sacombank) in the period of 5 years (from 2014

to 2018). In order to evaluate and analyze the financial performance of Vietnamese commercial banks, the financial ratios of respective banks were used. The capital adequacy is measured by the growth rate of equity, the capital adequacy ratio (CAR); the asset quality is measured by the growth rate of asset and the rate of non – performing loan; the profitability is measured by return on assets (ROA), return on equity (ROE); the liquidity ratio represented by loan deposit ratio (LDR) and liquid asset/ Total asset. The detail description on the measurement of financial ratios is provided in the Table 1.

Table 1: Financial ratios for evaluating financial performance of commercial banks

Type	Financial Ratio	Description	Formula
Capital adequacy	The growth rate of equity	The growth rate of equity indicates the ability to expand equity of commercial banks. The larger equity is, the more stable financial performance is.	$\frac{\text{Equity year } N - \text{Equity year } N-1}{\text{Equity year } N-1} * 100\%$
	Capital adequacy ratio (CAR)	CAR reflects whether the bank has sufficient capital to bear unexpected losses in the future and bank leverage. The higher CAR is, the stronger bank is.	$\frac{\text{Capital Tier 1} + \text{Capital Tier 2}}{\text{Risk weighted assets}} * 100\%$
Asset quality	Non – performing loan (NPL)	Non – performing loan indicates the amount of bad debts that banks own. The higher NPL rate is, the higher risk banks overcome	$\frac{\text{Non – performing loan}}{\text{Total loan}} * 100\%$
Liquidity	Loan deposit ratio (LDR)	LDR reflects the relation between loan and deposit of a commercial bank. The high LDR indicates the low liquidity of a commercial bank	$\frac{\text{Non – performing loan}}{\text{Total loan}} * 100\%$
	Liquid asset/ Total asset	This ratio represents the bank's short – term liquidity, which evaluates the bank's ability to meet its short – term obligations with its most liquid assets	$\frac{\text{Liquid asset}}{\text{Total asset}} * 100\%$
Profitability	Return on Equity (ROE)	ROE measures a bank's profitability by revealing how much profit a bank generates with the money shareholders have invested	$\frac{\text{Earning after tax}}{\text{Total equity}} * 100\%$
	Return on Assets (ROA)	ROA indicates how profitable a bank is relative to its total assets	$\frac{\text{Earning after tax}}{\text{Total assets}} * 100\%$

4. ANALYSIS AND DISCUSSION

4.1. Capital adequacy

Although equity accounts for a small proportion (approximately 10%) of total capital, it plays an important role in the operation of commercial banks. Equity decides the size of commercial banks as well as it is considered as the cushion for overcoming risk in operations. Hence, equity is the ratio that indicates the financial capacity of a commercial bank.

Table 2: Equity of commercial banks in Vietnam

Unit: VND billion, %

Bank's name	2014	2015	2016	2017	2018	CAGR
Vietcombank	43.350,72	45.172,34	48.191,51	52.557,96	62.179,38	9,44
VietinBank	55.012,81	56.110,15	60.399,40	63.765,28	67.455,52	5,23
BIDV	28.142,33	42.335,46	44.144,25	48.834,00	54.551,46	17,99
MB	16.651,00	23.183,00	26.588,00	29.601,17	34.172,86	19,69
VPBank	8.980,29	13.388,92	17.177,53	29.695,71	34.750,07	40,25
Techcombank	14.986,05	16.457,57	19.586,48	26.930,75	51.782,71	36,34
SHB	10.480,06	11.257,76	13.231,57	14.691,22	16.332,53	11,73
Sacombank	18.063,20	22.080,50	22.191,93	23.236,29	24.632,37	8,06
ACB	12.397,30	12.787,50	14.062,70	16.030,85	21.018,00	14,11

Source: Annual reports of sample banks and author's own calculation

The research period has experienced a rapid increase in the amount of equity of selected commercial banks especially non - state joint stock commercial banks such as VPBank, Techcombank and MB, which means that the financial capacity of commercial banks in Vietnam is being improved. In detail, the ability of expanding equity of non – state joint stock commercial banks are much higher than that of state joint stock commercial banks because the expansion of equity of state joint stock commercial bank is limited by many regulations of government. For instance, in case of VietinBank, it is very difficult for this bank to expand the equity for some reasons: (i) The percentage of the State ownership is at the lowest level (65%); (ii) The percentage of foreign shareholders and strategic shareholders has reached the maximum threshold as prescribed; (iii) Raising capital from existing shareholders is not feasible because there is no source from the state budget for buying the shares of VietinBank.

In addition to the size of equity, capital adequacy is one of the necessary ratio to evaluate the financial capacity of commercial banks. Capital adequacy is assumed to be a crucial reflector of the financial soundness of a bank. In order to survive, it is indispensable to protect the stakeholder confidence and preventing its bankruptcy. Capital adequacy represents the overall financial position of a bank. It reflects whether the bank has sufficient capital to bear unexpected losses in the future and bank leverage. The higher CAR is, the stronger bank is. However, a very high CAR indicates that the bank is conservative and has not utilized the full potential of its capital.

Table 3: Capital adequacy ratio of commercial banks in Vietnam*Unit: %*

Bank's name	2014	2015	2016	2017	2018
Vietcombank	11,61	11,04	11,30	11,63	12,14
VietinBank	10,40	10,60	10,40	10,00	10,00
BIDV	9,27	9,10	9,25	9,50	10,36
MB	10,07	12,85	13,05	12,00	10,90
VPBank	11,30	12,20	13,00	14,60	12,30
Techcombank	15,65	14,70	13,10	12,68	14,30
SHB	11,33	11,20	13,00	11,29	11,10
Sacombank	9,87	9,51	9,61	11,30	10,71
ACB	14,08	12,80	13,10	11,49	11,50

Source: Annual reports of sample banks and author's own calculation

According to this table, the CAR of sample banks satisfy the requirement of SBV. In detail, maintaining the average of CAR at least 2% higher than the regulation of SBV in this period is the basis for banks including Vietcombank, MB, Techcombank, VPBank, ACB applying Basel 2 in 2019 which is one year earlier than the validity date of circular 41/2016/TT – NHNN. By contrast, the CAR of BIDV, Vietinbank and Sacombank is only a bit higher than the minimum rate. Therefore, applying Basel 2 from January, 1st, 2020 is the challenge for those banks because their CAR might be lower than 8%.

4.2. Asset quality

Asset quality is significant aspect to assess the degree of financial strength of a bank. In order to measure the quality of asset owned by banks, I selected the ratio of non – performing loan which indicates the amount of bad debts that banks own. This is because the proportion of loan accounts for about 60% - 70% total asset of banks and the income coming from this activity generates approximately 75% - 85% total income. The higher NPL rate is, the higher risk banks overcome. Therefore, evaluating the quality of loans could allow the author to have the overview of asset quality of commercial banks.

Table 4: Non – performing loans rate of commercial banks in Vietnam*Unit: %*

Bank's name	NPL rate					NPL rate (including bad debts sold to VAMC)				
	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
Vietcombank	2,31	1,84	1,51	1,14	0,98	2,90	2,61	1,51	1,14	0,98
VietinBank	1,97	1,52	1,86	1,60	2,19	1,11	2,58	2,00	1,21	2,88
BIDV	2,03	1,68	1,99	1,62	1,90	3,23	4,83	4,13	2,75	2,56
MB	2,31	1,79	1,46	1,11	1,20	6,01	5,02	3,50	1,20	1,21
VPBank	2,54	2,69	2,91	3,39	3,50	7,45	6,08	5,42	5,16	4,57

Techcombank	2,38	1,66	1,58	1,61	1,75	6,09	4,09	2,67	1,61	1,75
SHB	2,02	1,72	1,87	2,33	2,40	4,58	2,52	5,77	6,43	5,85
Sacombank	1,19	5,80	6,91	4,67	2,13	5,04	13,40	25,67	24,09	16,81
ACB	2,18	1,31	1,65	0,70	0,73	3,15	2,42	2,30	0,71	2,11

Source: Annual reports of sample banks and author's own calculation

According to annual report of selected commercial banks, except for VPBank and Sacombank, the NPLs of these commercial banks are lower than that recommended by WB (3%), which is considered as the effort of commercial banks in handling bad debts after the bad debt outbreak period from 2011 to 2014.

In addition to NPLs in the annual report, the author does research on the NPLs including bad debts sold to VAMC. This is because after buying these debts, VAMC authorizes commercial banks to deal with the debts, which means these bad debts have not been solved yet. In detail, except for the NPL rates of Vietcombank and Vietinbank, those of the remaining banks are higher than the safety limit recommended by WB (3%). What worth noting is that the NPL rate of Sacombank is too high compared to the safe limit because after the merger of Sacombank and Southern Bank, Sacombank is responsible for handling with huge amount of bad debts of Southern Bank.

4.3. Liquidity

Liquidity is another noteworthy aspect which expresses the financial performance of banks. Liquidity means the ability of the bank to honour its obligations toward depositors. Bank can preserve adequate liquidity position either by increasing current liabilities or by converting its asset into cash quickly. It also denotes the fund available with bank to meet its credit demand and cash flow requirements. In order to assess the liquidity of sample banks, the author choose criteria LDR which shows a bank's ability to cover loan losses and withdrawals by its customers and Liquid asset/Total asset which expresses the ability to meet the demand for payment of commercial bank.

Table 5: Liquidity ratios of commercial banks in Vietnam

Unit: %

<i>Bank's name</i>	<i>LDR</i>					<i>Liquidity/ Total asset</i>				
	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>
Vietcombank	82,07	76,18	76,71	74,78	76,74	17,09	15,24	17,02	18,60	24,10
VietinBank	102,42	104,72	97,51	101,97	99,19	12,05	10,41	13,02	13,02	12,85
BIDV	96,77	94,95	91,30	91,86	96,03	17,15	15,13	15,72	13,50	13,90
MB	60,00	66,80	77,40	76,60	75,45	34,64	28,76	23,83	22,32	22,65
VPBank	64,90	76,78	83,90	91,49	101,12	18,97	20,70	20,21	18,79	20,45
Techcombank	58,22	74,60	77,57	85,28	74,53	23,28	18,69	18,27	18,43	16,99
SHB	81,88	83,66	90,04	94,49	89,68	9,31	9,59	10,31	12,95	15,62
Sacombank	78,51	71,23	68,18	68,50	71,79	22,01	14,92	13,90	4,52	5,17
ACB	82,39	76,04	76,39	80,00	82,84	21,71	20,15	21,61	24,22	23,42

Source: Annual reports of sample banks and author's own calculation

In terms of LDR, those ratios of VietinBank and BIDV are higher than that of regulation of SBV (90% for the commercial banks that the state is the dominant shareholder), whereas those ratios of

the remaining banks are lower than the maximum percentage regulated by SBV (80% for joint stock commercial bank). Regarding the ratio of Liquid asset/ Total asset, according to Table 6, during the period, all of banks maintain these ratios higher than the minimum regulated by SBV (10%).

4.4. Profitability

High earning ability should reflect the bank's current operating performance and a good indicator of future operating performance. The quality of earning is an extremely significant parameter which expresses the quality of profitability and capability of a bank to sustain quality and earning consistently.

Table 6: Profitability of commercial banks in Vietnam

Unit: %

Bank's name	ROE					ROA				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
Vietcombank	10,76	12,03	14,69	18,10	25,18	0,99	0,88	0,94	1,00	1,39
VietinBank	10,47	10,28	11,64	12,03	8,30	0,92	0,79	0,78	0,73	0,48
BIDV	15,27	15,50	14,70	15,00	15,08	0,83	0,79	0,67	0,63	0,59
MB	15,20	12,50	11,60	16,10	20,10	1,30	1,20	1,21	1,50	1,81
VPBank	15,01	24,38	28,26	27,48	22,83	0,88	1,34	1,86	2,54	2,45
Techcombank	7,49	9,73	17,47	27,71	21,52	0,65	0,83	1,47	2,55	2,87
SHB	7,59	7,32	7,61	10,47	10,66	0,51	0,43	0,63	0,54	0,55
Sacombank	13,21	2,72	0,35	5,20	7,48	1,31	0,22	0,02	0,34	0,44
ACB	7,60	8,17	20,73	14,08	27,73	0,55	0,54	1,32	0,82	1,67

Source: Annual reports of sample banks and author's own calculation

According to Table 6, the large non – state joint stock commercial banks (MB, Techcombank, VPBank) have the highest rate of profitability, especially VPBank. This is because in this period, in the trend of development of personal finance, the financial company of VPBank (FE credit) – one of the largest financial company in Vietnam generates approximately 50% profit of banks, which enables this bank to become the most efficient operating bank among the sample banks. By contrast, Sacombank is the least efficient operating bank since the low quality asset results in the high risk provision expenses which accounts for approximately 40% of bank's income.

5. CONCLUSION

Except for VietinBank and Sacombank, the financial capacity of the remaining commercial banks has witnessed the upward trend. In terms of capital adequacy, it is found that all banks is higher than the benchmark of 9% as mandated by SBV. The average CAR of Techcombank and ACB are the highest whereas those of BIDV, Sacombank and Vietinbank are the lowest among sample banks. I suggest three banks having the lowest rate should increase the capital by issuing the private placement of shares for strategic partnership, increasing the retained earnings, which helps banks to improve the CAR especially in case of applying Basel 2. Regarding to asset quality, the of NPLs including bad debt sold to VAMC yet to be disposed of 7/9 banks are higher than the benchmark 3% recommended by WB, especially Sacombank. Thus, these commercial banks must enhance the credit control ability as well as actively handle with bad debts. In terms of

liquidity, MB has maintained comfortable liquidity position although excessive liquidity may affect profitability. By contrast, the liquidity ratio (LDR) of VietinBank and BIDV is higher than the benchmark of 90% as mandated by SBV. Hence, I suggest these two banks should expand the capital mobilization to ensure the stability. Estimating the profitability ratios, it can be observed that VPBank's profitability is outstanding on an average among the sample banks. This is because the proportion of unsecured loans is high, which may lead to the low stability in long term. Therefore, from my point of view, I recommend that VPBank should change the credit portfolio to increase the secured loans, which ensures the stability of bank in the future.

REFERENCES

- Alkhatib, A. and Harasheh, M. (2012). *Financial performance of Palestinian commercial banks*. International Journal of Business and Social Science, 3, 175 – 184
- Dogan, M (2013). *Comparison of financial performances of domestic and foreign banks: Case of Turkey*. International Journal of Business and Social Science, 4, 233 – 240
- Grigorian, D., & Manole, V. (2002), *Determinants of commercial bank performance in transition: An application of data envelopment analysis*. World Bank Policy Research Working paper (2850)
- Jha, S., & Hui, X. (2012). *A comparison of financial performance of commercial banks: A case study of Nepal*. African Journal of Business Management. 6(25), 7601.
- Kumbirai, M & Webb, R (2010). *A financial ratio analysis of commercial bank performance in South Africa*. African Review of Economics and Finance, 2, 30 – 53
- Said, R.M & Tumin, M.H (2011). *Performance and financial ratios of commercial banks in Malaysia and China*. International Review of Business Research Papers, 7(2), 157 – 169
- Young, R., & Rice, T. (2004), *Non – interest income and financial performance at US commercial banks*. Financial Review 39 (1), 101 – 127

CORPORATE SUSTAINABILITY PERFORMANCE OF THE PHARMACY SECTOR – ANALYSIS AND IMPLICATIONS

Hung Nguyen*, Linh Vien**, Toan Bui Duy***

ABSTRACT

This research analyzes the corporate sustainability of domestic pharmaceutical companies with major focus on economic aspect. We found that domestic pharmaceutical companies may have been facing with problem of financial sustainability. We develop a model to measure corporate sustainability's financial aspect using EBITDA margin as a proxy. This model could help assessors and stakeholders to understand the sustainability of a firm in comparison with the whole industry.

Keywords: *Corporate Sustainability, Measurement, Pharmacy industry.*

1. INTRODUCTION OF RESEARCH

Pharmaceutical industry is an industry constantly in the focus of Vietnam. The better national economy, rising income per capita, and improved education have driven up the demands for pharmaceutical products. Consequently, Vietnam was the second largest medicine market in the South East Asia healthcare and is expected to see the highest growing markets in Asia for the next 20 years. However, due to their low competency, most domestic pharmaceutical companies are not able to explore the local market, losing market share to more capable foreign ones. For example, as of 2018, it was estimated that 70%-90% of national medicine expenditure were for imported sources. In addition, because of their great impacts on the life of people, public opinion looking increasingly critically at the way pharmaceutical companies are doing their business, companies' sustainability has turned out to be a substantial contribution to ensure their so-called "legitimacy to operate", or "license to operate". In case of Vietnam, empirical and theoretical studies recognizing the importance to measure and assess sustainability performance are quite limited, as reflected by a search in the website scholar.google.com that there are almost no research papers of Vietnamese scholars or governmental and academic institutions on the implementation of and the trend for developing and implementing sustainability performance in Vietnamese companies. Our research would be one of the first papers on this topic, reviewing the sustainability performance of domestic pharmaceutical companies in such challenging context from the sustainability framework which covers 3 aspects: (i) economic, (ii) environmental, and (iii) social aspects. The research addresses 2 questions (RQ) below:

* International School, Vietnam National School, Hanoi, Vietnam.

** Topica, 75 Phuong Mai, Dong Da, Hanoi, Vietnam.

* PG Bank, Hanoi, Vietnam.

RQ 1. What is the context of pharmaceutical companies in Vietnam? (such as in terms of politic, economic, social, and environmental dimensions?)

RQ 2. What the financial ratios of companies in the industry reveal about the comparative corporate sustainability performance?

2. LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

Corporate sustainability is considered to be a business and investment strategy that seeks to use the business practices that best to make the business perform to meet the needs of the enterprise and its stakeholders today and to and balance them with those of future stakeholders (Artiach, Leea, Nelsonb, & Walker, 2010; Labuschagne, C.Brent, & Erck, 2005). Conceptually corporate sustainability mainly focuses on 3 fundamental aspects emphasizing consideration of (i) social, (ii) environmental, (iii) economical (Goyal, Rahman, & Kazm, 2013; Waddock, 1997). That involves sustainable development “*that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987, p. 43). For the economic component of sustainability, normative models attempt examining how sustainability strategies improve the shareholders’ value and the corporate profits. Scholars of this research stream seek to develop successful corporate sustainability strategy, focusing on (i) the corporate sustainability performance impact assessment on firm performance, and (ii) the performance measurement (Atkinson G. , 2000).

2.1. The importance of sustainability measures for sustainability management

Sustainability management is to address the concerns of stakeholders, such as stockholders, chief executive officers, employees, consumers, past and present international organizations, regulators, and etc... Investors also seem to respond positively (at least in the short-term) to increase reliable sustainability performance information, thus engaging stakeholders can help improve sustainability performance (Goyal, Rahman, & Kazm, 2013). Sustainability management involves Sustainability Performance Measurement and Assessment (SPMA), which supports the management of value creation for stakeholders and provides relevant information for stakeholders (cited in Goyal, Rahman, & Kazm, 2013). Managing, measuring, and reporting sustainability help pharmaceutical companies to add business value in two main ways (Schneider, Wilson, & Rosenbeck, 2010). The first way is by tracking where a company’s performance is versus where it wants to be and where the competition is (benchmarking). The second is demonstrating stewardship of the resources they manage and the value they generate through transparency and dialogue with a variety of internal and external, traditional and emerging stakeholders.

2.2. Framework to measure corporate sustainability performance

The incorporation of sustainability in corporate strategy formulation lead to the need of assessment of corporate performance. Indicators conveying sustainability information is considered important for stakeholders and stakeholder relationships with the company. Sustainability information is classified into group relevant for specific stakeholders, such as (i) product-related information for customers, (ii) corporate value-related information for investors,

and (iii) health-related information for employees. Those information support managers by providing data for decision-making and creating value to multiple stakeholders (Hörisch, Freeman, & Schaltegger, 2014).

A corporate sustainability performance measurement is necessary for a corporate manager to monitor the progress of its corporate. Various literature addressing corporate sustainability assessment have been developed (Artiacha, Leea, Nelsonb, & Walker, 2010; Goyal, Rahman, & Kazm, 2013). A literature review of Goyal, Rahman, & Kazm (2013) indicates that social and environmental thresholds could play a critical role in the overall sustainability performance of companies, therefore, a framework to measure corporate sustainability performance should include a composite sustainability index which simultaneously combines the economic, environmental and social components of sustainability. Various methodologies use either financial or non-financial measurement units or a combination of them. For example, Atkinson (2000) suggests a framework that evaluates the contribution of companies to sustainable development expressed in financial terms, whereas Ilinitich et al. (1998) offer a scoring framework to estimate corporate environmental sustainability in non-financial units. These methodologies examine corporate sustainability within the context of the business case where sustainability strategies are considered win-win solutions for companies on both the financial and environmental performance (Atkinson G., 2000; Ilinitich, Soderstrom, & Thomas, 1998). Financial indicators used as proxies for Performance Measurement include. Financial capacity ratios (Profitability ratios, Cash Flow ratios); Levels of profit available to shareholders (ROE), Profit levels for asset (ROA), Leverage ratios. The ratios most used include level of cash resources available to the firm, gross margin / turnover ratio, net profit / average capital employed, net profit total income or revenue, total costs, return on investment, EBIDTA margin, sales, return on equity (Lebas, 1995). Profit is a better indicator to measure economic sustainability given that it offers information regarding the returns on companies' investments, though it is not sure whether an increase in profits is the outcome of a successful capital investment securing the long-term viability of companies (Artiacha, Leea, Nelsonb, & Walker, 2010). Higher performance means the firm produce more efficiently and effectively to ensuring a profit, and it will get greater stability and ability to adapt to changes and respond to them (Striteska & Jelinkova, 2015, p. 67; Dessler, 2005; Atkinson M. , 2012).

Certain scholars proposed to compute thresholds into the composite index so that a manager could compare the sustainability of his company to that of the industry in which his company is operating so that he could understand how well his corporate is doing. Such an index could be a good tool for analysts to understand the logic of measuring corporate strong sustainability performance.

2.3. Relation between Finance Performance and Corporate Sustainability

Researches dealing with *Corporate Sustainability Performance* (CSP) has focused on the relationship between three key factors: (i) the level of corporate sustainability performance, (ii) corporate financial performance, and (iii) the level/quality of corporate sustainability disclosure (Al-Tuwaiji, Christensen, & Hughes, 2004). Accordingly, CSP measures the extent to which a firm embraces economic, environmental, social and governance factors into its operations, and ultimately the impact they exert on the firm and society.

Many researches claim that CSP is positively related to financial performance because the investing in CSP would produce financial benefits which exceed its costs (McGuire, Sundgren, & Schneeweis, 1988). CSP’s benefits such as enhanced employee morale, goodwill, improved relationships with bankers, investors and government and better access to capital would very likely lead to greater financial performance (McGuire, Sundgren, & Schneeweis, 1988). Another research stream, contrary to the stream above, suggests that there is no direct association between CSP and financial performance. Ullmann (1985) found that the relationship between CSP and financial performance is likely to be affected by many intervening influences. Because it is very difficult to control for these intervening factors, many researches found insufficient theoretical support for a direct relationship between CSP and financial performance. This perspective implies that those companies investing in CSP may not get higher performance and productive operation (Ullmann, 1985).

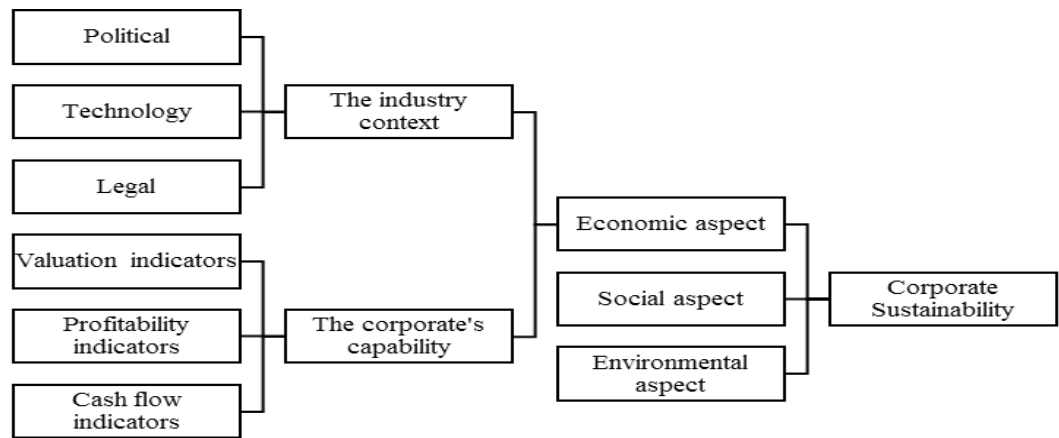
2.4. Factors affecting Firm’s Sustainability Performance in financial aspect

Firm’s Sustainability Performance is mainly reflected by financial performance indicators. The previous studies have shown a number of proxies for measuring firm’s *Financial Performance*, such as EBITDA margin, ROA, ROE, EPS and ROI, and etc. The determinant factors having positive impact on firm’s performance include firm’s size (Natural Log of Total Sales), Cash, Growth (Δ Total Assets / Total Assets), Risk (EBIT/Earning after interest and Tax), Tangibility (Fixed Assets/Total Assets), Liquidity (Current Assets/Current Liabilities), Leverage (Short term debt/Total assets, Long term debt/Total Assets), tax and firm’s performance (Current year’s Tax/Earnings before Tax), and Non-debt tax shield (depreciation) (Atkinson G. , 2000; Goyal, Rahman, & Kazm, 2013). Within the research scope of this research, we are going to take into account certain of these factors in our research.

2.5. Analytical framework to guide the analysis

The framework to analyse sustainability of pharmaceutical companies is presented in the following figure.

Figure 1: Analytical Framework to assess the sustainability



Due to data availability limitations, we conduct quantitative analysis for the economic aspects and qualitative analysis for the social and environmental aspects.

3. METHODOLOGIES AND DATA

This research paper first analyses context of the sector. This is important to understand and explain the developments of financial ratios. Then, the research attempts to benchmark the evolution of the Vietnam’s pharmaceutical sector by a corporate sustainability index.

Table 1: Qualitative Procedures

Steps	Descriptions
Review literatures	<ul style="list-style-type: none">Determine factors of corporate sustainability and how to measure sustainability
Industry Data collection and Compute sustainable industry’s performance ratios	<ul style="list-style-type: none">Collect data from financial reports of domestic pharmaceutical companiesCalculate the industrial average indexes of financial ratios from these companies
Data analysis	<ul style="list-style-type: none">Explain the performance ratios of domestic pharmaceutical companies along years
Findings and Implication	Present findings from the analysis above

Sustainability scholars propose to compute thresholds into the Corporate Sustainability Index (CSI) so that a manager could compare the sustainability of his company to that of the industry. To judge the comparative sustainability of pharmaceutical companies, Joseph Calandro (2007) proposes considering the utility of Altman’s Z-score as a strategic assessment and performance management. The Z-Score Model of Altman (1968) has the form below:

$$Z = A_1 * X_1 + A_2 * X_2 + A_3 * X_3 + A_4 * X_4 + A_5 * X_5$$

X₁ = working capital/total assets; X₂ = retained earnings/total assets; X₃ = earnings before interest and taxes/total assets; X₄ = market value equity/book value of total liabilities; X₅ = sales/total assets. The coefficients A_i are different for different countries and sectors.

In our research, we attempt to build a corporate sustainability’s financial score (CSI-FS) for companies based on the Altman’s Z-score model as:

$$CSI-FS = A_1 * X_1 + A_2 * X_2 + A_3 * X_3 + A_4 * X_4 + A_5 * X_5 + \text{constant}$$

In our research, we will compute A_i for the case of Vietnam from the figures of domestic pharmaceutical companies. There are almost 30 pharmaceutical companies listed in the market to compute the industry average of key financial ratios reflecting sector’s corporate sustainability. The pharmaceutical companies taken into research include the ones in list below, ranked by the size of total asset.

Table 2: Domestic pharmaceutical companies

Companies	2015	2016	2017	2018	Size index	Rank
1. DPM	5,459,594.00	9,568,630.00	10,264,105.00	11,134,257.00	100%	1
2. DCM	7,239,303.26	12,967,052.00	12,456,164.00	11,030,586.00	99%	2
3. DVN	3,392,616.77	6,897,710.00	6,114,491.00	5,713,589.00	51%	3

Companies	2015	2016	2017	2018	Size index	Rank
4. PHR	1,650,184.13	3,860,359.00	4,295,023.00	5,087,330.00	46%	4
5. DHG	1,681,597.79	3,945,744.00	4,087,480.00	4,205,964.00	38%	5
6. BFC	1,784,780.78	3,425,642.00	3,840,851.00	3,717,502.00	33%	6
7. DPR	1,696,701.73	3,447,727.00	3,482,714.00	3,659,586.00	33%	7
8. HII	212,278.00	368,052.00	1,079,102.00	2,281,236.00	20%	8
9. PME	1,376,189.00	1,621,119.00	1,955,937.00	2,133,343.00	19%	9
10. TRC	824,236.43	1,753,377.00	1,832,535.00	1,936,536.00	17%	10
11. IMP	546,360.57	1,155,845.00	1,773,631.00	1,774,247.00	16%	11
12. DCL	390,327.78	845,392.00	1,221,156.00	1,730,929.00	16%	12
13. TRA	432,184.02	1,377,454.00	1,509,702.00	1,589,862.00	14%	13
14. DMC	494,014.49	1,083,994.00	1,305,473.00	1,465,089.00	13%	14
15. DBD	533,983.55	1,434,260.00	1,544,190.00	1,434,341.00	13%	15
16. MKP	891,403.00	1,149,654.00	1,300,618.00	1,273,976.00	11%	16
17. SFG	675,766.31	1,166,567.00	1,237,932.00	1,241,945.00	11%	17
18. OPC	295,831.00	774,747.00	1,062,633.00	1,189,394.00	11%	18
19. CSV	505,842.08	1,009,675.00	1,088,827.00	1,127,793.00	10%	19
20. SPM	579,513.52	1,207,997.00	951,395.00	972,881.00	9%	20
21. LIX	396,065.29	780,510.00	776,688.00	780,216.00	7%	21
22. VAF	358,583.47	699,153.00	656,048.00	638,420.00	6%	22
23. PLP	104,977.53	257,619.00	415,440.00	611,641.00	5%	23
24. VDP	423,661.00	502,923.00	519,475.00	609,385.00	5%	24
25. MED	233,322.67	587,465.00	551,050.00	529,423.00	5%	25
26. HRC	244,020.44	378,666.73	402,111.60	420,276.76	4%	26
27. TNC	160,537.77	325,090.00	335,517.00	340,975.00	3%	27
28. BCP	89,620.83	178,432.00	172,856.00	93,770.00	1%	28

Source: Author's collection

4. ANALYSIS, DATA RESULTS AND DISCUSSION

4.1. Economic sustainability of domestic pharmaceutical companies

4.1.1. The pharmaceutical market situation

Regarding the pharmaceutical market, as a consequence of high economic growth, rising income per capita, higher urban population, the demands for pharmaceutical products rapidly expanded, helping the industry sustainability. Since early 1990s, acknowledging the importance of the healthcare sector, the Vietnamese government formulated various policies to promote the development of the domestic health care sector in general and of the pharmaceutical industry in particular. The development of the health care sector is quite remarkable, though the effectiveness of policies is still controversial, such that the rapid shift to free market regulation made medicine prices unaffordable for many people. The Table below summarizes the situation and opportunities in Vietnam pharmaceutical market.

Table 3: Situation and opportunities in the Vietnam pharmaceutical market

Opportunities	Description
High growth of GDP	<ul style="list-style-type: none"> • Average of 6% a year
Large pharmaceutical market	<ul style="list-style-type: none"> • 2nd largest market in South East Asia • USD 5.9 billion of revenue in 2018 • expected to grow for double digit in the next five years to reach around 10 billion USD in 2020.
Large healthcare market	<ul style="list-style-type: none"> • Total healthcare market value of USD 17.4 billion in 2018.
High growth of pharmaceutical market	<ul style="list-style-type: none"> • Highest growing market in Asia • Total revenues increased 11.7% in 2018 • Keep double-digit growth in the next 5 years (Ministry of Health, 2018)
High growth of spending for pharmaceutical products	<ul style="list-style-type: none"> • 13th in terms of medicine spending growth in 175 countries in 2013 (Business Monitor International, 2018) • average per capita level spending on medicine rose from USD 22.25 in 2010 to USD 37.97 in 2015, and doubled to USD 56 in 2017, estimated to be USD 400 in 2027 • The average growth rate of spending on drugs was 14.6% during 2010-2015 and is expected to maintain at least 14% until 2025 (The Saigon Times, 2017).

4.1.2. The operation sustainability

Operational approach of Corporate Sustainability considers the productions dimension a significant aspect. Major challenges and impediments of the domestic pharmaceutical companies are presented in the Table below.

Table 4: Challenges and impediments in the Vietnam pharmaceutical market

Challenges	Description
Limited production capability and capacity	<ul style="list-style-type: none"> • lag behind production capacity of other neighbouring economies
Heavy dependence to imports of materials and medicines	<ul style="list-style-type: none"> • the industry imports 50 % of machines and materials for mass productions;
Over dependence to narrow supplying sources	<ul style="list-style-type: none"> • most machines from Europe • most medicines from Europe and China
Low import tax	<ul style="list-style-type: none"> • import tax for medicines is downed from 0-5 % to 0 % for all kinds of medicines.

Challenges	Description
Low exports	<ul style="list-style-type: none"> Total export value of 113 million USD Equal to 4.6% of total imports

4.1.3. Corporate sustainability as reflected in the financial ratios

Since the main priority of for-profit companies is to improve their financial position, this analysis is critical.

Cash and Liquidity ratios

As shown in the literature, an economically stable company can guarantee at any time *cash flow* sufficient to ensure *liquidity* while producing a persistent above-average return to their shareholders. Free cash flow is a measure of the firm's liquidity and financial slack. High levels of free cash flow indicate that the firm has sufficient financial capacity to invest in sustainability programmes without sacrificing the demands of economic claimants. Table 5 shows that the industry's *Accrual ratio CF* fluctuated with high magnitude, and down 23% during the last 4 years. The *Cash to income* ratio (%), though decreased significantly in 2016 and 2017, return to the level of 2015. The *Cash return to assets* ratio, *Cash return on equity* all decreased. That signifies domestic pharmaceutical companies are somehow struggling.

Table 5: Cashflow ratios

Cashflow ratios		Year 2015	Year 2016	Year 2017	Year 2018	Trend	2016 growth	2017 growth	2018 growth
Accrual ratio CF	%	9.05	5.59	9.09	6.99		-38%	63%	-23%
Cash to income	%	44.15	25.95	29.88	45.13		-41%	15%	51%
Net cash flows/Short-term liabilities	%	5.56	8.12	-16.78	3.70		46%	-307%	122%
Accrual ratio (Balance sheet method)	%	6.27	16.02	14.00	8.42		155%	-13%	-40%
Accrual ratio (Cash flow method)	%	13.59	18.68	24.17	10.77		37%	29%	-55%
Cash return to assets	%	9.72	6.87	7.44	5.98		-29%	8%	-20%
Cash return on equity	%	13.59	9.32	13.43	9.04		-31%	44%	-33%
Cash to income	%	83.83	29.53	51.30	58.58		-65%	74%	14%
Debt coverage	%	39.64	25.79	25.61	33.15		-35%	-1%	29%
Cash flow per share (CPS)		3,969.00	2,408.89	3,328.33	2,512.89		-39%	38%	-25%

Source: Author's collection

Liquidity ratios show mixed results. The liquidity is highly correlated to the corporate sustainability. The quick ratios of the industry changed varied in between 1.62 to 2.04, showing that the companies could pay back short-term liability easily. In 2018, companies in the industry all saw figures improved compared to those of 2017.

Table 6: Liquidity ratios of the industry

Liquidity ratios		Year 2015	Year 2016	Year 2017	Year 2018	Trend	2016 growth	2017 growth	2018 growth
Cash ratio	Times	0.51	0.57	0.23	0.49		11%	-59%	109%
Quick ratio	Times	1.95	2.30	1.62	2.04		18%	-30%	26%
Quick ratio (except: Inventories, Short-term receivables - reference)	Times	0.95	1.05	0.63	0.83		10%	-40%	33%
Short-term ratio	Times	2.93	3.22	2.36	3.14		10%	-27%	33%
Interest coverage	Times	76.64	302.99	172.32	1,065.76		295%	-43%	518%

Source: Author's collection

Valuation indicators

For the economic component of sustainability, normative models attempt examining how sustainability strategies improve the shareholder value (Figge, 2005), thus this section uses valuation indicators to assess the economic sustainability. Several indicators show that the business of domestic pharmaceutical companies were in difficult time. First, the industry average of *Book Value Per Share* in general were in down turn, reducing almost 25% during the last 4 years, from over 32 million down to over 25 million. Second, regarding P/E, the average of industry saw high growth (122 %, 68 %) but shrink 6 % in 2018. The P/B and P/S shared similar pattern. Third, regarding EV/EBIT, the industry saw the figure of 2018 almost double the those of 2015; however, the figures of 2018 were lower than those of the 2017. A good sight is the beta of the companies in the pharmaceutical industry were pretty low compared with overall market – the average beta of the industry were around 0.2 and 0.1 for 2015 and 2016. The figures for 2017 and 2018 have not been available yet.

Table 7: Valuation ratios of the pharmacy industry

Valuation ratios	Unit	Year 2015	Year 2016	Year 2017	Year 2018	Trend	2016 growth	2017 growth	2018 growth
Book value per share (BVPS)		33,211.67	34,072.33	25,418.89	25,813.67		3%	-25%	2%
P/E	Times	3.73	8.27	13.92	13.13		122%	68%	-6%
P/B	Times	0.60	1.26	2.25	1.76		110%	79%	-22%
P/S	Times	0.36	0.83	1.53	1.42		127%	85%	-7%
Dividend yield	%	0.00	0.00	0.00	0.00		#DIV/0!	#DIV/0!	#DIV/0!
Beta		0.21	0.13	0.00	0.00		-41%	-100%	#DIV/0!
EV/EBIT	Times	4.84	6.51	11.69	9.93		34%	80%	-15%
EV/EBITDA	Times	3.54	4.37	3.31	2.66		23%	-24%	-20%

Source: Author's collection

Profitability ratios

For the economic component of sustainability, normative models examine how sustainability improves the corporate profits and vice versa (Figge, 2005). First, the profitability ratios show that the business of domestic pharmaceutical companies have relatively low ROE and ROA if compared to the average bank interest rates. Second, for the whole industry, indicators of Gross profit margin, EBIT margin, EBITDA/Net revenue, Net profit margin saw positive tendency during 2015-2018. However, the ratios reflecting return (ROE, ROCE, ROA) saw decreases. That implies certain companies may have been facing with business challenges.

Table 8: Profitability ratios of the pharmacy industry and of TRAPHACO

Profitability ratios	Unit	Year 2015	Year 2016	Year 2017	Year 2018	Trend	2016 growth	2017 growth	2018 growth
Gross profit margin	%	33.12	34.56	34.61	34.88		4%	0%	1%
EBIT margin	%	11.84	13.04	13.08	14.03		10%	0%	7%
EBITDA/Net revenue	%	14.52	15.54	15.34	16.39		7%	-1%	7%
Net profit margin	%	8.74	10.24	9.91	10.89		17%	-3%	10%
ROE	%	14.88	16.32	16.56	15.70		10%	1%	-5%
Return on capital employed (ROCE)	%	20.14	21.18	22.21	20.61		5%	5%	-7%
ROA	%	9.95	10.85	9.87	8.58		9%	-9%	-13%

Source: Author's collection

Comparative Growth

The Table below show clearly the domestic pharmaceutical companies appear not sustainable at 2018. Most indicators were lower compared to previous year. The domestic pharmaceutical

companies suffered heavy down-turns of growth in almost all of indicators, from Net revenue, to Gross profit, Profit before tax, Profit after tax for shareholders of the parent company, Total assets, Liabilities, Owner's equity, and Charter capital.

Table 9: Growth rates of the pharmacy industry

Growth rates		Year 2015	Year 2016	Year 2017	Year 2018	Trend	2016 growth	2017 growth	2018 growth
Net revenue	%	4.45	8.41	7.31	-3.93		89%	-13%	-154%
Gross profit	%	-2.97	12.44	6.58	-2.48		519%	-47%	-138%
Profit before tax	%	-3.26	26.72	19.46	8.73		918%	-27%	-55%
Profit after tax for shareholders of the parent company	%	-2.54	40.42	20.48	12.93		1693%	-49%	-37%
Total assets	%	6.86	9.58	-0.69	-0.44		40%	-107%	37%
Long-term liabilities	%	29.62	201.08	14.74	168.24		579%	-93%	1041%
Liabilities	%	1.10	15.98	31.20	-16.46		1352%	95%	-153%
Owner's equity	%	17.30	12.95	9.26	10.81		-25%	-28%	17%
Charter capital	%	12.08	10.39	63.94	9.28		-14%	515%	-85%

Source: Author's collection

4.2. Social aspects

The Table below summarizes the social issues and indicators surrounding the domestic pharmaceutical companies.

**Table 10: Social opportunities and impediments
in the Vietnam pharmaceutical market - indicators**

	Description
Large growing population	<ul style="list-style-type: none"> over 95 millions and growing¹ opportunities for growing demands for same products
Aging population Higher longevity	<ul style="list-style-type: none"> Life expectancy: 76+ (in 2018), 73 (in 2000) Opportunities for higher demands for more diversified categories of products
Living standard growth	<ul style="list-style-type: none"> Income per capita growth: 5.3%, 5.7%, 6% in 2016, 2017, and 2018 respectively better economy makes per capita income higher higher healthcare demands people ready to pay more for better products and higher volume of products
Hard-working population	<ul style="list-style-type: none"> Increasing chronic diseases (like respiratory illnesses, cancer, diabetes, obesity), insufficient food safety or unsafe living and working conditions all stimulate the aggregate consumption of pharmaceutical products.
Shifting cultural preference	<ul style="list-style-type: none"> Shifting demands to western-based medicine from traditional medicine (e.g., herbal)
Strong preference of foreign pharmaceutical products and materials	<ul style="list-style-type: none"> Up to 90% products and materials were imported Vietnamese have more trust in foreign products in terms of quality and effectiveness. Most medicines were imported ones even they were far more expensive than domestic ones.

¹ <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=VN>.

Buying behaviour	<ul style="list-style-type: none"> Only 20 % to 30 % of Vietnamese consumers buy medicines with prescription Easy sales of medicines every where
Price is less important factor determining the buying behaviour	<ul style="list-style-type: none"> Patients often take any medicines prescribed by doctors without bargaining prices

(Source: recapitulate from many open sources, including the Worldbank¹, the Ministry of Health)

Social factors often reflect in legislation. The latest decree No.155 of Law of Pharmacy (2018) has been amended toward creating favourable business conditions in tender and imports.

4.3. Environmental aspects

In Vietnam, there lack of studies reviewing the current position and examining further possible impacts of pharmaceutical contamination for environmental management. It is only until recently that the potential environmental impacts of this exposure to pharmaceuticals are being considered – There are a few reports of residues from medicines can be released into the environment through a number of routes during their manufacture, use, and disposal. Nevertheless, there have not been many studies exploring such issue in terms of financial and social perspective in Vietnam.

4.3.1. Challenges for domestic pharmaceutical companies

The Table below summarizes the environmental issues that drive the sustainability of domestic pharmaceutical companies.

Table 11: Environmental challenges driving domestic pharmaceutical companies

Challenges	Description
Side effects of medicine for environment	<ul style="list-style-type: none"> human and veterinary medicinal products for treating diseases produce side effects for environment efficient medicinal products with a more environmentally-friendly profile compared to conventional medicinal products efficient medicinal products with a more environmentally-friendly profile compared to conventional medicinal products costly R&D efforts to manufacture less polluting pharmaceutical products
Polluting pharmaceutical production	<ul style="list-style-type: none"> Cost to develop new technologies Cost to upgrade machines
environmental and pollution problems	<ul style="list-style-type: none"> increasing chronic diseases (like respiratory illnesses, cancer, diabetes, obesity), stimulating medicine demands
Unsafe living and working conditions	<ul style="list-style-type: none"> increasing chronic diseases high cost to control pharmaceutical waste to environment

¹ <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=VN>

Insufficient food safety standard	<ul style="list-style-type: none">• All stimulate the aggregate consumption of pharmaceutical products.
Uncontrolled pharmaceutical waste	<ul style="list-style-type: none">• The risks of environmental effects of pharmaceutical and medicinal products.• pollution to the aquatic and land• high cost to process toxic waste

4.3.2. Technological perspective

Control of pharmaceutical contamination for environmental management is critically important (Kümmerer, 2010). However, sustainable production requires strong R&D and manufacturing capability that most domestic pharmaceutical firms do not possess. In addition, the pharmaceutical industry imports 50% of machines and materials for mass productions but do not import the technologies to control negative impacts of chemical residues.

4.3.3. Legal perspective in environmental sustainability

To date, the Vietnam legislation poses no legal limit for human medicinal products since this pathway of exposure is assumed to be negligible. However, it is currently argued that it is not well characterised, because in certain cases, concentrations of veterinary antibiotics are found in dairy products. In such case, if fail to control, the pharmaceutical companies could have to face with law suits from users and heavy financial compensation to inflicted users, reducing the profitability of the companies. There is at present no regulation that covers the risk assessment of contaminated land, of the product residues transferred to food animals.

4.3.4. Assessing comparative sustainability of the pharmacy industry

A corporate sustainability index (CSI) could be a good tool for practitioners to understand the logic of measuring corporate strong sustainability performance. Following suggestion of Joseph Calandro (2007) to consider the Altman’s Z-score model as a strategic assessment and performance management, we build a CSI-financial score based on the model of Altman (2002) as:

CSI-financial score = A1*X1 + A2*X2 + A3*X3 + A4*X4 + A5*X5 + Constant

We take EBITDA margin as a proxy of sustainability. We conducted a regression to find the relationship of X1, X2, X3, X4, and X5 (independent variables) to EBITDA margin (dependent variable). The regression shows that except for X2, all X1, X3, X4, X5 has the p-value of coefficient < 0.05, thus statistically significant.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.673 ^a	.453	.427	.091428982305010
a. Predictors: (Constant), X5, X2, X4, X3, X1				

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.219	.024		8.945	.000
	X1	.245	.061	.405	4.041	.000
	X2	-.219	.136	-.129	-1.604	.112
	X3	1.130	.181	.618	6.242	.000
	X4	-.017	.004	-.382	-4.220	.000
	X5	-.110	.020	-.532	-5.539	.000

a. Dependent Variable: EBITDA margin

We remove X2 from the regression and run again. The new results show the coefficients of the constant, X1, X3, X4, X5 are .205, .207, 1.110, -.015, and -.107 respectively. All coefficients have p-value < 0.05, thus are statistically meaningful. The model can explain 44% of variations of EBITDA margin of pharmaceutical companies ($R^2=.439$).

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.663 ^a	.439	.418	.092098582946055

a. Predictors: (Constant), X5, X4, X3, X1

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.205	.023		8.907	.000
	X1	.207	.056	.343	3.682	.000
	X3	1.110	.182	.607	6.103	.000
	X4	-.015	.004	-.354	-3.958	.000
	X5	-.107	.020	-.514	-5.354	.000

a. Dependent Variable: EBITDA margin

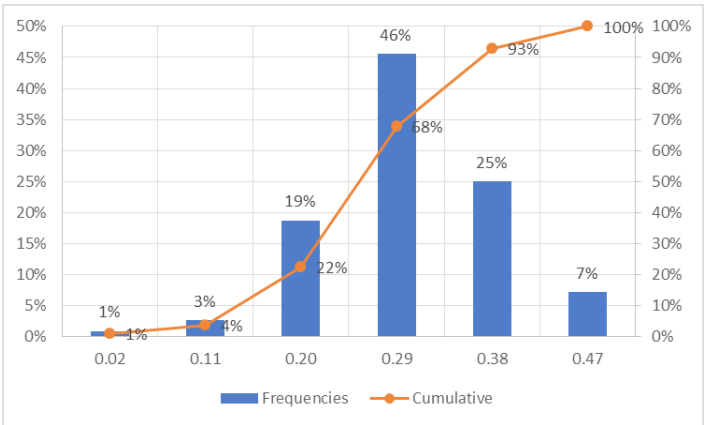
Using the coefficients above, we compute the CSI-financial score of the domestic pharmaceutical companies. Results are presented in the Table below, ranked by CSI-FS – the higher its score, the higher its sustainability. The industry has min CSI-FS of 0.02, max of 0.47, average of 0.26. Among 28 companies in the table, 17 see downturn CSI.

Table 12: Comparative sustainability of the domestic pharmaceutical companies

Firms	CSI-financial score				CSI-financial score Rank				Size Rank				CSI Trend
	2015	2016	2017	2018	2015	2016	2017	2018	2015	2016	2017	2018	
CSV	0.33	0.38	0.47	0.45	7	1	1	1	15	17	17	19	
DMC	0.33	0.35	0.39	0.40	8	5	2	2	16	16	13	14	
PME	0.35	0.37	0.39	0.38	4	2	3	3	8	8	6	5	
DHG	0.37	0.37	0.35	0.37	2	3	4	4	6	4	5	6	
PHR	0.24	0.24	0.26	0.35	17	17	11	5	7	5	4	4	
DBD	0.41	0.28	0.30	0.31	1	11	8	6	14	10	11	15	
VDP	0.29	0.35	0.34	0.31	11	4	5	7	24	24	25	25	
BCP	0.20	0.22	0.24	0.31	21	20	19	8	28	28	28	28	
PLP	0.24	0.20	0.33	0.29	19	23	6	9	27	27	26	24	
DCL	0.30	0.33	0.29	0.29	10	6	9	10	19	18	16	12	
TRA	0.32	0.31	0.32	0.28	9	7	7	11	11	11	12	13	
DPR	0.24	0.24	0.27	0.27	18	16	10	12	5	6	8	8	
OPC	0.29	0.29	0.24	0.25	12	9	18	13	22	20	19	18	
TRC	0.17	0.19	0.24	0.24	25	24	16	14	9	9	9	10	
DPM	0.37	0.29	0.23	0.23	3	10	20	15	2	2	2	1	
SPM	0.24	0.21	0.24	0.23	16	21	15	16	12	12	20	20	
IMP	0.27	0.26	0.25	0.23	13	13	14	17	13	14	10	11	
DCM	0.25	0.25	0.26	0.23	15	15	12	18	1	1	1	2	
VAF	0.27	0.23	0.25	0.22	14	19	13	19	21	22	23	23	
MKP	0.34	0.30	0.24	0.20	5	8	17	20	17	15	14	16	
TNC	0.10	0.11	0.18	0.20	28	27	23	21	25	26	27	27	
MED	0.10	0.10	0.17	0.20	27	28	25	22	23	23	24	26	
LIX	0.34	0.24	0.21	0.18	6	18	21	23	18	19	22	22	
HRC	0.21	0.17	0.17	0.17	20	25	26	24	20	21	21	21	
BFC	0.18	0.21	0.21	0.17	23	22	22	25	4	7	7	7	
DVN	0.19	0.26	0.16	0.16	22	14	28	26	3	3	3	3	
SFG	0.18	0.17	0.17	0.15	24	26	24	27	10	13	15	17	
HII	0.15	0.28	0.17	0.02	26	12	27	28	26	25	18	9	

Table 13: CSI-FS distribution

Interval	Layer	Bin	Count	Frequencies	Cumulative
0	Lowest	0.02	1	1%	1%
1	Low	0.11	3	3%	4%
2	Middle low	0.20	21	19%	22%
3	Middle	0.29	51	46%	68%
4	Middle high	0.38	28	25%	93%
5	High	0.47	8	7%	100%



The correlation analysis shows no correlation between *Size* and *CSI-financial score* ($\rho=0.17$ between Rank of CSI and $\rho=0.17$ between CSI-financial score and Rank of Size). For example, CSV, DMC, and PEM, DHG rank constantly among the top of CSI-FS, but they are middle-size companies. DVN is among the bottom CSI-FS rank, but it is top 3 in size. That suggests the operational efficiency issues of many pharmaceutical companies.

5. FINDINGS AND IMPLICATIONS

Our research shows a number of findings. First, the domestic companies' sustainability appears to have reduced during the last 4 years. Most of the sustainability financial indicators show negative tendency. All were contributed to the dependence to imports and new foreign entrants. Second, in opposition to theory, we do not find empirical evidence that the firm size may affect the sustainability – the correlation test returns no significant value at all. Third, domestic pharmaceutical firms face issues of operations and production as they over depend to the imports.

That CS's financial performance suggest that pharmaceutical companies should invest on CS programs. Companies could incorporate sustainability in corporate strategy formulation, could integrate corporate sustainability with corporate social responsibility to achieve long-term benefit. Such commitment to sustainability strategy has become an issue of strategic importance in current competitive scenario (Praveen, Zillur, & Kazm, 2013; Labuschagne, C.Brent, & Erck, 2005).

Nevertheless, many researchers have hypothesized that investment in CSP affected negatively to financial performance because investment in CSP is costly for additional costs for such as (i) improved employee conditions, (ii) the adoption of environmentally friendly practices, (iii) charitable donations, (iv) the promotion of community development, and so on. Investing in CSP would require companies to have superior resources (Waddock, 1997). That is not the best interests of investors, because scarce resources would be reallocated away from a firm's investors to its external stakeholders (Aupperle, Carroll, & Hatfield, 1985). The resource-based theory also contended that only companies with sufficient resources have the capacity to invest in CSP, and suggests that CSP is positively associated with financial performance because the types of companies that invest in CSP have greater underlying resources which produce higher financial performance.

6. CONCLUSIONS

This research has major limitation that we did not quantify social and environmental effects into the CS. However, our focus is only the financial factors of the CS. Our scoring model could be used to predict the economic sustainability of domestic pharmaceutical companies, capturing risk in investing, although tests for risk explanations do not suggest in this model.

REFERENCES

1. Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Finance*, 589-609.
2. Altman, E. I. (2002). Revisiting credit scoring models in a Basel 2 environment. In M. Ong, *Credit Rating: Methodologies, Rationale and Default Risk*. London.
3. Al-Tuwaiji, S. A., Christensen, T. E., & Hughes, K. E. (2004). The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach. *Accounting, Organizations and Society*, 447-471.

4. Antonio Angelino, D. T. (2017). Pharmaceutical Industry in Vietnam: Sluggish Sector in a Growing Market. *International Journal of Environmental Research and Public Health*.
5. Artiacha, T., Leea, D., Nelsonb, D., & Walker, J. (2010). The determinants of corporate sustainability performance. *Accounting & Finance*, 50(1), 31–51.
6. Atkinson, G. (2000). Measuring corporate sustainability. *Journal of Environment and Planning Management*, 235–252.
7. Atkinson, M. (2012). Developing and using a performance management framework. *Measuring business excellence*, 16(3).
8. Aupperle, K. E., Carroll, A. B., & Hatfield, J. D. (1985). An empirical examination of the relationship between corporate social responsibility and profitability. *Academy of Management Journal*, 446–463.
9. Business Monitor International. (2018). *Vietnam Healthcare and Pharmaceutical report– Q2 2018*.
10. Cochran, P. L. (1984). Corporate social responsibility and financial performance. *Academy of Management Journal*, 42–56.
11. Dessler, G. (2005). *Human Resource Management*. New Jersey: Pearson.
12. Goyal, P., Rahman, Z., & Kazm, A. (2013). Corporate sustainability performance and firm performance research: Literature review and future research agenda. *Management Decision*, 361–379.
13. Health, M. o. (2017). *Law on Pharmacy Article 91.12 of Decree 54/2017/ND-CP*. Hanoi: Vietnamese Government.
14. Health, M. o. (2018). *Law of Pharmacy Decree No.155/2018/ND-CP*. Hanoi: Vietnamese Government.
15. Hester, R. E., Harrison, R. M., Taylor, D., Roig, B., Gaw, S., Caldwell, D., . . . Kolar, B. (2018). *Pharmaceuticals in the Environment*. Royal Society of Chemistry.
16. Hörisch, J., Freeman, R., & Schaltegger, S. (2014). Applying stakeholder theory in sustainability management. Links, similarities, dissimilarities, and a conceptual framework. *Organization and Environment*, 328–346.
17. Ilinitich, A., Soderstrom, N., & Thomas, T. (1998). Measuring corporate environmental performance. *Journal of Accounting and Public Policy*, 383–408.
18. Ivo, K. (2001). Down Jones Sustainability Group Index - A Global Benchmark for Corporate Sustainability. *Corporate Environmental Strategy*, 6–15.
19. Joseph, C. (2007). Considering the utility of Altman's Z-score as a strategic assessment and performance management tool. *Strategy & Leadership*, 35(5), 37 - 43.
20. Kümmerer, K. (2010). *Pharmaceuticals in the Environment: Source, Fate, Effects and Risk*. Springer.
21. Labuschagne, C., C.Brent, A., & Erck, R. P. (2005). Assessing the sustainability performances of industries. *Journal of Cleaner Production*, 373–385.
22. Lebas, M. (1995). Performance measurement and performance management. *International Journal of Production Economics*, 41, 1–3.
23. Lipe, R. C. (1986). *The Information Contained in the Components of Earnings*. Journal of Accounting Research; vol 24; pp 37–64.
24. McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal*, 854–872.
25. Ministry of Health. (2018). *Pharmacy Report 2017*. Hanoi: Ministry of Health.
26. Praveen, G., Zillur, R., & Kazm, A. (2013). Corporate sustainability performance and firm performance research: Literature review and future research agenda. *Management Decision*, 361–379.

27. Schneider, J. L., Wilson, A., & Rosenbeck, J. M. (2010). , (2010),”Pharmaceutical companies and sustainability: an analysis of corporate reporting. *Benchmarking: An International Journal*, 17(3), 421 - 434.
28. Silva, S., Nuzum, A.-K., & Schaltegger, S. (2019). Stakeholder expectations on sustainability performance measurement and assessment. A systematic literature review. *Journal of Cleaner Production*, 217(20), 204-215.
29. Striteska, M., & Jelinkova, L. (2015). Strategic Performance Management with Focus on the Customer. *Procedia - Social and Behavioral Sciences* , 210, 66-76.
30. The Saigon Times. (2017, 12 27). *Vietnam medicine cost*. Retrieved from The Saigon Times: <https://english.thesaigontimes.vn/57722/Vietnam-medicine-cost-put-at-VND13-million-per-capita.html>.
31. Ullmann, A. A. (1985). Data in search of a theory: a critical examination of the relationships among social performance, social disclosure, and economic performance of U.S. firms. *Academy of Management Review*, 540–557.
32. Vietnamnet. (2017, 12 28). *88 percent of hospitals have effective waste treatment systems*. Retrieved from vietnamnet: <https://english.vietnamnet.vn/fms/environment/192924/88-percent-of-hospitals-have-effective-waste-treatment-systems.html>
33. Waddock, S. A. (1997). The corporate social performance – financial performance link. *Strategic Management Journa*, 18(4), 303–319.

DIFFERENT FACTORS THAT AFFECT THE BRAND EQUITY OF VIETNAMESE COMMERCIAL BANKS

Nguyen Quoc Huy* Nguyen The Khai**

ABSTRACT

This research is conducted to determine different factors that cause impacts on the brand equity of multiple commercial banks in Vietnam. Qualitative research is applied to assess reliability test using Cronbach's Alpha coefficient, exploratory factor analysis EFA and regression analysis with multiple variables. The outcome has pointed out five major factors that affect the brand equity including: brand loyalty, brand admiration, brand association, brand acknowledgement and perceived quality. The result of this research could be referred to as a method of examining brand equity as well as applied to help increase the brand equity of commercial banks in Vietnam according to customers' perspectives.

Keywords: *brand equity, factors affecting brand equity, commercial banks, Vietnam.*

1. INTRODUCTION

Banking industry is considered as an extremely important financial institution; even more important than any other industry. Reliability plays a vital role in the existence of banks. Thus, every bank need to establish a strong, healthy and trustful brand image.

Customers' bank selection is not only affected by tangible factors but also factors related to reliability, preference, bias, admiration, etc. Those are different aspects that help shape the brand of the bank. Subsequently, brand has become the core factor for commercial bank to achieve success. A positive brand allows the bank to earn a considerable number of traditional customers, respect from competitive rivalry, trust from managerial department as well as the whole society. Besides, brand is also a key point when investors consider to or not to invest into a particular bank.

In Vietnam, hundred thousands of commercial banks are operating with the amount of authorized capital ranging from thousand billion of Vietnam Dong (VND) to dozen thousand billion of VND. In comparison to the World's banking systems, Vietnam is one of the countries that experience the largest number of banks. The number of smaller banks with the amount of authorized capital being approximately 3,000 billion VND (the required amount of authorized capital according to the Vietnamese National Bank's regulation) is considerable, which cause

* Lac Hong University, 15/3B Huynh Van Nghe, Bien Hoa, Dong Nai, Vietnam. E-mail: huy175@gmail.com

** Lac Hong University, 15/3B Huynh Van Nghe, Bien Hoa, Dong Nai, Vietnam. E-mail: nguyuenkhai2005@gmail.com

disadvantages in terms of competing against competitive rivalry, attracting customers, infiltrating the market as well as creating reliability for customers.

However, there is a major number of banks whose founders do not precisely understand about roles and importance of branding; they are also suffered from the lack of branding and brand developing strategy.

For that reason, carrying out research based on customers for the purpose of navigating the impacts of the above factors on the brand of all commercial banks in Vietnam nowadays is undeniably essential.

2. THEORETICAL BASIS AND RESEARCH MODEL

2.1. “Brand” definition

Brand is technically an intangible property which play a key role in business competition, market development and is also vitally meaningful to the corporation. However, there are multiple definitions for this concept, which are not unified. For instance:

The American Marketing Association (AMA) defines a brand as a “name, term, sign, symbol or design, or a combination of them intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of other sellers”.

According to David Aaker, a brand is an image whose characteristics include cultural, physical, emotional, intuitive and exclusive, which is usually associated by customers when a product or company is mentioned.

A brand is a combination of different elements such as physical, intuitive and emotional factors and appearance of the product and service, including the name of the product, service, trademark, characteristics of product or service, the name of the company, symbol, image, slogan, advertisement, promotions, etc., which are gradually built up through times, impress and gain a position in customers’ mindset.

Thus, the definition of brand has a wider meaning. A brand is a steady and stable property, which can be an instruction for customers’ product selection and establish customer relationship. Brand brings numerous of benefits to incorporations, consumers and society. In terms of consumers, brand is a coefficient of quality measurement, which creates product acknowledgement. In terms of incorporation, brand creates customers’ loyalty, stable sales revenue and higher interest rate. With all mentioned benefits to consumers and incorporations, brand plays a key role in the economic development of the society. Under a harshly competitive condition, enterprises need to create a strong branding process to survive and gain competitive advantages.

2.2. Banking brand

Banking brand is a combination which basically demonstrate service activities of a particular bank according to the government’s regulations and also fit the operational regulations of each division to satisfy customers’ needs while still ensuring safety in doing business. This also help customers understand more thoroughly about how their chosen bank differentiate from other banks, based on scientific and technological innovation of that particular period of time.

Because of that, banking brand is the reliability of banks on the market, the intangible property which has certain value in business activities of banks.

2.3. Definition of brand equity

Brand equity includes all specific values that the brand can bring to stakeholders (shareholders, employees, customers, society, etc.). These equities are counted in products or services in order to make stakeholders more valuable. Or, brand equity is the added value of the product. Products without a brand are just a goods. Brand creates emotional value for customers while consuming the product.

Overall, there are multiple definitions of brand equity. This particular research is based on David Aaker's definition.

Branding expert David Aaker defined brand equity back in 1991 as: "A set of assets and liabilities linked to a brand, its name and symbol, which adds to or subtracts from the value provided by a product or service to a firm and/or to that firm's customers." (Aaker, 1991).

2.4. Factors that affect brand equity

Research on the factors that affect brand equity is conducted from customers' perspectives. According to Aaker in 1991, there are four main factors contributing to brand equity of an enterprise:

Brand awareness

Brand awareness is a chance that a customer can recognize and distinguish different characteristics of a brand among a combination of other brands on the market. When customers decide to consume any brand, the very first thing they should know is to recognize that brand. Thus, brand awareness is the first factor on which customer based to classify a combination of competitive brands.

Brand awareness allows customers to be more familiar with the brand they choose and make them care about it at the purchasing moment. Buyers often select the brand they have known before because they feel safer and more comfortable; a brand which is widely known should be more reliable and has higher product quality. Normally, people tend to select a brand which is initially known, rather than the one they have never heard of before. This factor is especially important in evaluating and decision-making process of customers towards the brand.

A high brand awareness is the foundation which create customers' desire of consuming some products of a brand. Only when customers experience the product that they can feel its quality as well as other linking impressions which make them loyal to that brand.

Brand association

One of the aspects that have the most significant contribution in brand equity is brand association, which is the way customers will consume the brand.

Brand association is anything that connects customers' memory to the brand (Aaker, 1991). Customers will instantly recall one or some unique characteristics of a particular brand when it is mentioned. That is also feeling, trust and knowledge that consumers have towards the brand. Associations can be either positive or negative. Normally, these associations are related to equity, characteristics of the product and valuable features of the company or consumers.

Brand association creates equity for an enterprise and its customers by: providing information about the brand, differentiating the brand, setting up reasons to buy products, creating positive attitudes and feelings and being the foundation for brand expansion. Moreover, having numerous of positive associations can be consider as a defensive solution against competitive rivalry.

Perceived quality

Perceived quality may be generally defined as the consumer's overall assessment of the utility of a product based on what is received and what is given; the difference between the utility that the customers have received and what they expected (Zeithaml, 1988).

Perceived quality is an important factor that affects customers' decision-making process, thus customers tend to compare quality and price of substitutes which are in the same category (Jin and Yong, 2005).

According to Davis and his partner in 2003, perceived quality is directly related to brand equity, while Aaker (1991) and Zeithaml (1988a) did not consider perceived quality as the real quality of a brand or its products. It is supposed to be customers' evaluation about the preeminence of an actual being or a service.

Consumers usually make quality assessment about a product or service based on multiple data signals which are connected to it. Some of these data belong to internal characteristics of the product, while others may belong to external ones. According to Zeithaml' definition (1988b), data related to internal characteristics such as efficiency, functions, reliability, relevance, durability, serving ability and appearance. On the other hand, external characteristics include price, brand, brand image, company reputation, producer image, image of retail stores and product origin. Perceived quality directly affects customers' decision and loyalty, especially in cases when customers have too little or no information about products that they are going to purchase (Aaker, 1991; Armstrong and Kotler, 2003).

Brand royalty

Customers' loyalty for the brand also plays a vital role in the success of the brand. Customers' loyalty demonstrates their tendency in purchasing and consuming products or services of a particular brand and continue to repeat these behaviors (Chaudhuri, 1999).

Until now, the concept of brand loyalty is still significant to most of enterprises. Some researchers stated that brand royalty regularized customers' product and service purchasing behaviors as well as reduced the chance that customers might substitute the brand with another one. As a result, brand equity could be said to increase corresponding to customers' loyalty towards the brand. The most important purpose of creating brand equity is to ensure the number of loyal customers of the brand (Yoo at al., 2000; Travis, 2000).

Although researchers have not come to an agreement on the methodology of brand royalty measurement, through related research and documents, we can see that brand loyalty measurement usually consists two types of measurement: attitude and behavior. Thus, it is often said that brand royalty is a multi-dimensional concept (Thiele and Bennett, 2001).

Customers' loyalty is the aspect that illustrates the strength of the brand most clearly (Aaker, 1991). The important thing is that it is necessary to distinguish between passive loyalty, which is directly related to purchasing behavior (behavior of loyalty approach) and more positive loyalty, which is related to attitude (attitude of loyalty approach). They both significantly affect the brand (Benoît H, 2003).

Research about brand royalty has pointed out two explanations that which reflect natural intention of behavior (Lacoeuilhe J, 1997), belief in preeminence in terms of function and utility compared to competitive rivalry, establishing emotional connection between individuals and the brand, which shows their cohesion to the brand.

According to Punniyamoorthy and Raj in 2007: "Brand royalty can be considered as a special case in which market is approached through connections; customers strictly stick to the chosen brand".

The brand that achieve higher brand royalty is the brand that earns higher revenue, which means that this brand has higher equity and is more valuable.

High brand royalty is a foundation for creating a huge number of royal customers, which help boost the brand's sales revenue. Diverse perceived quality, plentiful brand association, wide brand awareness will accordingly improve brand royalty.

2.5. Research hypothesis

In 2007, Kayaman and Arasli conducted a research about brand equity of hotel industry based on customers' assessment. Two researchers carried out this research by surveying foreign visitors who had stayed in five-star hotels in the North of Cyprus. The objective of this research was analyzing the interrelationship of four factors: Perceived quality, Brand royalty, Brand image and Brand awareness as well as their impacts on the Brand equity of the hotel industry. The outcome of the analysis pointed out that three factors: Perceived quality, Brand royalty and Brand image had the strongest interaction with Brand equity while Brand awareness had a weaker interaction with Brand equity. Although Brand awareness is considered to be the decisional factor to Brand equity, the outcome of this research pointed out that it was not the most important factor in creating Brand equity in the hotel industry. Two researchers had a significantly important finding: there was a positive relationship between two factors, brand royalty and brand image. Thus, to maintain brand royalty, enterprises have to establish and maintain a brand image in customers' feeling towards hotel industry and vice versa.

The study "Measuring brand value based on customers: experimental evidence from the sports clothing market in China" (2009) by two authors Tong and Fawley, has built and tested the theoretical model of the relationship among the four elements that make up the brand value, inclusive of: perceived quality, brand awareness, brand associations, brand loyalty with the entire brand value of the sports clothing industry. The purpose of this study is to test Aaker's brand value model in China's sport clothing market. The study was conducted with a sample of 304 customers in two major cities of China, Beijing and Shanghai. The research model results conclude that the two factors Brand Associations and Brand Loyalty positively affect brand value. The brand loyalty factor has the strongest impact, playing an important role in building brand value in the

Chinese sport clothing market; A strong association drives customers' behavior and feelings toward a brand. While perceived quality and brand awareness do not impact and have no direct relationship with brand value, this means that the product's high quality or the brand name alone is not a guarantee for a successful brand for the sport clothing industry. However, the test results show that there is a positive correlation between the elements that make up the brand value: the correlation between perceived quality and brand associations with brand loyalty; brand awareness and brand association with brand loyalty. Therefore, the perceived quality and brand awareness also indirectly affects brand value by affecting two factors: brand loyalty and association.

Atilgan et al. (2009) used four factors: perceived quality, brand loyalty, brand association and brand trust to measure the brand value of two global brands: McDonald's and Coca-Cola in 3 countries which are both culturally and economically different: America, Turkey and Russia. The author group has introduced a new element which is Brand Trust and excludes Brand Awareness element from the brand value measurement model. The study results show that all four factors are suitable for determining brand value for global brands, this conclusion is also consistent with previous research models.

Nguyen Dinh Tho and Nguyen Thi Mai Trang (2002) built a model to measure brand value in the Vietnamese consumer market and the effect of consumer attitudes on advertising and promotion programs with components of brand value. The brand value of the two authors includes components: brand awareness, brand passion, perceived quality and brand loyalty. The model research results show that the passion and perceived quality are related to brand loyalty. Perceived quality of consumers is both a cause of brand loyalty formation and a cause of brand passion formation.

Martensen & Grønholdt's customer-oriented brand value model is complex and difficult to measure. And Keller's model, the two components of brand value are brand awareness and brand impression, this model includes many other small components such as attitudes, attributes, benefits, etc., and those small components consist of other small components that cause difficulties for the measurement. Similarly, Young & Rubicam's model also includes two components that measure brand value: brand vitality and brand size, these two components, consisting four other small components, are therefore also difficult for the measurement. The Aaker model has a high level of brand value, easy to understand and implement. Therefore, this model has been used, adjusted and applied by many authors, specifically, Yoo & Donthu (2001) used four out of five brand value components in Aaker's model, namely brand loyalty, brand awareness, perceived quality, and brand associations. Yoo&Donthu (2001) removed another proprietary asset component because it was incompatible during brand value measurement. In addition, a study on "Effects of brand value on consumer reactions" by Isabel Buil and Eva Martinez (2013) also used a combination of 04 components of brand value of above mentioned Aaker model.

Park C Whan Park, Macinnis Deborah J Macinnis, Eisingerich Andreas B Eisingerich, White Allen M Weiss (2016): Brand admiration using in-depth research on consumer psychology, marketing, engagement and communication of consumers to develop an integrated, strong perspective and innovative approach to brand management. Being assisted by research from leading scholars, this study describes how businesses can turn products, services, individuals or brands into something that customers love, trust and respect. The result is greater brand loyalty,

stronger brand advocacy and higher brand value. Brands that are admired increase their sales more effectively over a longer period of time and have more growth opportunities. The real power of Brand awareness is that it provides specific guidance on how brand managers can make customers (and employees) admire a brand. Admiring brands provide exactly what customers need (enabling benefits), in a way that is pleasing, fun, interesting and emotionally relevant (enticing benefits), and also makes people feel good about themselves (enriching benefits). The provision of these benefits is fundamental to building, strengthening and promoting brand admiration. In addition, the authors gave a measure based on the actions and a common sense of brand value and they developed data to diagnose what to do next. In short, brand admiration offers a coherent, connected approach to help the brand stand steadily when confronting time testing. A well-designed, well-managed brand becomes part of community awareness, and ultimately, part of the culture.

The five research hypotheses are proposed as follows:

H₁: Brand loyalty has a positive relationship with brand value.

H₂: Brand admiration has a positive relationship with brand value.

H₃: Perceived quality has a positive relationship with brand value.

H₄: Brand association has a positive relationship with brand value.

H₅: Brand awareness has a positive relationship with brand value.

2.6 Research model

Research model is proposed as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Of which:

Dependent variable Y: Brand value of Vietnamese commercial banks (GTH)

β_0 : Constant

X₁: Loyalty (LTT)

X₂: Admiration (SNM)

X₃: Perceived quality (CLCN)

X₄: Association (SLT)

X₅: Awareness (SNB)

ε : Error

3. RESEARCH METHODOLOGY

Discover, adjust and supplement observation variables used to measure research concepts. This method has been implemented in some Vietnamese commercial banks through focus group discussion and in-depth interviews. The 5-level Likert scale is used to measure the impact of factors on the brand value of Vietnamese commercial banks.

Identify, analyze and evaluate the impact of factors on the brand value of Vietnamese commercial banks from customers. This method was implemented through a customer survey questionnaire with a sample size of 424. The collected data was cleaned, invalid votes were discarded, and the data was processed using SPSS 20.0 software. After that, the reliability of the scales was assessed through Cronbach’s Alpha coefficient. This is followed by the exploration factor analysis (EFA). Finally, using correlation matrix and linear regression analysis to test the model and hypotheses, thereby determining the impact of factors on the brand value of Vietnamese commercial banks.

4. RESEARCH RESULTS AND DISCUSSION

4.1. Verifying the reliability of the scale

Table 1. Results of testing scales

Ordinal numbers	Code	Cronbach’s Alpha	Variables are eliminated	The remaining variables
1	LTT	.845	LTT5	LTT1, LTT2, LTT3, LTT4
2	SNM	.782	-	SNM1, SNM2, SNM3, SNM4, SNM5
3	CLCN	.859	-	CLCN1, CLCN2, CLCN3, CLCN4
4	SLT	.874	SLT3	SLT1, SLT2, SLT4, SLT5
5	SNB	.843	-	SNB1, SNB2, SNB3, SNB4
6	GTH	.820	-	GTH1, GTH2, GTH3

Source: The researcher’s collecting data and SPSS

The reliability testing results of the measuring scale show that variables with Cronbach’s Alpha Coefficients greater than 0.6 and Corrected Item-Total Correlation coefficient greater than 0.3 are considered appropriate for inclusion in the following steps (Nunnally and BernStein, 1994). According to the results in Table 1, there are 2 excluded variables (LTT5, SLT3) out of 23 observed variables. The remaining 21 observed variables continue to be included in the exploration factor analysis.

The measuring scale of brand value with Cronbach’s Alpha coefficient reaches 0.820 (> 0.6), satisfactory, and the Corrected Item-Total Correlation of the total variables of the 3 observed variables is greater than 0.3. Thus, all three observed variables are retained for inclusion in factor analysis.

4.2. Exploration factor analysis (EFA):

Table 2. KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.855
Bartlett’s Test of Sphericity	Approx. Chi-Square	4403.511
	df	210
	Sig.	.000

Source: The researcher’s collecting data and SPSS

The measuring scale of the components factors affecting the enhancement of the brand value of Vietnamese commercial banks has 21 observed variables, after assessing the reliability with

Cronbach's Alpha, was included in the EFA exploration factor analysis. From the results of the study, no variables were excluded. KMO coefficient (Kaiser-Meyer-Olkin) reaches $0.855 > 0.5$, so EFA analysis is appropriate in this study. Bartlett's test is statistically significant ($\text{Sig.} < 0.05$), showing that the observed variables are correlated with each other in the whole.

Table 3. Total Variance Explained

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.550	31.189	31.189	6.550	31.189	31.189	3.027	14.414	14.414
2	2.860	13.620	44.809	2.860	13.620	44.809	2.878	13.705	28.119
3	1.979	9.426	54.235	1.979	9.426	54.235	2.864	13.638	41.757
4	1.436	6.840	61.075	1.436	6.840	61.075	2.775	13.212	54.969
5	1.100	5.237	66.312	1.100	5.237	66.312	2.382	11.343	66.312
6	.886	4.218	70.529						
7	.709	3.378	73.907						
8	.674	3.212	77.119						
9	.574	2.734	79.853						
10	.543	2.588	82.441						
11	.519	2.473	84.914						
12	.480	2.284	87.198						
13	.417	1.985	89.183						
14	.404	1.925	91.108						
15	.366	1.743	92.851						
16	.331	1.576	94.427						
17	.320	1.523	95.951						
18	.246	1.171	97.122						
19	.227	1.081	98.203						
20	.209	.997	99.200						
21	.168	.800	100.000						

Extraction Method: Principal Component Analysis.

Source: The researcher's collecting data and SPSS

The Eigenvalues coefficient= $1.100 > 1$ representing the variability is explained by each factor, meaning that the withdrawn factors have the best meaning of information summary. Total variance explained: Rotation Sums of Squared Loadings (Cumulative%) reaches $66.312\% > 50\%$. This shows that 66.312% of the data variability is explained by 5 factors.

Factor Loading coefficient of all observed variables are greater than 0.5 so it is satisfactory, or the measuring scale of convergent value. Thus, with the initial 23 observed variables, after testing the reliability of Cronbach's Alpha, there were 21 observed variables left, and through the EFA factor analysis step, there were 21 observed variables and also withdraw 5 key factors.

The brand value measuring scale consists of 3 observed variables, after being assessed on reliability by Cronbach's Alpha, was included in the EFA factor analysis. The analytical results for the KMO coefficient reach $0.704 > 0.5$, satisfactory, so EFA analysis is appropriate. Bartlett test has significance level= $0.000 < 0.5$, so this test is statistically significant and the observed variables are correlated in the whole. At the same time, variance explained= $73.71\% > 50\%$ at Eigenvalue= $2.211 > 1$, so the model is eligible for analysis.

4.3. Correlation analysis

Table 4. Correlations

		GTH	LTT	SNM	SLT	CLCN	SNB
GTH	Pearson Correlation	1	.701**	.484**	.578**	.679**	.187**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	424	424	424	424	424	424
LTT	Pearson Correlation	.701**	1	.252**	.478**	.619**	-.020
	Sig. (2-tailed)	.000		.000	.000	.000	.687
	N	424	424	424	424	424	424
SNM	Pearson Correlation	.484**	.252**	1	.339**	.274**	-.112*
	Sig. (2-tailed)	.000	.000		.000	.000	.021
	N	424	424	424	424	424	424
SLT	Pearson Correlation	.578**	.478**	.339**	1	.503**	.002
	Sig. (2-tailed)	.000	.000	.000		.000	.963
	N	424	424	424	424	424	424
CLCN	Pearson Correlation	.679**	.619**	.274**	.503**	1	.039
	Sig. (2-tailed)	.000	.000	.000	.000		.426
	N	424	424	424	424	424	424
SNB	Pearson Correlation	.187**	-.020	-.112*	.002	.039	1
	Sig. (2-tailed)	.000	.687	.021	.963	.426	
	N	424	424	424	424	424	424

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: The researcher's collecting data and SPSS

Results from the Pearson correlation coefficient matrix show five factors: loyalty (LTT), admiration (SNM), association (SLT), perceived quality (CLCN) and awareness. The awareness (SNB) has a linear relationship with Brand Value (GTH) with a significance level of Sig less than 0.05. Thus, the independent variables have strong linear relationship and the positive effect with the dependent variable which is brand value.

4.4. Regression analysis

Table 5. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.852 ^a	.726	.722	.260	1.940
a. Predictors: (Constant), SNB, SLT, SNM, LTT, CLCN					
b. Dependent Variable: GTH					

Source: The researcher's collecting data and SPSS

The result for the adjusted R^2 coefficient= 0.722 indicates the model's appropriateness is 72.2% (> 50%) or in other words, 72.2% the change of the GTH dependent variable is explained by 5 independent variables (SNB, SLT, SNM, LTT, CLCN), the remaining 27.8% of the change is due to factors beyond the research model.

Table 6. Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.119	.134		-.888	.375		
	LTT	.324	.028	.390	11.559	.000	.577	1.733
	SNM	.235	.023	.281	10.154	.000	.855	1.170
	SLT	.133	.026	.159	5.069	.000	.666	1.501
	CLCN	.219	.028	.272	7.904	.000	.554	1.804
	SNB	.129	.016	.215	8.307	.000	.980	1.020
a. Dependent Variable: GTH								

Source: The researcher's collecting data and SPSS

Results of regression analysis showed that 5 factors affecting brand value (GTH), including: LTT, SNM, SLT, CLCN, SNB all have Sig value less than 0.05, satisfactory.

From the regression analysis table, the relationship between the dependent variable of brand values (GTH) of Vietnamese commercial banks and 5 independent variables is shown in the following standardized regression equation:

$$GTH = 0.390 \cdot LTT + 0.281 \cdot SNM + 0.159 \cdot SLT + 0.272 \cdot CLCN + 0.215 \cdot SNB$$

The regression equation shows that the brand value of Vietnamese commercial banks is affected by 5 factors with the following specific degree of influence:

- The first is the loyalty: Coefficient $\beta_{LTT} = 0.390$
- The second is the admiration: Coefficient $\beta_{SNM} = 0.281$
- The third is the perceived quality: Coefficient $\beta_{CLCN} = 0.272$
- The fourth is the awareness: Coefficient $\beta_{SNB} = 0.215$
- The fifth is the association: Coefficient $\beta_{SLT} = 0.159$

From the above results, showing Coefficient $\beta > 0$, means independent variables positively impact the brand value of Vietnamese commercial banks. This result also confirms that the initial hypotheses (H_1 to H_5) are accepted and tested appropriately.

5. CONCLUSION

Basing on the theoretical ground when approaching the prior researches, the group of authors have built a model of factors affecting the brand value of Vietnamese commercial banks basing on the evaluations of the customers.

After following the research process with qualitative and quantitative methods, the author has conducted descriptive statistical analysis, tested the reliability of the measuring scale, exploration factor analysis (EFA) and regression analysis; Theories have been proved quantitatively. As the model and research hypotheses, the author has identified all 5 factors affecting the brand value of Vietnamese commercial banks, including: brand awareness, brand associations, perceived quality, brand loyalty and brand admiration, of which the brand Loyalty, Admiration and Perceived quality have a strong impact on the brand value of banks, so they play an important role in building brand values of banks.

Bank managers are often limited in resources: money, time and manpower to develop and enhance their brand value. Therefore, this research will help them prioritize and allocate resources appropriately based on factors affecting the brand value of their banks.

REFERENCES

1. Aaker, D.A. (1991). *Managing Brand Equity*. New York: The Free Press.
2. Aaker, D.A. (1996). *Measuring brand equity across products and markets*. California: Management Review. Vol 38: p.102-120.
3. Aaker, D.A. (1996b). *Measuring Brand Equity across products and markets*. California: Management Review. Vol 38. No. 3.
4. Aaker, D.A., Joachimsthaler, F. (2000). *Brand Leadership: Building Assets in the Information Society*, New York: The Free Press.
5. Atilgan, E., Akinci, S., Aksoy, S., Kaynak, E. (2009). *Customer-based brand equity for Global brands: A multinational approach*. Journal Euromarketing. Vol 18: p.115-132.
6. Barwise, P., Higson, C., Likierman, A. (1989). *Accounting for brands*. Institute of Chartered Accountants in England and Wales.
7. Bodie, Zvi, Alex Kane, and Alan J. Marcus. (1999). *Investments*. Boston: McGraw-Hill.
8. Cravens, KS, and Guilding, C. (1999). *Strategic Brand Valuation: A Cross-Functional Perspective*. Business Horizons. July-August.
9. David Haigh. (2000). *Brand Valuation: Measuring and Leveraging your Brand*. Institute of Canadian Advertising Press.
10. Davis, Scott, M. (2002). *Brand Asset Management: Driving Profitable Growth through Your Brands*. San Francisco: Josey Bass.

MAJOR MODEL IMPACTING TAX POLICY TOWARDS PROMOTING ECONOMIC RESTRUCTURING IN VIETNAM

Le Thu Thuy*

ABSTRACT

The objective of this paper is to study the factors impacting tax policy towards promoting economic restructuring in Vietnam, with total 486 samples from some specialized agencies and taxpayers, professionals, managers and executives. The research uses linear regression model to process data, the results show that there are 6 factors impacting tax policy towards promoting economic restructuring: Macroeconomic Environment; State policy; Tax Authorities; Taxpayers; Checking and Controlling; Process and Procedures and Dependent Variable is Tax policy towards promoting economic restructuring in Vietnam.

The research results provide managers with suggestions of forming and operating tax policy in Vietnam. At the same time, it is recommended that when proposing solutions to tax policy towards promoting economic restructuring, managers need to put them in the relationship of impact between factors. Depending on the conditions, the managers should emphasize on a factor while making light of another factor, but they need to focus on factors having strong impact.

Keywords: *Impacting factor/ Effecting factor; Tax policy; Economic Structure; Viet Nam.*

1. INTRODUCTION

The reality has shown that in the process of national economic development, if a country has a rational and effective tax policy, it will be a solid foundation and motivation to promote production and business activities, services based on defined structures in an effective social economy. Thereby the budget revenue from tax will increase incessantly; we can create and form a strong economic potential.

Tax is also an important tool for the state to adjust the economy stick to the defined economic structure, ensure the economically and socially sustainable economic development; stabilize macroeconomic, contribute to improving people lives, social equality, ... From the perspective of economic restructuring; theoretically, the economic restructuring of a nation is not only an indicator to evaluate economic growth quality, but it also reflects the industrialization process's nature.

From the perspective of tax impact on economic restructuring, tax policy must stick to its goal towards increasing continuously the income of economic entities as well as the nation. From economic perspective, the main solution to increase income is stimulating labor, investment

¹ Lac Hong University, 15/3B Huynh Van Nghe, Buu Long, Bien Hoa City, Dong Nai, Vietnam, Email address: ltthuy247@gmail.com

and savings; creating high labor productivity for society. To do so, the State must have many effective economic levers, including the use of tax tools, which plays an important role in reaching economic restructuring goal. This goal is in the direction of industrialization and modernization of the economy, shown in many fields.

The objective of this paper is to establish a system of factors affecting tax policy towards promoting economic restructuring in Vietnam. Based on this foundation, this paper can provide economic policy makers with scientific basis to form appropriate and effective tax policy in promoting Vietnam's economic restructuring.

2. THEORETICAL BASIS AND RESEARCH MODEL

2.1. Theoretical basis

The concepts of tax policy and economic restructuring aim at effectively administering tax to increase revenues for the state budget, stabilize and serve for the economic restructuring. In addition, it is associated with the development of a high, sustainable and especially stable economy that avoids causing great shocks to the economy. Economic restructuring is the foundation for sustainable economic development, which can be understood as rational, effective and maintainable economic growth; along with an economic structure stick to industrialization and modernization of the economy, effective exploitation and utilization of natural resources. To ensure such an economic structure, economic policies including tax policy must be synchronously formed, and meet the current development requirements as well as ensure stable and solid development goals across all fields in the future. Each policy type has an adjustment scope, along with different impacts on the economic restructuring process. Tax policy can be considered as a crucial economic policy regulating the subjects in the economy and activities in economic sectors, thereby directly affect the implementation of a nation's economic restructuring goals. The study about tax policy's contents aims at promoting economic restructuring, from the concepts, contents, requirements, affecting factors, guarantee conditions... from the perspective of general theory as well as application to the specific conditions and situation of each country in certain periods which plays an important part in the formulation of national socio-economic development strategies and plans as well as state policies in each specific field.

From the perspective of tax policy promoting economic restructuring, the basic goals of this policy system are to ensure revenue for the state budget; manage and control activities of production, business, income, assets, consumption, investment and savings of the society, thereby orient these activities to develop economic restructuring objective of the nation. Therefore, the study of tax policy, in accordance with the economic restructuring conditions in each period, and simultaneously, aiming at the sustainable development of the national economy, promises to be of great influence to the planning, issuance and implementation of tax policy system as well as the objectives of economic restructuring. The current tax policy system of Vietnam has focused on the objectives of economic restructuring. In addition to the top goal of raising revenues for the state budget, Vietnam's tax system has had important impacts to regulate the macro-economy such as promoting internal strength, improving the economic competitiveness, promoting economic restructuring stick to industrialization and modernization; ensuring social equity in distribution and regulation of income. However, the macro adjustment's role for the purpose of serving economic

restructuring stick to industrialization and modernization of tax policy has not been fully promoted. Therefore, the consideration and study of theoretical contents about economic restructuring as well as the impacts of tax policy on its goal, are the basis for sustainable economic development and current tax system practice in Vietnam in relation with the objectives of economic restructuring. All of these activities are with a view to renovating and improving the tax policy in the context of integration and especially when Vietnam has become a member state of the Trans-Pacific Strategic Economic Partnership Agreement so that this policy can fully promote the roles of serving economic restructuring stick to industrialization and modernization in economic regulation, ensure the fast, strong and sustainable development of Vietnam in the future with profound theoretical and practical significance.

2.2 Research model

Based on the theory of economic structure, the impacts on tax policy and empirical studies about the relation between tax policy and economic restructuring; as well as with current Vietnamese practice, the author proposes a tax policy model towards promoting economic restructuring in Vietnam as below.

The proposed research model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

In which:

Dependent variable Y: Tax policy towards promoting economic restructuring in Vietnam

β_0 : Constant

X_1 : Macroeconomic Environment (MTV)

X_2 : State policy (CSNN)

X_3 : Tax authorities (CQT)

X_4 : Taxpayers (NNT)

X_5 : Checking and controlling (KTKS)

X_6 : Tax payment process and procedure (QTT)

ε : Error

The proposed research hypotheses are:

T_1 : The positive relationship between macroeconomic environment and tax policy promotes economic restructuring.

T_2 : The positive relationship between state policy and tax policy promotes economic restructuring.

T_3 : The positive relationship between tax authorities and tax policy promotes economic restructuring.

T_4 : The positive relationship between taxpayers and tax policy promotes economic restructuring.

T_5 : The positive relationship between checking-controlling and tax policy promotes economic restructuring.

T_6 : The positive relationship between tax payment process & procedure and tax policy promotes economic restructuring.

3. RESEARCH METHOD

This research combines qualitative research method with quantitative method. In which, quantitative method is mainly applied.

A 5 point Likert scale is utilized to measure the impact of different factors on tax policy to economic restructuring in Viet Nam following the scale as follow: 1- Very little impact; 2-Little impact; 3- Medium; 4- High impact; 5- Very high impact.

A questionnaire is used to conduct the survey in which there are some specialized agencies and taxpayers, professionals, managers and executives with the number of samples is 486.

After collecting the data, the author proceeds with cleaning and removing invalid sheets, and the data is processed by SPSS software. Next, the reliability of the scales is assessed by Cronbach's Alpha coefficient and exploratory factor analysis (EFA). Finally, running a correlation matrix and performing linear regression analysis to test the model and hypotheses, through which, the influence of different factors on tax policy to economic restructuring in Viet Nam is determined.

4. RESULT OF THE RESEARCH

4.1 Testing the reliability of the measurement scale according to Cronbach's Alpha coefficient

Table 1. Results of testing scales

Ordinal numbers	Code	Cronbach's Alpha	Variables are eliminated	The remaining variables
1	KTV	.846	-	KTV1, KTV2, KTV3, KTV4
2	CSNN	.874	CSNN3	CSNN1, CSNN2, CSNN4, CSNN5
3	CQT	.844	CQT5	CQT1, CQT2, CQT3, CQT4
4	NNT	.776	-	NNT1, NNT2, NNT3, NNT4, NNT5
5	KTKS	.867	-	KTKS1, KTKS2, KTKS3, KTKS4
6	QTT	.735	QTT5	QTT1, QTT2, QTT3, QTT4
7	CST	.815	-	CST1, CST2, CST3

Source: The researcher's collecting data and SPSS

Testing the reliability of the measurement scale according to Cronbach's Alpha coefficient allows the removal of the inappropriate variables in the research model. In fact, the research is not able to know the exact variance as well as the error of the variables. Therefore, only variables with an appropriate correlation coefficient of the total variable greater than 0.3 and Cronbach's Alpha coefficient greater than 0.6 are accepted and considered as appropriate for subsequent analysis

step (Nunnally and Bernstein, 1994). According to the research results, there are 3 variables removed (CSNN3, CQT5, QTT5) out of 31 (including dependent variables) observed variables. The remaining 28 observed variables continue to be removed in the exploration factor analysis.

Tax policy measurement scale has Cronbach's Alpha coefficient 0.815 qualified (> 0.6) and the total variable's correlation coefficient of 3 observed variables is greater than 0.3. Thus, these 3 observed variables are included in factor analysis.

4.2. Exploratory factor analysis (EFA)

Table 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	5867.577
	df	276
	Sig.	.000

Source: The researcher's collecting data and SPSS

There are 26 observed variables in the scale of the factors and components affecting tax policy towards promoting economic restructuring. After their reliability is assessed by Cronbach's Alpha, they are included in Exploratory factor analysis. From the research results, one variable is removed (NNT3). KMO coefficient (Kaiser-Meyer-Olkin) reaches $0.857 > 0.5$, so EFA analysis is appropriate in this research. Bartlett's test is statistically significant ($\text{Sig} < 0.05$) showing that the observed variables are correlated with each other on the whole.

Table 3. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.192	29.965	29.965	7.192	29.965	29.965	2.989	12.454	12.454
2	3.145	13.103	43.068	3.145	13.103	43.068	2.898	12.077	24.532
3	1.923	8.013	51.081	1.923	8.013	51.081	2.855	11.896	36.427
4	1.536	6.399	57.481	1.536	6.399	57.481	2.747	11.448	47.875
5	1.347	5.614	63.094	1.347	5.614	63.094	2.419	10.080	57.955
6	1.115	4.644	67.738	1.115	4.644	67.738	2.348	9.783	67.738
Extraction Method: Principal Component Analysis									

Source: The researcher's collecting data and SPSS

The Eigenvalues coefficient = $1.115 > 1$ represents the variance explained by each factor, meaning that the inferred factors have representative meaning for the other variables. Total Average Variance Extracted: Rotation Sums of Squared Loadings (Cumulative%) reach $67,738\% > 50\%$. This fact shows that $67,738\%$ of data variation is explained by 6 factors.

Factor Loading coefficient (Factor Loading) of all observed variables is greater than 0.5 therefore, it meets the requirements, or the measurement scale reaches the convergent validity. Thus,

with 26 initially observed variables, after testing the reliability of Cronbach's Alpha, 26 observed variables remain, and after EFA step, 25 observed variables remain and 6 key factors are extracted.

Tax policy measurement scale (dependent) consists of 3 observed variables, after checking the reliability by Cronbach's Alpha, it is included in EFA. The analytical results for KMO coefficient reach $0.697 > 0.5$ meeting the requirements, so EFA is appropriately applied. Bartlett test with significance level $0.000 < 0.5$ so this test is statistically significant and the observed variables are correlated on the whole. At the same time, Average Variance Extracted is $73,143\% > 50\%$ at Eigenvalue = $2,194 > 1$ so the model is eligible for exploratory analysis.

4.3 Correlation analysis

Table 4. Correlations

		CST	KTV	CSNN	CQT	NNT	KTKS	QTT
CST	Pearson Correlation	1	.171**	.637**	.707**	.493**	.687**	.492**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	486	486	486	486	486	486	486
KTV	Pearson Correlation	.171**	1	-.020	-.003	-.116*	.041	.225**
	Sig. (2-tailed)	.000		.658	.949	.010	.370	.000
	N	486	486	486	486	486	486	486
CSNN	Pearson Correlation	.637**	-.020	1	.538**	.337**	.557**	.411**
	Sig. (2-tailed)	.000	.658		.000	.000	.000	.000
	N	486	486	486	486	486	486	486
CQT	Pearson Correlation	.707**	-.003	.538**	1	.260**	.625**	.427**
	Sig. (2-tailed)	.000	.949	.000		.000	.000	.000
	N	486	486	486	486	486	486	486
NNT	Pearson Correlation	.493**	-.116*	.337**	.260**	1	.267**	.125**
	Sig. (2-tailed)	.000	.010	.000	.000		.000	.006
	N	486	486	486	486	486	486	486
KTKS	Pearson Correlation	.687**	.041	.557**	.625**	.267**	1	.381**
	Sig. (2-tailed)	.000	.370	.000	.000	.000		.000
	N	486	486	486	486	486	486	486
QTT	Pearson Correlation	.492**	.225**	.411**	.427**	.125**	.381**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.006	.000	
	N	486	486	486	486	486	486	486
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Source: The researcher's collecting data and SPSS

The results from Pearson's correlation coefficient matrix above show that 6 factors including: Macroeconomic Environment, State policy, tax authorities, taxpayers, tax payment process and procedure and checking and controlling have a linear relationship with tax policy towards promoting economic restructuring in Vietnam with significance level less than 0.05. Thus, the independent variables with strong linear relationship and positive relationship with the dependent variable - Tax Policy towards promoting economic restructuring.

4.4 Regression analysis

Table 5. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.864 ^a	.747	.744	.253	1.929
a. Predictors: (Constant), QTT, NNT, KTV, KTKS, CSNN, CQT					
b. Dependent Variable: CST					

Source: The researcher's collecting data and SPSS

The result for the adjusted R^2 coefficient = 0.744 indicates that the model fit is 74.4% (> 50%) or in other words 74.4% change of the dependent variable (tax policy) is explained by six independent variables mentioned above, 25.6% of the remaining variation is due to other factors out of the scope of the research model.

Table 6. Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.211	.123		-1.712	.087		
	KTV	.107	.015	.176	7.315	.000	.917	1.091
	CSNN	.152	.025	.182	5.993	.000	.575	1.739
	CQT	.284	.027	.332	10.526	.000	.529	1.889
	NNT	.242	.021	.284	11.482	.000	.861	1.162
	KTKS	.206	.026	.255	8.086	.000	.532	1.879
	QTT	.074	.019	.104	3.814	.000	.714	1.400
a. Dependent Variable: CST								

Source: The researcher's collecting data and SPSS

Results of regression analysis show that there are 6 factors affecting tax policy, including: Macroeconomic Environment, State policy, tax authorities, taxpayers, checking and controlling and tax payment process and procedure, all of them have Significant values less than 0.05 so they meet the requirements.

The regression analysis table demonstrating the relationship between the dependent variable - tax policy to economic restructuring (tax policy) and 6 independent variables is shown in the following standardized regression equation:

Tax policy = 0.176* Macroeconomic Environment + 0.182* State policy + 0.332* Tax Authorities + 0.284* Taxpayers + 0.255* Checking and controlling + 0.104* Tax payment process and procedure

The regression equation shows that the tax policy promoting economic restructuring is influenced by 6 factors with specific levels of influence as below:

First, tax authorities factor: Coefficient $\beta_{\text{tax authorities}} = 0.332$

Second, taxpayers factor: Coefficient $\beta_{\text{taxpayers}} = 0.284$

Third, checking and controlling factor: Coefficient $\beta_{\text{checking and controlling}} = 0.255$

Fourth, State policy factor: Coefficient $\beta_{\text{State policy}} = 0.182$

Fifth, macroeconomic factor: Coefficient $\beta_{\text{macroeconomic}} = 0.176$

Sixth, payment process and procedure factor: Coefficient $\beta_{\text{payment process and procedure}} = 0.104$

From the above results, the coefficients $\beta > 0$ show that the independent variables have a positive relationship with the tax policy towards promoting economic restructuring in Vietnam. Through the above results, the initial hypotheses (T_1 to T_6) are accepted and tested appropriately.

4.5. T-Test and One-Way ANOVA statistical hypothesis test

The purpose of this test is to test the average difference between demographic variables affecting tax policy towards promoting economic restructuring in Vietnam.

T-Test hypothesis test: Test of gender variables whose Sig value is $0.000 < 0.05$, so there is a difference in the impact on tax policy towards promoting economic restructuring among different gender groups.

ANOVA One-Way Testing: Through the research, all variables: Education, Workplace, Work time, Work position have Sig values of less than 5%. Thus, all qualitative variables according to the sample have differences in the impact on tax policy towards promoting economic restructuring.

5. CONCLUSION

Based on the theoretical basis and inheritance of previous studies, this thesis has built a model of the factors impacting tax policy towards promoting economic restructuring in Vietnam which aims at finding key factors to affect this relationship effectively.

After following the research process with qualitative and quantitative methods, this study has conducted descriptive statistical analysis, verified the reliability of the measurement scale, analyzed exploratory factors, performed regression analysis and analyzed the hypotheses which have already been proved quantitatively, the author identified all 6 factors affecting the tax policy towards promoting economic restructuring in Vietnam, including: Macroeconomic Environment, Tax authorities, Taxpayers, State policy, checking and controlling and Payment Process and Procedure. In which, two factors - Tax authorities and Taxpayers have strong impact on the relationship between tax policy and the promotion of economic restructuring in Vietnam, so they play important roles in developing tax policy strategies to promote economic restructuring.

Administrators always confront resource constraint: money, time and manpower to formulate tax policy strategies to promote economic restructuring, so this study will help them prioritize and allocate resources appropriately based on the factors' level of impact on this relationship.

Depending on specific conditions, developing a tax policy to promote economic restructuring appropriately must be based on the impact of each factor. However, when developing tax policy through the impact of factors, it is necessary to consider carefully the close relationship between the factors with each other, depending on the conditions, a factor can be emphasized while another factor is made light of, however, the relationship between them should not be separated.

REFERENCES

1. Tao Thi Hoang Anh (2006). *Renovating and improving tax policy to promote economic restructuring in Viet Nam towards national industrialization and modernization*. Ph.D thesis. Academy of Finance. Ha Noi
2. Charles Y. Mansfield. (1987). *Tax Administration in Developing Countries: an Economic Perspective*. IMF.
3. Nguyen Thi Thanh Hoai & Hoang Thi Giang (2013). *Direct tax policy with the aim of sustainable development in Viet Nam*. Ministry-level scientific research thesis. Ministry of Finance
4. Duong Ngoc Quang (2015). *Improving corporate income tax to promote Viet Nam economic restructuring*. Ph.D thesis. Academy of Finance. Ha Noi.
5. Hoang Trong and Chu Nguyen Mong Ngoc (2008). *Analyzing research data by SPSS*. Book 1 and Book 2. Hong Duc publisher. Ho Chi Minh City.
6. La Xuan Dao. (2012) *Tax policy and its impact on Viet Nam's economic development*. Ph.D thesis. Viet Nam National University, Ho Chi Minh City
7. Le Du Phong & Nguyen Thanh Do. (1999). *Economic restructuring in Vietnam's economic integration in the region and the world*. National Politics Publisher
8. Mai Van Tan. (2015). *Research on the relationship between economic restructuring and economic growth in Ho Chi Minh City*, Ph.D thesis, University of Technology. Ha Noi.
9. Ngo Dinh Giao. (1994). *Ecnomic restructuring towards industrializing the national economy*. National Politics Publisher. Ha Noi.
10. Ngo Van Khuong, (2016), *Tax policy with the aim of sustainable economic development in Viet Nam*, Ph.D thesis, Academy of Finance, Ha Noi.
11. Nguyen Hoang, (2013), *Improving the State management of personal income tax in Viet Nam*, Ph.D thesis, National Economics University, Ha Noi,
12. Nguyen Thi Thuy Duong. (2011). *Tax management in Viet Nam in the context of international economic integration*. Ph.D thesis. Academy of Finance. Ha Noi.
13. Richard M. Bird & Oliver Oldman. (1990). *Tax in Developing Countries*. Publisher Johns Hopkins. Baltimore.
14. Richard M.Bird & Milka Casanegra de Jantscher. (1992). *Improving Tax Administration in Developing Countries*. IMF.

EXAMINING HOW MULTINATIONAL COMPANIES PERFORM PRICING TRANSFER IN VIETNAM

Le Thanh Ha¹, Pham Thi Kim Len²

ABSTRACT

Over 30 years of innovation and foreign direct investment attraction, Viet Nam has consequently made a robust progress in the economic development. Foreign direct investment (FDI) from multinational companies (MNCs) has been an apparent solution for the question of how to enhance not only the content of science and technology for the production but also the level of management and provision of employments to the economy. It can be said that FDI is a significant capital source to Vietnam's economy, which becomes a driving force and inspiration for the market movement. However, recent loss status in the form of "fake holes" accompanied by transfer activities of the MNCs branch has been gradually raising concerns for the relevant local authorities. Therefore, the identification and effective control measures of transfer pricing thus have been a pressing matter in terms of reasoning and practices.

Keywords: FDI, transfer pricing, transfer price control, MNCs.

1. TRANSFER PRICING IN MULTINATIONAL CORPORATIONS (MNCs)

A phenomenon making tax duties reduce that we call today transfer pricing, early appeared in IRC - Internal Revenue Code in USA in 1930. Over the years, along with the strong development and activities of MNCs as well as the methods which countries have been using to control the transfer pricing in those MNCs, there have been herewith some perspectives on transfer pricing:

- The first: Transfer pricing is a collusive and subjective action among subsidiaries within a corporation aiming at agreeing the prices which are not depended on the market prices so that they can transfer profits from a company to the others, as a result, they can avoid paying taxes in full. That will lead to the enhancing of the business effectiveness in the Corporation. The basis of establishing the transaction prices origins from the freedom in business. These affiliates, whereby, have rights to determine trading prices which are considered suitable by them. (Garry 2012) [2]
- The second: transfer pricing is the establishing prices of goods and services transferred among affiliates which are located in different countries so as to optimize the corporation profit [3].
- The third: transfer pricing is a subjective and intended activity of multinational companies or corporations aiming at minimizing their tax payment through establishing prices of goods and services among subsidiaries or affiliates within a corporation not based on the market prices in order to gain maximum profits (E.Baistrocchi,2012) [1].

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: thanhha75hvtc@gmail.com

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam.

- The fourth: transfer pricing is defined as the implement of price strategy to products (tangible and intangible assets, services, interests on borrowing money) transferred among related parties which are not depended on common market prices so as to minimize tax payments of all related parties in the global. This perspective given by OECD and used as the definition of transfer pricing by many organizations and nations in the world. [4]

From those views of transfer pricing, it is necessary to distinguish transfer pricing from reporting transaction value under the price to regulatory authorities in order to gain tax evasion. In this case, although the price of the transaction was reported to the regulatory authorities under the transaction value, all parties of the transaction carried out paying in full as prices dealt in advance. Meanwhile, in transfer pricing transaction, price in the transaction is exactly dealing price, so the parties do not have to settle the difference between internal prices and market prices.

Nowadays, transfer pricing has been being carried out sophisticatedly which tends to aim at many goals, not just simply minimizing tax payments of MNCs. Therefore, whether it is a transfer pricing activity or not, it needs to be based on the reality of the transaction, not just based on the transfer pricing definition of OECD. From my point of view, transfer pricing in MNCs should be understood as *the implementation of price strategy among related parties not based on market prices*.

2. FORMS OF TRANSFER PRICING IN MNCS

2.1. Loss transfer pricing or transfer pricing making profits reduce or causing losses

a) Transfer pricing via raising the value of contributing capital

This is a typical transfer pricing form whereby MNCs invested money in other countries through establishing joint-venture companies or foreign companies.

In case of forming joint-venture firms, in early periods, transfer pricing behavior was carried out every step of contributing capital process. Foreign investors invest capital in the companies via their machinery, equipments and technology... Most local enterprises are limited on financial resources, so they contribute capital primarily through their land use rights. However, the value of land use rights are often undervalued, meanwhile, machinery and technology equipments contributed by foreign investors usually be specific, which are probably backward and fully depreciated but due to the lack of appraisal capacity information as well as comparing data base in domestic enterprises, as a result, in the valuating process, the price of such machinery and technology equipments are often likely to be raised over thier own real values. Besides that, tax and customs authorities determine companies' tax payment based on voucher bills of value (supplied by connected partners), the value of these imported machinery and technology equipments are likely to be agreed to set up at high prices in fact.

In forms of foreign companies, the value raise of contributed assets helps the investors boost the yearly depreciation proportions which means that the input expenses are increased. Consequently, investors are able to get their return on investment more quickly, in other words, they can reduce both investment risks and corporate income tax obligations in invested countries.

b) Transfer pricing via fictitious value of intangible assets

Another pattern of foreign contributing capital in which the capital is contributed in the company through intangible assets namely: technology soft-ware, a famous brand, formulary... It is often hard to estimate the value of such properties due to the inadequacy of specific diagnostic criteria. The fictitious value of intangible assets made by investors can help them increase the ratio of foreign-contributed capital which can be considered as the investors' political rights in the enterprise. In some cases, there are also the value certification of intangible assets supplied by an auditing company but it is said that the accuracy and reliability of this certification are sometimes impossible to be verified.

Foreign investors also transform producing and trading technology to connected parties in host countries and charge them fees of intellectual property rights. According to the current regulation in most countries, taxes levied on royalties are much lower than corporate income taxes (taxes levied on royalties around the world are 5%, 7.5%, 10%, 15% respectively). As a result, foreign investors gain a significant amount of saving money in net profit when they transform royalties instead of being paid dividends.

c) Transfer pricing via buying and selling materials, semi-products to the parent company or affiliates

This form of transfer pricing aims at reducing tax payment, even though it can cause the situation called "unreal losses, real profits", so the company does not have to fulfill tax obligations. In many cases, the enterprise does not have deals directly with the parent company but with the connected partners of it. In those cases, even the regulatory authorities and related parties cannot have the exact information. Enterprises, which are partners in special linking relationship, make their own agreements on prices in buying and selling materials to each other toward the trend of increasing the prices above the market prices. That is known as a method to transfer profits abroad via the settlement of imported products to the parent company or other subsidiaries. The importing materials from abroad of FDI enterprises is one of the factors causing host countries whose the Balance of Payment resulting in trade deficit. Furthermore, the importing materials from parent company or other abroad subsidiary with high prices also causes the increase in input cost of the enterprise, consequently, reduces tax obligations.

d) Transfer pricing via changing the price of selling products to the parent company and affiliates

Many subsidiaries of MNCs perform transfer pricing via determining the prices which have very big difference with the real selling prices on the market, in case of selling products to the parent company or connected companies. The process can be described as follow: the company selling products at low prices often located in the country which has the high percentage of corporate income tax, whereas the company buying these products usually situated at the country which has the low percentage of corporate income tax. That leads to the business situation of the company which is levied high corporate income tax becomes more "gloomy" in order that it can avoid paying tax payment in full.

e) Transfer pricing via increasing administrative expenses

One of the advantages from receiving foreign direct investment capital in developing countries is that they can learn more advanced management experience. But it cannot deny that the companies can transfer profits to abroad in different ways:

- The subsidiary can hire the managers at high salaries as well as it has to pay the parent company or other subsidiary money due to being given human resources from them.
- Enterprises depute experts or workers studying or working at the parent company at high cost, basically, it is a form of transfer pricing.
- Subsidiaries hire consultant experts from the parent company and have to pay expenses, but it is difficult to determine the quantity and quality of this activity, as a result, it is hard to say whether the cost is high or low as well as whether it is suitable or not? Although, the tax authorities can realize the abnormal activities of MNCs but cannot handle due to not having adequate basis to prove these activities fraudulent prices and cost.

The more business has been done, the more experience has been gained, but the administrative expenses in these companies are gradually higher and higher. These expenses related to the company's internal operating and based on internal regulations and agreements, they can be raised highly by the company so as to distort the cost-price and reduce profits and revenues, even though, make losses to the enterprise. Consequently, it can avoid its tax obligations.

f) Transfer pricing via raising promotion and advertisement cost

This form of transfer pricing has been being used by many MNCs and FDI enterprises. This method is especially used if the enterprises exist in form of join-stock companies in which the foreign partners have rights to dominate the capital.

The self-increase in promotion and advertisement cost, particularly, if the host country in shortage of coherent regulations on determining the suitable costs, for promotion and advertisement as well as the proportion of advertisement cost in total cost..., this method allows the FDI enterprises to achieve many purposes, for example, making unreal losses (revenues are very high but the costs are even much more higher). Along with that, the partners of the local country, after some years facing up with losses, often do not have enough financial capability in order to maintain its existence in the joint venture. As a result, they must sell their contributed capital and the joint venture now becomes a foreign enterprise.

g) Transfer pricing via giving loans directly (transfer interest rates)

One of the most popular transfer pricing forms today is via giving loans among subsidiaries in the same corporation. There are two types of MNCs often use this form of transfer pricing:

- As a subsidiary gained a profit in a country which has high percentage of corporate income tax, it will give loans to the parent company or other subsidiaries and charge them low interest rates (even a rate of zero) so as to afford the MNC to have enough capital expanding its market.
- As the subsidiary located in the country which has high rate on corporate income tax, it will borrow money from the parent company or other subsidiaries with very high interest rate, consequently, the profit before tax (eliminated interests on loans) will be made under zero. In this case, it is able to avoid corporate income tax obligations. The lenders often situated at the nation in which the taxes levied on money interests are low. By that way, the total profit of MNCs gained in maximum.

2.2. Transfer pricing on returns and profits

This is such a sophisticated form of transfer pricing in FDI enterprises which are subsidiaries of MNCs. There are some ways of transfer pricing on returns and profits such as:

Firstly, it is easy to realize that some enterprises asked for permission on transforming to joint-stock companies in order to be listed on the Stock Exchange market after a short time operating. In this process, some enterprises valued their assets incorrectly and took the advantages of the transform to “asset capitalization”. They sold some of their shares and transferred all their capital to abroad, that not only brought profits to the parent company but also caused the disruption in the capital flows of countries which have received money from them.

Secondly, some enterprises which are members of the corporation asked for listing permission on the Stock Exchange market. Connected enterprises have carried out the transfer pricing so as to raise up the profits of such enterprises on the Stock Exchange. That caused the distortion in financial statement of the enterprise which is in the process of IPO (initial public offering) and made the high increase in stock value as the stocks were listed on the Stock Exchange market as well as the distortion in the value of issuing stocks. The Stock Exchange, consequently, could face up with the chaos because of the imbalance in demand and supply relationship in the market.

Thirdly, in the process of gaining the dominant exclusive outsourcing position and distributing goods or supplying services in order to get more market shares, connected parties can transfer revenues and profits to that enterprise which is in that above process. This form of transfer pricing also makes the distortion in financial statements and investors’ market estimation as well as make the unequal competition among enterprises especially in respect of small and medium-sized enterprises.

Fourthly, in the context of many countries trying to attract more external capital with the targets of high economic growth rate and sustainable economic development, the Governments in those countries have applied many preferential policies to foreign investors in many sectors and regions. Connected enterprises have transfer revenues and profits on preferential sectors so that they can reduce their tax payment and increase their own profits.

3. CONCLUSION

For over thirty years of absorbing foreign direct investment, Vietnam has obtained many socio-economic achievements. Thus, these capital flows as well as the transfer pricing in multinational corporations have put the administrators under pressure and challenges. The realization in forms of transfer pricing and building as well as implementing policies and using effective instruments to boost the efficiency of controlling transfer pricing is really a crucial and compulsory issue in current national situation, especially Vietnam has been integrating more and more deeply in international integration process.

REFERENCES

1. Baistrocchi, E. and I.Roxan (2012), *Resolving Transfer Pricing Disputes: Global Analysis*, Nxb Cambridge University Press
2. Gary Stone (2012), *International Transfer Pricing 2012*
3. KPMG’s Corporate and Indirect Tax Rate Survey 2009, 2010, 2012, 2013, 2014, 2015, 2016
4. OECD (2017), *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*
5. Lê Thanh Hà (2018), “*Kiểm soát hoạt động chuyển giá trong các chi nhánh công ty đa quốc gia tại Việt Nam*”, Luận án Tiến sĩ Kinh tế, Học viện Tài chính

CORPORATE SOCIAL RESPONSIBILITY DISCLOSURES ON ANNUAL REPORT AND FINANCIAL RISK: EMPIRICAL EVIDENCES FROM VIETNAM

Nguyen La Soa¹, Ngo Van Hau²

ABSTRACT

This study aimed to investigate the nexus between the level of Corporate Social Responsibility Disclosures on annual report (CSRD) and Financial risk of company. This study collected secondary data from annual reports during the period 2014 to 2018. Our results show that Vietnamese firms with higher level of CSRD performance can rapidly reduce their financial risk of the current year and in the future. In addition, the results also point out that, there is a difference in financial risk between the group of companies, which did disclosure, and the group which did not disclosure corporate social responsibility on annual report. Through findings, some recommendations are given for promoting corporate social responsibility disclosures in Vietnamese firm.

Keywords: *IFRS, adoption, listed companies, benefits, challenges.*

1. INTRODUCTION

The corporate social responsibility disclosure (CSRD) is a process of providing information on the environmental and social impacts of economic activities of companies to related parties. Based on this information, stakeholders can assess the level of social responsibility of enterprises. Many companies in the world have achieved certain results through the practice and disclosures of CSR. For instance, Microsoft has become the leading prestigious technology company in the world according to Reputation Institute in 2012 with community support programs, charity programs. Another example is the revival of Nike after a sales slump due to accusations and lawsuits related to scandals involving Nike's suppliers exploiting workers with cheap wages. This issue revealed by the publicity of Nike's suppliers was monitored by non-governmental organizations in 2004. According to (Spasić & Stojanović, 2013), companies' pressure for accountability in reporting comes from various reasons including demands from pressure groups, such as investors and consumers, and directives from United Nation's and European Community's (EU). Therefore, our research was conducted for raising awareness about the importance of CSRD of listed companies in Vietnam stock market and promotion for CSRD.

This study aims to evaluate the value of CSRD in the context of corporate financial distress. At the crux of the study is a simple question: Whether and how the financial risk of firms can be reduced

¹ National Economics University, 207 Giai Phong, Hai Ba Trung, Hanoi, Vietnam

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: ngovanhau@hvtc.edu.vn

by their CSRD. In addition, the results also point out that, there is a difference in financial risk between the group of companies, which did not practice CSRD, and the group of companies which practiced CSRD. This study not only extends prior research with the relationship between CSRD and financial risk of the current year, but also considers the effect of CSRD performance on financial risk in the next year. This finding is important for encouraging listed companies to practice and disclose CSR to meet the needs of stakeholders, reducing the financial risk in the future.

The remainder of the paper is structured as follows. Section 2 presents literature Review. Section 3 describes theoretical background and research hypotheses. Section 4 presents our sample and research methodology. Section 5 discusses the findings and provides a conclusion.

2. LITERATURE REVIEW

Because of the importance of the practice and publication of social responsibility information, recent studies related to the necessity of CSRD are receiving great attention from researchers in the world. These studies have argued that CSRD performance can improve the satisfaction of all stakeholders, enhance the corporate brand image, and even more increase firm value and lower the cost of capital. According to (Lin & Dong, 2018) firms with prior history of higher positive corporate environmental performance are less likely to file for bankruptcy when they are in deep financial distress and are more likely to experience accelerated recovery from distress. According to (Cai et al., 2016; Fuadah et al., 2019), firms with better CSRD performance are less risky, and provide evidence suggesting that corporate social responsibility is positively related to firm value. Similarly, (Al-Hadi et al., 2019) shows that corporate social responsibility performance is associated with a positive valuation effect, and in their meta-analysis of prior quantitative research, (Poddi & Vergalli, 2016) concludes that there is a positive association between corporate social or environmental responsibility and corporate financial performance. According to (Oikonomou et al., 2014), social responsibility performance can be regarded as a manner in their business decisions and processes, along with the strength of their relationships with various corporate stakeholders, (Ghoula et al., 2011) firms that investment in improving responsible employee relations, environmental policies, and product strategies contributes substantially to reducing firms' cost of equity. (Yeh et al., 2019) shows that Chinese firms with higher environmental responsibility performance can rapidly reduce their cost of debt capital. (Xu et al., 2015) finds that investments in improving environmental responsibility performance towards investors make the greatest contribution to reducing firms' equity financing costs, and the cost of capital effects of environmental responsibility performance is more significant in recessions than in economic booms. (Cheng et al., 2013; Salvi et al., 2018) indicated that firms with better environmental responsibility performance face significantly lower capital constraints. Similarly, some pioneer research also indicates that strong environmental responsibility performance can lower the cost of equity capital (Oikonomou et al., 2014; Salvi et al., 2018), cost of debt capital (Jha & Cox, 2015), and credit spreads (Cheng et al., 2013). According to (Ghoul et al., 2011), firms with better environmental responsibility performance exhibit cheaper equity financing and reducing firms' cost of equity. However, these studies have been carried out in developed countries in the world, where there are differences in business characteristics of enterprises, characteristics of capital structure and financial market compared to Vietnam.

The importance of practicing CSRD in Vietnamese enterprises is also receiving increasing attention from both businesses and researchers. The research of (Nguyen et al., 2019) indicated that the level of disclosure of environmental accounting information positively affects the financial performance of businesses both now and in the future. The research of (Nguyen, 2019) investigated that there is close relationship between the level of environmental financial accounting practices and corporate financial risk. Similarly, (Ho et al., 2017) showed that corporate social responsibility performance is associated with a positive valuation effect, and there is a positive association between corporate social or environmental responsibility and corporate financial performance. According to (Nguyen., 2017), the disclosure levels of CSRD of Vietnamese firms tend to increase. However, these levels did not meet the demand for information on CSRD as expected by stakeholders. Even though the number of studies on CSRD is high, an empirical examination of the relationship between CSRD performance and cost of capital in the emerging markets is limited. The lack of empirical studies on this issue could be one of the factors in explaining why companies listed on the Vietnam's securities market are less concerned or involved in promoting their CSRD to various stakeholder groups. So, the research of the authors is really necessary, the above research is applied selectively but not duplicate.

3. THEORETICAL BACKGROUND AND RESEARCH HYPOTHESES

3.1. Theoretical Background

Signaling theory is useful for describing behavior when two parties (individuals or organizations) have access to different information. Typically, one party, the sender, must choose whether and how to communicate (or signal) that information, and the other party, the receiver, must choose how to interpret the signal. Accordingly, signaling theory holds a prominent position in a variety of management literatures, including strategic management, entrepreneurship, and human resource management (Connelly et al., 2011). (Mavlanova et al., 2012) argue that when some investors have more private information than others, information asymmetry occurs in the capital market. To reduce the cost of capital, corporations make great effort in reducing information asymmetry. Therefore, lower information asymmetry in the capital market leads to a lower cost of capital (Walker, 2010).

The signal theory can offer one solution to information asymmetry. (Mavlanova et al., 2012) use a signal timeline to explain the signaling process between the signaler and receiver. To reduce information asymmetry, the signaler conveys a signal to the receiver. After the receiver observes and interprets this signal, he or she makes a decision and transmits it to the signaler. In this study, the signaler is a firm that conveys CSRD as a signal to the receivers, who are investors. After investors receive and interpret this signal, they make their investment decision and decide how much payment they require, which is the feedback. (Mahoney et al., 2013) suggests that CSRD can signal cooperation information, which concerns governments, businesses, and society, to investors. (Hahn & Kühnen, 2013) find that firms transmit corporate governance-related information to potential investors to reduce their information asymmetry and investment risk. Corporate executives can deliver non-financial messages to potential investors. (Connelly et al., 2011) explain that CSRD performance can reduce the cost of capital for firms through information transmission, such as signaling.

Companies with higher financial performance generally tend to disclose environmental accounting information (Nguyen & Tran, 2019). Vietnamese firms are paying attention to the release of information on environmental indicators, but these has not been logically stated based on the assessments of stakeholders (Nguyen et al., 2017). (Ho et al., 2017) indicates that there is a cognitive gap in CSRD regulation and standard references between developed markets and Vietnam. In 2015, Ministry of Finance issued Circular 155/2015/TT-BTC on guidelines for information disclosure on securities market. Vietnamese firms listed on securities market are required to report related impact of the company on the environment. Besides, Vietnamese firms are also encouraged to publish environmental information according to Global standards for sustainability reporting (GRI standards).

3.3. Research Hypothesis

- *The association between CSRD performance and financial risk*

Stakeholder theory suggests that investing in social responsibility helps organizations reduce their risk of bankruptcy. By creating a corresponding source of capital among stakeholders, taking social responsibility provides organizations with a beneficial protection equivalent to an insurance policy. Public perception of a company that does not practice well with social responsibility can increase the severity of a severe reaction. It increases the chances of a company being held accountable and getting more negative results. Therefore, poor social and environmental responsibility can exacerbate costs at a time when companies face serious difficulties. In particular, the company may be under pressure to control the damage to its image by spending heavily on advertising and public relations. Due to poor social responsibility, companies cannot maintain the loyalty of their customers and employees. Customers can switch to another provider while employees can leave the company when the hardship is taking place in the company. Recent empirical studies have found a negative correlation between corporate social responsibility and corporate risk. The study of (Monti et al, 2018) viewed that social responsibility is associated with reduced systematic risk. Research (Lin & Dong, 2018) found a negative relationship between the advantages of social responsibility and systemic risk. If businesses pay more attention to issues related to community, employment and environmental issues, risk of bankruptcy tends to decrease. (Harjoto & Laksmana, 2016) showed that improved environmental risk management is associated with lower capital costs and especially lower equity cost. (Chakraborty et al., 2018; Salvi et al., 2018) states that managers tend to use social responsibility activities to ensure support from local communities and politicians, reducing the risk that businesses may encounter. The research (Cai et al., 2016) found that environmentally responsible firms experience lower risk. From that argument, the research hypothesizes the first hypothesis as follows:

Hypothesis 1a: There is a negative relationship between CSRD performance and financial risk of the company in the current year.

Hypothesis 1b: There is a negative relationship between CSRD performance and financial risk of the company in the following year.

There is a lot of empirical support for the view that companies will be fined if they see business management in ways that conflict with social values. This is especially true when the

conflict arises between pursuing organizational profits and the goal of environmental protection. Thus, one of the ways for companies risk management in the process of operating and improving financial performance is to engage in socially and socially responsible behaviour. (Cai et al., 2016) demonstrated that companies with environmental accounting disclosures would secure trust and image with stakeholders, thus reducing risk of bankruptcy. (Monti et al., 2018) argued that when a company participates in social responsibility, it maximizes shareholder value, enhances its credibility, and ensures long-term viability. Therefore, investors and managers of companies must pay attention to CSR activities in developing their investment strategies and regulatory policies. From this point of view, the study gives the second hypothesis as follows:

Hypothesis 2: There are differences in financial risk between the group of companies which did not practice CSRD and group of companies which practice CSRD.

4. RESEARCH METHODOLOGY

4.1. Data Collection

Group 1: We rely on a sample of companies which must meet two criteria: (i) having a complete set of annual accounting data for the five years 2014 – 2018; (ii) Companies must disclose social responsibility information in their annual report or sustainability report. The final sample for this study was unbalanced table data, as shown in Table 1.

Table 1. Research sample statistics

	Firm - year observations	Distinct firms
Initial sample: Vietnam companies listed on the Vietnam Stock Exchange over the period 2014 to 2018	1.005	150
<i>Exclude:</i> Firm year with less than two years of information to calculate CSRD	(251)	(52)
<i>Exclude:</i> Firm year without sufficient financial accounting information to calculate ZScore	(80)	(19)
<i>Exclude:</i> Firm year without sufficient financial accounting information to calculate control variables	(61)	(16)
Final sample	613	63

Source: Composer from <http://finance.vietstock.vn>

Group 2: Listed companies do not disclose social responsibility information: These companies must meet two criteria: (i) a complete annual accounting data sheet covering the five years (2014 - 2018); ii) Companies must correspond to the size, sector and time of listing with Group 1 companies.

Although the number of companies selected for research is not large compared to the total number of companies listed on the Vietnam Stock Exchange at that time, with the binding of standards and the convenience of data collection, the research team used the above research data. The sample size chosen by the author with 613 observations is reasonable (Joe F. Hair et al., 2014).

4.2. Variable Measurements

- Level of corporate social responsibility disclosures (CSRSD)

According to the Global Reporting Initiative's (2016)(Gri Standards, 2016), Sustainable Development Report Guidelines, the total number of items for disclosure of mandatory environmental accounting information is 34 items in the 12 relevant fields as Table 2:

Table 2. Items for Mandatory Environmental Information Disclosure

No.	Field	Number of items	No.	Field	Number of items
1	Employment	3	11	Rights of Indigenous Peoples	1
2	Labor/Management Relation	1	12	Human Right Assessment	3
3	Occupational Health and Safety	10	13	Local Communities	2
4	Training and Education	3	14	Supplier Social Assessment	2
5	Diversity and Equal Opportunity	2	15	Public Policy	1
6	Non - Discrimination	1	16	Rights of Indigenous Peoples	2
7	Freedom of Association and Collective Bargaining	1	17	Marketing and Labeling	3
8	Child Labor	1	18	Customer Privacy	1
9	Forced or Compulsory Labor	1	19	Socioeconomic Compliance	1
10	Security Practices	1			

Source: Composer from Gri Standards, 2016

Depends on how the company has published relevant information on the annual report for assessing the score for the level of corporate social responsibility disclosures (CSRSD) according the Table 3.

Table 3. Method to assess the levels of environmental financial accounting practices

Level of information disclosure	Score
Publication information is both quantitative and qualitative form	4
Only qualitative, non - quantitative disclosure	3
Quantitative information both in object and value, no qualitative information	2
Quantitative information on the value, no object and no qualitative information	1
No information disclosure	0

CSRSD is calculated according to the weighted approach, depending on the quality of the information provided to assess the score for each item, then averaged for each category and calculated CSRSD. The formula is as follows: The level of corporate social responsibility of firms $X = \frac{\sum_{i=1}^{34} Y_i}{40}$ (Yi is the score of information item i published by firm X).

- Financial risk (FR)

Company risk is often measured by the standard deviation of the rate of return through the volatility of stock prices over a given period of time. This study only considers the overall risk of the company (reflected by the stock price fluctuations of the company on the market) but ignores market risk (VN - index). Applying the results of previous studies such as ((Barone & Braghò, 1996; Becchettia, Cicirettiab, & Dalò, 2018; Oikonomou et al., 2012), in this study, the company’s financial risk is determined according to the following formula:

$$FR = \sqrt{\frac{1}{250-1} \sum_{t=1}^{250} (r_t - E_r)^2} * \sqrt{250}$$

Inside: FR: Financial risk

r_t : Return on stock at day t

$$r_t = \frac{P_t + D_t + \gamma(P_t - \rho) - P_{t-1}}{P_{t-1}}$$

(P: The price of the stock; D: The dividend; γ : The rate of stock dividend; ρ : The preferred price of additional shares)

E_r : Average yield

$$E_r = \sum_1^n r_t = \frac{r_1 + r_2 + \dots + r_n}{n}$$

- Control variables:

There have been a number of studies on the factors affecting the risk of bankruptcy such as: (Öztekin, 2015; Xue et al., 2017), these studies showed many factors affecting the cost of capital such as: The financial leverage, return on asset, management competence, company size, Cash flow, the ratio of the market value to book value of total, quick ratio, business cycle, listing period, independent auditing,.... In order to examine the relationship between social responsibility practice and financial risk, previous studies have also used control variables besides independent variables such as: The percentage of state capital, financial leverage, Cash flow, the ratio of the market value to book value of total, Debt ratio, independent Auditing (Dutta & Nezlobin, 2017; Ghoul et al., 2011; Godfrey et al., 2009; Oikonomou et al., 2014; Yeh et al., 2019). These studies have demonstrated that business size, financial leverage, listing period, independent auditing, Cash flow, the ratio of the market value to book value of total, cash ratio have significant effect on financial risk. Besides that, due to data collection limitations, this study of the authors will include 5 control variables to consider the relationship between CSRD and FR including: Business Size (SIZE); Financial leverage (LEV); Market to book ratio (MTB); Return on assets (ROA); Cash flow from operations (OFO). They are measured as Table 4, below:

Table 4. The way to evaluate the Control Variables

Code	Control Variable	How to evaluate
SIZE	Business Size	Log (Total Assets)
LEV	Financial leverage	Total long-term debt divided by total assets
MTB	Market to book ratio	Market equity divided by book equity
ROA	Return on assets	Net income before extraordinary items divided by total assets
CFO	Cash flow from operations	Cash flow from operations divided by total assets

To examine the relationship between CSRD and risk of bankruptcy, two following stage regressions are adopted to verify our hypothesis 1 and 2. These regressions employ a lag term to describe the weak efficiency of Vietnam’s current capital market.

$$FR_{jt} = \beta_0 + \beta_1 CSRD_{jt} + \beta_2 SIZE_{jt} + \beta_3 LEV_{jt} + \beta_4 MTB_{jt} + \beta_5 ROA_{jt} + \beta_6 CFO_{jt}$$

$$FR_{jt} = \beta_0 + \beta_1 CSRD_{jt-1} + \beta_2 SIZE_{jt} + \beta_3 LEV_{jt} + \beta_4 MTB_{jt} + \beta_5 ROA_{jt} + \beta_6 CFO_{jt}$$

5. RESULTS AND DISCUSSION

5.1. Descriptive statistics

Figure 1 gives an overview of the level of corporate responsibility disclosures by listed companies in Vietnam from 2014 to 2018. During the study period, increasing market volatility is not only evidenced by the number of listed companies with disclosure of social responsibility information, but also by Indicator level of social responsibility disclosures which is a good sign demonstrating that Vietnam firms are paying attention more for corporate social responsibility disclosures.

Fig.1. The level of corporate social responsibility disclosures of listed companies for the period 2014 – 2018 according to the industry

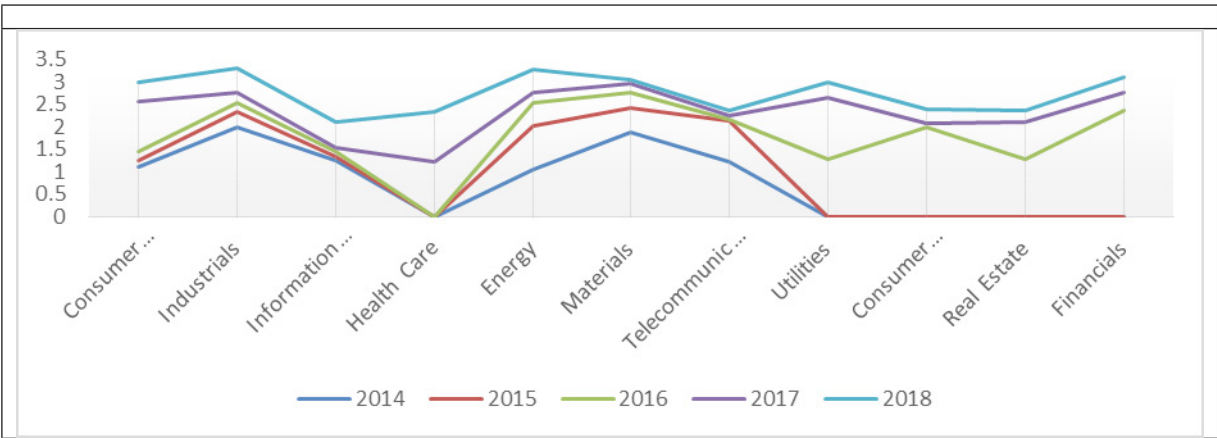


Table 5 presents basic statistical describing parameters of independent variables and dependent variables. According to (Tauchen, 1986), condition for estimation of reliability for performing regression analysis is $n > 200$. According to (Joe F. Hair et al., 2014), there should be 15-20 observations for a variable to be estimated. Combined with these principles, the sample size chosen by the authors with 613 observations is reasonable, this result guarantees reliability.

Table 5. Statistical Analysis

	FR	CSRDt	CSRDt-1	SIZE	LEV	MTB	ROA	OFO
Number of Observations	613	613	415	613	613	613	613	613
Mean value	0.421	2.132	1.328	15.012	0.317	3.016	0.192	0.072
Standard Deviation	0.102	2.201	1.429	9.215	0.410	4.154	1.037	0.182
Minimum value	0.096	0.000	0.000	10.152	0.281	0.208	-0.241	-0.241
Maximum value	0.821	3.318	3.509	19.729	0.816	20.192	0.893	1.310

5.2. Evaluation of Correlation Between Variables

Table 6 presents the results of the correlation coefficient test between the variables and the results of the multi-collinearity test. The level of corporate social responsibility disclosures is negatively correlated with financial risk, which means that the higher the level of corporate social responsibility disclosures, the lower financial risk. However, to confirm whether the results are accurate or not, we need to conduct multivariate regression analysis.

Table 6. Correlation and Multi - collinearity Test

	FR	CSR	SIZE	LEV	MTB	ROA	OFO	VIF
FR	1.000							-
CSR	-0.102	1.000						1.398
SIZE	-0.210	0.078	1.000					2.167
LEV	-0.202	0.102	0.108	1.000				2.201
MTB	-0.102	0.076	0.121	-0.187	1.000			2.162
ROA	-0.420	0.210	0.178	-0.167	0.234	1.000		2.097
OFO	-0.219	0.109	0.202	-0.204	0.196	0.195	1.000	2.145

Table 6 also shows the results of the multi-collinearity test, the results show that at the same time, the correlated pairs are less than 0.8 and the VIF of the independent variable is less than 5, which proves that there is not multi-collinearity. In addition, in order to increase the reliability of the regression results, the study conducted to examine whether there was a change in variance in the research model through the use of the White's General test. The test results show that the p value is greater than 0.05, so with a significance level of 5% the H0 hypothesis on the uniformity of the variance is acceptable. That is, the pattern does not exist in the phenomenon of variance. With the above analysis, we assert that appropriate research data to perform multivariate regression analysis to examine the relationship between the level of corporate social responsibility disclosures and financial risk.

5.3. Discussions

(1) The relationship between the level corporate social responsibility disclosures and the financial risk of the current year

Table 7 presents the results of regression using the least squares (OLS), fixed effects model (FEM) and random effects model (REM). The results show that there are differences among the three methods. Therefore, to conclude what results should be used, the research conducted two following tests: *Step 1*: Use Hausman test to decide to use whether FEM or REM method. The p value of Hausman test is 0.000, therefore the FEM model is more appropriate. *Step 2*: Use the F_{test} test to select the result between the FEM or OLS method. The p value of F_{test} is 0.000, so the FEM model is more appropriate. Thus, the final fit model to measure this relationship is the pooled FEM model, with a 5% significance level. The results in Table 7, (Sig. = 0.0138<0.05) show that the level of corporate social responsibility disclosures affects the current year's FR.

Table 7. Regression Results - the case does not consider latency factor

	FR		
	OLS	FEM	REM
CSRDT_t	-0.216 (.0190)	-0.315 (.0138)	-0.287 (.0301)
SIZE	-0.401 (.0031)	-0.420 (.0021)	0.410 (.0094)
LEV	-0.539 (.0028)	0.289 (.0025)	-0.310 (.0054)
MTB	-0.519 (.0049)	-0.209 (.0042)	-0.210 (.0210)
ROA	-0.749 (.0210)	-0.410 (.0031)	-0.398 (.0210)
OFO	-0.318 (.0419)	-0.290 (.0210)	-0.310 (.0109)
Number of Obs	613	613	613
Constant	0.319	0.289	0.302
Adj R – squareds	0.2094	0.2098	0.1764

The results in Table 7 also show that the relationship between the level corporate social responsibility disclosures and the finance risk is the reverse relationship (the coefficient of this relationship is -0.315). The results of this research comply with the previous studies such as (Cai et al., 2016, Oikonomou et al., 2012). This suggests that the higher the level of corporate social responsibility disclosures, the lower the likelihood of a business experiencing the financial risk of current year is.

(2) The relationship between the level of corporate social responsibility disclosures, and the financial risk of the following year

To examine the relationship between the corporate social responsibility disclosures and the financial risk of the following years, the study performed a multivariate regression analysis with dependent variables: Zscore and t_{test}. The results of the regression analysis are presented in Table 8. For the results of the Breusch-Pagan Lagrange test, the accepted hypothesis H0 (Prob = 1.0000) thus the pooled OLS model is more appropriate than the REM model. For the Hausman test, rejecting the hypothesis H0 (Prob = 0.0107) means that the FEM model is more appropriate than the REM model. However, based on F-test results (Prob= 0.3012), it is also assumed that the fit model is pooled OLS. Thus, the final fit model to measure this relationship is the pooled OLS model, with a 5% significance level. The results in Table 8, (Sig. = 0.0287 <0.05) show that there is a relationship between the level corporate social responsibility disclosures and bankruptcy risk of the following year.

Table 8. Regression Results – The case considers the latency factor

	ZScore		
	OLS	FEM	REM
CSRD_{t-1}	-0.419 (.0287)	-0.315 (.0310)	-0.286 (.0164)
SIZE	-0.287 (.0026)	-0.528 (.0051)	0.259 (.0043)
LEV	-0.428 (.0040)	0.076 (.0310)	-0.298 (.0041)
MTB	-0.365 (.0056)	-0.236 (.0042)	-0.314 (.0156)
ROA	-0.438 (.0031)	-0.302 (.0048)	-0.289 (.0207)
OFO	-0.318 (.0218)	-0.298 (.0285)	-0.157 (.0325)
Number of Obs	415	415	415
Constant	0.318	0.295	0.328
Adj R – squareds	0.2185	0.2865	0.3572

The results in Table 8 also show that the relationship between the level of disclosure of environmental accounting information and the financial risk is the reverse relationship (the coefficient of this relationship is -0.419). This suggests that the higher the level of corporate social responsibility disclosures, the lower the likelihood of a business experiencing the financial risk of following year is.

(3) Considering the financial risk between the company which did disclosure and the company which did not disclosure the social responsibility information.

The study examined the difference in financial risk between the two groups of companies: the group disclosed social responsibility information and the group did not disclose social responsibility information. The results are presented in Table 9, which shows the financial risk of each group and the results of the t-test.

Table 9. Group financial risk and Bartlett's test for equal variances

	Group	No	Mean	Std.Dev	Std.Err		
FR	CSR	63	0.3265	1.3287	0.04635		
	Non – CSR	63	0.6874	1.1876	0.21098		
	F	Prob>F	SS	df	MS	Bartlett's test	
						χ ²	Prob
FR	0.45	0.0000	9.487	329	2.210	110.3298	0.000

The mean value of risk of bankruptcy for group statistics of listed companies with social responsibility disclosures (0.3265) is higher than for companies without disclosure of environmental accounting information (0.6874). At the same time, t-test results show that p-value = 0.000 < 0.05. Thus, the hypothesis H0 is rejected and accepts the alternative

hypothesis. This means that there is a statistically significant difference in FR between listed companies with social responsibility information disclosure and listed companies without disclosure of social responsibility information.

Thus, when the listed company performs the disclosure of social responsibility information in a detailed and transparent manner it will avoid the likelihood of a business experiencing the bankruptcy risk, as well as will enhance the image, increase the value of the brand, promote morale of employees, increase labor productivity, resulting in reduced transaction costs to obtain external funding.

6. CONCLUSION AND RECOMMENDATION

The research results indicate the importance of social responsibility disclosure of enterprises in the long-term business strategy. The corporate social responsibility disclosure is not only to enhance financial performance, but also avoidable financial risk. Highly effective firms are often among the top firms in the industry that are well-regarded for their social responsibility, as demonstrated by adequate and detailed disclosure of information related to the social. The disclosure of social responsibility information is a way for businesses to enhance their image and reputation with stakeholders, especially in the integration trend when developed countries are very interested in green growth and sustainable development. However, the situation shows that the accounting work and information disclosure related to the social have not been properly paid attention by Vietnamese firms. Therefore, in the coming time, businesses need to strengthen the solution to improve the accounting practices to support the disclosure of information. From the research results, the research team proposed some recommendations to the Vietnam as follows:

First, the need to raise awareness of corporate social responsibility and the benefits of disclosing detailed social responsibility information for the financial risk of the business. Some businesses say that if they focus on protecting environment activities, transparency of social responsibility information is costly, reducing profits, it is a misconception. From the results of this study showed that, the firms with higher CSRD performance have a lower FR for both current year and the following year. Therefore, the practice and disclosure of social information is necessary, help businesses avoid legal complications to improve the image and reduce the experiencing financial risk.

Second, the results also show that, in addition to the level of disclosure of social responsibility information, other factors such as: Business Size, financial leverage, market to book ratio, return on assets, and cash flow from operations. Therefore, in order to avoid from experiencing financial risk, besides the factors of practice and information disclosure, enterprises should consider the influence of other factors on the financial risk. Since then, there is a reasonable adjustment plan to improve the efficiency of capital use, bringing the highest economic efficiency to businesses.

Basing on the quantitative and qualitative research methodology, the team assessed the impact of the level of social responsibility disclosure on the financial risk of the business. The results indicate that the social responsibility disclosure affects the financial risk of businesses both now and in the future. At the same time, the study also found the relative difference in financial risk between two groups of enterprises which did and did not disclose social responsibility. From the research results, this study has made several recommendations to promote the accounting practices in the future. The article has enriched the sources of

research on social responsibility disclosures as well as contributed to the disclosure of social responsibility information in the future. However, research is limited to one financial risk measure and five control variables, while still using other indicators to test this relationship, further limiting the sample also makes sense dependency of affected results. Nevertheless, we consider these to be suggestive for further research in the future.

REFERENCES

1. Al - Hadi, A., Chatterjee, B., Yafthian, A., Taylor, G., & Hasan, M. M. (2019). Corporate social responsibility performance, financial distress and firm life cycle: evidence from Australia. *Accounting and Finance*, 59. doi:doi:10.1111/acfi.12277
2. Altman, E. I., Iwanicz - Drozdowska, M., Laitinen, E. K., & Suvas, A. (2016). Financial Distress Prediction in an International Context: A Review and Empirical Analysis of Altman's Z - Score Model. *Journal of international , financial management and accounting*, 28(2). doi:https://doi.org/10.1111/jifm.12053
3. Cai, L., Cui, J., & Jo, H. (2016). Corporate Environmental Responsibility and Firm Risk. *Journal of Business Ethics*, 139(3). doi:DOI: 10.1007/s10551-015-2630-4
4. Chakraborty, A., Luciasilva, & Sheikh, S. A. (2018). Managerial Risk Taking Incentives, Corporate Social Responsibility and Firm Risk. *Journal of Economics and Business*, online. doi:DOI: 10.1016/j.jeconbus.2018.07.004
5. Cheng, B., Ioannou, I., & Serafeim, G. (2013). Corporate social responsibility and access to finance. *Strategic Management Journal*, 35(1). doi:https://doi.org/10.1002/smj.2131
6. Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management*, 37(1). doi:https://doi.org/10.1177/0149206310388419
7. Dutta, S., & Nezhlobin, A. (2017). Information disclosure, firm growth, and the cost of capital. *Journal of Financial Economics*, 123(2). doi:https://doi.org/10.1016/j.jfineco.2016.04.001
8. Fuadah, L. L., Arisman, A., Wardani, R. S., & Yunita, A. (2019). corporate social responsibility mediates coorporates governance index and financial performance in indonesia. *Academy of Accounting and Financial Studies Journal*, 23(1).
9. Ghoul, S. E., Guedhami, O., C.Y.Kwok, C., & Mishara, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance*, 35(1). doi:10.1016/j.jbankfin.2011.02.007
10. Ghoula, S., Ghoula, S., OmraneGuedhamib, & OmraneGuedhamib. (2011). Does corporate social responsibility affect the cost of capital? *Does corporate social responsibility affect the cost of capital?*, 35(9). doi:https://doi.org/10.1016/j.jbankfin.2011.02.007
11. Global standards for sustainability reporting. (Gri Standards, 2016). Globalreporting.org.
12. Godfrey, P. C., Merrill, C. B., & Hansen, J. M. (2009). The relationship between corporate social responsibility and shareholder value: An empirical test of the risk management. *Strategic Management Journal*, 30. doi:10.1002/smj.750
13. Hahn, R., & Kühnen, M. (2013). Determinants of sustainability reporting: a review of results, trends, theory, and opportunities in an expanding field of research. *Journal of Cleaner Production*, 59(15). doi:https://doi.org/10.1016/j.jclepro.2013.07.005
14. Harjoto, M. A., & Laksmana, I. (2016). The Impact of Corporate Social Responsibility on Risk Taking and Firm Value. *Journal of Business Ethics*. doi:DOI: 10.1007/s10551-016-3202-y
15. Ho, V. T., Ho, T. V. A., & Nguyen, T. C. (2017). *The corporate environmental responsibility and corporate financial performance: evidences from Vietnamese listed companies*. Paper presented at the Proceedings of ICUEH2017: International conference of University of Economic Ho Chi Minh City: Policies and sustainable economic development., HCMC, Vietnam, September 28, 2017.

16. Jha, A., & Cox, J. (2015). Corporate social responsibility and social capital. *Journal of Banking & Finance*, 60(1). doi:<https://doi.org/10.1016/j.jbankfin.2015.08.003>
17. Joe F. Hair, Christian M. Ringle, & Sarstedt., M. (2014). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*. doi:<http://dx.doi.org/10.2753/MTP1069-6679190202>
18. Lin, K. C., & Dong, X. (2018). Corporate social responsibility engagement of financially distressed firms and their bankruptcy likelihood. *Advances in Accounting*, 43(1). doi:<https://doi.org/10.1016/j.adiaac.2018.08.001>
19. Mahoney, L. S., Thorne, L., Cecil, L., & LaGore, W. (2013). A research note on standalone corporate social responsibility reports: Signaling or greenwashing? *Critical Perspectives on Accounting*, 24(4-5). doi:<https://doi.org/10.1016/j.cpa.2012.09.008>
20. Mavlanova, T., Benbunan-Fich, R., & Koufaris, M. (2012). Signaling theory and information asymmetry in online commerce. *Information & Management*, 49(5). doi:<https://doi.org/10.1016/j.im.2012.05.004>
21. Monti, A., Pattitoni, P., Petracci, B., & Randl, O. (2018). Does Corporate Social Responsibility Impact Risk?. *SSRN Electronic Journal*. doi:<https://dx.doi.org/10.2139/ssrn.3167883>
22. Nguyen, L. S. (2019). Relationship between Environmental Financial Accounting Practices and Corporate Financial Risk: Evidence from Listed Companies in Vietnams Securities Market. . *Asian Economic and Financial Review*, 9(2). doi:10.18488/journal.aefr.2019.92.285.298
23. Nguyen, L. S., & Tran, M. D. (2019). Disclosure levels of environmental accounting information and financial performance: The case of Vietnam *Management Science Letters*, 9(1). doi:10.5267/j.msl.2019.1.007
24. Nguyen, L. S., Tran, M. D., Nguyen, T. X. H., & Le, Q. H. (2017). Factors Affecting Disclosure Levels of Environmental Accounting Information:The Case of Vietnam. *Accounting and Finance Research*, 6(4).
25. Oikonomou, I., Brooks, C., & Brooks, C. (2014). The Effects of Corporate Social Performance on the Cost of Corporate Debt and Credit Ratings. *Financial Review*, 49(1). doi:<https://doi.org/10.1111/fire.12025>
26. Öztekin, Ö. (2015). Capital Structure Decisions around the World: Which Factors Are Reliably Important? *Journal of Financial and Quantitative Analysis*, 50(3). doi:<https://doi.org/10.1017/S0022109014000660>
30. Poddi, N. C. L., & Vergalli, S. (2016). Corporate Social Responsibility and Firms' Performance: a Strategic Graphical Analysis. *Journal of International Business and Economics*, 4. doi:10.15640/jibe.v4n1a1
31. Salvi, A., Petruzzella, F., & Giakoumelou, A. (2018). Does sustainability foster the cost of equity reduction? The relationship between corporate social responsibility (CSR) and riskiness worldwide. *African journal of business management*, 12(1). doi:<https://doi.org/10.5897/AJBM2018.8562>
32. Spasić, D., & Stojanović, M. (2013). sustainability repoerting - theoretical framework and practice in the serbian oil industry. *Economics and Organization*, 10(3). doi:UDC 665.6/.7:005.71]:651.78
33. Tauchen, G. (1986). Finite state markov-chain approximations to univariate and vector autoregressions. *Economics letters*, 20(2). doi:[https://doi.org/10.1016/0165-1765\(86\)90168-0](https://doi.org/10.1016/0165-1765(86)90168-0)
34. Walker, K. (2010). A Systematic Review of the Corporate Reputation Literature: Definition, Measurement, and Theory. *Corporate Reputation Review*, 12(4).
35. Xu, S., Liu, D., & Huang, J. (2015). Corporate social responsibility, the cost of equity capital and ownership structure: An analysis of Chinese listed firms. *Australian Journal of Management*, 40(2). doi:<https://doi.org/10.1177%2F0312896213517894>
35. Xue, H., Zhang, S., Su, Y., & Wu, Z. (2017). Factors Affecting the Capital Cost of Prefabrication—A Case Study of China. *MDPI — Sustainability*, 9(9). doi:<https://doi.org/10.3390/su9091512>
36. Yeh, C.-C., Lin, F., Wang, T.-S., & Wu, C.-M. (2019). Does corporate social responsibility affect cost of capital in China. *Asia Pacific Management Review*.

AN APPLICATION OF ARIMA MODEL IN FORECASTING VIETNAMESE REAL GDP RATE

Nguyen Thi Viet Nga¹

ABSTRACT

Gross Domestic Product is an essential indicator of economic activity, and is usually used by decision makers to plan economic policy. This paper aims at modeling and forecasting the real Gross Domestic Product rate in Vietnam. For this purpose, using the Box- Jenkins methodology with the data covering the period between 1985 and 2018. The optimal model is ARIMA(0,1,2) model. Thanks to this model, the author forecasts the values of real Gross Domestic Product rate for some incoming years of 2019, 2020 and 2021. Statistical results show that the real Gross Domestic Product rate of Vietnam is steadily improving.

Keywords: *Real Gross Domestic Product rate, ARIMA Model, Box-Jenkins methodology, forecasting, Vietnam*

1. INTRODUCTION

Gross Domestic Product (GDP) of a country is the money value of all final goods and services produced by all the enterprises within the borders of a country in a year. It represents the aggregate statistic of all economic activity. The performance of economy can be measured with the help of GDP. According to Eurostat (1996) there are three ways in which the GDP of a country can be measured.

GDP is the sum of gross value added of the various institutional sectors or the various industries plus taxes and less subsidies on products (which are not allocated to sectors and industries) - production approach,

GDP is the sum of final uses of goods and services by resident institutional units (actual final consumption and gross capital formation), plus exports and minus imports of goods and services - expenditure approach,

GDP is the sum of uses in the total economy generation of income account (compensation of employees, taxes on production and imports less subsidies, gross operating surplus and mixed income of the total economy) - income approach. (see The European System of Accounts ESA 1995, Eurostat, 1996).

Forecasting future economic outcomes is a vital component of the decision-making process in central banks for all countries. Monetary policy decisions affect the economy with a delay, so, monetary policy authorities must be forward looking, i.e. must know what is likely to happen in the future. Gross Domestic Product is one of the most important indicators of national economic

¹ Department of Economics, Academy of Finance, 58 Le Van Hien, Bac Tu Liem, Hanoi, Vietnam. E-mail: nguyenthivietnga@hvtc.edu.vn

activities for countries. Scientific prediction of the indicator has important theoretical and practical significance on the development of economic development goals. For the forecasting of time series, we use models that are based on a methodology that was first developed in Box and Jenkins (1976), known as ARIMA (Auto-Regressive-Integrated-Moving-Average) methodology. This approach was based on the World representation theorem, which states that every stationary time series has an infinite moving average (MA) representation, which actually means that its evolution can be expressed as a function of its past developments (Jovanovic and Petrovska, 2010). The rest of the paper is organized as follows: Section 2 describes literature review while in Section 3, theoretical background is given. In Section 4, the empirical results are presented. Section 5 is the forecasting and finally, conclusions are provided in Section 6.

2. LITERATURE REVIEW

Box and Jenkins (1976) methodology has been used extensively by many researchers in order to highlight the future rates of GDP. Wei et. al. (2010) used data from Shaanxi GDP for 1952-2007 to forecast country's GDP for the following 6 years. Applying the ARIMA(1,2,1) model, the author found that GDP of Shaanxi presented an impressive increasing trend. Maity and Chatterjee (2012) examined the forecasting of GDP growth rate for India using ARIMA(1,2,2) model and a time period of 60 years. The results of their study showed that predicted values follow an increasing trend for the following years. Zhang Haonan (2013) used three models ARIMA, VAR, AR(1) to examine the forecasting of per capita GDP for five regions of Sweden for the years 1993 - 2009. The results of the study showed all three models can be used for forecasting in the short run. However, the autoregressive first order model is the best for forecasting the per capita GDP of five regions of Sweden. Shahini and Haderi (2013) tested GDP forecasting for Albania using quarterly data from the first quarter of 2003 until the second quarter of 2013. For the forecasting, they used two model types ARIMA and VAR. Their results showed that the group of VAR model gave better results on GDP's forecasting rather than ARIMA model. Zakai (2014) investigated forecasting of Gross Domestic Product (GDP) for Pakistan using quarterly data from 1953 until 2012. Choosing a ARIMA(1,1,0) model, the author found out the size of the increase for Pakistan's GDP for the years 2013-2025. Chaido (2015) also used the ARIMA(1,1,1) model for data from 1980-2013 to forecast the real GDP growth rate of Greece in 2015, 2016 and 2017.

3. THEORETICAL BACKGROUND

The Box-Jenkins ARMA model is a combination of the AR (Autoregressive) and MA (Moving Average) models as follows:

$$y_t = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_p y_{t-p} - \alpha_1 u_{t-1} - \alpha_2 u_{t-2} - \dots - \alpha_q u_{t-q} + u_t \quad (3.1)$$

The Box-Jenkins methodology consists of the following phases:

- Establishment of the stationary of time series. The autocorrelation function (ACF) as well as Augmented Dickey- Fuller test (ADF) (1979) and Phillips-Perron (1988) test (PP) are used for stationary testing of time-series.
- Model Identification of the model ARMA(p,q). To determine the order of ARMA(p,q), we use the sample of the autocorrelation function (ACF) and partial autocorrelation function (PACF) of the stationary series. These two plots are suggesting the model we should build. The parameter p of autoregressive operator is determined by the partial autocorrelation coefficient and

the parameter q of the moving average operator is specified by the autocorrelation coefficient. In fact we use the limits $\pm \frac{2}{\sqrt{n}}$ for the non-significance of the two functions, so we will have a number ARMA models (a, b) , where $0 \leq a \leq p$, $0 \leq b \leq q$. For the optimum model we are using the criteria of Akaike (AIC) and Schwartz (SIC).

- **Model Estimation.** The involvement of the white noise terms in an ARIMA model entails a nonlinear iterative process in the estimation of the parameters. Maximum likelihood estimation is generally the preferred technique.
- **Diagnostic checking of the model.** With diagnostic checking we investigate whether the estimated model is acceptable and statistically significant, i.e. if it fits well to the data. Box and Jenkins for the adequacy of estimated ARIMA model suggested checking the randomness of the residuals, i.e. whether the residuals from the estimated ARIMA model is white noise, and are not serially correlated.
- **Forecasting.** One of the main reasons of the analysis of time series models is forecasting. The accuracy of the forecasts depends on the forecasting error. Moreover, a number of statistical measures are employed for this aim, such as root mean squared error (RMSE), mean absolute error (MAE), mean absolute percentage error (MAPE) and the inequality coefficient of Theil (U).

Then the forecast value one period ahead conditional on all information up to time, t , given at time $t + k$, as:

$$y_{t+k} = (\beta_1 + 2)y_{t+k-1} - (1 + 2\beta_1)y_{t+k-2} + \beta_1 y_{t+k-3} + \alpha_1 \epsilon_{t+k-1} + \epsilon_t$$

(3.2)

4. EMPIRICAL RESULTS

The variable used in the analysis is the GDP growth (annual %) that span from 1985 to 2018. The source of data is the World Bank. The ARIMA approach is an iterative four-stage process of stationary, identification, estimation and testing.

4.1. Testing for Stationary

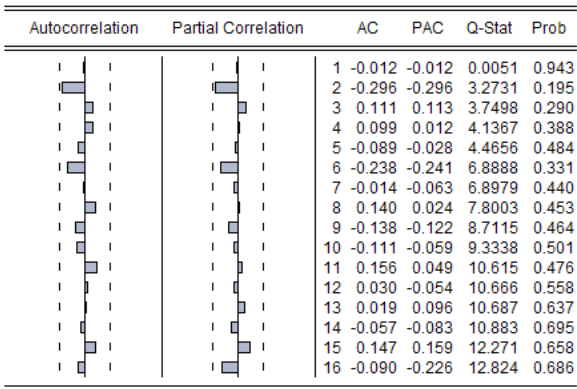
Figures 1 and 2 represent the correlogram of the real GDP rate series with a pattern of up to the 16 lags in level and for first differences.

Figure 1: Correlogram of Real GDP Rate Series (Level)

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.682	0.682	17.246	0.000
		2	0.333	-0.247	21.490	0.000
		3	0.172	0.113	22.652	0.000
		4	-0.004	-0.236	22.653	0.000
		5	-0.151	-0.044	23.619	0.000
		6	-0.323	-0.311	28.175	0.000
		7	-0.336	0.162	33.291	0.000
		8	-0.257	-0.134	36.403	0.000
		9	-0.273	-0.102	40.054	0.000
		10	-0.178	0.115	41.671	0.000
		11	0.002	0.075	41.672	0.000
		12	0.081	-0.096	42.036	0.000
		13	0.105	0.009	42.678	0.000
		14	0.030	-0.204	42.735	0.000
		15	-0.052	-0.096	42.908	0.000
		16	-0.143	-0.227	44.294	0.000

From the above figure we can conclude that the coefficients of autocorrelation (ACF) starts with a high value and declines slowly, indicating that the series is non-stationary. Also the Q-statistic of Ljung-Box (1978) at the 16th lag has a probability value of 0.000 which is smaller than 0.05, so we cannot reject the null hypothesis that the real GDP rate series is non-stationary. Thus, the series must be configured in first differences.

Figure 2: Correlogram of Real GDP Rate Series (First Differences)



From the figure 2 we can conclude that the Q-statistic of Ljung-Box at the 16th lag has a probability value larger than 0.05, so we cannot reject the null hypothesis that the real GDP rate series is stationary. The results of Augmented Dickey-Fuller (ADF) test and Phillips-Perron (PP) test on real GDP rate series are representing on Table 1.

Table 1: ADF and Phillip-Perron's Test

	Chain of GDP growth rates		Differential series of GDP growth rate series	
	C	C, T	C	C, T
ADF	-2,627521 (3)	-2,541152 (3)	-5,625594 (0) ***	-5,664354 (0) ***
PP	-2,553543 [3]	-2,433494 [3]	-5,625357 [1] ***	-5,664222 [1] ***

Note:

1. Lag length in () and Newey-West value using Bartlett kernel in []
2. Asterisks (***) denote statistically significant at 1% significance levels.

The results in Table 1 indicate that real GDP rate is stationary in first differences. Therefore, for our model ARIMA (p,d,q), we will have the value d = 1.

4.2. Identification of the Model

We can use the correlogram of figure 1 to determine the model ARMA (p, q), i.e. the values of parameters p and q. As already mentioned above, an AR(p) model has a PACF that truncates at lag p and an MA(q)) has an ACF that truncates at lag q. In practice $\pm \frac{2}{\sqrt{n}}$ are the non-significance limits for both functions. We shall explore the range of models ARMA(a, b), $0 \leq a \leq p$, $0 \leq b \leq q$ for an optimum one. To do this we shall use the automatic model determination criteria AIC and SIC. The limits for both functions (ACF, PACF) are $\pm \frac{2}{\sqrt{34}} \approx \pm 0,343$. From figure 1, the ACF cuts off at lag 2 (q = 2) and the PACF at lag 1 (p = 1). Exploring the range of models {ARMA(p,q):

$0 \leq a \leq 1, 0 \leq b \leq 2 \}$ for the optimal on the basis of AIC and SIC. Thereafter we create Table 2 with the values of p and q as follows:

Table 2: Comparison of Models within the Range of Exploration Using AIC and SIC

p	q	AIC	SIC
0	1	3,21	3,31
0	2	2,90	3,00
1	0	3,22	3,31
1	1	3,11	3,25
1	2	2,92	3,06

The results from table 2 indicate that according to the criteria of Akaike (AIC), and Schwartz (SIC) the model ARMA is formulated to ARMA(0,2). As the model is stationary on first differences, i.e. ($d = 1$) our ARIMA model will be ARIMA (0,1,2).

4.3. Estimation of the Model

Thereafter we can proceed to estimating the above model. The following table 3 presents the results of this model.

Table 3: Estimation Model ARIMA (0,1,2)

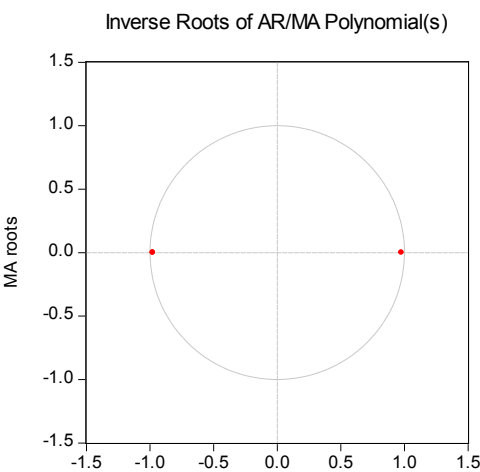
Dependent Variable: D(GDP_RATE)				
Method: Least Squares				
Sample (adjusted): 1986 2018				
Included observations: 33 after adjustments				
Convergence achieved after 12 iterations				
MA Backcast: 1984 1985				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.007689	0.036841	-0.208712	0.8360
MA(2)	-0.953165	0.034221	-27.85325	0.0000
R-squared	0.262889	Mean dependent var		0.099089
Adjusted R-squared	0.239111	S.D. dependent var		1.154087
S.E. of regression	1.006698	Akaike info criterion		2.909921
Sum squared resid	31.41669	Schwarz criterion		3.000618
Log likelihood	-46.01369	Hannan-Quinn criter.		2.940438
F-statistic	11.05606	Durbin-Watson stat		1.970160
Prob(F-statistic)	0.002281			
Inverted MA Roots	.98	-.98		

The results in table 3 indicate that both coefficients are statistically significant at 1% level of significance. The non-linear techniques used by Eviews involved an iterative process that is converged after 12 iterations. The roots are ± 0.98 , both inside the unit circle indicating stationarity and invertibility respectively. The chosen model as summarized in Table 3 is ARIMA(0,1,2) and is given by

$D(\text{GDP_RATE}_t) = -0.953165 \varepsilon_{t-2} + e_t$	
t-stat.	(-27.85325)
prob.	[0.000]
s.e	{0.034221}

On the following diagram the inverse roots of AR and MA characteristic polynomials for the stability of ARIMA model are presented.

Figure 3: Inverse Roots of AR and MA



From diagram 3 we can see that the ARIMA model is stable since the corresponding inverse roots of the characteristic polynomials are in the unit circle.

4.4. Diagnostic Checking of the Model

Diagnostic checking of the model, help us to check if the estimated model is acceptable and statistical significant that means that the residuals are not auto correlated and follow normal distribution. For checking autocorrelation, we use Q statistic of Ljung-Box (1978) and normality test using Jarque-Bera (JB) test (1980). The figures below represents the tests of the autocorrelation and normality of the residuals of the model ARIMA(0,1,2).

Figure 4: Histogram of the residuals of model ARIMA (0,1,2)

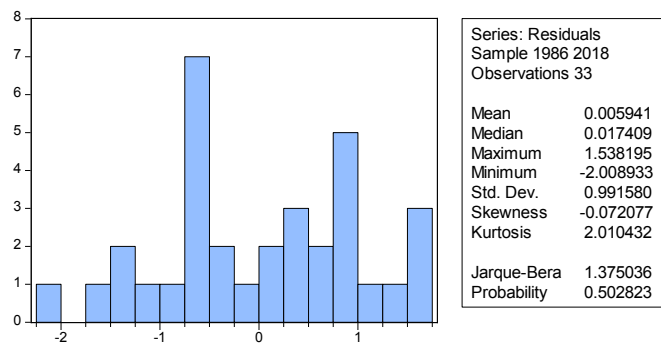
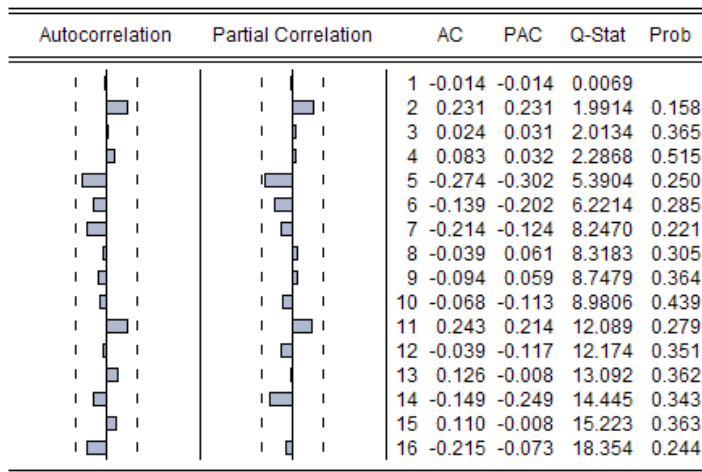
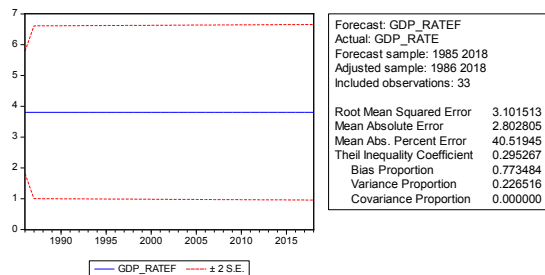


Figure 5: Correlogram Residuals of Model ARIMA (0,1,2)

The results of figure 4 indicate that the residuals of ARIMA(0,1,2) model follow normal distribution. Moreover, the results of figure 5 indicate that the Q statistic of Ljung-Box for all the 16 lags has values greater than 0.05 thus the null hypothesis cannot be rejected i.e. there is no autocorrelation for the examined residuals of the series.

5. FORECASTING

In figure 6 we represent the criteria for the evaluation of the forecasts of the model ARIMA(0,1,2)

Figure 6: Forecast Accuracy Test on the Model ARIMA (0,1,2)

The results in figure 6 indicate that the inequality coefficient of Theil has a high value $U = 0.295$ which means that our model does have a good forecasting ability. Table 6 below summarizes the forecasting results of the real GDP rate over the period 2019 to 2021.

Table 6: The Real GDP Rate Forecasts

Year	2019	2020	2021
The Real GDP Rate Forecasts	6,41%	6,57%	6,6%

6. CONCLUSION

In this paper, using Box - Jenkins technique, we are trying to forecast the real GDP rate in Vietnam for the next three years with an ARIMA model. After checking for the stationarity of

the data series, we find the appropriate ARIMA (p, d, q) process. The corresponding correlogram helped in choosing the appropriate p and q for the data series. An ARIMA(0,1,2) model was created through the data used and estimating this model we found that the real GDP rate for the years 2019, 2020 and 2021 is forecast to be 6.41%, 6.57% and 6.6% respectively. Results of the study will be helpful for the policy makers to formulate effective policies for attracting foreign direct investment. Furthermore, the findings of the study will also help the managerial business executives for implementing the new project ideas or taking decisions concerned with the expansion of the existing business.

REFERENCES

1. Box, G. E. P. & Jenkins G. M. "*Time series analysis. Forecasting and control*", Holden-Day, San Francisco, 1976.
2. Chaido, D., "*Forecasting Real GDP Rate through Econometric Models: An Empirical Study from Greece*", Journal of International Business and Economics, 3(1), 2015, pp. 13-19.
3. Dickey, D. A. & Fuller W. A., "*Distribution of the estimators for autoregressive time series with a unit root*", Journal of the American Statistical Association, 74(366), 1979, pp. 427-431.
4. The European System of Accounts ESA, 1995, <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/CA-15-96-001>.
5. Eurostat yearbook 1996: A statistical view Europe 1985-1995, <http://aei.pitt.edu/72805/>
6. Jarque. C. M., & Bera A. K., "Efficient tests for normality, homoscedasticity and serial independence of regression residuals", Economics Letters 6(3), 1980, pp. 255-259.
7. Jovanovic, B. & Petrovska M. "Forecasting Macedonian GDP: Evaluation of different models for short-term forecasting", Working Paper, National Bank of the Republic of Macedonia, 2010.
8. Ljung, G. M., & Box G. E. P. "*On a measure of a lack of fit in time series models*", Biometrika, 65(2), 1978, pp. 97-303.
9. Maity, B., & Chatterjee B. "*Forecasting GDP growth rates of India: An empirical study*", International Journal of Economics and Management Sciences, 1(9), 2012, pp. 52-58.
10. Phillips, P. C. B. & Perron P., "*Testing for a unit root in time series regression*", Biometrika, 75(2), 1988, pp. 335-346.
11. Shahini, L. & Haderi S. "*Short term Albanian GDP forecast: One quarter to one year ahead*. European Scientific Journal", 9(34), 2013, pp. 198-208.
12. Wei Ning, Bian Kuan-jiang & Yuan Zhi-fa, "*Analysis and forecast of Shaanxi GDP based on the ARIMA model*", Asian Agricultural Research, 2(1), 2010, pp. 34-41.
13. Zakai, M., "*A time series modeling on GDP of Pakistan*", Journal of Contemporary Issues in Business Research, 3(4), 2014, pp. 200-210.
14. Zhang, H., "*Modeling and forecasting regional GDP in Sweden using autoregressive models*", Working Paper, Hogskolan Dalarna University, Sweden, 2013.

MOBILIZE CAPITAL FROM CHINA'S GREEN BOND MARKET AND MAKE RECOMMENDATIONS TO VIETNAM

Bach Thi Thanh Ha¹, Bach Thi Thu Huong², Nguyen Thanh Huyen³

ABSTRACT

In the trend of countries focusing on sustainable development, the issuance of green bonds will help create conditions to attract large capital in society to support the implementation of environmentally friendly projects. China is a fast-growing country but also affected by climate change and heavy pollution, so it has taken strong steps to improve the environment through promoting capital mobilization from green bonds in domestic and international markets. Based on the research on China's green bond market development experience, the article draws some recommendations to develop the green bond market in Vietnam in the near future.

Keywords: *climate change, green bonds, sustainable growth, capital mobilization.*

1. INTRODUCTION

In order to combat climate change, the need to mobilize huge capital resources to achieve sustainable growth, green bonds are increasingly being deployed widely around the world. In the development orientation to 2020 and vision to 2030, the Government of Vietnam also has orientation in issuing green bonds. However, so far, the issuance of green bonds is only in the experimental research phase in some localities. In Vietnam, studies on international experience in developing green bonds are still limited. Therefore, with the method of general analysis, descriptive statistics, the article is done in order to systematize the theory of green bonds, and at the same time, explore the experience of developing green bonds in China which just participated in the green bond market in the past 05 years but has become a leading country in developing green bonds in the world. Based on that, the article draws some recommendations to develop the green bond market in Vietnam in the future.

2. LITERATURE REVIEW

The World Bank introduced the concept of green bonds in 2008 “Strategic Framework for Climate Change and Development” and was also the first organization in the world to issue green bonds with only mobilized several tens of millions of US dollars.

The 2015 Green Bond Principles (GBP) defines green bonds as any type of bond for which the proceeds from bond issuance are used for financing or refinancing part or all of a new or active green

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: bachhacg@gmail.com

² Academy of Finance, 58 Le Van Hien, Bac Tu Liem Hanoi.

³ Vinh University, 182 Le Duan, Truong Thi, Vinh City, Nghe An, Vietnam

project eligible for funding and comply with the 4 principles of the GBP code of conduct. Including: (1) Determining criteria for selecting green projects; (2) Establishment of project evaluation and selection process; (3) Managing capital raised from green bonds; (4) Report on capital use.

In particular, the first rule stipulates that the issuer must clearly define what type of green project will be funded. The project selection criteria are usually given by independent external experts to assure investors that these projects will comply with technical factors. After defining the project selection criteria, a project selection process will be established. Projects financed by green bond funds must be rigorously assessed through a rigorous process with an evaluation of the project's potential environmental impacts. Typically, issuers have to conduct annual reports, providing information on how the funding is used and how the environmental impacts are sustained by the project. Green bonds are a useful funding channel for climate change mitigation projects in many countries. For example, in Tunisia, the capital from green bonds issued by the World Bank (WB) has helped improve the efficiency of irrigation systems and clean water supply in rural areas. Or in China, green bonds contribute to reducing the risk of being affected by natural disasters through flood prevention and the development of warning systems ... In 2017, 10 new countries joined the market. Green bond markets include Argentina, Chile, Fiji, Lithuania, Malaysia, Nigeria, Singapore, Slovenia, Switzerland and the United Arab Emirates (UAE). According to a report from the non-profit Climate Bonds Initiative (CBI), the value of green bonds issued globally has increased gradually in recent years, reaching 160.8 billion USD in 2017 (2016 reached 87 billion USD, 2015 reached 42 billion USD). In the first half of 2018, 156 businesses and organizations issued green bonds worth up to \$74.6 billion, many of which were rated AAA or AA (Le Cong Vu, 2019). Therefore, green bonds are seen as a solution to help countries around the world raise capital for climate change strategies.

3. EXPERIENCE IN DEVELOPING GREEN BONDS FROM CHINA

After more than 30 years of renovation, China has experienced rapid economic growth but at the same time faces serious environmental pollution. In order to focus resources on achieving the goal of sustainable growth, China has stepped up the development of the green financial system and green bonds. In October 2015, Agricultural Bank of China issued nearly \$ 1 billion of green bonds in the London market to raise capital for environmentally friendly projects. In December 2015, through the interbank market, domestic green bonds were circulated, helping credit institutions to increase capital to finance green projects, creating a basis for developing bond markets.

Establishment of a legal framework in particular the bond standards

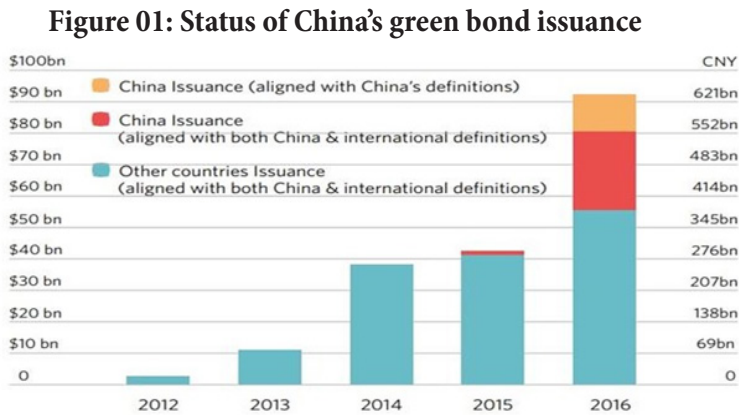
Although the concept of green finance has appeared in China's Environmental Protection Law since the late 90s of the twentieth century, it was not until 2015 that China officially issued documents related to green bonds. (MA. Nguyen Thi Minh Chau, 2017). People's Bank of China (PBOC) issued Notice No. 39 - Notice of issues related to the issue of green financial bonds on the market of interbank bonds on December 15, 2015. Accordingly the provisions of green financial bonds, incorporated financial institutions, "Green financial bonds" means the denominated securities issued by incorporated financial institutions to raise funds mainly for supporting green industries, with the repayment of the principal and the payments of interest as agreed on". "Incorporated financial institutions" includes development banks, policy banks, commercial banks, finance

companies of enterprise groups, and other legally established financial institutions. To issue green financial bonds, an incorporated financial institution shall meet all of the following conditions:

- (1) It has a sound corporate governance mechanism.
- (2) It earned profits in the most recent year (excluding development banks and policy banks), and has not committed any serious violation of laws and regulations in the last three years.
- (3) It satisfies the requirements for macro-prudential regulation, and its financial risk supervision indicators comply with the relevant rules of the financial regulatory authorities.
- (4) It has adequate and effective rules on the credit extension, risk control, and marketing, among others, for green industry projects and a mature business team.

At the end of 2015, the People’s Bank of China (PBOC) issued regulations on: (1) the concept of green bonds, (2) the list of industries that green bonds financed, (3) entities allowed to issue green bonds, (4) procedures for applying for green bonds, (5) the issuance process as well as the principles in the process of using and managing revenue from bond issuance Green votes, (6) regulates the promotion of relevant agencies and agencies to take measures to support the development of green bonds. It is noteworthy that green bond standards are based on reference to international standards in combination with China’s environmental policy. This is the first specific guide on green bonds in China. At the end of March 2016, the Shanghai Securities Center and Shenzhen Securities Center issued a notice of the Green Bond Pilot Program, which facilitates the listing of green bonds on financial markets. On August 2016, China continued to promulgate guidelines for building a green financial system, specifying guidelines to promote the role of the securities market in green investment and unifying the criteria, domestic green bond standards. At the end of 2016, the National Development and Development Commission of China (NDRC) issued guidelines for the issuance of green bonds for state-owned enterprises, regulating which projects are considered green projects, and stating requirements for issuing green bonds.

It can be seen that in just a short time, a series of policy documents issued by China created an important basis for the strong green bond market development. As a result, by 2016, China’s green bond market had a strong development with the issuance value of US\$ 36.2 billion, accounting for one-third of the global green bond issuance, bringing China to become a market leader (Figure 1). By June 2019, the US\$21.8 bn worth of green bonds from China represents a 62% surge year-on-year.



Source: China Green Bond Market Report 2016

The guidance issued by the NDRC has preferential provisions for issuing green bonds for businesses such as simplifying the process of issuing companies. This is specified by allowing companies to issue separate and aggregated releases for certain types of projects under certain circumstances. Adjust some conditions of issuing green bonds for businesses, for example, allowing the value of bond issuance to account for 80% of the total investment of the project. At the same time, allowing issuers to use green bonds to improve capital structure, goods and capital investment. In addition, organizations with AA + credit rating and good business conditions may issue green bonds to replace the high-cost debt for green projects being implemented.

Besides, PBOC has issued many incentive policies to encourage the development of the green bond market. In particular, the PBOC has approved for financial institutions to use green bonds as collateral to enjoy low-interest loans from the central bank. This provision has motivated banks to issue green bonds in the process of raising capital. This is one of the reasons why commercial banks account for the largest proportion, in 2016, the proportion of commercial banks accounted for 82% of the issuance of green bonds in China, while businesses accounted for the remaining 16% and 2% are other entities. According to the Chinese green bond market situation report in the first 6 months of 2019, financial corporates were active issuers. Financial corporates remained the largest issuer type with 41% (USD8.9bn) of the overall issuance in 6/2019. Non-financial corporates are the second largest issuer type with 34% of the total issued amount, up 6% from June 2018. 28 issuers have brought a total of USD 7.4bn worth of green bonds, but only 8.6% (USD 640m) is aligned with CBI green definition, mainly due to large proportion of proceeds being earmarked for working capital.

At a global meeting on green finance in China in May 2018, the G20 Green Financial Research Committee co-chaired by China and the United Kingdom outlined 7 solutions to promote green financial development, including: Issuing policies and legal framework to support the development of green bonds; Promoting voluntary implementation of green financial principles; Expanding the green bond development capacity training network; Supporting the development of the domestic green bond market; Promoting cross-border international cooperation on green bonds; Encourage sharing knowledge about financial and environmental risks; Impact assessment of green financial activities.

4. A NUMBER OF RECOMMENDATIONS AND PROPOSALS FOR DEVELOPING GREEN BONDS IN VIETNAM

According to the evaluation of the German International Cooperation Organization (GIZ), to promote sustainable economic growth, Vietnam needs about 30.7 billion USD in 2020 and about 21.2 billion USD in the next 10 years. Therefore, the use of green bonds to attract capital for environmentally friendly projects is an urgent issue for Vietnam today. In recent years, Vietnam has also had mechanisms and policies towards the development of the green bond market.

The Government of Vietnam has set a goal of implementing green growth through the approval of the National Green Growth Strategy, promulgated in the Prime Minister's Decision 1393/2012 and Prime Minister's Decision 03/2014. The Prime Minister approved the National Action Plan on Green Growth for the period of 2014 - 2020. In October 2015, Decision 2183/QĐ-BTC, approved by the Ministry of Finance, presented the Sector Action Plan, finance to implement the National

Strategy on green growth to 2020. This decision clearly points out the need to complete the green capital market policy framework, and to build a sustainable stock exchange with the issuance of bonds for green projects. Based on the implementation of the cooperation program between the State Securities Commission and the German Development Cooperation Agency (GIZ) from the end of 2015, a scheme to develop the green bond market has been formulated. On October 20, 2016, the Ministry of Finance approved the Scheme on pilot issuance of green bonds by local authorities. Accordingly, green bonds were piloted in Ho Chi Minh City (VND 523.5 billion, term of 15 years) and Ba Ria – Vung Tau City (VND 80 billion, term of 5 years). The issuance of green bonds is implemented in accordance with the regulations of the regular bond market; Capital raised from bond issuance is used for green projects. Up to now, Ho Chi Minh City has issued VND 3,000 billion of green local government bonds for 34 projects, including 11 green projects based on the “Green Project List” issued by the State Bank. At the same time, Ba Ria - Vung Tau has prepared for the first issuance of green bonds of VND 500 billion for 8 green projects, with a term of 5 years. By studying China’s green bond development experience, some lessons can be drawn to develop the fledgling green bond market of Vietnam as follows:

First, despite mentioning the issuance of green bonds in a number of issued documents, there has not been a specific legal framework providing regulations and guidelines for the issuance and use of green bonds. *In particular, the Government of Vietnam needs to promulgate specific documents related to green bonds, in which it is necessary to specify its own standards in the identification of green bonds, green projects as well as the principles.* These standards need to be developed according to GBP 2015 but must also be consistent with Vietnam’s unique characteristics in the process of economic, political, environmental and social development. This will help green bonds to suit the domestic market, soon becoming a financial instrument of interest in the market.

The principles related to green bonds also need to be specific and detailed so that green bond issuers comply. In addition, transparency of information related to the issuance and use of funds from green bonds should be strictly regulated as a basis for the inspection and supervision of interested subjects. Research and development of a set of indicators to evaluate sustainable development companies also need to be carried out by the competent authorities to attract the attention of investors for green bonds.

Second, *to integrate soon, it is necessary to promulgate standards to identify green bonds according to international standards of GBP 2015 in future.* The 2015 Green Bond Principles (GBP) is considered an international standard, requiring the issuer to clearly record and use the capital collected and report the situation at least once a year to the parties concerned, clearly showing the bond issuing unit’s commitment to environmental protection. In addition, the State management agency should soon develop a set of green indices (sustainability index, carbon index...) to monitor, evaluate and trade on capital markets; green investment certificates issued by investment funds for green projects...

Third, *soon issue preferential policies on taxes and fees to encourage businesses to mobilize investment capital through issuing and listing green bonds*, for example, tax incentives for green bonds investors. If long-term savings are not taxed but green bonds are bought for sustainable development, it is difficult to attract investors. At the same time, the State should have mechanisms to encourage and support businesses and investment funds in the procedure of issuing green bonds.

Technologies and processes for producing environmentally friendly products will enjoy tax and fee incentives. On the contrary, it is necessary to have regulations and strictly punishment sanctions for enterprises which cause environmental pollution.

Fourth, improve the role of the banking system to promote liquidity of green bonds. As soon as in February 2019, the Asian Development Bank (ADB) purchased green bonds worth \$20 million to provide capital for projects in the Philippines, Indonesia and Vietnam. Although this is a big green bond project of ADB, there is no insurance participation of any Vietnamese banks. Compared to China, which has just launched green bonds since 2016, the role of the banking system is very clear based on the standards defined in the Green Bond-funded Project List published by the Green Finance Committee of the China Banking & Finance Association. In 2016, green bonds issued by domestic and foreign Chinese issuers amounted to 238 billion Yuan, the largest ranking in the world (CCDC, 2017). Specifically, in November 2016, under CCDC's support, the Bank of China successfully issued bonds with green asset insurance in foreign markets by using green bonds held by banks, hold in the domestic market to secure debt financing activities abroad. In China, the PBOC has approved for owners to use green bonds as collateral to enjoy low-interest loans from the central bank. This provision has motivated entities in the process of raising capital, facilitated the issuance of green bonds faster and speeded up the socialization of green bonds. Thanks to the preferential mechanism, commercial banks are more actively involved in the market (formerly mainly the state sector), raising the issuance rate to 82%.

Therefore, in the next time, in order to encourage Vietnamese commercial banks to participate more in green bond guarantee, as well as improve the liquidity of green bonds, State Bank of Vietnam approved the use of green bonds in the open market with a preferential rate of discount rate at a higher level than other types of bonds of the same type. This will create a good impact on encouraging banks to own green bonds in their asset portfolios, contributing to the development of the market.

Fifth, finalize the domestic bond market.

On June 2019, 85% of all Chinese issuance was issued domestically. Specifically, 48% were placed on the China Interbank Bond Market, followed by listing on Shanghai Stock Exchange with USD7.12bn (CNY47.88bn), or 33% of the Shanghai Stock Exchange. The remaining 4% were listed on the Shenzhen Stock Exchange.

In Vietnam, according to VCBS's report (2019), in the secondary market, by the end of 2018, the total value of bond outstanding was approximately VND 1.5 million billion, equivalent to nearly 27% of GDP. With the goal of achieving 65% of GDP by 2030, there is a plenty of room for many types of bonds including green bonds. As mentioned above, Vietnam's domestic green bond market is still very small. Therefore, in addition to continuing to promote capital mobilization from bonds in the international market, encouraging businesses to comply with international standards, the domestic bond market still needs to be promoted to develop.

5. CONCLUSION:

In order to be able to form and develop green bonds in the future, from the experience with China's rapid success, we need to implement building a legal framework on green bonds as a basis

for eliminating financial problem. It is necessary to promulgate preferential policies in combination with diversifying the issuance market, which will be necessary conditions for green bonds to become an effective tool to attract capital for green economic projects.

REFERENCES

1. Nguyen Thi Minh Chau (2017), 'Kinh nghiệm phát triển trái phiếu xanh của Trung Quốc cho Việt Nam', Trường đại học kinh tế tp. Hồ Chí Minh. <https://gec.edu.vn/tong-hop/kinh-nghiem-phat-trien-trai-phieu-xanh-cua-trung-quoc-cho-viet-nam.html>
2. The People Bank of China (2015), Announcement No. 39 [2015] on Matters Concerning the Issue of Green Financial Bonds on the Interbank Bond Market. <http://www.pbc.gov.cn/en/3688253/3689009/3788477/3911477/index.html>
3. Alan Xiangrui Meng, Sherry Shangguan (2019), China Green Bond Market Newsletter H1 2019, https://www.climatebonds.net/files/reports/china_green_bond_market_h1_2019_en.pdf
4. China Central Depository & Clearing Co.Ltd – CCDC (2017), *China's bond Market Overview 2016*.
5. Lê Công Vũ (2019), 'Trái phiếu xanh: Một giải pháp cho đầu tư bền vững tại Việt Nam', Tạp chí Bất động sản Việt Nam.

FOREIGN DIRECT INVESTMENT IN VIETNAM: A RECENT VIEW ON INADEQUACIES AND SHORTCOMINGS

Pham Duc Tai¹

ABSTRACT

Just as much we know that foreign direct investment will drive economic growth, cater the needs for jobs, urge on technology transfer and industrial restructure, we should be also aware of drawbacks to receiving inward investment. This article gives a recent insight into a number of shortcomings and inadequacies of foreign direct investment in Vietnam and spells out opportunities and challenges in the time to come.

Keywords: *Roles, Shortcomings, Inadequacies, Opportunities, Challenges, Foreign Direct Investment.*

I. OVERVIEW

For a developing country like Vietnam to prosper with a narrow pool of national cumulative capital, foreign direct investment (FDI), among other inbound flows of funds, is essential. FDI is seen as one of the mainstream flows of inward investments that lends Vietnam a push toward sustainable economic development, despite its evident pros and cons in term of socio-economy. On the one hand, FDI has been proving itself a critical supplement to the economy, meeting the needs for development investment and economic growth. The call upon FDI has entailed new industries that contribute to the economic restructuring, further improve export turnover and infrastructure, quench the thirst for jobs and enhance management standards. On the other hand, FDI poses many problems such as environmental pollution, transfer of obsolete and ineffective technologies. By frankly looking at the outcomes and utilization of FDI in Vietnam, we can figure out how inward flows of fund to Vietnam has turned out to run under par.

II. A REVENT VIEW ON THE ROLES OF FOREIGN DIRECT INVESTMENT TOWARD SOCIO-ECONOMIC DEVELOPMENT

Vietnam, for more than 30 years of striving, has become one of the most tempting destinations for foreign investment ASEAN-wide. Foreign direct investment has become a key locomotive for the economic train and triggered a great move of the nation's socio-economic development during the "Doi Moi" (Reform) period.

FDI as a contributor to socio-economic development has proven its roles in the following aspects:

¹ University of Economics – Technology for Industries, 456 Minh Khai, Vinh Tuy, Hai Ba Trung, Hanoi, Vietnam, Email address: pdtai@uneti.edu.vn

1. A critical capital source in addition to the total society's development investment and a driving force for growth

Over the past three decades, the FDI sector has gained a larger and larger share in Vietnam's economy. In 2018, FDI accounted for 23.4% of the country's total investment. Export turnover in the same year was estimated at USD 244.7 billion, 13.8% higher than 2017; in particular, FDI sector (including crude oil) reached USD 175.5 billion, 12.9% higher than 2017. By the end of August 2019, Vietnam had 29,532 outstanding FDI projects with a total registered capital of USD 353.7 billion, realized capital of USD 203.45 billion. The FDI sector is more and more important to push up economic growth, as it makes up for 27.7% in the average annual growth of 6.0%. Besides outspoken contributions to growth, FDI also has generous imprints in the increased productivity of the economy, widespread vogue of technologies, human resources development, fixed assets formation, which, to some ancillary extent, make more boosters for the overall economy.

2. Creating a link between FDI and the domestic sector, promoting the development of supporting industries

Notwithstanding below par achievements, FDI enterprises have formulated partnerships and promoted productivity growth by using semi-finished products, intermediates, raw and auxiliary materials of domestic enterprises.

FDI enterprises have opened doors for more rooms of domestic market to Vietnamese enterprises in several important industries namely manufacturing of motorbikes, automobiles, electrical equipment, electronics, and computers. As a result, many domestic enterprises have quite thrived on production capacity in some areas like manufacturing molds of all kinds; bicycle and motorbike components; standard mechanical components; power cables; plastic - technical rubber components; tires and tubes of all kinds. Some products have broken into foreign markets. It is statistically recognized by the Ministry of Industry and Trade that components export turnover reached USD 21.1 billion in 2015. Meanwhile, FDI has an intensive coverage over agricultural production through many on-going large-scale projects in the fields of husbandry, sugarcane production, animal feed, afforestation and mass-scale processing of paper materials. The poured dozens of millions dollars has greatly contributed to the formation and development of massive material areas across the country.

3. Promoting economic restructuring and shaping a number of new industries and products, thereby diversifying and enhancing the sophistication and complexity of national products, which lays a vital foundation for growth in the long run and economic modernization.

The past few years saw a renewed switch of FDI flow toward higher value-added industries, for instances manufacturing computers, electronic and optical products (which hit a notable boost in scale, from 2.8% in 2016 to 5.8% in 2017), manufacturing services (increasing from 1% in 2016 to 47% in 2017, notable projects including thermal power plants of Nghi Son 2, Van Phong 1, Nam Dinh 1, and Block B - O Mon gas pipeline in Kien Giang); reduction of inward investments for labor-intensive industries (declined to 4.2% of businesses in 2017, 1% less than that in 2016; and these industries were no longer in the top 3 receivers of FDI). The proportion of FDI projects in 4/6 prioritized sectors (high technology, information and communication technology (ICT), manufacturing, processing, supporting industries and agriculture) has increased against the 2006 - 2011 period.

4. Mainstay of export, trade deficit reduction and support for the balance of payments

Inward investment helped restructure export products and step by step pave the way for Vietnam to enter the global production networks and value chains.

Contemporary FDI enterprises are wealthy contributors to Vietnam's export growth. Export turnover growth of FDI sector is 2-3 times higher than that of the domestic sector, while export turnover is about 1.5-2 folds higher. As such, FDI sector's share in the total export turnover increased from 17.0% in 1995 to 72.5% in 2017.

In 2010, FDI enterprises had a trade surplus of nearly US \$ 2.2 billion, while domestic enterprises suffered a trade deficit of nearly US \$ 14.8 billion, resulting in a net trade deficit of US \$ 12.6 billion. Nevertheless, FDI's trade surplus increased to around US \$ 17 billion in 2014 and reached about US \$ 24.7 billion in 2017. The first eight months of 2019 alone recorded FDI trade surplus of about US \$ 21 billion, resulting in a net trade surplus of about US \$ 2-3 billion. The trade surplus given by the FDI sector has significantly improved Vietnam's trade balance and contributed to macroeconomic stability.

5. Significantly contributing to the state budget revenue

The state budget inflow (exclusive of personal income taxes and other fees) from FDI enterprises has well swollen over time. Between 2000 and 2017, the amount of tax paid by FDI enterprises increased by nearly 3 times, from over VND 59,030 billion to VND 172,028 billion. As regard to the proportion in total corporate income tax payment and other indicators, such as the share in total social investment, FDI enterprises are deemed more tax-efficient than domestic enterprises, even State-owned enterprises.

III. CONTEMPORARY INADEQUACIES AND SHORTCOMINGS OF FOREIGN DIRECT INVESTMENT

Though recent contributions of the FDI sector to the socio-economic development are undeniable, its inadequacies and shortcomings are not less worth concern. Particularly:

1. Loose connection between FDI and the domestic sector and scanty effect of the productivity boost

1. The connection between FDI and domestic enterprises, though exists, remains loose, which poses the biggest predicament for inbound capital to be drawn and used. FDI projects mainly focus on labor-intensive, medium-tech industries such as processing (textile, footwear, wood processing), assembly (electronics, cars, automobiles, motorcycles, etc.) and some food processing industries. A majority of spare parts, raw materials and associated services (product design, financial management, etc.) for production are imported, rather than supplied by domestic enterprises. This years-long situation, on the one hand, shows how Vietnam's supporting industries are underdeveloped and, on the other hand, points out the weak link between FDI and the domestic sector.

2. Statistics reveal that only about 5% of FDI enterprises apply modern and high technology. Machineries, equipment and production lines adopted by FDI enterprises, while not being so superior to the ones used by domestic companies, are mostly of average or medium-advanced standard regionally. Technology refresh and investment in research and development are rare, as most of enterprises prefer acquisition over technological development and innovation. The call upon FDI

transnational corporations to pour funds in priority sectors and fields makes scanty results. The policy on drawing FDI from transnational corporations into high technologies and modern services runs under par and makes sluggish progress. By far there are just more than 100 transnational corporations out of the world's top 500 transnational corporations operating in Vietnam.

Vietnam joined the Global Value Chains (GVCs) through foreign-invested enterprises; still, FDI has yet to reach a common voice with domestic private enterprises. Vietnam is still on the way toward the final assembly stage and needs a great deal of GVC workforce. A lot of Vietnam's high-value exports are of high imported content and low locally added value. Therefore the net economic contribution of FDI companies is not all it is cracked up to be. This also indicates the modest presence of domestic SMEs in GVCs, which is typically realized by becoming suppliers to FDI enterprises. The current supply associations are inclined to low value-added products like simple supplies and packaging. Basically, most domestic SMEs are indirectly integrated into GVCs (rather than being the direct exporters) and produce minor (peripheral) components of the upstream value chain or engaged in downstream assembly. This is revealed in Vietnam's rankings of local suppliers in the Global Competitiveness Index, where Vietnam ranks 109 out of 138 economies, behind the Philippines (74), Thailand (77) and Malaysia (22).

2. Attraction and transfer of technologies from the FDI sector not effective as expected

Taking FDI's roles and potentials into account, the magnitude of technology transfer in FDI enterprises in the past 30 years is lower than it should be. Foreign-invested companies are, by and large, appraised to adopt more modern machineries, equipment and production lines, but of no overwhelming superiority compared to domestic enterprises. There is a rare number of FDI enterprises with high technological competency. Only 5% of FDI enterprises own high technologies, 80% have average technologies, while the remaining 14% use low technologies. Most of machineries, equipment and production lines are of average level or advanced average level regionally. This greatly hampered the possibility of transfer and spread of technologies of FDI enterprises.

Due to the unsatisfactory technological spread, only a few enterprises can benefit such spread, depending on the technological gap and production association between FDI and domestic enterprises. Furthermore, technological advancement is realized mainly through mutual sharing among domestic enterprises, rather than learning from FDI enterprises. Acquisition and development of technologies are mainly performed by large and medium-sized Vietnamese enterprises. This supports an argument that facilitating some leading enterprises to reach a technology-related connection with FDI is critical for spirit up the spread of technologies. Promotion of technology transfer in the FDI sector should focus on these businesses because only they can receive technologies from the FDI sector.

The rate of FDI enterprise technology transfer is quite low (less than 10%) and has not been evidently improved, while intra-industry technology transfer is relatively poor. Statistics of the Ministry of Science and Technology pointed out that the number of registered technology transfer contracts of FDI enterprises as counted from 2007 was 336 contracts (this figure may be higher, because the current regulations do not require enterprises to register their technology transfer

contracts). In 2017 only, Samsung registered 2 technology transfer contracts with a total value of up to USD 14,195 billion, equivalent to VND 323 trillion. Such figure number of technology transfer contracts, against the current size of FDI and the number of active FDI projects, is still scanty.

The main reason for stagnated technology transfer is that the majority of domestic enterprises are deficiently competent and sluggish in technology refresh. In fact, there is a big gap between FDI sector and domestic sector when it comes to technology reinforcement, particularly, the proportion of FDI enterprises directly procuring technologies is still in upward trend and the rate of self-technological self-development dropped from 5% in 2011 to less than 1% in 2016. Meanwhile, the rate of technological self-development remained unchanged in private enterprises (about 5-6%) and experienced an upward trend at SOEs. The rate of technology acquisition by SOEs decreased.

Technology transfer in Vietnam is generally done by capital contribution, procurement of machinery and equipment, training Vietnamese workers and engineers in operation, maintenance and repair. This is more exactly like a movement of technology from the parent company (abroad) and its subsidiary (in Vietnam), not triggering any change in the qualifications, competency, technology innovation and creation. Moreover, the transfer of these technologies is mainly offered and implemented by the foreign investors subject to market demands, not under the research and proposal of Vietnamese enterprises. This leads to the poor effect of technology transfer and even to a point where outdated technologies that potentially pollutes the environment are transferred.

It was statistically found by the Ministry of Science and Technology that as of 2017, most of technology transfer contracts registered with the science and technology administration focused on technological process transfer (73%), technical support (77%), training (71%), while technology transfer was paid the last and least attention (13%).

3. Short flow of FDI into some prioritized sectors and fields and from transnational corporations

a. Vietnam has focused on investment promotion, applied a variety of policies to direct FDI flow into a number of sectors, fields and localities in order to improve the economic structure of some industries, but outcomes turned out under par. Agriculture stayed far from appealing inward investment, as it accounted for just over 2% of the total number of projects and more than 1% of the total registered capital by the end of 2017. Most new FDI projects are rounded up in those localities with advantageous traditional material areas and favorable soil and climate conditions for development of raw materials that serve processing plants. On average, each agricultural FDI project has a very small capital scale compared to other projects (USD 6.9 million/project against USD 15 million/project). The objective to draw FDI into post-harvest processing, preservation, cultivation, husbandry and aquaculture has not been achieved, even though Vietnam has natural wealth for these industries.

FDI projects for infrastructure development (roads, railways, inland waterways, aviation, etc.) are rare although the country is now of high demand for these.

FDI enterprises rarely pour their money in research and development. Most world-class TNCs in information technology and investment media have not set up their research and development centers in Vietnam.

Concerning service sector, the share of FDI capital in large-scale real estate projects is still high. FDI flowing into intermediary services, high value-added services, education and training, medicine, health care, environment, and the like, still account for a low proportion of the total committed and realized FDI.

b. Since 2007, the partnership-based investment has experienced big structural advancement. As regard to attracting FDI from Europe, Vietnam does a better job compared to Thailand, Philippines and Indonesia, just behind Malaysia. Similarly, FDI from the United States to Vietnam was higher than Thailand and Indonesia, lower than Philippines and Malaysia. Nonetheless, Asia accounts for 71%, Europe and North America 16% of the total registered FDI capital. South Korea, Japan, Singapore and Taiwan account for 21% of total investment capital from Asian countries.

Vietnam headed for attracting FDI from transnational corporations (TNCs) into high technology and modern services, but the goal has failed and this situation dragged on with rare improvements. By far there are only over 100 TNCs out of the world's top 500 TNCs that operate in Vietnam.

4. Some FDI projects lacking assurance of environmental sustainability and efficiency of land use

Parallel to the upsurge of FDI flows is the risk coming from some FDI projects that are environmentally unfriendly and consume energy, resources and human resources to be moved into Vietnam. Some FDI projects inside and outside industrial zones and export processing zones have not strictly complied with the legal provisions on environmental protection. Quite a few FDI enterprises have imported obsolete and polluting machines and equipment into Vietnam, which, while not yet being detected, resulted in environmental consequences in some locations, far-reaching impacts on human health and the regional ecosystem, caused conflicts of interest among manufacturing, processing agricultural products, tourism, as well as between FDI enterprises and the local communities. A series of FDI-caused massive environmental disasters have been recently detected and threatened unpredictable social and economic losses. For instance, Vedan discharged untreated wastewater into Thi Vai River (2008), Hyundai-Vinashin Joint Venture used NIX waste particles that have been prohibited by many countries from shipbuilding technology for many years (2007). The most recent environmental upset was attributed to Fomosa – the company discharged toxic substance that poisoned and caused mass death of fish, severely impacting the Central Coastal ecosystem (2016). Such disasters partly evidence the fact that Vietnam is making home to FDI projects that intentionally destroy the environment.

Many FDI projects has low land use efficiency, which is reflected by the scanty investment capital per ha of land. Competent authorities pay short attention to examination, inspection and supervision. Many localities make no urge upon the recovery of unused land or revocation of investment registration certificates for those non-conforming projects, leading to waste of land resources and public pressing.

5. FDI enterprises committing acts of transfer pricing

Statistics spotted FDI enterprises as suffering the highest loss rate among types of enterprises operating in Vietnam, their loss rate hitting up to 51.2% (in 2008) or 49.9% (in 2009). To deal with this problem, several actions have been taken so as to control transfer pricing, for example,

inspection of unprofitable enterprises. Such measures have made initial effect, leading to a fall in the rate of unprofitable FDI enterprises to 44.3% in 2010 and 45.1% in 2011. The figure, however, bounced back to reach about 48.0%. Ho Chi Minh City is favorable for production and business but the percentage of FDI enterprises suffering losses is up to 50%; even 60%. Many enterprises suffer losses for 3 consecutive years, some even for decades. This situation is repeated in Binh Duong, Dong Nai, Lam Dong, Bac Ninh and Hai Duong. Tax Inspectorate has embarked in inspection to work out the puzzle.

Some businesses mis-accounted the value of imported machinery and equipment as capital contribution; value of fixed assets; value of associated transactions through service provision, management fees, royalty fees, technical support fees, lending expense, guarantees, payroll, training, advertising, sales, etc. However, they are sluggish to be inspected and supervised for proper remedies. This leads to the risk of state budget loss, increases trade deficit and influences the business and investment environment.

Some foreign investors in joint-ventures and limited liability companies with two or more members have acquired the enterprise ownership through governance holding or qualifying holding, in attempt to mask up their real profits and fake losses, charter capital losses, thereby forcing “Vietnamese partners” to transfer their share and transform the enterprises into a 100% foreign-owned. This cooled off the effects of policies encouraging Vietnamese enterprises to enter into joint ventures and partnerships with foreign investors.

IV. OPPORTUNITIES AND CHALLENGES

1. Opportunities

The nation’s total development investment capital is estimated to reach 34% of GDP this whole year, 33.5% for 3 years (2016 - 2018) (5-year target of 32-34%). The proportion of state investment decreased. The proportion of non-state investment increased, particularly private investment was estimated at 42.4% for this year, 40.8% for average of 3 years from 2016 to 2018, higher than the period of 2011-2015 (38.3%). Realized FDI was estimated at the ever-time peak of US \$ 18 billion for the whole year. It can be said that Vietnam has generous scope to realize the goal of attracting FDI:

Firstly, recent years have seen a new trend of FDI into Asia - capital flight from China (currently topping the world in attracting FDI) to other countries, while Vietnam is among countries regionally appreciated as the choice of many transnational corporations. Against the current context when the trade war between China and the US has crossed the borders of both two nations and shaken the global economy, Vietnam is no exception to being loomed over. On the bright side, Vietnam is one of the world’s top 5 countries to whom the US has the largest trade deficit with more than US \$ 38 billion in 2017. China-origin goods that are subject to the US’s import tax are of Vietnam’s forte. As such, this should be a good opportunity for Vietnam to gain market share. On the other hand, when the USD appreciates, the falling Yuan will benefit Vietnam’s exports in the short term, as VND is typically pegged to USD. Moreover, inward investments to Vietnam may swell when the FDI inflows to those countries subject to the US’s high taxes slack off.

Secondly, a UNCTAD report published on June 24, 2015 said that 14.5 billion USD of FDI realized in 2015 into Vietnam accounted for just over 1% of global FDI, indicating a spacious scope to draw more FDI. In the next period, this scope will open doors for Vietnam to fetch more sources of FDI.

Thirdly, Vietnam has just entered into new free trade agreements. Accordingly, the country will remove tariff barriers, facilitate two-way trade between Vietnam and other developed economies like the US, Germany, England, France, etc. This is a good chance to pull FDI from other countries into our home. The participation in free trade agreements such as Vietnam - EU (EVFTA), will facilitate the operation of businesses from both sides, boosting FDI flows from EU members to Vietnam. In addition, Vietnam as the official host of APEC 2017 will have a great opportunity to call upon investments from the attending countries.

Fourthly, the participation in significant regional and world economic associations, along with commitments made in 2020, has greatly expanded our economic space to ASEAN, ASENAN +6, and so on. This facilitates the expansion of investment cooperation between Vietnam and regional countries.

Fifthly, the contemporary attention of Vietnamese Government to investment environment and competitiveness has become a magnet for investors. Vietnam's investment environment has improved obviously since mid-2014. In the current context, political stability and social security become our prominent advantages against the regional and global instability, coups, anti-government protests, terrorism, religious conflicts, ethnic conflicts in many countries. Despite the relatively stable macro-economy, our government still pays attention to inflation and social security, poverty reduction, which depicts a positive image of the Government in the eyes of investors to Vietnam. It is worth mentioning the change in administrative procedures from 2014, and particularly, the Law on Investment 2014 which paves the way for foreign investors.

Vietnam's investment environment has somewhat gained a good currency among foreign investors. According to the Korea International Trade Association (KITA), 49% of nearly 540 Korean enterprises taking part in the survey on investment environment in 32 countries affirmed a business development plan in Vietnam in 2015 and the following years. This is a good sign for Vietnam's economy.

The above said factors have created certain opportunities and advantages for Vietnam's economy to mobilize FDI toward higher quality and socio-economic efficiency, step by step accomplishing the goal of a "green economy" and creating a better and better material and spiritual life for the society.

2. Challenges

Firstly, although Vietnam's investment environment and competitiveness has improved, the country has yet to satisfy the needs of international investors. Inward flows of fund go on while many enterprises complain quite a few problems of the investment environment, such as cumbersome administrative procedures, poor infrastructure and supporting industries, and growing inflation. Law on Investment 2014 made significant changes, but it puzzled investors and made them less assured of their business investment. These problems have been addressed by foreign investors for many years as well as at domestic and foreign investment conferences.

The ability to improve Vietnam's economic competitiveness in general and Vietnam's investment environment in particular poses a big challenge for FDI attraction, as it will affect the quantity and quality of FDI capital. Enhancing competitiveness depends heavily on the implementation of measures to boost the attraction, efficient use and management of this capital source in the coming time, as specified in Resolution 103/NQ-CP (August 29, 2013) of the Government.

Secondly, FDI flows to Vietnam are not sustainable because they depend heavily on a few large-scale projects. Recent years have seen the annual FDI capital based on a number of billion-dollar projects, such as Samsung's projects, LG Display. These are massive projects that can bring about plentiful benefits to the localities. However, if they are not licensed or capital flight happens, the local community will greatly suffer.

Thirdly, "Vietnam is fading out from being a tempting FDI destination, compared to neighboring countries like Thailand and Indonesia, due to the fading advantages in labor, natural resources and incentives." In particular, the recent emergence of India may also pose big challenges for Vietnam in attracting FDI.

Fourthly, Vietnam has to elect more quality investment projects inclined to high technology, high added value and less environmental pollution, making it more difficult to draw FDI capital. . Furthermore, Vietnam's inadequate infrastructure and under-improved administrative procedures make it less attractive in the eyes of investors.

Fifthly, against the backdrop of the industrial revolution 4.0, technology plays an extremely important role in economic development as well as attracting inbound capital. Nevertheless, Vietnam is struggling with the industrial modernization progress. That is why the country must go a long way to draw FDI and has not achieved as it should have.

V. RECOMMENDED SOLUTIONS

1. Completing the institutions and favorable business investment environment to attract and effectively use FDI

a. Ensuring the consistency in macroeconomic policies, managing flexibly and tightly financial, monetary and other policies, ensuring the macroeconomic stability, controlling inflation, interest rates and exchange rate, ensuring major balances of the economy to bolster the confidence of FDI investors so that they would invest in large and long-term projects in Vietnam, at the same time effectively managing FDI inflows and capital flights from Vietnam.

b. Further improving the market economy institutions, administrative reform, especially administrative procedures, ensuring a favorable, open, transparent, safe, stable and competitive business investment environment in comparison with regional countries.

c. Completing the investment incentive policies towards focused and key areas and sectors for each period. Incentive policies must be associated with the contribution of enterprises, conform to the objectives and development orientations of the national socio-economic development, concretized into criteria by size, fields, industries, lines of business, products, scopes, social responsibilities.

2. Developing a powerful FDI evaluation tool in order to improve the quality of state management of investment activities

Formulating tools (indicators and metrics) to serve investment promotion, granting investment registration certificates, granting investment incentives; at the same time, to evaluate and measure the effect of FDI attraction and utilization, as well as the effectiveness of state management by relevant ministries and branches and localities. In principle, the only index will be the weight-average of the said component indicators. Weights are taken based on the objectives of attracting FDI capital in each period and depending on the local conditions.

a. Investment approval criteria for a number of sectors and fields

Promulgating regulations on investment unit cost/land use area for a number of land-intensive projects: urban areas, golf courses, racecourses ..., projects in industrial zones, export processing zones, High-tech Zones; using labor/investment capital indicators to identify a labor-intensive project.

b. Criteria for evaluating the efficiency of FDI attraction and utilization in localities

Economic efficiency: Realized capital/registered capital; registered or realized FDI capital/annual investment promotion cost; Proportion of on-going projects/total on-going projects in the locality; Proportion of re-investment and expansion investment projects; Percentage of FDI projects in high value-added sectors and business lines; Proportion of green projects.

c. Criteria for evaluating FDI performance

The boost to GDP increase generated by FDI sector; Value added of export goods/investment capital of the FDI sector; Import/export ratio of FDI sector; Proportion of exports of FDI sector; Proportion of enterprises using local inputs; Average labor productivity of FDI sector (added value/total labor); Total expenditure for environmental treatment of FDI sector/total revenue.

3. Operating effectively all types of markets and open markets to draw FDI

Fully formulating and ensuring the effective operation of all types of markets, especially markets directly related to FDI such as finance, land, labor and technology.

Reinforcing market liberalization of production factors. Restricting the issuance of non-market-driven decisions on access to land, capital and market entry opportunities.

Removing barriers to market entry for foreign investors in sectors and field which Vietnam no longer needs protection. Creating equal opportunities for FDI investors to buy appropriate shares and to be strategic partners of state-owned enterprises under the scheme of SOEs restructuring in order to improve the business efficiency.

4. Developing high quality infrastructure

Completing the system of policies and laws on infrastructure development investment in order to further draw investment in high-quality infrastructure systems, such as: convenient transportation infrastructure, electricity, water, logistics, etc., to reduce transportation costs, input costs of enterprises, thereby improving the economic competitiveness.

Synchronously planning the investment in industrialization and urbanization development (industrial zones and attached urban areas and dwellings). Determining specific responsibilities

of the state and investors for sustainable development of industrialization and urbanization. Stipulating the mandatory responsibilities of industrial zone infrastructure investors to assure that attached social housing infrastructure and other social infrastructure occupy at least 20% of the land area for the industrial zones in conformity with the planning.

5. Developing high-quality human resources to reposition Vietnam's competitive advantage in FDI attraction

Elaborating a competitive labor market development strategy with a skilled workforce adaptable to the context of Industrial Revolution 4.0 and global integration.

Improving the labor institutions in accordance with international practices, ensuring the realization of new generation free trade agreements and enforcing labor standards; particularly, commitments on allowing the incorporation of labors' organizations not under the Vietnam General Confederation of Labor in accordance with the roadmap in the CPTPP. Encouraging to attract FDI by high quality human resources.

6. Attracting and using FDI in association with efficient exploitation and use of natural resources and environmental protection

- Researching and amending the Land Law to attract FDI for large-scale agricultural development, applying science and technologies to production in order to use land effectively.

- Promulgating criteria, standards and codes on exploitation and use of natural resources and environment protection in attracting and using FDI, not drawing FDI at all costs; not drawing projects that are likely to destroy natural resources and the environment.

- Completing the procedures for inspection, supervision, appraisal and auditing in order to prevent foreign investors from contributing capital by outdated production lines, equipment and supplies, avoiding the risk of Vietnam becoming a 'technology dump'.

7. Encouraging, promoting and supporting joint ventures, association, and technology transfer between domestic and FDI enterprises

a, Improving the competency of domestic enterprises to strengthen the association with FDI sector

Developing a strong domestic business sector that is capable of global integration, utmost supporting start-ups, innovation enterprises, small and medium-sized enterprises to enter into joint ventures and association with the FDI sector, focusing on high technology, new and advanced technologies, modern services, manufacturing industry, information technology and financial services.

Promulgating mechanisms and policies to promote and assist domestic enterprises to enter into joint ventures and associate through capital contribution, acquisition of shares and capital contributions of FDI enterprises in those sectors and fields using high technology, new and advanced technologies, step by step owning and mastering the technologies.

Developing policies to improve the competency of supporting businesses, attracting investment into this field by providing financial support, training, human resource development and subsidy in research and production projects for supporting industrial products.

b, For FDI enterprises

Encouraging FDI enterprises to enter into joint ventures and association, facilitating domestic enterprises to participate in the global production networks and value chains; developing supporting industries and increasing the localization rate through domestic suppliers; transferring technologies and modern management skills to domestic enterprises through joint venture and association projects in a number of important sectors and fields of the economy.

VI. CONCLUSION

More than 30 years of FDI's presence in Vietnam have proven the enormous role of FDI flows in economic development. Nevertheless, to further improve the efficiency in all aspects of socio-economic life, early actions and prevention of FDI's negative sides is momentous, especially in the context of a wide-ranging integration into the world economy.

REFERENCES

1. CIEM (2019), "Macroeconomic Report First Quarter/2019", Central Institute for Economic Management, Ministry of Planning and Investment;
2. Le Thi Khanh Ly, Nguyen Thi Thuy (2018), "Some solutions to reinforce FDI attraction in the context of Industrial Revolution 4.0", Journal of Economics and Forecasting, March 7, 2018 (683) ;
3. Le Van Hung (2017), "FDI and growth of labor productivity in Vietnam - Implications for FDI flows from the EU", Vietnam Academy of Social Sciences;
4. Ministry of Planning and Investment, Data on FDI attraction in years from 1988 to 2018;
5. Ministry of Planning and Investment (2018), Proceedings of the Conference on 30-year of Foreign Direct Investment in Vietnam;
6. Ministry of Politics (2019), Resolution No. 50-NQ/TW on "Orientations for improvement of institutions, policies, quality and effectiveness of foreign investment cooperation till 2030".
7. National Assembly (2014), Law on Investment 2014;
8. Nguyen Bich Ngoc (2017), "Spreading effects of FDI over exports of manufacturing and processing in Vietnam", Economics Doctoral thesis, National Economics University;
9. Nguyen Mai (2018), "Ways to expand the spreading effects of FDI over domestic enterprises", Journal of Economics and Forecasting, Vol. 4 + 5 February 2018.

IMPROVING THE CROWDFUNDING CHANNEL IN VIETNAM

Nguyen Thi Thuy Dung¹, Pham Ngoc Hai², Chu Kieu Linh³, Hoa Ngoc Minh⁴

ABSTRACT

Crowdfunding channel using crowdfunding platforms to offer project founders opportunities to present their ideas and collect money from a lot of investors through the internet instead of bank loans. This channel of funding capital has seen many successful cases recently all around the world. The question of this research is about the efficiency of this funding channel in Vietnam which will be examined through data collected from most well-known crowdfunding platforms in the world about Vietnam. Besides, this research also explores the disadvantages of this channel in the context of Vietnam and proposes some suggestions to improve this funding channel for Vietnam especially.

Keywords: *Crowdfunding, disadvantages of crowdfunding.*

1. INTRODUCTION

Crowdfunding is growing exponentially around the world, offering exciting opportunities for both businesses and investors. Crowdfunding is still a relatively novel concept in Viet Nam, it has only reached the country in the last few years. However, it is certainly a growing trend which is getting both business people and investors really excited about its possibilities. However, the Vietnamese market, with the economic and cultural characteristics of a developing country, there are many inappropriate points to develop this market. The article explores the size and development of this market in Vietnam through statistics from reputable sources to see the market's development scale. The article also analyzes the important shortcomings that make the development of this market in Vietnam particularly difficult due to weaknesses in related fields, such as protection of intellectual property, audit quality and network security. Since then the article has given some solution to contribute to addressing these shortcomings, contributing to creating a balanced and effective operating environment for this market base to promote its strengths. The research problems are the weaknesses of crowdfunding in Vietnam Market. The object of the article is crowdfunding. The applied research methodology is based on the positivism approach. The research methods applied in the article are systematic literature review, comparison, subjective assessment.

¹ University of Transport and Communications, 3 Cau Giay, Ngoc Khanh, Dong Da, Hanoi, Vietnam.

² University of Transport and Communications, 3 Cau Giay, Ngoc Khanh, Dong Da, Hanoi, Vietnam.

³ University of Transport and Communications, 3 Cau Giay, Ngoc Khanh, Dong Da, Hanoi, Vietnam.

⁴ University of Transport and Communications, 3 Cau Giay, Ngoc Khanh, Dong Da, Hanoi, Vietnam.

2. LITERATURE REVIEW

Goran Calic (2018) presented that Crowdfunding (CF) is the practice of funding a project or venture by raising small amounts of money from a large number of people, typically via the Internet. Sigar, K., (2012) stated CF as a capital formation strategy that raises small amounts of funds from a large group of people through online means. Cambridge Judge Business School (2015) presented that the modern crowdfunding model is generally based on three types of actors: the project initiator who proposes the idea or project to be funded, individuals or groups who support the idea, and a moderating organization (the “platform”) that brings the parties together to launch the idea.

Loreta Valanciene, Sima Jegeleviciute (2013) outlined some strengths and weaknesses of this model. Some strong points are: entrepreneurs keep the right to make company’s decisions themselves, accessibility of capital, a chance to test the marketability, benefits for communities through both local and global means and some weak points are: administrative and accounting challenges, only internet-based, lack of advice, ideas and business models presented public can easily be stolen, weaker investor protection and potential for fraud, current legal restrictions are not suitable for equity crowdfunding and the risky nature of small businesses

Blechter et al. (2011), Sigar (2012) and Kitchens & Torrence (2012) suggested that despite its advantages, crowdfunding is a novelty and emerging very fast, exploring the elements it could exploit to its advantage could enhance the importance of crowdfunding and fasten its development.

Gobble (2012) paid attention to the fact, that getting financing through crowdfunding is easier, in comparison to venture capital. Entrepreneurs might misjudge by choosing an easier way, despite venture capitalists offer help - mentorship, advice, useful contacts - in addition to money. Sometimes such help can be crucial for a small company to succeed.

3. RESULTS AND DISCUSSION

3.1. Overview on crowdfunding platforms in the world and in Vietnam

Crowdfunding can be a game-changer for micro SMEs wanting to raise money and their profile. With the right strategy and approach, it can successfully launch a new product or idea and even secures the future of a business through the long-term relationships it helps create. However, as with anything there are risks attached to it. If these are left unmanaged, not only can a business be left without the funds it sought but it could also end up in a worse position than when it set out. The research focus on the most strategic disadvantages of this funding model in Vietnam market, the reasons made them become serious and propose some recommendations for related parties to better this funding method.

According to the data base collected from Statista Organization through its web site relating to the crowdfunding platforms all over the world, as shown in Figure 1 to Figure 8, it seems that this funding platform has helped the businesses a lot through these years all over the world while that scale in Vietnam is very small.

a/ Overview on crowdfunding all over the world

Transaction value in the Crowdfunding segment amounts to US\$6,923.6m in 2019.

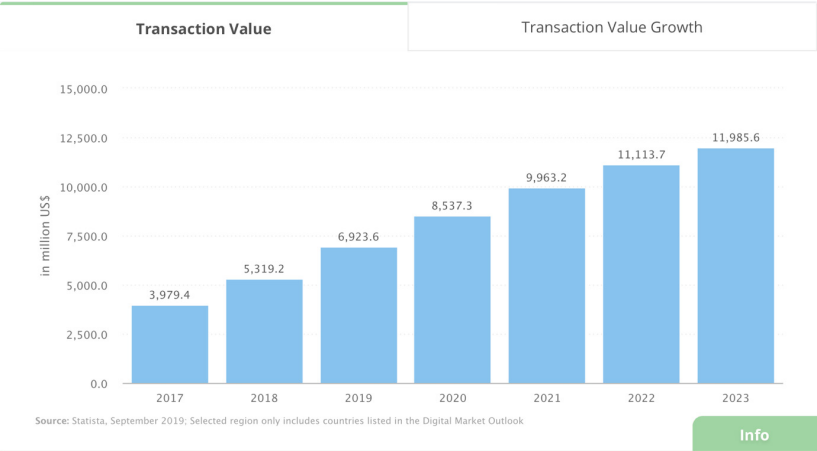
Transaction value is expected to show an annual growth rate (CAGR 2019-2023) of 14.7%

resulting in the total amount of US\$11,985.6m by 2023.

The average funding per campaign in the Crowdfunding segment amounts to US\$794 in 2019.

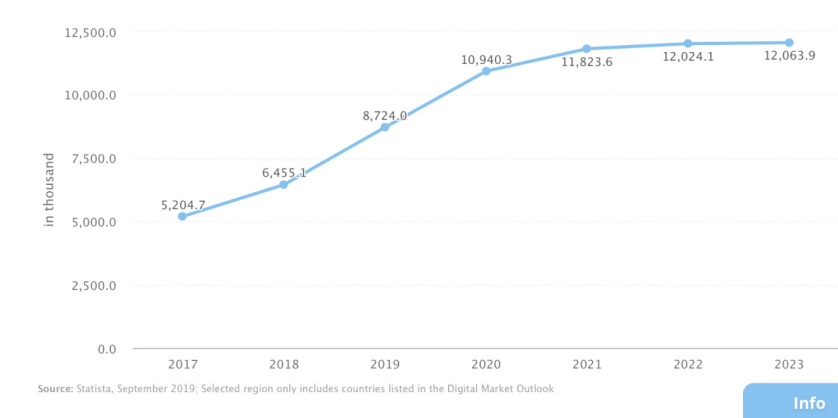
From a global comparison perspective, it is shown that the highest transaction value is reached in China (US\$5,576m in 2019).

Figure 1. Total Transaction Value worldwide



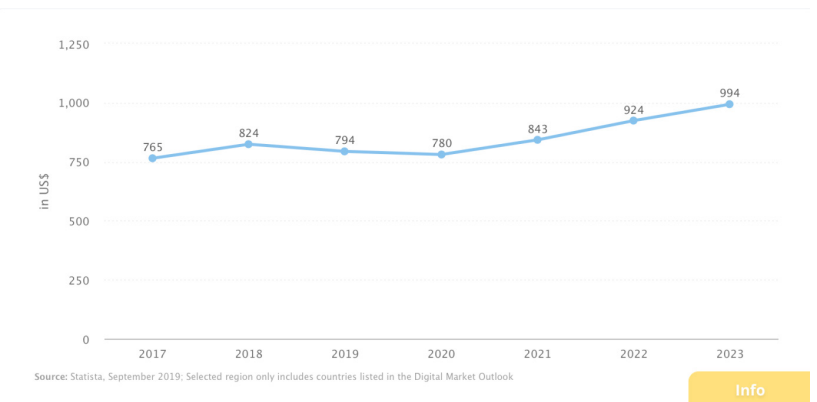
Total Transaction Value in the Crowdfunding segment amounts to US\$6,923.6m in 2019 (until September, 2019).

Figure 2. Number of funding campaigns worldwide



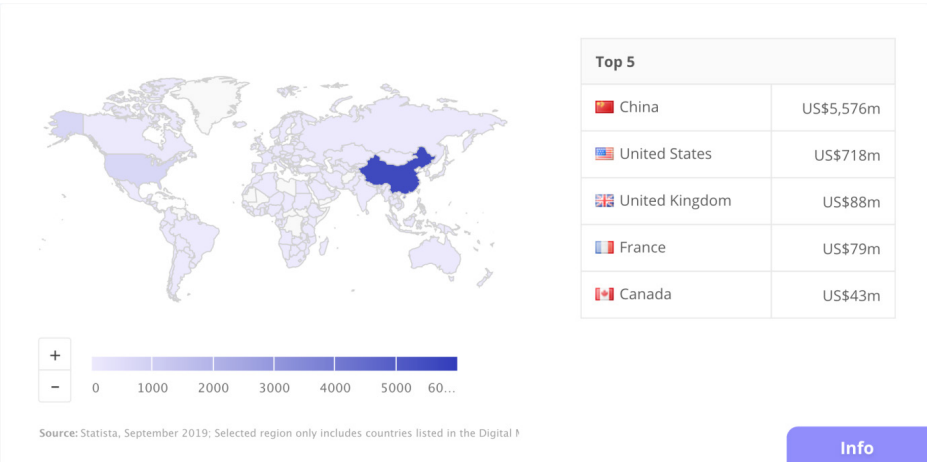
In the Crowdfunding segment, the number of funding campaigns is expected to amount to 12,063.9 thousand by 2023.

Figure 3. Average funding per campaign worldwide



The average funding per campaign in the Crowdfunding segment amounts to US\$794 in 2019.

Figure 4. Rank value worldwide



With a total transaction value of US\$5,576m in 2019, the highest value worldwide is reached in China.

b/ Overview on crowdfunding in Vietnam

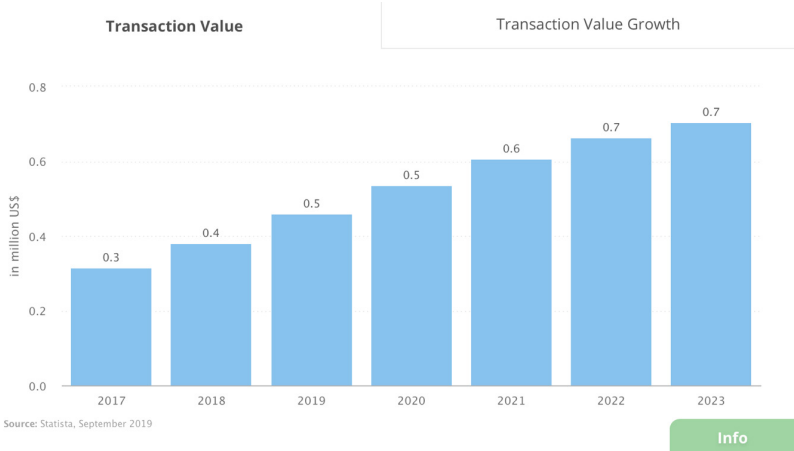
Transaction value in the Crowdfunding segment amounts to US\$0.5m in 2019. Transaction value is expected to show an annual growth rate (CAGR 2019-2023) of 11.4% resulting in the total amount of US\$0.7m by 2023.

The average funding per campaign in the Crowdfunding segment amounts to US\$2,074 in 2019.

In the Crowdfunding segment, the number of funding campaigns is expected to amount to 0.2 thousand by 2023.

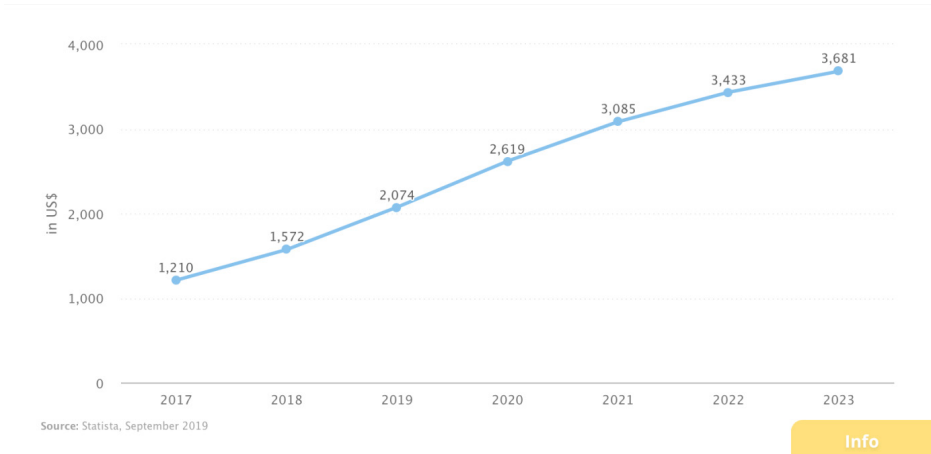
From a global comparison perspective, it is shown that Vietnam has raised a very small amount of capital through crowdfunding channel

Figure 5. Total Transaction Value in Viet Nam



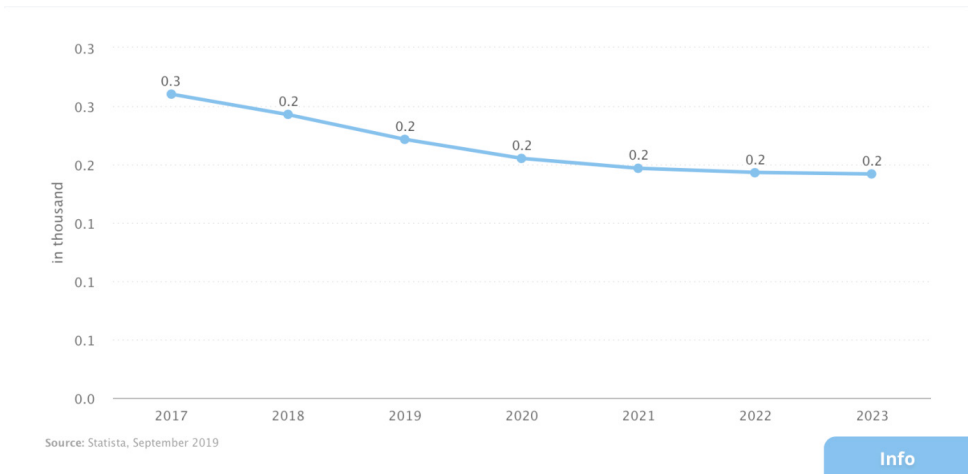
Transaction value in the Crowdfunding segment amounts to US\$0.5m in 2019. Transaction value is expected to show an annual growth rate (CAGR 2019-2023) of 11.4% resulting in the total amount of US\$0.7m by 2023.

Figure 6. Number of funding campaigns in Viet Nam



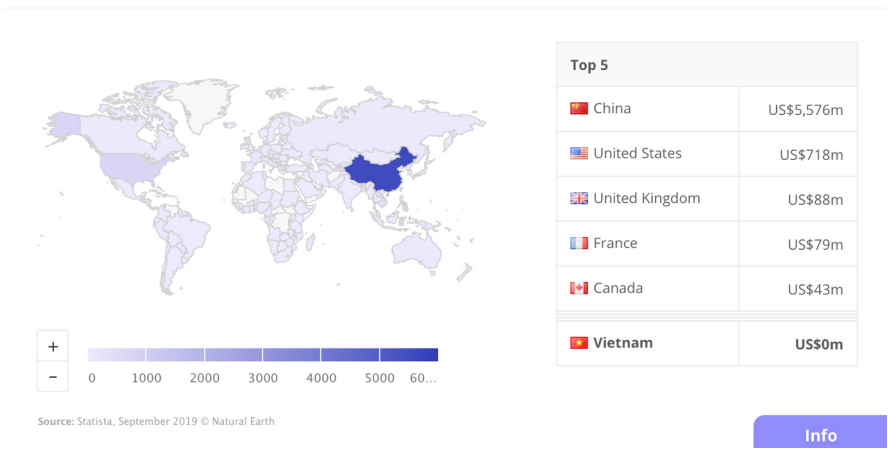
The average funding per campaign in the Crowdfunding segment amounts to US\$2,074 in 2019.

Figure 7. Average funding per campaign in Viet Nam



In the Crowdfunding segment, the number of funding campaigns is expected to amount to 0.2 thousand by 2023.

Figure 8. Rank value in Viet Nam



From a global comparison perspective, it is shown that Vietnam has raised a very small amount of capital through crowdfunding channel.

3.2. Disadvantages of crowdfunding in Vietnam

Many researches have worked on this type of funding channel and discovered many related risks. This research shed lights on the most challenging issues of this platform especially in Vietnam financial market.

3.2.1 Publicized ideas and business models are stolen

In crowdfunding platforms, business ideas are presented online to everyone who has access to the internet, meaning that the idea owners give access to everyone. In a society characterized by connectivity, it is no surprise that the act of stealing business ideas occurs, both accidentally and intentionally.

Popular safeguards a project initiator can put in place include trademarks, patents, or copyrights to protect their ideas from being stolen. By using any three of these, project initiators have sufficient ways to fight against those that may be looking to steal the concept. Unfortunately, getting these things in place can be quite a long, legal process and even when the papers are released, the process of collecting reliable proof of stealing events to bring the case to the court is a really time consuming, costly and difficult.

Especially in Vietnam, the Ministry of Science and Technology’s Statistics shows that as of 2017, Vietnam has about 1,800 start-up companies. However, the number of enterprises conducting intellectual property (IP) rights is only about 2%. According to the DNES Incubation Center, there are 100 applications for the incubation program, but 97% of them have not yet applied for registration of intellectual property rights.

Intellectual Property Office of Vietnam’s statistic shows a very little amount of IPR during 2018.

Table 1: Intellectual Property Data

		Filed patent applications			Granted patents		
		By Vietnamese	By Foreigner	Total	By Vietnamese	By Foreigner	Total
1	Patent	646	5425	6071	6071	205	2014
2	Utility solution	370	187	557	290	65	355
3	Industrial design	1694	1179	2873	1277	1083	2360
4	Trademark	37476	8893	46396	14492	4070	18562
5	Geographical indication	5	1	6	9	0	0
6	Transfer of industrial property rights	310	11	321	225	14	239

According to the surveys in practice, many start-up companies in Vietnam complain that similar products of their products are available on the market from other big companies just a few months after their ideas were shared to call for capital and many students have no idea or very little knowledge on this issue. Consequently, when these students join the market after graduating,

they do not have clear comprehension on protecting themselves or the awareness of not stealing business ideas from the others.

3.2.2. Administrative and accounting complication.

Sigar (2012) showed that Entrepreneurs seeking to crowdfund their businesses should consider the administrative and accounting challenges they are going to face. When a large number of investors become shareholders, business will face even bigger administrative and accounting challenges – “this would require meticulous and laborious bookkeeping of all investments and shares in the business to determine the share of profits to which each investor is entitled to”

Kitchens & Torrence (2012) emphasized the fact that a large base of unsophisticated investors is a challenge not only to administrate but also to communicate. Even though currently crowdfunding is based on donors receiving rewards, the job of recording contributions and sending rewards is time consuming.

Besides, audited financial statements provide independent assurance that management has, in its financial statements, presented a “true and fair” view of a company’s financial performance and position. It underpins the trust and obligation of stewardship between those who manage a company and those who own it or otherwise have a need for a clear and objective view. And that list of stakeholders is wide - from the audit committee, shareholders, employees and suppliers, to customers, banks, regulatory bodies and analysts. A rigorous audit process will also, almost invariably, identify areas where management may improve their controls or processes, further adding value to the company by enhancing the quality of its business processes.

However, the accounting and auditing service market of our country has just been formed and acknowledged for a short time, the laws are not synchronized, the elements of the market are not complete. The scope of market activities is still narrow and has not been properly cared for by the society. The team of accountants and auditors with certificate following international standards is too small in quantity and limited in quality.

According to Vietnam Association of Certified Public Accountants (VACPA), there are more than 160 independent auditing firms operating across the country. With each business needing an internal auditor and with more than 600,000 businesses operating in Vietnam, the number of customers for auditing firms is too large, resulting in high audit costs. If businesses want to save money, they may receive incomplete and even erroneous audits. Currently, there are nearly 160 enterprises granted certificates of sufficient conditions to carry on business of audit services and there are nearly 11,000 employees working in auditing firms across the country but this number is still too low compared to market requirements. Vietnam has more than 90 million people, accounting for 1/6 of the population of ASEAN countries but the number of accountants and auditors with practicing certificates only accounts for about 2% of the total number of accountants and auditors currently ASEAN countries (4,000 / 196,000).

Currently, at the Ho Chi Minh Stock Exchange, only about 35% of listed companies are audited by the group of 4 leading auditing companies in the world (Big 4), while at the stock exchange Ha Noi, with this rate is only about 16%. While in general view, Big 4's results and audit process are more prestigious and many markets around the world, the rate is 60%.

When it is difficult for businesses to obtain reputable audited financial statements, it is difficult for enterprises to raise capital to prove the transparency and attractiveness of their projects from capital calling stage to the later management stages to have project development, and persuading investors based on reputable data will limit the conflicts that can be caused by too many people involved in corporate governance.

3.2.3 Internet security

There are several types of privacy and security problems that can arise as a result of a crowdfunding campaign. Since information on the internet seems to live forever, a campaign to raise funds to pay personal bills may affect a job offer many years later if the employer does an internet search. Other problems may exist as well. In an effort to connect with the audience and make them feel invested in the project, campaign owners may get carried away and share too many personal details of their lives. This information could fall into dangerous hands and compromise the safety of the campaign team and their families. Details such as home addresses, locations, photos of license plates, cell phone numbers and names of schools or other such places should never be made public online.

Similarly, for those donating money, it is vital to choose sites that are dedicated to protecting their financial and personal data from possible scammers and con artists.

There are the requisite bad seeds in every group. Though some websites have rigorous screening processes, a scammer may slip through. Others don't have this process to begin with, increasing the chances of someone who will either fail to deliver on a project or never intended to do so in the first place. This can become a major problem for those who visit crowdfunding websites to donate. For the rest of the campaign owners, it can also mean a general lack of trust around crowdfunding which can affect the whole community. Whether it is an individual, a team or a charity that asks for a donation, it is up to the donors to do their due diligence in terms of understanding where their money will go and whether they are ready to take a chance on an unknown person. The first source of information is a simple google search. For those looking to give to a cause or a campaign and for those who choose to help spread the word for one, simple steps to gather some information will help stop these scammers before they can get away with swindling innocent people.

According to the Industry statistics, around 61% of the personal computers in Vietnam are infected by malware and is among the top countries having the highest rate worldwide of personal devices infected with virus or malware. Therefore, a detailed and structured cyber security law is of utmost importance for Vietnam in current scenario. Over the years, Vietnam has been observed to grow in terms of the number of cybercrime and is on the edge of becoming a mid-tier cybercrime hub, opening opportunities for cybersecurity companies looking to tap this market.

Some of the major cybercrimes that the country witnessed during 2018 were crypto-mining malware, ransomware and others. Almost 60% of the network system of agencies and enterprises were infected with crypto mining malware during the year 2018.

3.3. The reasons leading to these disadvantages

3.3.1 Publicized ideas and business models are stolen:

Firstly, in the education system of Vietnam, the issue of intellectual property rights lacks of serious concern, leading to the shortage of awareness about IP for students.

Secondly, in the traditional market of Vietnam, the problems of stealing business ideas have happened a lot of time, many businessman get used to it and have to accept it as a risk instead of trying to stop it from happen.

Thirdly, the process of getting the IPR is complicated, costly. In terms of the general organizational structure of the intellectual property system, the model of three agencies in charge of three different areas of intellectual property rights operates in a decentralized, discrete, non-systematic manner. The system and inter-sectoral coordination mechanism are weak and not tight. Up to now, the system of legal documents is still relatively complex, consisting of many steps with different guiding documents; the uniformity and consistency in regulations among legal documents is not high; some regulations are not detailed and clear leading to many different interpretations and practices; Some regulations still lack feasibility, not really suitable to the reality of socio-economic development of Vietnam.

Regarding establishment of industrial property rights, the processing time of applications is prolonged, not guaranteed within the prescribed time limit. Regarding the protection of intellectual property rights, there are currently many agencies with administrative sanctions, with no main clue, each agency is in charge of a sector (specialized) or a scope (in the market, at place of production), the scope of authority and responsibility of the agencies is duplicated, there is no close coordination; Activities of updating and exchanging information among ministries, branches and localities have not been timely, leading to the ineffective coordination between the concerned agencies. Meanwhile, the court system is not sufficiently trained and experienced to solve quickly and effectively intellectual property cases.

Fourthly, the sanctions in case of event are not clearly formulated and not strict enough. It is a fact now in Vietnam that intellectual property infringements are largely imposed with administrative sanctions.

According to the provisions of the Law on sanctioning of administrative infringements and Decrees on sanctioning of administrative infringements in the field of industrial property and in the field of copyright and related rights, the maximum fine level for infringements for individuals is 250 million and for organizations is 500 million. According to the provisions of the 1999 Penal Code and amended in 2009, to institute criminal cases for crimes of infringing upon industrial property rights and copyrights, related rights and agencies. The function must be conducted to consider whether the violation is commercial scale. However, the documents guiding the implementation of the Criminal Code on these two crimes do not have specific instructions on how, or at what level

of commercial scale. For civil remedies, the right holder is reluctant to sue for a long procedure in Vietnam, also in accordance with the civil procedure code, the obligation to prove that belongs to the litigants, therefore, To sue the case requires the participation of lawyers and Vietnam currently does not have a specialized court on intellectual property, making it difficult for the trial process of intellectual property infringement.

From the inadequacies of the above regulations as well as from our practical experience, the enforcement of rights, the application of sanctions in the field of intellectual property is currently not effective, no deterrent.

3.3.2. Administrative and accounting complication.

Firstly, enterprises in Vietnam have traditionally used internal financial reports that do not follow international standards and do not hire independent auditors, but many businesses are still operating well based on mutual trust instead of relying on closely audited reports, therefore, they have not yet realized the importance or importance of auditing.

Secondly, auditing costs in Vietnam are still high and the enterprises are not willing to pay for a service when they do not have well knowledge about the its benefit, especially for the audit service, it is intangible property.

Thirdly, international accounting and auditing standards of the students was not understood well through the education system of Vietnam's universities, leading to a generation of startups lacking of the knowledge about the importance of standardizing the reports and papers systems

3.3.3 Internet security

Vietnam is considered as one of top worst countries in term of network security mainly due to the fact that Vietnam is a developing country and Vietnamese people have only recently accessed to computers and the internet, therefore, there is a lack of understanding of how the network operates and how hackers can attack to get their information, leading to the attitude of being quite reckless with the risks of cyber attacks.

4. SOME SUGGESTIONS TO IMPROVE THE CROWDFUNDING CHANNEL

4.1 Publicized ideas and business models are stolen:

- Universities, especially those with economic sectors, should integrate intellectual property rights into the educational program to build a knowledge base for students, which helps students be aware of the protection of their ideas and limit the act of stealing ideas without intent due to poor understanding
- The National Office of Intellectual Property should have propaganda programs to raise the general awareness of intellectual property for enterprises, especially giving detailed guidance on procedures, and shortening the time for granting Intellectual property rights for businesses
- In startup communities or investment funds dedicated to startups, those who already know the importance of IP should contribute to raising awareness for the whole community.
- Even when there is a legal IP right, the idea owners must actively protect their ideas by discreetly selecting the content related to products or services to minimize the act of copying from others

- The State must take severe sanctions against acts of intellectual property infringement.

4.2. Administrative and accounting complication.

- Project initiators should understand the importance and impact of business accounting following the international standard accounting system and spend money on independent auditors to enhance the project's reputation.
- Investors should consider the transparency of information based on how the enterprise accounts for project parameters and whether or not it hires independent auditors.
- Auditing firms may consider offering low-cost audit packages with a number of key categories for startups to assist businesses to build trust with investors.

4.3. Internet security

- The government should have national digital transformation strategy to build a digital economy and digital society. Security in the cyberspace is critical to successful digital transformation, adding that the need for a safe and secure cyberspace will drive Vietnam to create world-class products and solutions and improve the awareness of security
- Investors as well as callers should choose reputable and highly confidential platforms and consider buying their own security packages when accessing the internet.

REFERENCES

- [1] Bechter, C., Jentzsch, S., Frey, M. (2011). From wisdom of the crowd to crowdfunding. *Journal of Communication and Computer*, 8, p. 951-957
- [2] Cambridge Judge Business School (2015), "Cambridge Judge Business School: Cambridge Centre for Alternative Finance". Jbs.cam.ac.uk
- [3] Gobble, M. A. M. (2012). Everyone is a venture capitalist: the new age of crowdfunding. *Research technology management*, 4 (55).
- [4] Goran Calic (2018), "Crowdfunding", The SAGE Encyclopedia of the Internet
- [5] Kirby and Worner (2014), Crowd-funding: An Infant Industry Growing Fast, Staff Working Paper of the IOSCO Research Department Loreta Valanciene
- [6] Kitchens, R., Torrence, P. D. (2012). The JOBS Act - crowdfunding and beyond. *Economic Development Journal*, 4(11), p. 42-47.

THE EFFECTS OF CAPITAL STRUCTURE ON THE PERFORMANCE OF START-UP COMPANIES

Vu Duy Hao¹, Bui Thi Thu Loan², Dang Phuong Mai³

ABSTRACT

This paper examines the relationship between decisions of initial capital structure and start-up companies' performance using data from 268 start-ups in the period of the initial 5 years in a business cycle. Unlike the majority of current research on mature firms illustrating a negative association among leverage and performance, there is significant evidence that financial leverage affects return on assets of newly firms positively has been found. In addition, having a bank loan has a positive impact on the performance of nascent firms. This research results suggests an early relationship with financial institution such as banks should be done in case start-ups have prospective business opportunities.

Keywords: *Start-ups, capital structure, performance, crisis, financial leverage.*

1. INTRODUCTION

In the field of corporate finance, research on capital structure and the impact of capital structure on business performance has formed massive documents. However, while almost these studies were examined on the samples of mature firms such as listed firms in the stock market, large corporations or incorporations, research on the sample of new entrants to the market is extremely scarce. Nevertheless, results in samples of incumbents cannot represent start-ups because of the difference in firm characteristics relating to business cycles.

The difference in capital structure decisions between entrepreneurial start-ups and incumbents is effected by the availability of financial resources. While mature firms tend to build an optimal capital structure that maximize corporate value based on the availability of credit demand, startups could not afford the opportunity. In the early stages of a business cycle, funds mobilized from the Initial Public Offering (IPO) or issuance of stocks and bonds are not available to young entrepreneurs. In addition, serious information asymmetry due to a lack of history of operation and reputation also prevented businesses from accessing capital from outside investors. Thus, to an extent, the decision to structuring an enterprise's initial capital depends on the availability of funds from the supply side rather than from the demand side as mature businesses.

Building capital structure based on the availability of credit supply seems more difficult to new firms in developing countries. For instance, in the the context of a relatively new economy

¹ National Economics University, 207 Giai Phong, Dong Tam, Hai Ba Trung, Hanoi, Vietnam.

² Hanoi University of Industry, 298 Cau Dien, Bac Tu Liem, Hanoi, Vietnam, Email address: loanbtt@gmail.com.

³ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam.

like Vietnam where venture capital funds or government funding are not available, access to official credit is limited. Thus, the question is that if entrepreneurial start-ups have distinct finance constraints, how would it affect business performance.

This view derives from the arguments that financial shortage as well as difficulties in accessing sponsored capital is a typical barrier to entrepreneurship. And this is also considered the biggest barrier to start-ups (Pickernell et al., 2013). These barriers in turn, have an effect on choosing initial capital structure. Therefore, when financial constraints are severe, new entrants are likely to achieve better business results when access to external resources is greater.

Based on this approach, along with literature and empirical previous research on financial structure of incumbent firms, we developed hypotheses on the relationship between leverage and business performance in case of start-ups. The results have indicated that except for the emergence of financial slack in 2013-2014 which was the peak of recession in Vietnam, regardless of how these funds are assembled, they reflect the positive impact of financial leverage on performance in which they emphasize the significance of having a formal bank loan to the profitability on the assets of newly established firms.

These findings enrich the understanding of capital structure which was limited to the area of newly established businesses by different characteristics in the early stages compared to long-standing businesses. In addition, confirming the role of outside financial resources as well as the financial relation to a bank at a startup period has great significance to new entrants.

The following include (2) Literature review, theoretical background and methodology; (3) Results and (4) Conclusion.

2. LITERATURE REVIEW, THEORETICAL BACKGROUND AND METHODOLOGY

2.1. Literature review

Capital structure decision is one of the key decisions in corporate finance as there's great relevance to the different aspects of business performance. Accordingly, the notable theoretical principles of financing options as well as the impact of these decisions on business outcomes can generally be interpreted or explained based on either trade-off theory or pecking order theory. These are two predominant in competitive theories.

According to the trade-off theory, taxes, bankrupt and agency costs are considered simultaneously combined in the optimal capital structure. Therefore, when these costs exceed the benefits of debt use, businesses will face the possibility of being punished, bankruptcy or being merged. However, the presence of bankruptcy costs seems to have little to do with the level of debt use, although they do exist (see also Chung et al, 2013; Franha & Santos, 2011). Thus, according to this theory, high levels of leverage may have a positive impact on business performance because of the capability of resolving conflicts between owners and managers relating to the availability of free cash flow, which may lead to a risk of decreasing the corporate value (Jensen & Meckling, 1968). This idea was also supported by DeAngelo, Masulis (1980) and Harris & Raviv (1991) who concluded that firms that have secure tangible assets and high profits should have higher debt rates in order to take advantage of the tax shield, increase investment opportunities and minimize agency costs.

The pecking order theory was proposed by Myers (1984) derived from Donaldson's suggestion in 1961 that supporting internal capital generation and avoiding dependence on outside finance since this funding will force them to obey the rules of the capital market (Myers, 1984). Accordingly, capital structure is proposed based on the position structure, where companies prefer mobilizing internal finance over using external financing and issuing debt over shares. This hierarchy is to minimize the negative impact generated from information asymmetry on enterprise investment decisions for projects with positive NPV, to avoid being underquoted by the market. Accordingly, in general, higher profit companies tend to have low debt leverage to avoid paying high interest rates from outside financial resources. This also helps interpret the relation between profitability and financial leverage.

Based on the two dominant theories, massive research was employed. As a result, little research illustrates that debt ratios were directly propose to profitability (Long & Maltiz. 1985) but only at ceasing levels of debt that were calculated specifically to each research (Reid & Xu. 2005; Nguyen. 2015). In contrast, negative relationship between capital structure and performance seems to be much more popular, such as in the studies of Friend & Lang (1988), Timan & Wessels (1988), Ebaid (2009); Vithessonthi & Tongurai (2015) and this negative relation also is indicated in most capital structure research in Vietnam including research of Chang et al (2014); Doan (2010), Dang (2016), Trinh (2013). However, most of this research was examined on samples of mature firms that capital structure constructions mainly rely on the demand side with the assumption that financial resources are always available. Therefore, these results cannot represent new entrants because initial financial structure is more affected by considerations of capital investors than managers. This issue can be analyzed more clearly based on approaches of agency cost issue generated between managers and debt holders and information asymmetry issue as presented below.

Agency cost arises in case of new firms due to the conflict between debt holders and entrepreneurs. The presence of this cost leads to start-ups having less debt in their capital structure. The reason is that nascent firms have little reputation and face high possibility of failure. Accordingly, the possibility of using financial leverage might simulate them to invest fund in risk projects or in the projects with negative NPV. Therefore, to limit their expose to risk, long-standing businesses that show well reviewed repay history may obtain loans with low cost (Harris & Raviv. 1991). Consequently, the present of agency cost prevent newly established firm obtain the external finance in the first stage of life cycle.

Approach of information asymmetry issue also agree the view that newly established firms would grant less debt in the start-up stage. From the view of pecking order theory, there does not exist an optimal leverage. This changes throughout the time, depending on the situations and circumstances. Accordingly, in the startup stage of business cycle, new small businesses will use debt to compensate the shortage of cash because they are limited in the capability of generating cash flow at the early phase of a firm's life cycle (Miettinen & Virtanien. 2013). From the view of debt holders, this indicates the lack of financial flexibility. Thus, giving a loan to a start-up is generally riskier compared to working with a larger company (Stiglitz & Weiss, 1981; Berger & Udell, 1998). Consequently, new venture will have less debt in initial capital structure.

To summarize, both approach on information asymmetry along with agency cost agree that new ventures will receive less debt than their demand. To reduce the effects of information opaque as well as optimal financial contracts, outside investors require collateralizable assets (Ravid & Spiegle. 1997), or collateralized estate owned by entrepreneurs or outside investors offering a higher interest rate to prevent themselves from the possibility of higher failure (Berger & Udell. 1998).

However, while the role of finance widely known is a critical element in performance and development of these enterprises, the lack of capital will prevent new firms from manifesting investment opportunities as well as beginning operation on a desired scale (Colombo & Grilli. 2005). Therefore, this might have an influence on startup size and performance. Base on these arguments, very little work is employed based on the sample of new ventures. Nonetheless, examining these documents carefully, we've come to realize that.

Firstly, although studies have examined the first stage of corporate finance but they mainly focus on examining determinants to capital structure rather than the relationship between capital structure and business performance (Cassar 2010; Huyghebeart & Gutch, 2004, 2007; Robb & Robinson, 2010; Sanyal & Mann. 2010; Scheer et al. 1996; Miettinen & Virtanen. 2013) although they mentioned this relation (Franhan & Santos. 2011; Huyghebeart & Gutch. 2004; Robb 2002; Rob & Robinson. 2010). We have recorded only two research employed by Franck & Huyghebeart (2010); Ebiringa (2011).

Secondly, in recent research, except for review study conducted by Ebiringa (2011) in Nigeria, other research is employed on developed countries, for instant Belgium (Gailly 2011 ; Huyghebeart & Gucht. 2004, 2007), Portugal (Farinha & Santos, 2006, 2008), America (Berger & Udell. 1998; Robb & Robinson. 2010; Saynal & Mann. 2010; Scheers et al. 1993), Australia (Cassar 2004), Canada (Astebro & Bernhardt. 2003), Italy (Colombo & Grilli. 2005) and Finland (Miettinen & Virtanen. 2013) or on international data of developed countries including two nations in Asia, China and Thailand (Nofsinger & Wang. 2011). Apparently, this empirical work is employed in nations having institution extremely different from developing countries, including Vietnam with a transition economy, start-up environment has almost not improved so far, particularly in financial support item for new venture.

Thirdly, recent research has not controlled the effects of financial linkage with official finance by a bank loan in the initial financial structure decisions as well as economic cycle factor in a model impact of capital structure on performance.

According to above statements, the question set out is that in a relatively new context like Vietnam with external financial resources such as venture capitalists, sponsored finance from the government is not available. In addition, information asymmetry issue seems to be more severe to new established firms. Then, how does initial capital structure affect business performance in crisis periods?

2.2. Developing hypotheses and research model

The principal argument in this research is that start-ups tend to use relatively high leverage compared to others, *ceteris paribus* along with using at least a bank loan right in the startup stage would bring some benefits for new venture. They could have access to financial resources easily

in later financial stages and have better conditions to start business opportunities right when they begin their activities. The reason is that they have greater financial flexibility because of the financial constraint decreased.

This opinion considers financial constraints in initial capital structure to probably have a real effect on new ventures’ performance. New firms considered to be affected by financial constraints if they cannot access financial resources to start their business. Consequently, they cannot manifest their investment opportunities. This problem is common to small firms, especially enterprises in the first stage of a life cycle due to both cash flow and internal finance (Carpenter & Petersen. 2002).

This issue is motivated by a common opinion expressing that barriers in the credit market prevent firms from operating at an optimal size, right when they begin their business activities. With the presence of severe barriers, newly established firms have to pursue informal financial resources or compensate the capital shortage by using credit trade (Peterson & Rajan. 1994) that has a higher cost compared to a bank loan. Therefore, this affect the performance.

Based on these justifications, research expects that

Hypothesis 1a: *Capital structure with high leverage has a positive impact on the performance of newly established firms.*

Hypothesis 1b: *Effects of leverage on performance of newly established firms are positive if they use at least a bank loan right at the first stage of business cycle.*

Models researching on the effect of capital structure on the performance of new entrants also use controlling variables in most research in this field including industrial, size, age and macroeconomic variables such as GDP and lending interest rate.

Besides, in this paper’s content, crisis factor is also applied in the research model. Apparently, disadvantage shocks from market bring a negative effect to good demand and constraints/limit firm’s manufacturing capacity right when signs of risk and uncertainty increase. To react to this disadvantage, in corporate finance aspects, firms rebuild capital structure to reduce the risk, or adjust business operation to adapt with changes of the market. These exogenous shock will impact on the relationship between financial structure decisions and performance. Therefore, this research also proposes a negative effect of maximum crisis fraction to the performance of new established firms.

Based on the theoretical frame and justifications on variables taking part (Table 1), we propose our research models.

$$ROAi,t = \beta_0 + \beta_1LEV + \beta_2SIZE + \beta_2IND + \beta_3AGE + \beta_4BALN + \beta_5GDP + \beta_6CRISIS + \beta_7INT\ \varepsilon_{i,t}$$
$$ROEi,t = \beta_0 + \beta_1LEV + \beta_2SIZE + \beta_2IND + \beta_3AGE + \beta_4BALN + \beta_5GDP + \beta_6CRISIS + \beta_7INT + \varepsilon_{i,t}$$

Table 1: Variable and measured scale description

STT	Variable and measured scale	Researches
LEV	Finance leverage of firm i, year t = Total liabilities/ Total assets	Harris & Raviv (1991); Huyghebeart & Gucht(2004, 2007); (Robb & Robinson, 2010), Vithessonthi & Tongurai (2015)
LEV1	External debt = (Loan + credit trade)/Total assets	

STT	Variable and measured scale	Researches
ROA	Return on Assets = Return before taxes, interest and depreciation(EBITDA)/Total Assets	Chaiporn.và Jittima. T (2015); Lang et al., 1996; Pham (2015); Ebiringa (2011); Frank & Huyghebeart (2010).
ROE	Return on Equity = Return before taxes, interest and depreciation(EBITDA)/Equity	
SIZE	Firm size measured using the natural logarithm of total turnover for firm i in year t, expressed in Vietnam dong.	Sanyal & Mann (2010); Rajan & Zingales, (1995); Huyghebeart & Gucht (2004, 2007); Robb & Robinson. (2010); Titman & Wessel, (1988); Harris, Raviv (1991)
AGE	Number of years since new venture established	Vithessonthi & Tongurai. (2015)
IND	Industrial: A set of industrial dummy variables given by VCCI.	Huyghebeart & Gucht (2004, 2007); Robb & Robinson. (2010); Harris & Raviv (1991)
INT	Lending interest obtain from the state Bank of Vietnam	Huyghebeart & Gucht (2004)
GDP	GDP growth rate year t obtained from IMF	Vithessonthi & Tongurai (2015)
CRISIS	Maximum crisis: A set of dummy taking a value of 1 if firms' operating year was 2013 and 2014, others =0.	
Official loans	A binary variable taking a value of 1 with firms having at least a bank loan in a period of the initial 3 years, others taking value 0.	

Source: Author's collection

2.3 Methodology

2.3.1 Sample and data collection

Our raw data set consists of 367 truly new firms that were registered for establishment at the Hanoi Department of Planning and Investment and given a tax registration number by the Hanoi Tax Department in 2010 and observed in the initial 5-year period. We collected a sample including enterprises established at the same time to ensure greater homogeneity in macroeconomic condition at the moment of foundation depending on suggestion given by Huyghebeart & Gucht (2004). The sample was collected using the following method of proportionate stratified sampling depending on the number of firms distributed on every district in Hanoi.

We selected firms established for employing research in Hanoi only, upon the following considerations (1) Some studies suggest that capital structure is different among provinces (Robb and Robinson 2010). Thus, Hanoi is the center of finance and economy and one of the three cities having the largest number of new entrants in Vietnam, therefore it would be a better selection for research. (2) The possibility for collecting database. Little research having been conducted on new ventures is a common phenomenon although they are considered an exciting researching object. To explain the phenomenon, most researchers pointed out the fact that data are not available (Huyghebeart & Gucht. 2004; Cassar 20010), even not exist (Robb & Robinson

2010). Thus, we attempt to collect in the best of possible conditions while ensuring district principles for research.

Firms in the sample are consistent with the researching object. They are absolutely new firms, neither arising from split-ups nor being newly established subsidiaries from existing firms.

We excluded 56 enterprises experiencing bankruptcy from the original sample. We also came to exclude 21 firms that had incomplete financial statements or information recorded on these statements. 17 other firms continued to be excluded from the sample. They were firms that had negative equity, which causes the possibility of making detorted ROE as well as exaggerating overdose financial leverage. Finally, 5 others were filtered out of the data set because they had very small total assets (4 firms have less than 500 millions VND) or having outlier authorized equity (one firm with authorized equity of more than 1.000 billion VND).

The final sample consists 268 firms with 1068 observations. A sample size used in regression analysis is quite homologous compared to recent studies on start-ups or small and medium enterprises samples.

Firms in the sample were divided into over 6 industries illustrated in Table 2 below based on current regulations issued by the General Statistic Organization and criteria of industrial classification proposed in the annual enterprise survey reports of VCCI.

Table 2: Categories of newly established enterprises according to industries

Industry	Freq.	Percent	Cum.
Agriculture and others	48	2.99	2.99
Manufacture	251	15.61	18.59
Construction	367	22.82	41.42
Service and Trading	673	41.85	83.27
Construction Materials	149	9.27	92.54
Transportation	120	7.46	100.00
Total	1,608	100.00	

Source: Author's evaluation

3.2.2. Data analysis

We used a package of STATA software version 12 to estimate the regression equations that we proposed above. First off, bivariate relations among variables were explored via examining correlation. Then, we used ordinary least square (OLS) to examine the effect of leverage to business performance. Then, Hausman's test was employed to discover which models are more suitable for the data set between Fixed Effects Model (FEM) and Random Effects Model (REM). The result suggests that FEM is suitable for the character of data in this research. The research also examined some necessary test for regressive assumption to ensure the result of regression is blue such as autocorrelation, multicollinearity and heteroskedasticity.

Finally, to validate our research results, the robust option was performed to recalculate standard errors in case the models violate regressive assumptions.

3. RESEARCH RESULTS

3.1 Descriptive statistics

3.1.1 Descriptive statistics on the capital structure of newly established firms

Table 3 provides descriptive statistics on capital structure of newly established firms for our sample. The results show that start-ups mainly used traditional finance including debts and equity in the initial capital structure.

Unlike new ventures in developed countries, outside equity and sponsor finance from the Government did not find in detail report of any firms in the sample. Only two firms report about a leasing in their balance statements. This is also difference with finding about using leasing to compensate credit shortage of start-ups in the initial years of operation.

Table 3: Descriptive statistics of the capital structure of newly established businesses

Variable	N	mean	p50	sd	min	max	cv
LEV	1608	.447083	.452353	.320166	0	.99949	.71612
LEV1	1608	.338048	.285365	.299703	0	.98691	.88657
LEV2	1608	.155145	0	.234717	0	.93224	1.5129
CREDIT TRADE	1608	.184223	.093556	.220571	0	.97438	1.1973
EQUITY RATIO	1608	.535664	.518476	.321728	.00181	1	.60062

Source: Author's evaluation

Regarding difference financial resources used in the first initial five years of operate, start-ups used average finance leverage(LEV) around 44% on total liabilities. The percentage of credit trade is not high, less than 18.5%. Similarity, average bank loan rate(LEV2) also take only approximately 15.5% in which focus mainly in short term debt. Long- term debt take only 3.5% on total liabilities. This finding indicate capital structure of start-ups in the sample use percentage of bank loan and credit from suppliers much lower and percentage of equity much higher than peer in developed countries (see also Huyghebeart & Gutch. 2007; Robb & Robinson. 2010).

3.1.2. Descriptive statistics on the performance of start-ups

In the early period of operation, firms reported low profitability. On average, both return after tax on total assets (ROA) and returns after tax on equity are -1.5% and -1.9%, respectively. However, median value indicates that start-ups did not absolutely lose in the initial years of operation. Median value of ROA, ROE and ROS are 0.06%, 1.2% and 0.07%, respectively (Table 4). These results indicate that more than a half of this observation is recorded to have a profit rate on their income statements (although it is very small). This also shows the large amplitude on the percentage between profit and loss in start-ups.

Table 4: Descriptive statistics on the performance of start-ups

Variable	N	Mean	p50	Sd	min	max	Cv
ROA	1608	-.0153027	.0006238	.1086452	-1.345141	.4649909	-7.09976
ROA(EBITDA)	1608	.0075753	.0056719	.104953	-.6480233	1.202437	13.85464
ROE	1608	-.0190919	.0012481	.2914891	-2.88788	1.202437	-15.26769
ROE(EBITDA)	1608	.0503866	.0119779	.3070176	-1.918675	1.5741	6.093236
ROS	1608	-.1110954	.0007898	.3999796	-2.932998	.6484793	-3.600326
ROS(EBITDA)	1608	-.0621684	.0065928	.3883387	-2.932998	1.354856	-6.246565

Source: Author's evaluation

The amount of the highest loss was recorded to be three times greater than the total assets and nearly 1.5 times to equity. Besides, highest profits percentage reported to ROA and ROE were 46.5% and 120%, respectively. Because the size of total assets and equity of start-ups is very small, the amount of profit of start-ups is insignificant although they report a high percentage of profit. In addition, the low percentage of return on revenue expresses that firms almost did not generate revenue sufficiently to cover expenses.

However, when considering profitability on cash flow basis, return before tax, interest and depreciation on assets or equity respectively are 0.07% and 0.5%.

3.2 Regression results of effects of leverage to the performance.

3.2.1 Regression results of effects of leverage to assets

Table 5: Regression results of effects of leverage to assets

ROA(EBITDA)	Coef.	Std. Err.	Z	(Std. Err. adjusted for 268 clusters in ID)		
				P> z	[95% Conf. Interval]	
LEV	.0725303	.0202165	3.59	0.000	.0329066	.1121539
SIZE	.0134999	.0027895	4.84	0.000	.0080326	.0189673
IND	.0500954	.0034228	14.64	0.000	.0433868	.0568039
BALN	.0245363	.0065243	3.76	0.000	.0117489	.0373237
GDP	-.0118061	.0040454	-2.92	0.004	-.0197349	-.0038772
CRISIS	-.0187887	.0048737	-3.86	0.000	-.0283411	-.0092364
INT	-.0014933	.0008922	-1.67	0.094	-.0032419	.0002553
_cons	-.4504066	.0623322	-7.23	0.000	-.5725754	-.3282377
sigma_u	.03971968	sigma_e		sigma_e	.07976307	
Rho	.19870187	(fraction of variance due to u_i)				
R-sq: within =		0.1738				

Source: Author's evaluation

Table 5 presents an estimated effect of leverage on firm performance using the panel OLS regression with fixed effect model and strengthened by the robust option to validate the research results. The dependent variable in this model is the return before tax, interest and depreciation (EBITDA). The result shows that the coefficient on leverage(LEV) is positive and statistically significant at the level of 5% (p-value= 0.000). Then, the estimated result suggested that leverage has a positive effect on the performance of newly established firms. This relation is consistent

directions of impact. Correlation analysis examined before also identifies positive correlation between these two variables (0.3630^* , $p\text{-value} = 0.000$). In terms of economic significance, the estimated result suggests that increasing by 1% in the leverage of new ventures involves increasing approximately by 0.72% in ROA calculated on EBITDA.

Contrary to most findings suggesting that leverage ratios have a negative effect on mature firms, even in studies in Vietnam, we find a positive effect of financial leverage on newly established firms, which is similar to the finding of Long & Maltiz (1985); Franck & Huyghebeart (2010) and Ebringa (2011). Thus, these findings provide evidence demonstrating that higher leverage start-ups have better profitable to lower leverage firms.

In addition, estimated results also express the role of having a bank loan in initial capital structure. The result indicates that if early business operation of firms is financed by formal credit channels, firms obtain better performance. This remark was supported by the positive impact of having a bank loan on performance with coefficient on BALN = 0.0245 at 5% level of significance

Besides, the research also confirms the positive impact of the size of firms on the ratio of EBITDA on total assets. Industrial effects also indicate that start-ups operating in the industry of trading and service, and the industry of manufacturing are more likely to make profit. Nevertheless, economic crisis impact negatively on start-up profitability.

3.2.2 The effect of leverage on profitability on equity

Again, regression results confirmed the positive relation between leverage and the performance measured as EBITDA on equity ($\beta = 0.102$, $p\text{-value} < 0.005$) as shown in Table 5. Estimated results, again, indicated the role of having a bank loan in decisions on initial capital structure and the negative effect of economic crises on firm performance ($\beta = 0.0813$, $p\text{-value} < 0.05$ and $\beta = -0.033$, $p\text{-value} < 0.05$, respectively).

Table 6: Regression models affecting the performance of leverage

Variables	(OLS) ROE(EBITDA)	(OLS) ROA(EBITDA)	(FEM) ROE(EBITDA)	(FEM) ROA(EBITDA)
LEV	0.101*** (3.78)	0.0725*** (3.59)	0.102** (3.13)	0.0725*** (3.59)
SIZE	0.0412*** (7.74)	0.0135*** (4.84)	0.0463*** (6.80)	0.0135*** (4.84)
IND	0.0247*** (3.42)	0.0501*** (14.64)	0.117*** (14.31)	0.0501*** (14.64)
BALN	0.0897*** (5.82)	0.0245*** (3.76)	0.0813*** (3.97)	0.0245*** (3.76)
GDP	-0.0449** (-3.07)	-0.0118** (-2.92)	-0.0376** (-3.09)	-0.0118** (-2.92)
CRISIS	-0.0385 (-1.95)	-0.0188*** (-3.86)	-0.0330* (-2.00)	-0.0188*** (-3.86)
INT	-0.00107 (-0.39)	-0.00149 (-1.67)	-0.000819 (-0.33)	-0.00149 (-1.67)
_cons	-0.712*** (-5.08)	-0.450*** (-7.23)	-1.315*** (-8.44)	-0.450*** (-7.23)

Source: Author's evaluation

As can be seen at Table 6, summarizing results on OLS regression and FEM estimation for both ROA and ROE calculated on EBITDA consistently indicate the direction of the impact of independent variables on the firm performance throughout models. Besides illustrating the positive impact of leverage on newly established firm performance, our empirical evidence supports the notion that the effects of financial structure decisions vary among start-ups with respect to the degree of using debt and having a bank loan right at the start-up period. Then, this empirical results supported for both our hypotheses.

4. CONCLUSION

Research recognizes the positive relation of capital structure decisions in the first years of business operation. This finding indicates that the reliance on debt, especially having a bank loan is a characteristic of start-up businesses that could contribute partly to the success of firms in the earliest phase of business operation.

To justify, we propose that newly established firms using high leverage could have better resources, knowledge and capacity which cannot be concluded from financial statements. Owners of these firms could be entrepreneurs having some reputation, private property independence with their firm assets and previous business experience. Thus, they could run their businesses better with less credit constraints. As a result, when business opportunities are taken without serious credit constraints, they have the chance to increase revenue and improving profitability.

In theoretical terms, these findings could be interpreted based on the approaches of agency cost rising in the relationship between entrepreneurs and banks. Newly established firms in relatively new context in Vietnam are mainly managed by the owners themselves. They keep the role as the manager and the owner at the same time. Therefore, dual functions of owners do not stimulate borrowing demand in order to restrict free cash flow problems. Thus, borrowing begins from the original demand in expanding businesses or undertaking profitable and at the same time, risky projects can be controlled by entrepreneurs. This is derived from the idea given by Hughebeart & Gutch (2004) that start-up owners tend to consider avoiding the possibility of being liquidated because most collateralized assets belong to individual owners. Therefore, when agency cost problems are reduced, start-ups that have “high quality” or good business opportunities tend to use more debt including a bank loan to have better performance.

Empirical evidence also recognizes the role of firm size. This result is appropriate with the notion that credit barriers prevent start-ups from obtaining an optimal scale, therefore limit firm performance.

Industrial elements also agree that the impact of leverage on firm performance is different among industries. This implies the possibility of using debt to improve profitability in certain industries, for instance, the industry of service and trading and manufacturing industry in case of firms allocated in Hanoi.

In conclusion, start-ups are crucial by dynamism and growth. Besides, these firms play a key role in developing the economy of every country because they establish an important foundation for the development of the corporate area in the future. Nevertheless, they are considered to often have difficulties staying in the market because of high failure rate within the first 5 years of business.

Therefore, how to understand determinants to the success of start-ups is always exciting question for researchers. This research contributes to corporate finance by confirming that the degree of using debt as well as choosing financial resources in the earliest period of business operation relating to its performance. Specifically, this impact is stronger if they use formal debt from the bank in initial capital structure decisions. In other words, start-ups financed by debt that have relatively high leverage or/and a bank loan are more likely to have better performance. Thus, unlike mature firms, capital structure decisions of newly established firms have certain circumstances and are affected more from the credit supply than demand. Credit constraints to ascents are really serious by information asymmetry. Therefore, once credit constraints are reduced, start-ups have greater chances to take business opportunities, which helps expand business, increase profit and improve profitability.

REFERENCES

1. Åstebro T, Bernhardt I (2003), 'Start-up financing, owner characteristics, and survival', *Journal of Economics and Business*, Volume 55, Issue 4, pp 303–319.
2. Berger A.N, Udell G.F. 1998 "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking & Finance, Elsevier*.
3. Carpenter.R , Bruce C. Petersen. C "Capital market imperfections, hight-tech intestment, and new equity fianancing" *The economic Journal* Volume 112, Issue 477 Pages F54–F72
4. Cassar G.2004 "The financing of business start- ups." *Journal of Business Venturing* 19, pp 261- 283.
5. Chang F, Wang I, Lee N, Duong L (2014). " Capital structure decision and firm performance of Vietnamese SOEs" *Asian Economic and Financial Review*, Vol 4, pp: 1545 – 1563.
6. Chung Y.P, Na H.S, Smith.R. 2013 "How important is capital structure structure policy to firm survival." *Journal of corporate finance*.
7. Colombo M.G, Grilli L.2005 "Start-up size: The role of external financing." *Economics Letters* 88, pp 243 – 250.
8. Cressy R.1996 "Are Business Startups Debt-Rationed?" *The Economic Journal* Vol. 106, No. 438, pp. 1253-1270.
9. DeAngelo H, Masulis R.W.1980 "Optimal capital structure under corporate and personal taxation." *Journal of Financial Economics*, pp 3-29.
10. Diambeidou M.B, Gailly B.2011 "A taxonomy of the early growth of Belgian start-ups." *Journal of Small Business and Enterprise Development* Volume 18, Issue 2.
11. Doan N. Anh, 2010. " Determinants of capital structure ang finance performance:A path analysis approach", *Journal of Sience and Technology of Danang* Vol 4, pp:14-22
12. Dang P. Mai (2016), "Financial Restructuring in Vietnam Steel Companies" *Doctoral Thesis Academy of Finance*.
13. Ebaid I.E. 2009. The impact of capital - structure choice on firm performance: empirical evidence from Egypt. *The Journal of Risk Finance* 10 : 477-487
14. Ebiringa (2011). Syenthesis of litterature on small & medium entreprise(SME) start-up financing" *International Journal of Economic Research*, 2 (1): pp 85-95.

15. Farinha L.A, Santos J.2006 “TheSurvivalof Start-ups: Do TheirFunding Choices and Bank Relationshipsat BirthMatter.” “*Conferenceon Financial Modernisationand EconomicGrowth in Europe Berlin*.
16. Franck T, Hughebeart (2010). “Determinants of capital structure in bussiness start-ups: The role of capital structure in bussiness”, *The journal of Finance Research* Vol 33, pp: 487- 517
17. Friend I, Lang L.H.P. 1998. An Empirical Test of the Impact of Managerial Self-Interest on Corporate Capital Structure. *The journal of Finance*. 43: 271–281
18. Harris, Raviv. 1991 “The Theory of Capital Structure “.” *The journal of finance, Volume 46, issue 1*, pp 297-355.
19. Huyghebaert N, Gucht L.M. 2007 “The Determinants of Financial Structure: New Insights from Business Start-ups .” *European Financial Management Volume 13, Issue 1*, pp 101–133.
20. Huyghebaert, Gutch. 2007 “The Choice between Bank Debt and Trace Credit in Business Start-ups.” *Small Business Economics* 29, pp 435- 452.
21. Jensen M.C, Meckling W.H. 1976 “Theory of the firm: Managerial behavior, agency costs and ownership structure.” *Journal of Financial Economics Volume 3 Issue 4*, pp 305–360.
22. Lang L, Ofekb E and, Stulz R.M. 1996”Leverage, investmcmt, and firm growth.” *Journal of Frnmcial Economics* 40, 3-29.
23. Long M.S, Malitz I.B. 1985. *Investment Patterns and Financial Leverage, Volume Title: Corporate Capital Structures in the United States*. University of Chicago Press.
24. Miettinen M, Virtanen M. 2013 “Capital Structure of Start-ups: Evidence on Non-accounting Characteristics.” *Journal of Modern Accounting and Auditing, ISSN 1548-6583 , Vol. 9, No. 7*, pp 889-907.
25. Modigliani F, Miller M.H. 1958 “The cost of capital, Coporation finance and the theory of investment.” *The American Economic Review, Vol.48, No.3*, pp 261-297.
26. Myers S.C. 1984 “The Capital Structure Puzzle”. *The Journal of Finance, Vol. 39*.
27. Nofsing J.R, Wang.W. 2001 “Determinants of start- up firm external financing worldwide.” *Journal of Banking Finance* 35, pp 2282- 2294.
28. Nguyen T.Cuong (2015). “The effect of capital structure on firm value for Seafood processing enterprises in the South Central region of Vietnam” *Doctoral Thesis* University of Economics and Law.
29. Petersen M.A, Rajan R.G.1994 “The Benefits of Lending Relationships: Evidence from Small Business Data.” *The Journal of Finance Volume 49, Issue 1*, pp 3–37.
30. Pickernell D, Senyard J, Jones P, Packham J. (2013) “New and young firms: Entrepreneurship policy and the role of government – evidence from the Federation of Small Businesses survey” *Journal of Small Business and Enterprise Development*, Vol. 20 Issue: 2, pp.358-382.
31. Phạm L.T Nga (2015).”M&A: Ceo duality, operating performance & stock returns evidence from Vietnam “, *Acific-Basin Finance Journal*, pp: 298– 316.
32. Ravid S.A, Spiegel M. 1997 “Optimal financial contracts for a start ups with unlimited operating discretion”.” *Rutger University Graduate School Management, Neward, NJ 07102 (201)*, pp 648-5540.
33. Reid G.C, Xu Z. 2012”Growth and Survival Determinants of Chinese Private Firms:Fieldwork evidence and econometric estimates.” *repo.sire.ac.uk*.

34. Robb A, Robinson D.T. 2010 "The Capital Structure Decisions of New Firms". *NBER Working Paper No. 16272*.
35. Sanyal P, Mann C.L. 2010 "The Financial Structure of Startup Firms: The Role of Assets, Information, and Entrepreneur Characteristics "." *papers.ssrn.com*.
36. Scherr F.C, Sugrue T.F and Ward J.B. 1993 "Financing the Small Firm Start-Up: Determinants of Debt Use". *The Journal of Small Business Finance* 3.1 , pp 17-36.
37. Titman S, Wessel R. 1988 "The Determinants of Capital Structure Choice." *The Journal of Finance* Vol 43, No. 1 , pp 1-19.
38. Trinh P.Lan (2013). "Construction - Estate Enterprises Financial Leverage Risks". *Journal of Science, Vietnam national University*, Vol 3, pp: 67-74.
39. Vithessonthi C và Tongurai J, 2015. "The effect of leverage on performance: Domestically-oriented versus internationally-oriented firms" *Research in International Business and Finance*. 34. 265-280
40. Voutsinat K, Werner R.A. 2011 "Credit supply and corporate capital structure - Evidence from Japan." *International Review of Financial Analysis* 20, pp 320- 334.

INTERNATIONAL EXPERIENCE ON ELECTRONIC TAX ADMINISTRATION AND THE LESSONS FOR VIETNAM

Nguyen Minh Tuan¹, Doan Huong Quynh², Pham Thi Van Anh³

ABSTRACT

Electronic tax (E-tax) administration is a new category in the tax and legal system of Vietnam in general. At the same time, a large number of processes that are just starting in our country, in most developed countries of the West and East have already been existing for a long time.

The objective of this research is to provide a basic overview of the concept of e-tax administration and introduce briefly about e-tax administration in Vietnam. By studying the experiences of the two countries, the USA and the UK the research substantiated that the use of the experience provided in the paper will give an opportunity to build a simple and effective system of electronic tax administration in Vietnam.

Keywords: *international experience, e-tax, tax administration.*

1. INTRODUCTION

Vietnam had increased revenues over the previous two decades. The revenue increased from 20.5 percent of Gross Domestic Product (GDP) in 2000 to 25.9 percent in 2005. Oil revenue was the major source of revenue, but non-oil revenues were increasing steadily. Value-added tax (VAT) and corporate income tax (CIT) were the two main sources of revenue, contributing 32.5 percent and 28.6 percent, respectively, to total tax collection. Other non-oil tax included export and import tax, natural resource tax, exercise tax, personal income tax (PIT), and agricultural tax.

From 2006 to 2015 The General Department of taxation (GDT) had spent approximately 73 million USD to run Tax Administration Modernization Project. Specifically in 2008 GDT developed the IT-PIT system. Within 6 year, GDT showed the progress PIT- IT in pilot offices. The local GDT offices had demonstrated that the system had the potential to be developed further into a comprehensive IT system for tax administration (Tax Management System - TMS).

TMS was an integrated tax administration system based on a Commercial-off-the-shelf package that incorporated a number of functions that were meant to be part of the Integrated tax administration information system; TMS included seven types of tax collection modules; TMS could be enhanced to meet GDT's requirements to modernize its tax administration. From 2015 until now, GDT has implemented TMS on the whole system and achieved certain management effects

¹ Tax Department of Ha Giang, 386 Nguyen Trai, Ha Giang, Vietnam, Email address: tuanhg71@gmail.com.

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

³ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

In other hand, to simplify the tax payment process, the Ministry of Finance (MOF) has issued Circular No. 110/2015/TT-BTC on electronic transactions in tax administration, to come into effect on September 10, 2015. As prescribed by the Law on Tax Administration, all types of enterprises are required to carry out electronic tax procedures with local tax agencies, including tax registration, filing, payment and refunds.

According to the GDT, 737.461 enterprises had used electronic tax services by the end of August 2019, approximately 98.44 percent of registered businesses.

2. LITERATURE REVIEW

Electronic taxation (e-tax) is the deployment of computer systems and networks in the process of levying and payment of taxes. It involves the application of computer techniques in the process of tax assessment, collection and administration, generally referred to as e-payments and e-filing. Electronic taxation is an extension of the growing concept of e-governance and e-commerce. It involves the exchange of data through information communication technology systems between the taxpayer and the tax authorities.

The objective of e-taxation is to replace cumbersome manual, bureaucratic service systems, with collaborative, efficient, process-driven and secure on line delivery systems. E-Tax was first introduced in the US by the IRS as an electronic filing test program involving five tax preparers. However, electronic taxation was fully entrenched in the US by the introduction of the Internal Revenue Service Restructuring and Reform Act 1998. The IRS adopted measures to ensure that all electronically prepared returns could be filed electronically and, by 2012, it had achieved more than 80% electronic tax filing. From the US, e-taxation has spread to other countries and, according to the Paying Taxes: 2018 Report, 92 economies had fully implemented electronic tax filing and payment systems as at 2016. In the last 20 years, there has been a consistent shift from manual tax processes to an electronic tax system in most parts of the world.

For instance, the Republic of Korea launched their electronic tax system in 2012 while Uruguay's compulsory electronic payment of national tax was introduced in 2014 and China launched its electronic taxation in 2015. India introduced electronic taxation in September 2004, initially on a voluntary basis but it was made mandatory for all categories of taxpayers in July 2006.

3. INTERNATIONAL EXPERIENCE ON ELECTRONIC TAX ADMINISTRATION

3.1. Experience from the USA

During analysing the foreign experience of e-administration and its possible use in national practice, the peculiarities of the use of information technology in the taxation process in the United States of America are of considerable interest. It should be noted that the tax system in the USA can be characterized either by national or European wide peculiarities, taking into account the long-term political and territorial dependence of this state on the United Kingdom. The tax system of the United States consists of three levels corresponding to levels of government, such as: higher (federal level) - the establishment and collection of federal taxes, the administration of which is governed by federal laws, receipts from these taxes are counted to the federal budget; middle level (state level) - the establishment and collection of local taxes, administration of which is regulated by state laws, receipts are counted to state budgets; lower level (lower level of territorial

administration - municipalities, districts, etc.) - collection of taxes introduced by local governments, receipts are counted to local budgets

The US tax authority is the Internal Revenue Service, which is an organizational member of the Ministry of Finance. The peculiarity of this fiscal service is its dual nature, which results from the implementation of different functions, such as public finance and law enforcement functions. It should be noted that in accordance with the provisions of the normative legal acts, which are the basis of the activities of this department, the main purpose of the service is to provide US taxpayers with higher quality services. This can be implemented through the assistance in clarifying and enforcing tax liabilities, as well as through applying tax laws in an appropriate and fair manner to all. Thus, the activities of the Internal Revenue Service, first of all, are aimed at the interaction with taxpayers, on partnerships with them. The US e-tax administration experience can be called one of the oldest in the world. The introduction of information technology in the tax process was connected with the development of e-government in the United States. Among the many e-government programs in the 1980s, an attempt was made to automate the process of providing tax reporting and also some other tax services. The introduction of e-reporting has become a real breakthrough in this field, which can be proved by the increase in the level of efficiency and volume of taxpayer accounts. It should be noted that software development was made by public entities along with private ones.

At the same time, a significant number of troubleshooting moments in electronic reporting were defined. First, e-tax administration has not achieved the same level of development throughout the country, which was due to the lack of opportunities for individuals in some regions to use online tax services. Secondly, the system of electronic tax administration was rather complex compared to other e-government programs, such as online banking. And all these, in fact, had led to situations where payers did not understand how to use it.

For today, tax reporting can be provided by communication channels in several ways:

- You can prepare and send tax reporting through an intermediary audit firm;
- You can fill in the reports by yourself with the help of the purchased software and then send the report through the operator;
- You can fill out the report online on the sites of special operators, a list of which can be found on the portal of the National Revenue Service. The introduction of an electronic tax administration format helped to avoid queues, and also helped to save a large amount of time and money, which people usually spend on reporting to the tax authorities.

Besides, the reporting software automatically performs a lot of special calculations and it can find errors, and the electronic key system makes electronic reporting protected from third-party intervention.

3.2. Experience from the UK

Britain is home to the science of taxation. The Scottish economist Adam Smith is the founder of the tax theory, on which the modern British tax system is based. As we all know, he developed the concept of “free trade” and consistently advocated the idea that state intervention in economic

processes should be minimal. Smith also criticized indirect taxes, because they lead to wage growth, and consequently, there can be an increase in production costs and a decrease in profits. Instead, he considered rent as the most unproductive expense, which does not turn into self-increasing cost. The Royal Tax and Customs Service of Great Britain is the main body in the administration of taxes on income, profits, capital, the collection and systematization of accounting for customs duties, taxes related to the import of goods, as well as control of import and export flows of goods, etc. The structure of this body consists of four structural divisions, namely: a unit of taxation of individuals, a division of tax accounting, a corporate tax unit, and a unit of tax payment.

Great Britain also has great experience in electronic tax administration. Particularly, each taxpayer has its own personal electronic tax registration page (“tax account”). All information about a particular taxpayer consolidates. Besides, with the help of an electronic account you can: check and change your address in the taxpayer accounting system; see which tax code is used to calculate the tax; check the state of the pension calculation; manage tax credits, child benefits, etc.; receive emails from tax authorities. The approach of organizing information security within the framework of e-tax administration is sufficiently substantiated. For example, information security during working with a personal electronic account of a payer is provided by several factors at once: all online services can be used exclusively by those payers who have registered in the system and have passed the authorization, by entering a personal password and ID; a high-quality software is used to protect information; when working with an electronic account, the security of payees information is provided by a special encryption technology called “Secure Sockets Layer”. Special mobile applications have been developed and implemented for ease of use of electronic tax administration services in the UK. Using these applications, taxpayer has the opportunity: to review his electronic tax account and determine which taxes are required to be paid; he can review his earnings; check the personal insurance number; review schedule of tax benefits; he can use a special tax calculator; participate in the process of correspondence with the tax authorities, etc.

It should be mentioned that in the United Kingdom, electronic tax administration is developing very quickly since information technology is being introduced in almost all areas of the tax system. First of all, this is due to the convenience of transferring a part of the taxation process to the online format, because its efficiency and effectiveness are significantly increasing under such circumstances. In addition, a significant factor in the rapid development of e-administration is the gaining relevance of e-commerce within the country’s financial system. The latter is a wide range of interactive methods for conducting activities on providing consumers with goods and services. Also under the electronic commerce, we can understand any forms of business operations, where the parties interact through electronic technologies, but not in the process of physical exchange or contact. Thus, the transfer of a significant part of the business on the Internet causes the necessity of the formation of a corresponding model of the activities of state bodies. That is why the relevance of electronic tax administration is increasing

4. CONCLUSION

So, the analysis of international experience in the field of electronic tax administration has shown that today there is a large number of countries where the digital tax format functions effectively and is constantly evolving. Besides, the individual developments of these countries in

the field of electronic tax administration are positive and necessary for the implementation in the territory of Vietnam. Particularly, in order to improve the e-administration of taxes, it is necessary:

Firstly, we need to involve private organizations in the process of manufacturing software for the system of electronic tax administration. For Vietnam, this experience is extremely useful, because this model of work allows attracting more experienced specialists who can create high-quality and, most importantly, functional software. This, in turn, will significantly improve the efficiency of electronic tax administration in general;

Secondly, in the process of direct introduction and construction of the system of electronic tax administration, it is expedient to use an approach, according to which the key emphasis is not carried out separately on the issue of introduction of technologies in the activities of the authorities. But the main attention is paid to the state support of information infrastructure in general. Mainly, such an approach manifests itself in stimulating the private sector in the implementation of activities related to the creation of new technologies and their implementation in the life of society;

Thirdly, the system of electronic tax administration should be effective, but at the same time, it should be as simple as possible for taxpayers. In this aspect, it is advisable to use a UK experience. In this country, a subject of taxation has access to its electronic account in the system of electronic tax administration from a mobile phone through special software. And the functional and spectrum of electronic services for such an account are quite wide.

The use of the mentioned above international experience will make it possible to build a simple and effective system of electronic tax administration in Vietnam.

REFERENCES:

- [1] Electronic Tax Filing: efile History in the US available at: <https://www.efile.com/efile-electronic-tax-filing-history/> [Accessed 31 October 2018]
- [2] IRS, "Consumers Warned of New Surge in IRS E-Mail Schemes during 2016 Tax Season" (18 February 2016) available at: <https://www.irs.gov/newsroom/consumers-warned-of-new-surge-in-irs-e-mail-schemes-during-2016-tax-season-tax-industry-also-targeted> [Accessed 31 October 2018]. Page13-58.
- [3] RS, "Consumers Warned of New Surge in IRS E-Mail Schemes during 2016 Tax Season" (18 February 2016) available at: <https://www.irs.gov/newsroom/consumers-warned-of-new-surge-in-irs-e-mail-schemes-during-2016-tax-season-tax-industry-also-targeted> [Accessed 31 October 2018].
- [4] The ministry of Finance (2015), Circular No. 110/2015/TT-BTC
- [5] <http://www.lirs.gov.ng>
- [6] <http://www.gdt.gov.vn>
- [7] <http://www.gov.uk/government>

MANAGING PEER TO PEER LENDING IN VIETNAM

Tran Phuong Anh¹

ABSTRACT

The Industrial Revolution 4.0 has been creating strong changes and developments in many areas of socio-economic life in Vietnam. As a field that is required close professional management, but the financial sector is not out of this trend. Peer to Peer Lending (P2P Lending) is one of the new financial activities in Vietnam, that is developed on digital technology platform. However, this activity has potential risks that are required suitable management mechanisms.

Peer to Peer Lending is considered an activity, a new product in the field of financial technology. If operated and managed effectively, P2P Lending can bring many benefits to the economy and society. And it will contribute to promoting Vietnam 's comprehensive financial development. However, P2P Lending poses many management problems to ensure limiting and controlling risks. This urges Vietnam needs to quickly develop and complete its management mechanism, creating a legal environment for development of P2P Lending activities.

Keywords: industrial revolution 4.0, P2P Lending, finance

1. INTRODUCTION

Peer to Peer Lending - P2P Lending - is a credit channel that is developed on a digital technology platform. This form has developed very quickly and strongly in many developed countries for over ten years. In Vietnam, this form was first appeared in 2016; but after over 3 years, this activity has grown quite vigorously and quickly.

Objectives of research:

- + This article will provide an overview of P2P Lending, such as the concept, how it works, the benefits as well as the negative aspects of P2P Lending.

- + Considering this issue in Vietnam condition, then propose some recommendations for managing P2P Lending activity effectively in Vietnam

2. THE CONTENT

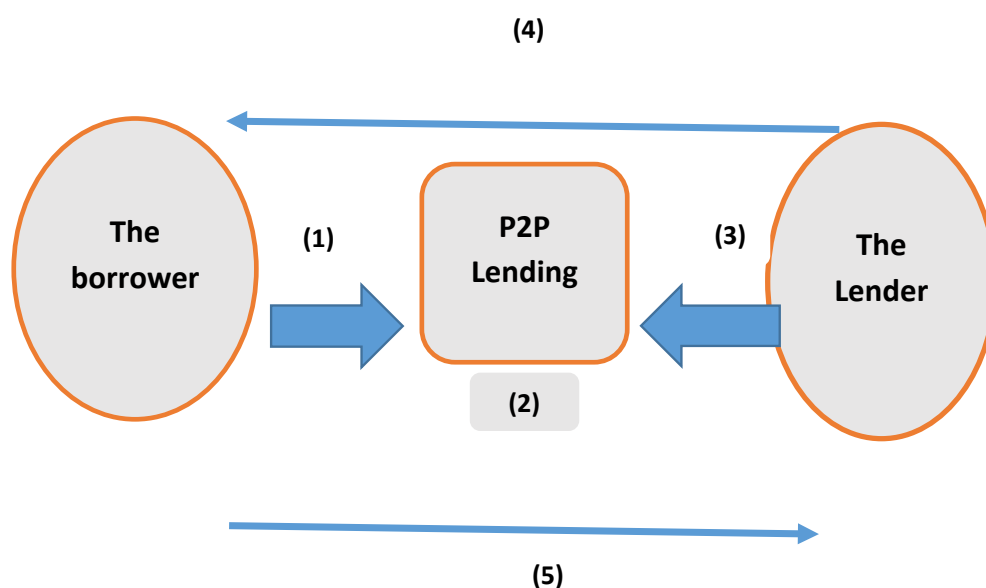
2.1. Overview about Peer to Peer Lending - P2P Lending

Peer to Peer Lending - P2P Lending is understood as a new form of lending, allowing individuals to borrow money directly from other individuals, using online software. This form

¹ Academy of Finance, email: pahvtc@gmail.com.

of eliminating the intermediary role of banks and credit institutions from the borrowing process. By Big Data technology and using artificial intelligence - AI, borrower information, loan profile, applicable interest rates ... are done entirely online. To carry out this activity, there are 3 parties involved, they are borrowers, lenders, and supply organizations (loan application platform - Platform). Borrowers may be individuals or organizations that have difficulty accessing capital from banks, in which, individual is the most common. Lenders are people with idle money. The organization that provides the loan application platform - also known as peer lending companies - is the intermediary, connecting the borrower and the lender. The supplier acts as a financial advisor, conducts a credit rating of the borrower, provides disbursement information, urges the revocation of debts, and acts as an authorized unit of lenders stand to collect debts ([1], [9]).

Picture 2.1: Operating model of P2P Lending [1],[9]



(1) When there is a need for a loan, the borrower will post information on the P2P Lending website or app. Information that the borrower needs to provide such as:

- Personal information: full name, address, email, phone number, identify card / ID card number
- Information about career, work, income, education level...
- Information about the loan needed: amount to borrow, purpose, repayment plan...
- Information about financial status: income, current debts...

These informations may be required having accompanied evidence.

(2) After the borrower posted informations on the P2P Lending website or app, the loan application platform will analyze the information and determine the borrower's risk level (usually the credit information or social responsibility), then put the information to the lender exchange where the lenders can give a decision. Lenders will base on listing information and make loan recommendations. A loan can be divided into several loans and provided by different lenders.

(3) The borrower, based on loan offer information, selects the lender who give the appropriate interest rate; or interest rate can be determined by P2P Lending company. The P2P Lending company can base on the credit information, or analyze the borrower's social account to give interest rate or establish it by having the lender compete on the reverse auction model.

(4) Money is transferred to the borrower's account

(5) Upon maturity, the borrower transfers direct payment to the lender. The P2P Lending system is responsible for reminding due debts.

P2P Lending was established and developed in the UK, 2005 ([6],[8]). So far, this form has developed very strongly in many countries, including Vietnam. Some advantages of P2P Lending are:

- Meeting the needs of loans from the majority of individuals or small-scale organizations
- who are difficult to access loans from the banks. With this way of operation, P2P Lending is considered as one of the financial channels contributing to reduce the black - credit situation, a solution to help the country develop comprehensively financially.

- Borrowers may only pay a lower fee than fee paid for the bank, and the procedure is more simple, too. At the same time, the lender may have a higher income than the income got from the bank. According to the way P2P Lending operates, this is a method based on Fintech technology, borrowers and lenders are almost directly traded with each other via the application. For P2P Lending companies, the borrower and lender will have to pay a fee for using the app, which is considered insignificant.

- When using BigData technology, artificial intelligence (AI) on P2P Lending application, combined with information security technology, meanwhile, the information transparency between borrowers and lenders will be higher. Participants do not have to worry about personal data being compromised.

However, P2P Lending also contains many risks, especially in newly applied countries like Vietnam ([2],[6],[8]), some prominent risks such as:

- **Legal risks:** The legal framework for this form to operate effectively and safely is an issue that requires managers to pay attention to promulgating and manage. It can be said that P2P Lending in developing countries like Vietnam is a new form of credit, a gap that has not been reached by the law. Some countries (such as Japan and Israel) have not even recognized or banned this activity. Some other countries have no clear regulations on P2P Lending, the development is still spontaneous (such as China, Ecuado, Egypt, Korea ...), or is in the process of testing (Thai Lan, ...). Thus, the interests of lenders may be affected when there is no mechanism to resolve if disputes occur. Similarly, the borrower's privacy can be violated without specific protection provisions.

- **Liquidity risk:** According to the way of P2P Lending, lenders cannot cancel their transactions, such as discounting or reselling loans to others.

- **Operational risks:** This is a type of risk prone to technology application activities, when the software fails or stops working. P2P Lending is a financial operation, operating on a digital technology platform, so P2P Lending also always faces this risk. And when an operational risk occurs, the damage will be both to the borrower and the lender.

- **Information risk:** when participating in P2P Lending, the borrower must provide the necessary information to access the loan. But there is currently no accurate estimate of the true or false level of information that were provided by the borrower. Therefore, if the information are incorrect, the risk will certainly fall on the lender. If the information are accurate but the security is not high, it also creates risks and inconveniences for borrowers. On the other hand, the platform provider may also be unclear with the intermediary role of connectivity, disturbing transparency and affecting the advantages of this type of activity.

2.2. P2P Lending in Vietnam and recommending management solutions.

In Vietnam, the number of people who can not access to formal financial services is relatively high - as reported by the World Bank, up to 79% of people have difficulty or no access to formal financial services [6]. The bank also has difficulties in supporting small loan services because of many reasons, such as procedures, operating costs, limited resources ... P2P Lending is considered to be a solution to solve these difficulties. So up to now, Vietnam is still a potential market for the development of P2P Lending. Therefore, although it has just appeared in Vietnam since 2016, P2P Lending in Vietnam has developed quite strongly, although its operation has not been its right really meaning in. So far in Vietnam, there are over 40 companies operating in this field, of which, some are quite well known and highly appreciated ([2],[6],[7]). Tima is considered the top, this company is operating mainly in Ho Chi Minh City market with an initial investment of VND 150 billions. So far, thousands of lending and borrowing customers have been linked online, via the Tima platform, with trillions VND in outstanding loans. Currently, Tima has been valued at up to VND 500 billions, after successfully calling for USD 3 millions from the Belt Road Capital Management Fund. In 2018 and 2019, this company continued to assert its position and brand by signing a cooperation agreement with Vietinbank Insurance Corporation in providing loans to borrowers; and Nam A Commercial Joint Stock Bank in managing the lender's money ([2],[4]).

The second company that is often mentioned in P2P Lending field is Lenbiz. Lenbiz is associated with the Tima platform, operating mainly in the Hanoi market. Lenbiz operates towards market the small and medium-sized enterprise. And the most recent is the Fiin Lending platform (2018) which has operated by Fiin Financial Technology Innovation Joint Stock Company. Fiin aims to connect borrowers and lenders through mobile applications and primarily aims at consumer lending. Thus, Fiin has exploited the application on smartphone media - something that the majority of people are using.

Overall, if it is managed effectively, P2P Lending will contribute to promote Vietnam towards comprehensive finance, and can solve the difficulties that the formal financial system facing. However, because of lacking an appropriate legal framework for this model to operate effectively, so now, this model still contains many risks for the economy and society. The risks are often mentioned:

- Disguised for black – credit activities: because of lacking an appropriate legal workframe for P2P Lending, the companies which are operating in this field in Vietnam often register operation business in the form of financial advice. But in fact, there have been companies turning into black

- credit, using the title P2P Lending but raising funds or lending with very high interest rates. The way operation of these companies affects society badly and puts many people to be miserable. Currently, Mofin Financial Technology Joint Stock Company, with terrorist style in reminding debt, is causing concern for many people. So, it is very necessary to manage by State [5],[7].

- Borrower is unable to repay debt. P2P companies only act as intermediaries, connecting online between borrowers and lenders. So, they do not face liquidity risks. Moreover, most loans are unsecured loans, without collaterals. Therefore, if liquidity risk happens, lenders will face risks. In Vietnam today, mechanisms to protect lenders have not been finalized

- Information risks (inaccurate, not confidential ...): because Vietnam still has many limitations in technology application. P2P Lending is mostly unsecured loans, so when the information is incorrect, there is a lot of risks for lenders. Borrower's personal information is also at risk of disclosure.

- The relationship in P2P Lending tends to be more and more complex. The parties involved are not only individuals or businesses through the online platform, but also recently had the participation of credit institutions.

3. SOME RECOMMENDATIONS FOR MANAGING P2P LENDING ACTIVITY EFFECTIVELY IN VIETNAM.

Vietnam can inherit, refer to the countries leading in the management and development of P2P Lending. The fact shows that countries will usually focus on three main issues, which are (1) regulations on investors' lending limits; (2) regulations on standards, licensing as well as the mechanism of operation and supervision of P2P Lending companies; and (3) regulations on information disclosure and monitoring. Based on the above experience, combined with the actual operation of P2P Lending in Vietnam past time, this article proposes some recommendations, such as:

- Need to acknowledge and have legal mechanisms for P2P Lending activities to work effectively. In the industrial revolution 4.0, and the current status of Vietnam's credit operations, the development of P2P Lending is perfectly appropriate. This is the general trend of all countries, and Vietnam, too. Building the legal mechanism for P2P Lending is creating a playground in accordance with the new development conditions today. It is necessary to clearly define the operation, model, responsibility, rights and role of P2P Lending, especially in the process of evaluating borrower information, providing information to lenders. P2P Lending is responsible for providing accurate information for both parties, and implementing risk control and risk management for the parties involved.

- This is an activity related to the financial sector, so it should be the type of conditional business. P2P Lending businesses need to meet a number of basic conditions, such as: online software engineering standards, the continuous operation of the online platform, and the responsibilities involved in providing information and distribution, analyzing information for both parties, encouraging P2P Lending to buy credit insurance for investors (according to Tima's implementation). Developed countries (as France, Germany, Italy...) suppose the P2P Lending platform is a high-tech banking business, because they still have to conduct customer credit appraisal and scoring, provide private services financial advice. Therefore, it is necessary to obtain a license from the regulatory authority and these P2P Lending companies must comply with the same conditions as other banking business organizations.

- The Government needs to specify the ceiling interest rate for P2P Lending activities; fees associated with these ones. According to current regulations, the lending interest rate among economic sectors is set at no more than 20%. However, with P2P Lending - which acts as a link between the borrower and the lender - some types of fees have not been regulated ceiling level, such as referral fees, appraisal fees, consulting fees...

- In order to enhance the accuracy of the information, P2P Lending may be allowed to participate in accessing credit information of the State Bank. This ensures reliable credit information and eliminate the risk of bad debts. Technology applications should evaluate, credit rating and social responsibility of the parties involved

- The State needs to stipulate the contents to ensure financial security, such as investment limit, minimum safe capital level of P2P Lending. The State also need to requires P2P Lending companies to set up risk provisioning funds, increase accountability for online connection activities.

- This is an activity requiring management from the State, so, the State should promulgate specific regulations about the time of reporting information that have to give to the management agency; contents to be reported such as transaction volume, loan amount, calculation of overdue debts, bad debts, etc.

- In addition, promoting a cash-free economy is a important condition to contribute in comprehensive financial development and limit risks in P2P Lending activities.

In summery, P2P lending is an activity, a product of the 4.0 era in the financial sector. Therefore, Vietnam needs to quickly develop and complete its management mechanism, creating a legal environment for development of p2p lending activities./.

REFERENCES

1. Pointer on P2P Lending: How It Works, Current Regulations and Consideration, on: <https://media2.mofo.com/documents/150129p2plendingbasics.pdf>
2. Viện nghiên cứu quản lý kinh tế Trung ương, Trung tâm thông tin – Tư liệu, chuyên đề 14: Quản lý Nhà nước trong nền kinh tế chia sẻ: Kinh nghiệm quốc tế và gợi ý cho Việt Nam, 2018
3. Luyện Vũ, Loại hình cho vay ngang hàng: Chuẩn hóa các quy định để giảm thiểu rủi ro, Truy cập: <http://thoibaotaichinhvietnam.vn/pages/tien-te-bao-hiem/2019-09-10/loai-hinh-cho-vay-ngang-hang-chuan-hoa-cac-quy-dinh-de-giam-thieu-rui-ro-76140.aspx>
4. Ngô Minh, Làm gì để giảm rủi ro từ cho vay ngang hàng, Truy cập: <http://vneconomy.vn/lam-gi-de-giam-rui-ro-tu-cho-vay-ngang-hang-20190326094320253.htm>
5. Dũng Nguyễn, Sóng ngầm vay ngang hàng, Truy cập: <https://nhipcaudautu.vn/chuyen-de/song-ngam-vay-ngang-hang-3330084/>
6. PGS.TS Nguyễn Văn Hiệu, Cho vay ngang hàng – Kinh nghiệm thế giới và hàm ý cho Việt Nam, Truy cập: <http://tapchinganhang.gov.vn/cho-vay-ngang-hang-kinh-nghiem-the-gioi-va-ham-y-cho-viet-nam.htm>
7. Đảm bảo an toàn tài chính trong cho vay ngang hàng, Truy cập: <http://thoibaotaichinhvietnam.vn/pages/tien-te-bao-hiem/2019-07-16/dam-bao-an-toan-tai-chinh-trong-cho-vay-ngang-hang-73980.aspx>
8. Hoàng Thị Duyên, Đỗ Thị Tuyết Mai, Cho vay ngang hàng trên thế giới và thực tiễn tại Việt nam, Truy cập: <http://tapchitaichinh.vn/ngan-hang/cho-vay-ngang-hang-tren-the-gioi-va-thuc-tien-tai-viet-nam-306106.html>
9. Cho vay ngang hàng là gì? Cách hoạt động và rủi ro từ cho vay ngang hàng, Truy cập: <https://topbank.vn/tu-van/cho-vay-ngang-hang>

GREEN BONDS – THE TOOL FOR SUSTAINABLE DEVELOPMENT OF THE FOURTH INDUSTRIAL REVOLUTION

Ha Thi Tuyet Minh¹

ABSTRACT

The development of technology and the growth of the economy have contributed to promoting the general development of social life, but this has led to increasingly serious impacts on the environment. According to estimates of the Organization for Economic Co-operation and Development (OECD), by 2020, more than 800 billion USD will need to be invested in the field of renewable energy, renewable energy, energy efficiency and low emission facilities every year. The purpose of this article is to clarify the benefits and risks when developing the green bond market, from which the author made a number of proposals relating to the deployment and development of Vietnam's green bond market in the near future. The paper is structured in 3 parts: the first part deals with the concept and the importance of green bonds for sustainable development, the second part analyzes the risks of issuing green bonds, the last section gives some implications. to develop green bonds.

Keywords: *Green bonds, green growth, sustainable development*

Sustainable development has been identified as a central issue in the development policies of many countries around the world. In Vietnam, green growth is identified as a strategy towards sustainable development. However, the capital demand for developing green projects is huge and the issuance of green bonds is considered an important capital raising channel.

1. WHAT ARE GREEN BONDS? WHY ARE GREEN BONDS IMPORTANT FOR SUSTAINABLE DEVELOPMENT?

1.1. What are green bonds?

Green Bonds are known as Climate Bonds or Environmental Bonds. Currently there are many concepts of green bonds. Della C. et al. (2011) gave the definition: Green bonds are considered as fixed income stock issued by governments, multinational banks or economic groups to raise capital necessary for a specific project to contribute to reducing carbon emissions and less impact on the climate [1].

With a narrower definition, David Wood et al observed no clear characteristics or criteria for a green bond. The results of interviews conducted by the Initiative for Responsible Investment, Program of Harvard University show that investors did not make any specific requirements for green bonds. Investors choose a green project solely based on the project's purpose such as the contribution of the project in reducing emissions or conservation and sustainable agricultural

¹ Lecturer, Department of Finance, Hanoi University of Business and Technology.

development ... Thus, the labeling of “green” for bonds, the most obvious way is to encourage investors to prioritize the field related to climate, environmental protection or increase funding for low-carbon economy [2].

Recently, with the goal of standardizing green bonds as well as developing this bond market, a group of organizations including 4 global banks namely Bank of America Merrill Lynch, Citi Group, Credit Agricole, JPMorgan Chase Bank have worked together to draft a Green Bond Principles (GBP). According to the 2016 GBP, Green bonds are any type of bonds for which the proceeds from bond issuance are used for sponsoring or refinancing a part or the whole of the new green project or the active Green Project which *is eligible for funding and complies with the 4 principles of the GBP*. Green projects are defined as projects whose activities promote environmental sustainability in accordance with the issuing organization’s project selection and evaluation process. The management of revenue sources from the bond issue is clearly recorded, verified origin within the issuing organization (Principle 3) and the issuers need to report, at least annually, that using the capital gained from issuing green bonds (Principle 4) [3].

So, generally, *green bonds are standard debt instruments that bring fixed income to the holders. The revenue from the sale of these debt instruments has the purpose of using clearly stated as financing for “green” projects or projects related to environmental protection such as: renewable energy, waste management, sustainable land use (forestry and agriculture), biodiversity, clean transportation and clean water.* In other words, green bonds are debt securities like other types of bonds, with interest or no interest; Green bonds are also rated by professional Credit Rating Agencies (CRA), with term and interest rate. Green bonds differ only from other types of bonds in the following two basic points: (1) The proceeds after subtracting costs related to the offer for sale are used to fund or refinance for green projects, projects for the environment or taking into account environmental benefits; (2) There are other terms of repayment mechanisms, recourse, non-recourse issuers (International Capital Market Association - ICMA, 2016).

Typically, green bonds go through a verification process to determine that the proceeds to fund projects generate environmental benefits. This verification process is conducted by a third party, the Climate Bond Standard Board. In general, bond issuance always receives positive support from the Government. Green bonds can be structured in different ways such as being linked to inflation or a green index.

1.2. The importance of green bonds to sustainable development

Green bonds are said to be tools for sustainable development because of the benefits they bring.

Firstly, green bonds are the financial source to help “green” the environment

“Clean technology” is a trend chosen by investors in the face of risks caused by climate change and environmental issues, “green” bonds bring financial resources for the nation to deploy clean energy projects, reducing impacts and adapting to climate change. It can be said that green bonds are a tool to raise capital for Vietnam to cope with climate change, improve the efficiency of natural resource management and environmental protection. In addition, green bonds are leverage to carry out renewable energy projects such as wind power, solar power or invest in waste treatment systems, minimize the negative impact on the environment.

Green bonds are a potential solution to meet Vietnam's capital demand for infrastructure construction. Investors, especially foreign investors, are often afraid of "pouring" capital directly into projects that build environmentally friendly infrastructure partly because of the legal barrier risks that exist during the construction process. Green bonds insured by reputable banks will help investors no longer have to worry, thereby attracting capital for the project.

Secondly, green bonds help diversify funding sources for "green" projects.

Green bonds are the solution that allows to diversify investor base, create competitive capital channels, support the socially responsible investment movement and effort to combat climate change in Vietnam. Green bonds can mobilize a variety of financial resources to support environmental projects which funding may not be available, or would not bring economic benefits if financed by more expensive sources. Thanks to the characteristics of the financial risks and benefits of green bonds as for ordinary bonds, the company will enjoy lower interest rates than bank loans and more flexibility in using capital, so raising capital is easier. Through financing green projects, the implementing investors are committed as the signatories to the Principles for Responsible Investment (PRI). Therefore, companies and government agencies can enhance their reputation by branding themselves as creativity and sustainability.

Thirdly, green bonds contribute to increased transparency in the use of capital

Green bonds contribute to increased transparency in the use of proceeds from the issuance of bonds, as well as transparency on the environmental impacts of investments and fixed income from the project.

Finally, green bonds facilitate the creation of partnerships between the public and private sectors, which can accelerate the pace of green investment and lead to the application of new technologies, especially in 4th industrial revolution. Through the green financial market, the capital mobilized from green bonds for green investment enterprises, boosting the economic sector's shift towards greening and towards sustainable development of the economy.

2. RISKS OF GREEN BONDS

Besides the benefits that green bonds bring, this tool also has hidden risks.

2.1. Risks for green bond investors

Many investors do not feel secured when choosing green bonds. It is the fact that the unclearness and unification of the concept or characteristics that make up a green bond are the main reasons why investors feel uncomfortable when choosing this form of long-term investment. Moreover, the green bond market is still not transparent. As the green bond market grows, the lack of transparency will become an increasingly serious problem. In addition, green bonds are small in scale, low in liquidity and short in term, while institutional investors tend to prioritize investing in sustainable long-term assets.

Although the Directive No. 03 / CT-NHNN dated March 24, 2015 of the State Bank on promoting green credit growth and managing social and environmental risks in credit granting activities is assessed as contributing to opening up green credit, but comparing with the standard

of transparency, openness and confidence in the market of the GBP, the Vietnamese market needs more efforts to be able to meet. International experience shows that the unclearness and unification of the concept or characteristics that make up a green bond is the main reason why investors feel uncomfortable when choosing this form of long-term investment. In addition, investors are always concerned about measuring the environmental benefits of projects financed by green bonds. Green bonds must not only satisfy the characteristics of government bonds (such as liquidity or government commitment) but also have higher returns than corporate bonds. Bonds related to inflation, if it does not solve problems closely associated with inflation and ensures affordability, will certainly not be well received by the market.

2.2. Risks for green bond issuers

Green bond issuers will be at risk of reputation when any “green” bonds (possibly issued by other organizations) are found to be not “green” and this will affect the confidence of all investors. The application of international standards is limited and there are not enough independent organizations to evaluate sustainability indicators for companies, such as credit rating agencies with appropriate expertise to provide prestigious reviews on “green business”.

In fact, issuers, whether private or public, bear a lot of costs when issuing green bonds. To validate the green standard, the issuing agency must pay fees to the consulting firm and credit rating company. Not to mention, there may be costs incurred from the regulatory authority. As such, green bond issuance is much more outstanding than ordinary bond issuance. Therefore, the issuer must consider, minimize the required investment capital and operating costs.

Green bonds often attract only socially conscious investors, including pension funds and non-profit organizations. These investors tend to acquire all green bonds by registering to exceed the amount of newly issued bonds and holding them until their maturity. This puts the market in a difficult situation: Green bonds are clearly very popular, but they are not traded much, it is difficult to get an accurate view of their market value at any given time. That could make it difficult for companies to issue additional shares.

However, in Vietnam, the official issuance of green bonds has not been implemented due to the lack of legal framework and reporting guidelines to support sustainable growth, and the application of international standards. The application of international standards is limited, lacking an independent organization with sufficient capacity to evaluate sustainability indicators for companies. In addition, the initial costs for green projects often have high capital needs, risks of large capital costs.

3. SOME RECOMMENDATIONS FOR DEVELOPING GREEN BONDS

In order to promote the development of the green bond market, in recent times, many activities to support the green bond market have been simultaneously implemented by the State. However, the official issuance of green bonds has not been implemented due to insufficient legal framework and reporting guidelines to support sustainable growth, and the application of international standards is limited. In addition, the initial costs for green projects often have high capital needs, risks of large capital costs. In the coming time, to promote the development of green bonds, the author would suggest the following recommendations:

3.1. Recommendations to help green bonds “attract” investors

To develop a green financial market, just issuing is not enough, investors need to be ready to buy green bonds.

Firstly, strengthening policies to encourage investment in green bonds

The Government should issue policies to encourage investment in eco-friendly business and consumption activities. The Government’s policies and guidelines will encourage economic sectors to invest in areas of sustainable development, such as: development of new energy and renewable energy; develop production of new raw materials, fuels and materials to replace traditional resources. For example, tax incentives for green bond investors. If long-term savings are not taxed but green bonds are bought for sustainable development, tax is difficult to attract investors.

Secondly, to increase the liquidity of green bonds

When owning green bonds, the liquidity of this tool is also a factor to attract investors. To have liquidity, the green bonds themselves must create attractiveness to investors in terms of ensuring the commitment and bring the best rates of interest. In Vietnam today, the reputation of intermediary financial institutions such as underwriters, credit rating agencies ... is the guarantee on which investors base their investment decisions, especially for some very new products like green bonds. Therefore, Vietnam needs to clearly identify the important role of independent financial intermediaries and take measures to encourage their participation.

Moreover, if the country has a weakly developed domestic market and liquidity is limited, it will not be advantageous to issue green bonds on the domestic market. To promote liquidity of green bonds, the State Bank should have a mechanism to accept the use of green bonds in open market operations with a higher discount rate than similar bonds; allowing credit institutions to use green bonds (government-guaranteed bonds ...) as compulsory reserves.

In addition, Vietnam should implement a number of pilot green projects well, in which, note the transparency and clarity of the project, as well as the use of money raised from green bonds for the right purposes such as original commitment. This is really a good solution to create confidence for investors.

3.2. Recommendations to help organize the issuance of green bonds

Firstly, to finalize the legal framework on green bonds

Vietnam’s economy has achieved a decent growth rate in recent years. However, economic growth has inevitably affected the environment. Therefore, in order to promote green growth and sustainable development, the Government has issued policies with specific provisions on green bonds and practical implementation of relevant ministries and branches, including:

- 2011: National strategy on climate change,
- 2012: National strategy on green growth
- 2013: Sustainable development strategy (2013) and National action plan on green growth period 2014 - 2020

- 2018: Decree No. 95/2018 / ND-CP of the Government on June 30, 2018.

In addition, the Ministry of Finance issued a number of documents related to green bonds:

- October 6, 2015: Circular No. 155 / TT-BTC guiding the disclosure of information on the stock market with regulations on environmental, social and governance information in annual reports of listed enterprises as a basis for developing green / sustainable indices

- October 20, 2015: Decision No. 2183 / QD-BTC, approving the action Plan of the Finance Sector to implement the National Strategy on Green Growth to 2020, in which the construction plan is proposed. , finalizing financial policies related to promoting the implementation of green growth strategies, reviewing and finalizing policies on developing green capital markets and green financial products (including green bonds).

In addition, the ASEAN Green Bonds Standards Department, which was studied and launched in November 2017, provides common standards for the issuance of ASEAN green bonds, in order to contribute to the implementation of integration and connectivity goals. towards sustained growth in the ASEAN region.

The development of green bonds has been implemented by Vietnam since the end of 2015 through a cooperation program to build a scheme to develop the green bond market between the State Securities Commission and the German Development Cooperation Organization (GIZ), Hanoi Stock Exchange (HNX). In recent years, HNX and Ho Chi Minh City Stock Exchange (HOSE) have been actively building measures to realize the attraction of investment capital into the green bond market. Vietnam has also actively coordinated with a number of international organizations to pilot issuance of green bonds.

However, the official issuance of green bonds has not been implemented due to limitations of the legal framework, the ability to organize and connect with the international market. In order to develop green bonds, it requires standardization, the most obvious is the requirement of both “quantity” and “quality” in the legal framework. It is the unclearness and unification of the concept or characteristics of green bonds that is the main reason why investors feel uncomfortable when choosing this form of long-term investment. Therefore, Vietnam must have clear and consistent green bonds, information transparency requirements must be clarified for the participants of the green bond market. In particular, the regulations clarify the ways and methods of measuring environmental benefits of projects financed by green bonds.

The State should establish a legal framework for green bonds such as: Issue regulations and conditions when listing stocks (green listing), reporting and monitoring according to green bond criteria; Formulating a scheme to develop products of the green capital market, including a set of green indices (sustainability index, carbon index ...) to monitor, evaluate and transact on capital markets; green investment certificates issued by investment funds for green projects, green fields ...; In addition, the authorities should issue the Responsible Investment Principles soon (require listed companies to provide general reports on the company’s activities and social and environmental risks, as a basis for investors to identify key industries that meet the criteria for financing and investment from green bonds) in order to encourage socially and environmentally responsible investment activities.

Secondly, to create transparency for green bonds'

Promoting the issuance of green bonds for green projects and programs under the spending task of local budgets. This both creates more transparency than regular bonds, and helps link local governments to the market in addressing climate change issues, and is more proactive in promoting Capital mobilization for green programs and projects.

Thirdly, to encourage widespread issuance of green bonds

The State needs to strengthen the implementation of policies, especially tax and fee policies to encourage businesses to mobilize investment capital for green growth through the issuance and listing of bonds and green shares. Thanks to tax incentives can encourage investors to buy green bonds, while tax rates on debt instruments may reduce the attractiveness of bonds. At the same time, it is necessary to have mechanisms to encourage and support businesses and investment funds in procedures and favorable investment mechanisms when issuing bonds and investment fund certificates for green projects, programs and fields; to study and establish the Sustainable Development Support Fund based on the experience of other countries and review the current system of policies to ensure focus and avoid spreading. In addition, there should be incentive mechanisms to support businesses and investment funds in procedures, favorable investment mechanisms when issuing bonds, investment fund certificates for green projects, programs and fields.

Green bond issuance could increase faster if companies can see that eco-friendly bonds have high prices in the secondary market. Because higher bond prices also imply lower financial costs for issuers, it may encourage companies to issue first-time. The issuance of green bonds usually has a higher cost because the issuers must be certified as their green projects, but that can be offset if the issuers pay interest rates lower. In other words, green bonds may be issued more widely if they are traded more frequently, but to do that green bonds will need to find larger investors. Therefore, it is necessary to have orientation for the issuance of green bonds to the international market in order to attract foreign investors to obtain a large source of foreign currency, serving the sustainable economic development.

REFERENCES

1. Della Croce, R., C. Kaminker and F. Stewart (2011), "The Role of Pension Funds in Financing Green Growth Initiatives", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 10, OECD Publishing. From <http://www.oecd.org/finance/private-pensions/49016671.pdf>
2. David Wood and Katie Grace (2011), *A Brief Note on the Global Green. Bond Market*, Initiative for Responsible Investment at Harvard University. From http://iri.hks.harvard.edu/files/iri/files/iri_note_on_the_global_green_bonds_market.pdf
3. International Capital Market Association (2016) , *Green Bond Principales 2016: Voluntary process Guidelines for Issuing Green Bonds*
4. United Nations Development Programme (UNDP) (2016) *Green Bonds*. Retrieved from United Nations Development Programme (UNDP). <https://www.undp.org/content/dam/sdfinance/doc/green-bonds>

TAX MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES IN VIETNAM

Ho Quynh Anh¹, Nguyen Thi Thu Ha¹, Bui Thu Ha¹, Tran Thi Thu Nga², Le Viet Nga³

ABSTRACT

Starting an innovative business is an area that is attracting a lot of attention. The specific tax regime for individuals and organizations involved in innovation is one of the issues that many researchers are interested in. This article focuses primarily on providing some terminology as well as making comments and assessments of the specific tax regime for individuals and organizations involved in innovative startups.

Keywords: *creative innovation, mechanism, start-ups, tax.*

1. INTRODUCTION

Creative innovation activities have attracted great concerns from many economists, researchers and scholars in economy recently. The relentless fluctuations of the market, along with the advent of enterprises with innovation and creativity factors, together with the Government's interest, have made the start up environment should be enriched and grow in both numbers and ideas. In summary, up to the time of 2018-2019, some of the highlights for the creative activities are recognized as highly internationalized with the attention of funds and individuals and organizations from abroad to the system. The Vietnamese start-up ecology is getting bigger and bigger, and the attention of the authorities and departments to the creative start up community has also become more practical. This fact poses for researchers and policy makers to seriously review the existing system of mechanisms and policies for those involved in the innovative start-up ecosystem, re-evaluate strengths and weaknesses, learn lessons learned from other ecosystems, thereby propose amendments and improve the legal environment for these subjects more suitable with reality accordingly.

2. TERMINOLOGIES:

In Vietnam, in recent decades, the term "mechanism" has been used quite often and frequently, especially in the field of economy and finance. However, there are various ways of interpreting or understanding "mechanism" and its constituent elements. In general, scholars have defined mechanism as a way of organizing and operating entities and phenomena, discovered or created by humans to achieve a certain goal.

¹ Corporate Finance Department

² Foreign language Department, Academy of Finance.

³ Business Administration Department, Academy of Finance.

Tax is the amount of income that is compulsory transferred from individuals and legal entities to the state for public use according to the extent and duration prescribed by law. The form of mobilizing income into the state budget through compulsory taxes is based on the rule of law, attached to the power and authority of the state. Taxes play an important role in raising revenues for the state budget and adjusting macroeconomics.

“Taxation mechanism” is a way of organizing the process of transferring income from individuals and legal entities to the state. The tax regime is a mixed form which has both objective and subjective features as tax is recognized and used by people while it is a tool that the state uses to generate revenue for the state budget and to regulate the macro economy. The implementation of tax mechanism is firstly concretized through tax policy. Tax policy is a system of state views and directions in mobilizing revenue sources into the state budget through taxation; Regulations on the rate of mobilization and the mechanism to mobilize revenue over time to ensure the highest efficiency of state budget revenues. In different stages, there may be different mechanisms and tax policies.

Starting a business is understood as efforts to make risky business decisions or establish a new business, which may be in the form of self-employment, working alone, establishing a new business, or expand existing businesses by an individual, a group of individuals or by an established business.

Innovation is the ability of an economy to renew itself through the combination between enterprises and universities, research institutes or receiving benefits from customers, suppliers, etc. to constantly create new technologies, new products, new production processes. Creative innovation (CI) is also the process of new inventions from research and development to the market. It is the operation of a large apparatus and that is the reason for the need of a good framework (economic, social, cultural, educational, legal, etc) for enterprises on the right track.

Startups are expressed by creating new ideas, new products, services or processes, bringing breakthroughs in revenue as well as creating positive changes in the community and society. If invention creates a new idea, product, service or process, innovation has a broader meaning, including the application of those inventions in practice and flexible change, or modification of each part to create value for that invention in a whole new way.

Organizations and individuals that are involved in creative innovation or investing in creative innovation are also subjects to the tax laws. However, this field and activities also have more special features than other common activities. Moreover, the implementation of creative innovation is the area that countries have focused on developing in recent times. Therefore, there should also be a specific tax mechanism for those involved in this field.

3. CONSTITUENT ELEMENTS OF SPECIFIC TAX MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES OR INVESTMENT IN CREATIVE INNOVATION

The specific tax mechanism for organizations and individuals engaged in creative innovation activities or investing in creative innovation start-up includes the following main constituent elements:

Firstly, the system of government's views on mobilizing revenue sources into the state budget through taxes and using tax tools to regulate creative activities. For conventional creative thinking, the government's view is that it is necessary to create the most favorable conditions for development, so the encouragement of revenues to the state budget from these activities in the short term is arranged after the preferential target for development.

Secondly, the way to raise State revenues through the taxation for creative innovation start-up is determined appropriately through the tax incentive level. Because this activity is in the incentive field, it often has lower incentive level than other activities and longer incentive tax period.

Thirdly, the development orientation of tax system. In different periods, the development orientation of the tax system is also different, which has an impact on the use of specific tax mechanisms for creative innovation start-up, on the formulation of specific tax policies to adjust operations of start-up or investors.

3.1. Activities of specific tax regimes for organizations and individuals engaged in creative innovation activities or investment in creative innovation

3.1.1. Determine the scope of tax adjustment

For the government, the most important thing when using a specific tax mechanism for organizations and individuals engaged in creative innovation activities or investing in creative innovation is to define clearly which regulation to regulate and for which income. Normally, for incomes, for production and business activities that the state needs to encourage development, it may not be adjusted by tax policies, or regulated at a lower level. In addition, to ensure the feasibility of the policy, it may not be included in the scope of tax policies for certain activities in the field of creative taxation.

3.1.2. Determine the appropriate tax rate

This is an extremely important factor. Appropriate tax rates will ensure the harmonious settlement of interests of the state and taxpayers, thereby creating incentives for taxpayers to conduct creative innovation activities, encouraging entities to increase investment for creative innovation start-up activities. Appropriate tax rates will contribute to create financial resources for businesses to survive, to continue implementing the creative innovation activities.

3.1.3. Apply differentiated tax rates

Through the imposition of different tax rates for each type of goods, each field or industry, which affects the encouragement or restriction of the development of regulated domains, industries and commodities to the government's orientation. Normally for incentive activities, the tax rate will be lower than the tax rate applicable to other fields and subjects. In principle, preferential tax rates really make sense in the case of direct taxes. Preferential tax rate means less tax payment, increased profit after tax of the company and individuals, creating financial resources for the company to reinvest, and low tax rates will also stimulate companies and individuals to boost investment in startup activities. Preferential tax rates can also work in the case of certain indirect taxes, when taxes constitute the price of inputs for production. The application of preferential tax rates will reduce input costs, thereby reducing product costs and encouraging increased demand,

from which enables supply to grow. The method of application of the discriminatory tax rate to promote the creative development activities is based on the tax spillover effects. This impact has led to the reallocation of social resources, focusing on industries and commodities with low taxes. The taxation at differentiated tax rates has differentiated effects on industries and fields, promoted economic restructuring and benefited the economy, creating favorable conditions for the economy to grow stably.

3.1.4. Apply tax incentives

Tax incentives are the form for taxpayers to benefit favorable conditions when paying taxes. Depending on the management requirements and development requirements in each period, the State may increase or decrease the size and extent of tax incentives to stimulate accumulation in enterprises and the investors. The forms of tax incentives for creative taxation are very diverse, including:

Exemption of income tax in whole or in part

With this form, taxpayers are allowed to exempt all (or part of) income taxes (and sometimes even other taxes) for certain years. The application of this kind of incentive will bring direct benefits to investors, which can be meaningful to create motivation to increase investment in creative innovation start-ups.

In general, when implementing incentives through the full or partial exemption of income tax for a given period, three important factors must be considered: the duration of the tax incentive period; the effective date and relationship between the provisions of the tax incentive period and the regular tax system, especially for provisions on depreciation and loss transfer. Although the tax incentives are very popular, the tax incentive period is actually more effective for long-term investors rather than for creative startups.

Reduce the corporate income tax rate for some activities

Permanent or temporary reduction of corporate income tax rates may apply for specific activities. This form has a good effect on attracting investment capital of investors, has a positive effect on encouraging the development of certain areas, easier to manage and the costs of revenue is more transparent. However, applying this form for creative innovation businesses may have limitations such as: difficulties in identifying and managing profits that qualify for low tax rates; limit the creativity of entrepreneurs when focusing only on a number of preferential activities.

Investment deduction and tax deduction for investment

Investment deduction and tax deduction for investment are forms of supplement or replacement for the tax incentive period applied by governments of some countries. These incentives complement normal depreciation allowances and allow investors to eliminate cost overruns. Investment subsidies often reduce taxable income, while tax credits for investment are based on tax payable.

Investment deduction or discount can be applied to all forms of capital investment or only apply to certain specific groups, such as investing in advanced technology machines or equipment, or investing capital in some activities such as research and development.

Investment tax deductions can be either fixed or incremental. Fixed tax deduction for investment is the fixed rate enjoyed on investment costs arising from the capital eligible for preferential treatment (target capital) for one year. In contrast, the increase in tax deduction for investment is a fixed rate of investment from excess investment that qualifies for concessions during the year. The purpose of incremental tax deduction is to improve the inclusion of incentives towards increasing costs, without which such costs would not be incurred.

Quick depreciation of capital costs

For creative innovation enterprises, one of the following forms of asset depreciation can be selected: (1) Depreciation at a rate faster than the economic depreciation rate; (2) Applying a depreciation method with decreasing balance with a greater extent applied to the first years (for example, larger than the straight-line depreciation method); (3) For certain types of assets, depreciation may be faster than the normal case.

However, the incentives in the form of depreciation are only meaningful in the case of an income-generating enterprise, if the enterprise has no income, then the support for investment capital will be more effective.

Loss transfer

For not only creative innovation enterprises, but also for investors and supporting units, loss transfer and loss handling are a good measure. With the characteristic that up to 98% of SMEs are not successful when starting a business, it is inevitable for investors to lose money. Large investments in manufacturing can only yield returns after about five years or more since investing, but these are home to investments that many countries desire to attract. For investors, allowing the transfer of losses in the early years to offset the tax liability of the following years has a very important role and is a support measure that many countries use.

4. IMPACT OF SPECIFIC TAXATION MECHANISMS ON ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES OR INVESTING IN CREATIVE INNOVATION

4.1. Positive impacts:

Using specific tax policies and mechanisms will directly affect benefits (reduction of direct costs: related taxes / fees or performance of obligations, indirect costs: related to time and the complexity of implementing administrative procedures for the performance of obligations), of those who perform creative innovation activities or those investing in creative innovation start-ups. Therefore, it will encourage entities to increase investment in creative innovation start-ups and stimulate development of creative innovation activities.

Methods of using specific tax mechanisms and policies on creative activities often have many impacts, possibly first of all affecting the background factor - capital for creative innovation, to the owners of the implementation of creative activities, to the environment for creative innovation start-ups. In addition, this impact can affect the awareness of the investors or participants in the creative innovation that is the interest of government departments and agencies in a positive way to improve and support the subjects participated in these activities more practically.

4.2. Negative impacts:

Regarding revenue to the State budget: in the short term, when using a specific tax mechanism for creative activities, it may be necessary to apply various forms of tax incentives for this activity, thus it often leads to a decrease in revenue. From tax to the state budget, there are certain difficulties for the National Treasury planning activities.

Regarding the business environment: unreasonable use of specific tax regimes for creative taxation activities may create opportunities for tax evasion and avoidance due to differences in tax mechanisms and policies for different statuses. Moreover, if too many tax incentives are applied to creative innovation start-ups, while many other non-preferential activities can create inequality in the business environment between businesses and investors in different areas or activities, causing negative feedbacks of a number of investors and businesses to the tax mechanism and policies of the state.

If too much abuse of tax incentive mechanism for creative innovation start-ups can lead to the dependence of those who implement it or the reliance on the state's support. As a matter of fact, it may create a counterproductive effect of the use of specific taxation mechanisms to entities implementing creative activities or investing in creative innovation.

5. CONCLUSION

The use of a specific tax regime for organizations and individuals engaged in creative innovation activities or investment in creative innovation must synchronize with other policies on creative innovation. There is a need for a clear distinction in the use of specific tax mechanisms with other policies, and the need for coordination with other policies in order to promote the effects of mechanisms and policies for organizations and individuals engaged in creative innovation activities or investing in creative innovation start-ups

REFERENCES

1. Dan cenor and Saul Singer, *"Start-up Nation, The Story of Israel's Economic Mirarle"*, World Publishing House 2013.
2. Diem Thi Thanh Hai, Hoang Phuong Anh, *"Some proposals for credit policies to create favorable conditions for startups to innovate and operate"*, Finance Publishing House, 2018
3. European Commission, *"Effectiveness of tax incentives for venture capital and business angels to foster the investment of SMEs and start-ups"*, 2017
4. Proceedings of National Science Conference, *"Tax and financial policies specific to the development of innovative start-up ecosystems"*, Institute of Finance 2018
5. Le Xuan Truong, *"Solutions on tax mechanisms and policies to improve the competitiveness of Vietnamese industry enterprises in the present conditions"*, 2002, Master thesis
6. Ly Phuong Duyen, Do Van Hai, *"Specific financial policies for developing the startup ecosystem"*, Journal of Finance No. 9/2018
7. Nguyen Ba Minh et al, *"Financial policies to promote the development of private enterprises in Vietnam"*, Ministry of Science Project 2016
8. Pham Chi Thanh, *"Renewing financial policies for the public non-business sector in Vietnam"*, PhD thesis, 2011
9. Pham Tien Dat, *"Principles to formulate specific financial policies for start-up innovation activities - from international experience"*, Finance Publishing House, 2018;

MOBILIZING FINANCIAL RESOURCES FOR PUBLIC HIGHER EDUCATION UNDER THE CURRENT AUTONOMY MECHANISM IN VIETNAM

Tran Huong Xuan¹

ABSTRACT

With the role of providing high quality human resources for the economy, higher education is considered as a part of social infrastructure, an important foundation and an indispensable condition for the economic development in the Age of 4th Industrial Revolution. Public universities in Vietnam have played a leading role in the higher education system, both in terms of training scale and training quality. To impulse the development of public higher education, finance is a very important resource, an essential condition to promote other resources. Effective mobilization of financial resources for public higher education in Vietnam in the context of promoting educational socialization and strengthening university autonomy is in line with the orientation of the State to develop the socio-economy comprehensively and sustainably. The paper summarizes the mobilized financial resources for Vietnam's public higher education today, analyses and assesses the situation of mobilizing these financial resources in recent years, thereby proposes some solutions to effectively mobilize financial resources for public higher education in order to meet the requirements of the current autonomy mechanism in Vietnam.

Keywords: *autonomy mechanism, financial resources, higher education, mobilize, public universities*

1. INTRODUCTION

The Fourth Industrial Revolution has been happening quickly and strongly, deeply affecting all areas of social life. Currently, not only Vietnam but many countries around the world are facing the great challenge of the shortage of highly qualified, professional and skilled workers. Therefore, higher education institutions in which public universities play a key role need to be renewed to meet the requirements of the labour market. In order to do that, public universities need to mobilize abundant financial resources.

Moreover, in the current autonomy mechanism of public non-business units and the university autonomy mechanism in Vietnam, the need to mobilize financial resources for public higher education is increasing, while financial resources from the State budget are still limited. Therefore, intensifying the effective mobilization of financial resources for public higher education towards innovative development has become an urgent requirement.

The paper addresses the following issues: First, systematize the financial resources that public universities can mobilize under the current autonomy mechanism in Vietnam; Second, assess the

¹ Hanoi University of Home Affairs, Portal 36, Xuan La street, Xuan La ward, Tay Ho District, Ha Noi city, VietNam, Email: tranhuongxuan.dhnh@gmail.com

situation of mobilizing financial resources of public universities in Vietnam. Thereby achieve the objective of the study is to propose some solutions to effectively mobilize financial resources for public higher education in Vietnam today.

2. FINANCIAL RESOURCES THAT CAN BE MOBILIZED FOR PUBLIC HIGHER EDUCATION UNDER THE CURRENT AUTONOMY MECHANISM IN VIETNAM

With the issuance of Resolution N^o.77/NQ-CP dated October 24, 2014 on piloting the renovation of operation mechanism of public tertiary education institutions in the 2014-2017 period and Decree N^o.16/2015/ ND-CP dated February 14, 2015 on stipulating the mechanism for exercising the autonomy of public non-business units, the Government has identified the university autonomy mechanism as an inevitable trend of Vietnamese public universities.

Accordingly, the Government determined that training should be linked to social needs, and that university autonomy consists of four main pillars, including: Autonomy in organizational structure; self-control in personnel; financial autonomy and academic autonomy. In particular, financial autonomy plays a fundamental role to effectively and sustainably implement the autonomy content of the apparatus, personnel and academia.

Financial resources for public higher education in Vietnam today are formed from many sources, including the State budget and sources outside the State budget. According to Decree N^o.16/2015/ND-CP, the financial resources of the public universities are: (i) State budget sources; (ii) Income from public non-business service activities; (iii) Retained fees and charges according to the law on fees and charges; (iv) Other revenues as prescribed by law; (v) Financial resources come from the financial transactions of universities in accordance with the law; (vi) Aid and funding sources as prescribed by law; (vii) Financial aid for students.

2.1. State budget sources, including:

- The State budget supports the not included costs in the prices and charges of public non-business services (for public universities that partly cover recurrent expenses by themselves because the price of public non-business services is not fully structured, are ordered or assigned by the State to provide public non-business services at prices and charges not fully included the cost).

- State budget allocated for irregular tasks (if any), including: Funds for performing scientific and technological tasks (for units not being scientific and technological organizations); funding for national target programs; other programs, projects, schemes; reciprocal funding for implementation of projects under decisions of competent authorities; capital for development investment ; funding for equipment procurement for non-business activities under projects approved by competent authorities; funding for unexpected tasks assigned by competent agencies.

- Sources from the State budget are allocated directly to public universities to offset the tuition fees that are exempted or reduced for learners who are eligible for exemption or reduction prescribed in Decree N^o86/2015/ND-CP dated October 2, 2015, and studying at these universities.

2.2. Income from public non-business service activities, including:

- Revenues from university tuition fees (currently called training service prices): According to Decree N^o86/2015/ND-CP, the tuition fees of public higher education establishments which are self-sufficient for recurrent and investment expenditures by themselves shall be determined on the basis of economic and technical norms and cost norms promulgated by competent agencies and the

roadmap to fully calculate training costs. Tuition fees of public higher education institutions that are not self-sufficient for recurrent and investment expenditures according to the Government's regulations are determined on the basis of a balance between the State's support and learners' contributions, follow the roadmap to reduce subsidies of the State.

Revenues from the provision of services suitable to the professional fields and capabilities of public universities, such as: Revenues from short-term training and fostering contracts with domestic and foreign organizations; Revenues from contracts for the performance of organizing recruitment contests and career title promotion contests; Revenues from activities of production and sale of products and experimental products; Revenues from production - testing projects; Revenues from scientific and technological service contracts; Revenues from consulting services; revenues from distribution of books and publications; and other revenues as prescribed by law such as money from kiosk rentals, parking services, stationary counters... on the principle of ensuring cost recovery and then accumulation.

2.3. Retained fees and charges according to the law on fees and charges:

These are the retained fees and charges for regular expenditures or for the procurement and overhaul of equipment and properties in service of the charge and fee collection. For public universities, this source of income is now almost negligible, because the tuitions previously included in this section are now considered to be public service prices.

2.4. Other revenues as prescribed by law:

These are other incomes such as income from the sale, liquidation of fixed assets; Profit difference after revaluation of fixed assets transferred as capital contribution to joint ventures, associates and other long-term investments; Collect fines for customers who violate contracts; Collection of bad debts which have been written off; Taxes refunded from the State budget; Payable debts with unidentifiable owners; Amounts compensated by the third party for the unit (such as insurance, compensation ...); Other incomes besides the above. These revenues of public universities are abnormal, irregular, and they constitute a very small proportion of their total revenue.

2.5. Financial resources come from the financial transactions of universities in accordance with the law, including:

- Capital obtained from borrowing and mobilizing: Public universities with service activities may borrow capital from credit institutions and mobilize capital from officials and employees in their units for expanding the scale and upgrading the quality of non-business services, and other service activities in accordance with functions and tasks.

Particularly for public universities, which can guarantee recurrent expenditures and investment expenditures, they may borrow capital and raise capital for investment and construction of material foundations according to current regulations. When applying for loans and mobilizing capital, universities must have feasible financial plans, take responsibility for repaying loans and interests according to regulations, and take responsibility before law for the effectiveness of capital borrowing and capital mobilization.

- Capital of joint ventures and associates of domestic and foreign individuals according to the provisions of law.

- Income from financial activities: Interests from bank deposits, profits from joint ventures, associates and financial investments in accordance with law.

2.6. Aid and funding sources as prescribed by law, including:

Official Development Assistance (ODA): the economic organizations, international financial organizations, and the governments of developing countries grant non-refundable aid or preferential loans to public universities.

Financial sources in the form of charitable funds, gifts from domestic and foreign organizations and individuals to public universities. In recent years, fundraising activities through this form have been paid much attention to by the universities, and become one of the effective financial sources for their development.

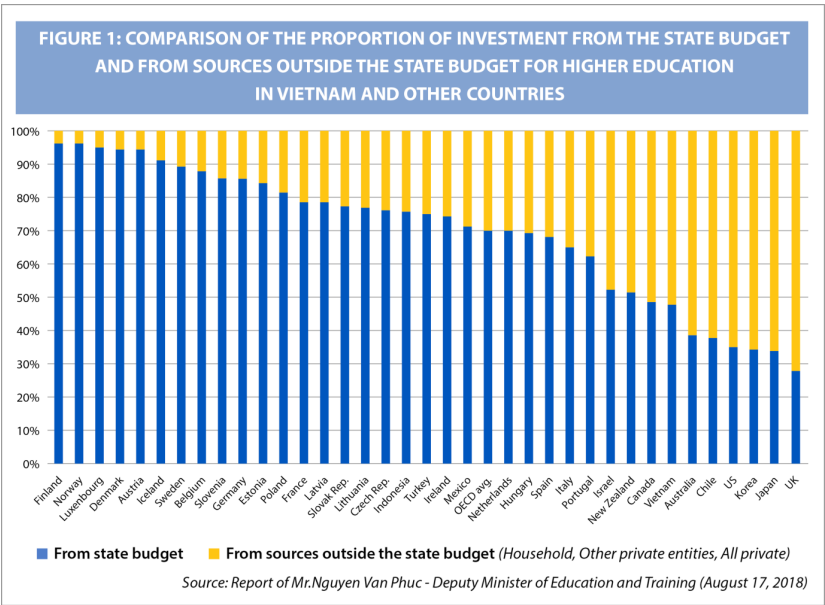
2.7. Financial aid for students.

In general, there are three types of student financial aid: (i) *Scholarship*: Financial aid that is non-refundable to students. Beneficiaries are students with excellent academic achievements, regardless of circumstances or financial needs; (ii) *Subsidies*: Providing financial support to groups of disadvantaged students; (iii) *Concessional loans*: Students can borrow a sum of money with State incentives in the following matters: Interest rates (often lower than commercial interest rates); Lending conditions (unsecured); Terms of payment of principal and interest.

3. ACTUAL SITUATION OF MOBILIZING FINANCIAL RESOURCES FOR PUBLIC HIGHER EDUCATION IN VIETNAM

3.1. Regarding the mobilization from State budget

In recent years, the source of funding from the State budget has always accounted for a large proportion in the structure of the financial resources of the public universities in Vietnam (about 30% - 40% of the total revenue of the public university every year). However, compare to other countries in region and around the world, Vietnam still have high contribution rate of learners and their families to higher education through tuition payment (Figure 1). This is consistent with the policy of “cost sharing” in higher education by mobilizing the contributions of learners as well as all organizations and individuals in the society. This leads to the fact that the proportion of State budget revenues in total revenue of public universities tend to decrease.



The State budget allocation mechanism is still complicated and fragmented. The allocation of State budget for education in general and for higher education in particular complies with the provisions of the Law on State Budget 2015 which clearly defining two levels (central and local levels). *At the central level*, the allocation of State budget for regular activities in the field of higher education for ministries and provinces is the task of the Ministry of Finance; and that for investment activities is the task of the Ministry of Planning and Investment. *At the local level*, the Provincial People's Committees are specialized agencies which are responsible for allocating the State budget. Because there are many stakeholders, including line ministries and agencies involved in the process of allocating State budget for public universities, therefore, the process of State budget allocation becomes complicated and overlapping.

The State budget allocation mechanism is still average between public universities. The criteria for State budget allocation are based on the size, the number of students enrolled at the university and the funding level of the previous year. This allocation is not yet associated with the criteria that reflect the quality of training and outputs. This is a major obstacle in the implementation of autonomy mechanism and at the same time leads to the lack of competitive motivation between universities.

3.2. Regarding the mobilization of revenue from public non-business service activities

The diversification of the revenue of public universities currently has not yet achieved significant results. The revenue from public non-business services of the public universities mainly comes from tuition fees. Other revenues from scientific and technological consulting and transfer services, education and training consulting services under contracts for organizations and individuals, human resource recruitment services ... are still limited.

The current tuition fees of universities are still low and not corresponding to the actual training cost of tertiary education (Average tuition in period 2011-2015 was only more than VND 10 million/year/student). In addition, with the tuition ceiling applied in the Decree N^o.49/2010/ND-CP as before and Decree N^o.86/2015/ND-CP currently, universities are forced to expand their training scale in the condition that financial resources are not sufficient to reinvest and improve the training quality in accordance with the social needs and requirements.

Public universities are still limited in terms of training quotas as prescribed by the Ministry of Education and Training. To increase revenue, they have expanded the types of training such as: informal training, joint training. However, in fact the number of new students recruited for these types of training at public universities has been on a downward trend in recent years, this has been greatly affecting the revenue of universities.

3.3. About mobilizing financial resources from financial transactions

According to Decree N^o.16/2015/ND-CP, public universities in Vietnam are autonomous in financial transactions through opening transaction accounts at commercial banks, borrowing and mobilizing capital. However, mobilizing financial resources through financial transactions still has the following limitations:

First, the mobilization of capital from credit institutions and other organizations and individuals to support the provision of higher education services according to the needs of public universities is still limited due to the lack of guiding documents for implementing the law.

Second, the State has not yet had a specific mechanism for universities to implement the autonomy to borrow preferential loans or receive interest rate support to expand investment in facilities, equipment for training and scientific research.

Third, the degree of autonomy of public universities is not high, so the financial investment activities of the universities are limited. The income from financial activities of public universities is mainly from interest on deposits at credit institutions.

3.4. Regarding the mobilization of financial sources from foreign aid

After Vietnam re-opened its relationship with international organizations, the public universities in Vietnam have received strong support commitments from many donors, including bilateral and multilateral, in which the Official development assistance (ODA) capital accounts for the majority.

However, the mobilization of ODA capital for higher education in Vietnam has been not really effective. The overall disbursement rate in the education and training sector is only 68%, lower than the disbursement rate of other countries in the region. This is the reason why there has been the delay in implementation of projects, the reduction of the efficiency of capital use, which affect the implementation of socio-economic tasks set out.

3.5. Regarding mobilizing financial resources from the student support policies

The implementation of supporting student programs and projects in recent years still has the following inadequacies:

For the study encouragement scholarship, policy scholarship and social assistance project for students: Currently, there is an overlap between regulations of study encouragement scholarship and policy scholarship as well as social assistance project. If students, who are already acceptable for benefits from policy scholarship or social assistance project, are eligible for study encouragement scholarship, they are still permitted to get that scholarship. However, in fact, students in this category are only partially accepted but not fully entitled to the study encouragement scholarship.

For the project of tuition exemption and reduction, and that of support for students' study costs: Public universities have not yet implemented direct tuition reduction and exemption for students who are social policy beneficiaries but still collect their full tuitions, afterwards, the tuition exemption or reduction will be reimbursed to those students after the committee reviews and accepts the exemption or reduction. According to the regulations, the payment of tuition support for ethnic minority students has to be performed twice in an academic year, but many universities only pay once a year.

For the student credit project: Through 10 years of implementation, this project has brought many positive results. The program has lent more than 3.5 million pupils and students in difficult circumstances. Nevertheless, according to result of the survey and assessment of the student credit project in recent years, some difficulties and challenges are encountered such as: (i) The recovery of loans is still a hard problem because of the awareness of the borrowers and the inadequateness of regulations and procedures to control the repayment of loans; (ii) Lending procedures are still inadequate due to the fact that the loan application forms do not ensure the strict legal commitment

and the consistency among related entities (Local government where students reside, Bank for Social Policy and Ministry of Education and Training), bringing difficulties for students who have to travel many times to apply for a loan; (iii) The loan repayment period of 12 months after graduation is at low feasibility, for it is so hard for students to find a stable job in such a short time; (iv) The maximum credit line for students is VND 1.5 million/month which is a tight budget compared to the average cost of students currently attending university in big cities.

3.6. About mobilizing other funding sources

In addition to the aforementioned financial resources, in order to mobilize financial resources for higher education in Vietnam today, universities often have fundraising activities to call for contributions from the community of individuals, organizations and businesses in the form of gifts, charity funds. However, this financial source has not been really exploited by the public universities, so the mobilizing ability is still very limited.

4. SOLUTIONS TO IMPROVE THE EFFICIENCY OF MOBILIZING FINANCIAL RESOURCES FOR PUBLIC HIGHER EDUCATION

In order to improve the efficiency of mobilizing financial resources for higher education in Vietnam, the following measures should be implemented synchronously:

4.1. Renovating the method of State budget allocation for higher education:

It is necessary to change the model of State budget allocation for public universities based on input factors such as: number of new students, staffing and learners scale..., to allocate based on output factors that reflect the university's performance such as: total number of teaching hours, the quantity and quality of scientific research works, the number of graduates finding jobs related to their major, the satisfaction of the society...

The State should only provide operating funds for a number of higher education institutions assigned to perform special tasks or that in difficult areas and regions... The public universities that are slow to innovate and not to adapt under the competition mechanism should be restructured, merged, or transferred the ownership to non-State economic sectors.

4.2. Increasing revenues from public non-business service activities:

It is necessary to renovate tuition policies based on the principle of cost sharing with society, and the public universities play the role of the service providers. Tuition fees of public universities should be raised according to the pricing roadmap for public non-business services as stipulated in Decree N^o.16/2015/ND-CP, with the aim of covering necessary training costs to achieve satisfactory quality but still suitable for each major and each group of students with different circumstances and needs.

In addition to the revenue from tuition fees, public universities should pay special attention to mobilizing revenue from non-business activities in accordance with their professional fields and capabilities. The State should strengthen the legal corridor for universities to strongly develop products from scientific research and inventions and have a mechanism to commercialize these products.

4.3. Renovating financial support policies for students:

It is essential to review, amend and supplement the relevant legal documents to build a clear mechanism based on defining specific criteria, avoiding the overlap between policy beneficiaries.

In order to improve the effectiveness of the implementation of student credit programs, the following recommendations can be considered: (i) Prescribe multiple credit lines for different groups of students, so that they can be lend enough to cover both tuition fees and living expenses; (ii) Expand the beneficiaries of preferential credit policies, targeting households with 2 children attending university or college; student groups who want to continue their master's and doctoral training; (iii) Apply various lending interest rates, including: The current low interest rates for the poor and near-poor groups; the interest rates that are lower than the average lending rates of commercial banks for other groups; Interest rate reduction if borrowers pay principal and interest ahead of schedule; (iv) Determine the credit lines based on academic result along with the performance of skills, ethics, and attitude as criteria to appraise students' future financial capacity; (v) Apply repayment schedules that are consistent with the monthly income of working graduates, and they only have to start repaying when their salary is above the regional minimum income...

4.4. Promoting the mobilization of investment capital for public universities from domestic and foreign sources under the policy of socializing higher education, focusing on:

(i) Attracting domestic investment capital: The State should issue regulations on mobilizing loans, joint venture capital from organizations and individuals in society. In addition, it is necessary to institutionalize the mobilization of financial resources from businesses for higher education by issuing policies to encourage businesses to support higher education through corporate income tax incentives, to attract financial resources from the private sector to invest in high quality tertiary education institutions to meet the diverse needs of Vietnamese students for learning and researching.

(ii) Attracting foreign investment capital: There are some measures that should be taken to promote the efficiency of ODA and international funds for research, such as: Improving the legal environment so that autonomous universities can approach ODA capital, funding sources from international individuals and organizations; Improving the quality of ODA projects by clearly defining investment objectives based on the actual needs of the universities that receive the projects...

4.5. Improving the legal mechanism for business activities of public universities:

The State should issue more specific guidelines on the management and use of public property for business and rental purposes in order to exploit effectively and economically the available resources of public universities.

Besides, the State should also complete the legal corridor for the establishment of science-technology enterprises inside the universities (known as spin-off companies), where the scientific research results could be applied; the practical value of scientific research projects of scientists and lecturers could be verified and evaluated; technology could be transferred while long-term benefits of the higher education institutes and individual scientists are ensured ... Moreover, the State should develop clear regulations on rights and responsibilities for the public universities in proceeding financial business activities and owning the financial assets to formalize these activities in the current autonomy mechanism.

REFERENCES:

1. The Government, Resolution N°.77/NQ-CP on pilot the renovation of operation mechanism for public higher education institutions in 2014 -2017 period, dated October 24, 2014;
2. The Government, Decree N°.49/2010/ND-CP on reduction and exemption of tuition fees, support for learning cost, collection and use of tuition applicable to educational institutions belonging to national education system from school year 2010 - 2011 to 2014 - 2015; dated May 14, 2010;
3. The Government, Decree N°.16/2015/ND-CP stipulating the mechanism for exercising the autonomy of public non-business units, dated February 14, 2015;
4. The Government, Decree N°.86/2015/ND-CP on mechanism for collection and management of tuition fees applicable to educational institutions in the national education system and policies on tuition fee exemption and reduction and financial support from academic year 2015 - 2016 to 2020 - 2021; dated October 2, 2015;
5. The National Assembly, Law N°.83/2015/QH13 on State Budget, dated June 25, 2015
6. Ministry of Education and Training (2017), Report on results of evaluation of the implementation of Resolution N°.77/NQ-CP on piloting the renovation of operation mechanism for public higher education institutions in 2014 -2017 period;
7. Ministry of Finance (2011), Report assessing the situation of implementation of financial autonomy and orientations on renovating financial mechanism for public universities in the period of 2012-2020;
8. Phung Van Hien (2014), Student support policy - Issues raised today, *Journal of Political Theory*;
9. Dao Thanh Binh, Thai Thu Thuy, Phan Van Thanh, Pham Thi Thanh Huong and Nguyen Thi Yen (2017), Credit quality for disadvantaged students of Vietnam Bank for Social Policies from the student's perspective: Experimental research at Hanoi Polytechnic University, *Journal of Industry and Trade*.

FINTECH – OPPORTUNITIES AND CHALLENGES FOR THE DEVELOPMENT OF THE FINANCIAL AND BANKING SYSTEMS

Nguyen Huu Tan¹, Nguyen Thu Thuong²

ABSTRACT

Fintech is used to describe an emerging trend in the banking and finance area. Along with the development of Industry Revolution 4.0, more and more consumers are using Fintech products and services. Vietnam has a lot of potential for Fintech to develop. However, along with development opportunities, Fintech in Vietnam still has many difficulties and challenges.

Keywords: *fintech, financial and banking systems, opportunities and challenges*

1. WHAT IS FINANCIAL TECHNOLOGY?

Financial technology (Fintech) is used to describe an emerging trend in the banking and finance industry. To put it more simply, Fintech is the application of science - technology to the Finance - Banking. Objectives such as banks, insurance companies, traditional financial institutions, consumers and other businesses, etc. have the demand to use Fintech services.

Fintech companies are currently providing services in many different fields such as banking technology, payment, financial management, digital currencies, etc. with diverse products such as electronic wallets, online commerce B2C, mPOS, etc.

Basically, it is possible to classify the services that Fintech companies provide according to the types of services: financial services: mobilizing capital from the community, credit, etc.; asset management; automation recommendations; personal financial management; investment and banking services; payment services; and other services (insurance, guarantee, other technological solutions).

2. OPPORTUNITIES FOR THE BANKING AND FINANCE SYSTEM

The impact of the Industry Revolution 4.0 on the development of the banking system is increasingly evident with the appearance of a series of innovative banking products and services, as well as distribution channels based on financial fintech. This gives financial institutions and banks opportunities to change, in particular as below:

¹ Faculty of Corporate Finance, Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam.
E-mail: nguyenhuutan@hvtc.edu.vn.

² Faculty of Corporate Finance, Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

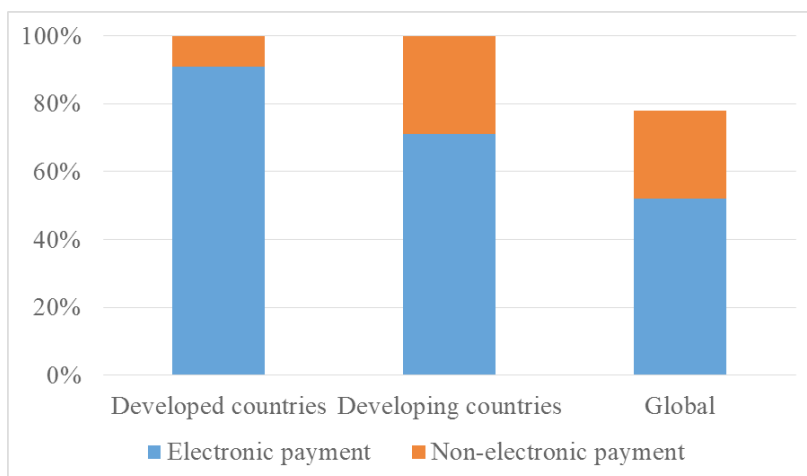
Firstly, expanding the branch network is no longer a priority in the competition between financial institutions and banks.

If the core banking systems designed in the late 80s and early 90s were not flexible and customer-focused, the digital banking models built on Fintech solutions are the models built on the basis of optimizing the customer experience in accordance with the conditions and needs of customers. Today, the basic utilities, that a bank offers are available at all times in the digital space through service applications which are easily downloaded to mobile phones or made online on the Internet, is no longer dependent on branch systems and transaction offices as before. Competition through the expansion of the network of bank branches in a digital age will probably not meaningful much, instead of that, technology factors will become an advantage for banks, especially for small banks, which were previously difficult to expand market share.

Secondly, the movement of customers using services from traditional channels to electronic and online channels

Mobile technology has shifted customers' need to use services to online transaction channels and smart mobile phones instead of going to bank branches to take a series of procedures. The World Bank's report in 2018 showed that the shift of customers' payment needs from traditional channels to electronic channels has exceeded 50% globally, in which electronic payment channels have become leading channels in developed countries with over 86% of adult customers having accounts.

Chart 1. The movement of payment channels



Source: World Bank

This is also an opportunity for small-sized financial institutions and banks to attract more customers living in rural, remote areas in developing countries in Asia or Africa, who do not have a bank account and have difficulty accessing to banking services. According to the Global Index Report in 2018, there are still about 2 billion people worldwide who currently have no access to and own a payment account, more than 200 million small and medium-sized businesses also do not have access to formal financial services. In fact, despite the very low income, more and more people in this income class have the opportunity to access Internet services or mobile phones. According

to data of GSMA Intelligence, the number of mobile users in developing countries was higher than 80% in 2014 (compared to 55% of people with a bank account) and by 2020, this number will be 90%. For many of these people, especially those who live in rural or remote areas, Internet or mobile technologies will become a gateway for them to access financial and banking services.

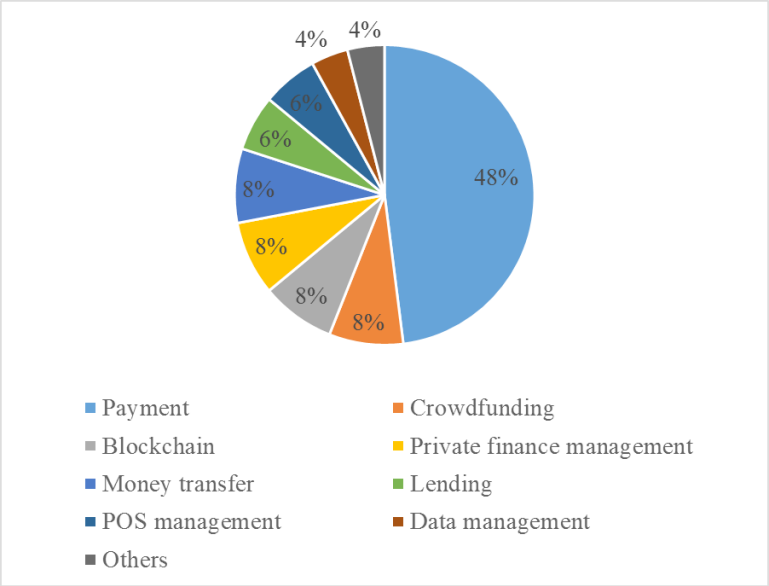
Thirdly, the shift to Omni-channel banking

Currently, in many developed countries, bank branches with modern and convenient transaction space with large television screens and tablets help customers interact and experience the service without the assistance of traditional tellers, which is becoming more and more popular. The construction of bank branches is mainly based on automation technology, multidimensional connectivity and intelligence towards the development of self-service devices based on artificial intelligence and machine learning. In the course of the digital revolution, financial institutions have stopped focusing on the development of multi-channel banking but have recently turned to the development of omni-channel banking, which were designed to maximize the customer experience. Through the omni-channel, customers can access banking services anytime, anywhere, by any device with Internet connection in real time, and can experience the synchronization and instant service circuit on all channels of Internet Banking, Mobile Banking, ATM. This approach also allows banks to analyze data on customer activities through different channels, thereby forecasting more accurately customers' needs and interests, and enhance their ability to communicate more effectively with customers; at the same time, increase efficiency and improve operational efficiency by replacing human-based manual processes with digital transactions and reducing operating costs.

Fourth, the emergence and strong participation of Fintech companies in the financial - banking market

The explosion of Fintech solutions developed by non-bank organizations in the past time has had a significant impact on the banking and financial sector, especially in promoting access to finance services. Fintech companies have been attracting a large number of customers, especially those who do not need a large network of branches and transaction offices, to be developed on the basis of information technology and telecommunications systems. People living in rural, deep-lying, remote areas and islands, who do not have a bank account, are customers that banks and traditional financial institutions have not yet fully provided. The main trend in recent years is still a combination of Fintech and banks. The combination of Fintech and the bank creates financial and banking services with high quality, more experience and utilities, faster processing time and lower service costs. Thanks to that, banks can attract more customers to use the services, especially value-added services.

Chart 2. Classifying Fintech companies according to area in Vietnam



Source: Fintech News

In general, the increasing use of digital banking services results in greater access to technology and mobile infrastructure around the globe. Vietnam, with nearly 65% of the population currently living in rural, remote areas, has difficulties in accessing financial and banking services. The system of branches, bank transaction offices or ATM networks of banks with low coverage due to the expected efficiency compared to the investment costs is low and has not met the business requirements of the banks. Because of the inability to access the services of banks, people living in these areas are now using unofficial payment and remittance channels with low safety and high risks.

Meanwhile, the rate of access to mobile phones and Internet of Vietnamese people is high. Vietnam has 64 million Internet users, ranked sixth in the Asia-Pacific region and 13th in the world (according to Internet World Stats) and a total of 25.1 million smartphone users, with a smartphone access rate of 26.4%, ranked 21st in the world (according to Newzoo’s Global Mobile Market). In addition, young people’s understanding of information technology; the explosion of e-commerce; the low proportion of people having a bank account is a favorable factor to develop Fintech-based financial and banking services in Vietnam in the future.

3. THE CHALLENGES FOR THE BANKING AND FINANCE SYSTEM

However, Fintech’s innovation not only brings great benefits to banking and financial institutions, but it also poses great challenges for countries in conducting and managing this activity. The emergence and development at a fast pace of Fintech - a completely new field has made the financial systems of countries face many challenges and difficulties such as the risk of money laundering and terrorism financing, risks related to security, safety, information security. It can be seen that, at present, two opinion and different approaches to the activities of Fintech companies have emerged:

First, the conservative considers Fintech products and services to be the same as banking services, so it must comply with the laws governing banking-like operations as well as consumer

protection regulations and other legal provisions. Some countries such as the United States, France, Germany consider services provided by Fintech similar to traditional banking services, so these organizations need to be licensed for banking operations when providing services.

This view will help these countries protect the interests of their customers and soon put Fintech companies into the management framework. However, this opinion faces a huge challenge that eliminates the creative ability of Fintech companies when embedding them in the old management rules that are no longer suitable for the modern technology.

Second, the aggressive accepts innovations from Fintech. Fintech companies that provide banking services will not be forced into the same operational framework as traditional banks, because in this view, doing so would hinder the creativity of Fintech companies, thereby reducing the motivation of social development. Countries in Europe and Asia - Pacific are the ones that tend to be open and attach importance to promoting creativity and technological innovation following this opinion.

This opinion allows Fintech companies to freely use their innovations to renew their old traditional financial services, reduce costs for customers to use, and expand the scope of supplying of these services. However, because the legal framework for Fintech companies cannot keep up with the rapid change of technology, some Fintech company models can cause loss to customers and on a large scale can lead to the mass disruption of Fintech companies. The failure and mass collapse of P2P companies in China is a clear evidence for the boom in development of Fintech without control and management from the state management agency.

Therefore, these countries, following open opinion, often create pilot mechanisms, so that Fintech companies can test their services or products on a limited scale with control and supervision. In order to improve solutions, enhance risk control so that these products can be quickly supplied to the market, promote efficiency, competition, while ensuring that Customers enjoy the benefits that Fintech brings in a less risky environment.

Like other countries in the world, Vietnam is facing some new challenges in state management with the appearance of Fintech companies operating in areas such as peer-to-peer lending, new payment models, cross-border money transfer, virtual money/virtual assets, initial public offering of virtual currencies, multi-level business. In fact, the current Fintech management in Vietnam has not been mentioned in the state management documents system; Fintech's specific areas of operation also do not have a separate legal framework to adjust, except for payment. The experience of dealing with Uber and Grab joining the transportation market in Vietnam has shown profound lessons for the banking and finance industry on coping with rapid changes of the technology; If not prepared in advance, especially a legal corridor, the state management may be confused as Fintech companies expand their scope of operation. Therefore, the immediate urgent need is a "test management mechanism" to create a monitoring and management framework for the operation of companies in this field to minimize unequal competition and legal violations, while protecting the interests of service users.

4. SOLUTIONS TO PROMOTE FINTECH DEVELOPMENT IN THE COMING TIME

In order to overcome the challenges and make good use of the advantages Fintech brings in the context of the strong Industrial revolution 4.0, Vietnam needs to pay attention to the following contents:

Firstly, quickly complete synchronous legal regulations on Fintech. Accordingly, rules and regulations need to be established for the Fintech ecosystem; focus on building a legal corridor on the provision of Fintech products and services; quickly formulating legal regulations on virtual money and electronic money, recognizing it as a “virtual asset”; regulating standards of the product and service portfolio for Fintech companies to operate in a transparent manner, including credit operations, saving, payment services, money transfer online, investment, insurance, financial advice, data analysis, etc. At the same time, clearly define the business model of the companies providing Fintech.

Secondly, build the Fintech development policy associated with the development of the financial - banking system and economy. Consider the development of Fintech associated with promoting the application of science and technology in the field of finance and banking, being a part of the financial and banking industry, under the management of specific industries.

Besides, there are tax exemption and reduction policies, policies to support access to capital, create an environment for Fintech investment, cooperate with traditional financial and banking institutions.

Third, promote the research and application of the benefits of blockchain technology, distributed ledger technology, etc. to apply quickly in the field of finance - banking and other fields due to the huge benefits from this technology.

Fourth, improve the human resource level for Fintech application and management. There is a mechanism to encourage human resource training and attract high quality human resources for Fintech development. At the same time, taking advantage of the technical assistance and advice of international organizations such as ADB, WBG and bilateral cooperation with the management agencies of countries to exchange and share useful experiences in managing Fintech businesses.

Fifth, enhance cooperation between the parties in the supply of Fintech products. Enhance cooperation between Fintech businesses and traditional financial and banking institutions, as well as businesses providing internet, information, etc. to ensure the parties promote their advantages and create conditions for development Fintech in Vietnam in the near future.

Sixth, diversify products and popularize knowledge about Fintech to consumers. On the basis of developing Fintech products mainly payment and money transfer, it is necessary to expand other potential products such as financial management, lending, savings, etc. to meet the diverse needs of customers.

REFERENCES

1. The State Bank of Vietnam, Statistics of payment activities in 2018
2. Ha Van Duong, Ha Pham Diem Trang, Nguyen Hoang My Le, FINTECH: *Ecosystems in and applied in Vietnam*, Banking Magazine
3. FinTech News, Vietnam FinTech Startups

ANALYSIS AND ASSESSMENT OF TAXATION MECHANISM FOR ATTRACTION OF INDIVIDUALS AND ORGANIZATIONS DOING CREATIVE START-UP OR FOREIGN INVESTMENT IN CREATIVE START-UPS IN VIETNAM

Nguyen Trong Co¹

ABSTRACT

Recently, many researchers and policy-makers in Vietnam has noticed to start-up businesses in general and taxation mechanism applied to start-ups and foreign investments in Vietnamese start-ups in particular. This paper will focus on analyzing and evaluating current tax policies and mechanism applied to start-ups and foreign investments in start-ups in Vietnam. Also, this paper will present limitations of these tax mechanism then propose several solutions for amendments to these ones in order to facilitate and support further development of Vietnamese start-ups in the coming time

Keywords: *analysis, assessment, taxation mechanism, start-ups*

1. INTRODUCTION

Recently in Vietnam, the number of investors investing in creative start-up activities has been increasing, both domestic and foreign investors. The Vietnamese Government pays close attention to this and has issued a number of mechanisms and policies to attract domestic and foreign organizations and individuals to participate in creative entrepreneurship. Especially, there are more and more international investment funds showing their interest in and doing venture capital investment in Vietnam. The reality requires researchers and policy makers to consider and evaluate the current financial mechanisms and policies applied to individuals and organizations engaged in creative startup entrepreneurship and foreign investors to creative startup entrepreneurship in Vietnam.

The objective of the study is to systematize the current financial policies and mechanisms for creative startup individuals and organizations or foreign investors to creative startup entrepreneurship Vietnam, analyze and evaluate the status of the current financial policies and mechanisms for creative startup individuals and organizations or foreign investors to creative startup entrepreneurship Vietnam, and at the same time present the limitations and constraints, which could be used as a practical basis for proposing resolutions for amendment and supplementation to financial policies and mechanisms facilitating and boosting further development of creative startup entrepreneurship in Vietnam in the coming time.

¹ Academy of Finance, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, email: nguyentrongco@hvtc.edu.vn

2. ANALYSIS AND ASSESSMENT ON TAXATION MECHANISM FOR THE ATTRACTION OF INDIVIDUALS AND ORGANIZATIONS DOING CREATIVE STARTUPS OR FOREIGN INVESTMENT ON CREATIVE STARTUPS IN VIETNAM

2.1. Tax policies applied to individuals and organizations doing creative startups or foreign investment in creative startups in Vietnam

2.1.1. For foreign individuals and organizations doing startups in Vietnam

a. For foreign organizations doing startup in Vietnam

Foreign enterprises doing startups in the territory of Vietnam also apply the same tax policy as domestic enterprise. Startup enterprises are entitled to the tax incentives for newly established enterprises. The current incentives of tax policy in Vietnam are in direction of supporting businesses by location and sectors field, accordingly any business that meets the preferential conditions will be entitled to the corresponding incentives. Therefore, if a creative start-up enterprise conducts start-up activities in the fields and areas eligible for tax incentives, it will be given incentives; otherwise if it does not conduct activities in areas eligible for tax incentives and does not meet the requirements listed in investment incentives it will not receive tax support.

The basic contents of tax preferential policies to newly established enterprises comprise the followings. Incentives for the corporate income tax granted to newly established enterprises consist of the forms as follows.

First, tax exemption is applied for some kinds of income. The Law on Corporate income tax defines some kinds of income which are eligible to tax exemption, of which are (i) income from carrying out scientific research and technology development, products in experimental production stage, products produced by new technology applied for the first time in Vietnam; (ii) the granted funding for implementing educational and scientific research activities in Vietnam and (iii) Incomes from technology transfer in the priority fields transferred to local organizations and individuals located in areas with exceptionally difficult socio-economic conditions.

Second, enterprises are permitted to deduct up to 10% of their annual taxable income to set up enterprises' scientific and technological development funds. For enterprises which do not deduct their annual taxable income for their scientific and technological funds, but carry out scientific and technological activities, the related expenses if meeting the conditions for determining deductible expenses, shall be included in deductible expenses when calculating taxable income.

Third, preferential tax rates. The current preferential tax rates granted to corporate income tax are 10%, 15% và 17% which are applied for enterprises doing business in a number of certain sectors, industries and areas, such as follows.

- The tax rate of 17% for ten years is applicable to:

- + The corporate income generated from implementing new investment projects in areas with exceptionally difficult socio-economic conditions.;

- + The corporate income generated from implementing new investment projects in such fields as high-class steel production; production of energy-saving products; manufacture of machines and equipment for agricultural, forestry, fishery and salt production; production of irrigation

equipment; production and refining of feeds for cattle, poultry and aquatic animals; development of traditional industries.

Fourth, incentives related to duration of tax exemption and reduction.

- The corporate income generated from implementation of new investment projects is eligible for the rate of 10% of the corporate income tax in 15 years. The corporate income generated from implementing socialization in education & training, vocational training, health, culture, sports and environment, hi-tech businesses, hi-tech agriculture is eligible for tax exemption in no more than 4 years and a reduction of 50% of tax payable amount in no more than 9 following years.

- The corporate income generated from implementing new investment projects are eligible to 17% of corporate income tax rate in 10 years. Whereas the corporate income from implementing investment projects in industrial zones, excluded industrial zones in areas with favorable socio-economic conditions are applicable to exemption of corporate income tax in no more than 2 years and a 50% reduction of tax payable amount in no more than 4 following years.

- The duration of tax exemption and reduction applied to corporate income from implementing new investment projects is counted from the first year having taxable income generated from investment projects. In case there is no taxable income during the first years since the first year having revenue from the projects, the duration of tax exemption and duration is counted from the forth year. The duration of tax exemption and reduction applied to hi-tech enterprises, hi-tech agricultural enterprises is counted from the date of granted certificate as hi-tech enterprises, hi-tech agricultural enterprises.

- Enterprises which implement investment projects in sectors, industries and areas eligible to preferential corporate income taxes as defined in the Law on Corporate Income Tax having production scale expansion, capacity improvement, or production technology replacement (expansion investment), if satisfying one of the three following conditions will be entitled to choose to enjoy preferential tax for ongoing projects for the remaining period (if any) or enjoy tax exemption or reduction for the additional income due to expansion investment. The time of tax exemption or reduction for the additional income due to expansion investment is equal to the time for tax exemption or reduction applicable to new investment projects in the same area or industrial eligible for corporate income tax incentives. Expansion investment projects eligible for incentives prescribed in this Clause must meet one of the following criteria.

- (i) The cost of fixed assets which is increased due to the project completion and put into operation, and reaches at least from VND 20 billion for expansion investment projects in the fields eligible for enterprise income tax incentives as prescribed in the Law on corporate income tax, or from VND 10 billion dong for expansion investment projects in areas with difficult socio-economic conditions or areas with exceptionally difficult socio-economic conditions as prescribed under the law;

- (ii) The proportion of cost of additional fixed assets reaches at least 20% of the total cost of fixed assets before investment;

- (iii) The designed capacity is increased by at least 20% compared to the designed capacity before investment.

In case enterprises have investment for operation expansion in sectors, industries and areas eligible for tax incentives as prescribed in the Law on Corporate Income Tax, but fail to meet one of the three criteria specified in the Clause, the tax incentives are applied to ongoing projects for the remaining time (if any).

In case enterprises are entitled to tax incentives due to their expansion investment, their additional income generated from expansion investment shall be separately accounted; in case it is not possible to separately account, income from expansion investment is determined according to the ratio between the original cost of fixed assets of new investment for production and business on the total cost of fixed assets of the enterprises.

The time of tax exemption and reduction stipulated in this Clause is counted from the year of the investment project completion and putting in to operation/business. Tax incentives prescribed in this Clause is not applicable to the cases of expansion investment due to merger & acquisition, enterprise acquisition or ongoing investment project.

- The value added tax

The Law on Value Added Tax No.13/2008/QH12 dated June 8th, 2008 defined some incentives to scientific researches and technology development with two main contents – stipulating tax exemption to machines, equipment and materials which have not been able to be domestically produced and need to be imported for directly use in scientific researches, technological development and technology transfer prescribed in the Law on technology transfer (Article 5). Besides, the applicable tax rates to scientific and technological services are prescribed in the Law on Science and Technology which stipulated at a low rate of 5% as replacement for the common one of 10% (Article 8).

- The import and export taxes

The Law on Import and Export Tax No.45/2005/QH11 dated June 14th, 2005 also defined provisions on tax exemption to imported goods which are directly used for scientific researches and technological development, including machines, equipment, materials and means of transportation that have not been able to be domestically produced; technologies which have not created in the country; and scientific documents and magazines, etc.

b. For creative startup individuals

The creative startup individuals who do businesses, will have to pay personal income tax per revenue rate depending on types businesses. As prescribed in the Law on Personal Income Tax and legal documents guiding its implementation, the rates of personal income tax per revenue are defined as follows.

- Distribution and Supply of goods: 0,5%;
- Services, construction excluded construction materials: 2%.
- Particularly, property lease, insurance agents, lottery agents and multi-level sale agents: 5%;
- Production, transportation and services attached with goods, construction included construction materials: 1,5%;

- Other businesses: 1%

2.1.2. For foreign investors investing into start-up entrepreneurship

The Vietnamese tax policies has not stipulated specifically the investment to creative startup. The provisions of tax policies applied to foreign investors who invest into startup are same as investment into any types of businesses by domestic investors. The details are as follows.

- *The institutional investors* who contribute capital to a creative startup enterprise and receive income after the capital-received enterprise has paid its corporate income tax, are entitled to corporate income tax exemption. When investors transfer their investment capital, they will have to pay the corporate income tax at the rate of 20% for income from capital transfer

- For individual investors:

- (i) When individual investors invest in a joint stock company or other enterprises and receive income from capital investment such as dividends or profits from capital investment, this income will be subjected to personal income tax applicable to capital investment income with the personal income tax rate of 5%.

- (ii) When transferring capital:

- + If being a resident, when transferring investment capital, the individual investor will pay personal income tax at the rate of 20% of the income from capital transfer. If the resident individual investor earn income from securities transfer, personal income tax is calculated at the rate of 0.1% of the securities transfer price per each time of transfer.

- + If being a non-resident individual investor, when transferring capital or transferring securities, the investor will pay personal income tax at the rate of 0.1% at the prices of each time of capital transfer or securities transfer.

2.1.3. For startup facilitating organization

There is no tax provisions specified to startup facilitating organizations such as institutes, universities, incubators, etc., but are applicable to legal documents on tax to corporate in general and Law on Support to Small and Medium sized Enterprises. For incubators, there are only provisions on piloting some mechanism and policies specified for Vietnam – Korean industrial technological incubator in Can Tho city, but not applicable to any other incubators in the country. Specifically, provisions on piloting some mechanism and policies specified for Vietnam – Korean industrial technological incubator in Can Tho city stipulated the following key points.

- Exemption on import tax to such goods as machines, equipment, spare parts, materials which have not been able to be domestically produced; technology which cannot be designed and created domestically; scientific documents, books and magazines and electronic information sources on science and technology that enterprises import for directly use in technological incubation at incubator.

- The corporate income tax (CIT) of enterprises which get corporate income from doing new investment projects in hi-tech incubators or its application of high technologies listed in the prioritized hi-techs for development investment (as prescribed in the Law on High Technology)

which are incubated successfully, are entitled to preferential tax rate of 10% in 15 years, tax exemption in 4 years, and a 50% tax reduction in the 9 following years.

2.2. Current status of taxation mechanism to organizations and individuals doing creative startup entrepreneurship in Vietnam

Foreign individuals and organizations doing creative startup entrepreneurship in Vietnam are applicable to the same tax mechanisms or policies same as the newly established tax payers. The provisions of current tax mechanisms to newly established enterprises in Vietnam are detailed as follows.

2.2.1. Procedure for establishment and preliminary operation

- Business registration and tax registration: Investors contact the Provincial Business Registration Office, where the Enterprise will be headquartered to register for business registration and be granted a Business Registration Certificate with Enterprise Code Number. The Enterprise Code Number is also the Business Registration Number and Tax Code Number of the Enterprise. Business registration procedures must comply with the Circular No.20/2015/TT-BKHDT dated December 1st, 2015 of the Ministry of Planning and Investment.

- Once being granted Tax Code Number, the tax payer must fill in its Tax code number into invoices, receipts and documents whenever doing business transaction; tax declaration, tax payment, tax refund and tax transactions; opening deposit accounts at commercial banks and other credit institutions.

- Additional declaration of account information and registered information if there is any change: When there is a change or addition of accounts at commercial banks, credit institutions, and change in business registration information, enterprise code number and tax code number, the enterprise must provide additional information to the supervisory tax authority within 10 days from the date of change.

- Declaration of license fees and invoices: After being granted a business registration certificate and enterprise code number, the enterprise will contact the supervisory tax authority for implementation.

- + Declaration of license fees:

The newly established enterprises must declare and pay license fees no later than the last day of the month in which they start their business and production activities; in case having not started businesses/production the declaration must be done within 30 days from the date being granted its enterprise registration certificate.

In case the fee payer has dependent units (branches, representative offices, business venues) doing businesses in the same province, the fee payer shall submit the license fee declaration dossier of the such dependent units directly to its tax supervisory offices of fee payers;

In case the fee payers have dependent units (branches, representative offices, business locations) doing business in other localities of the provinces where the fee payers set their headquarter, the dependent unit shall submit the license fee declaration dossier of the dependent unit directly to the tax supervisory offices of the dependent unit.

Enterprises established in the first 6 months of the year must pay license fees for the whole year, if established in the last 6 months of the year (from July 1), the enterprises must pay license fees for half a year.

The license fee rates for organizations engaged in production and trading of goods and services are as follows:

- Organizations with charter capital or investment capital of over VND 10 billion: VND 3,000,000 (three million) per year;
- Organizations with charter capital or investment capital of VND 10 billion or less: VND 2,000,000 (two million) per year;
- Branches, representative offices, business venues, non-business units, other economic organizations: VND 1,000,000 (one million) per year.

The license fee rates are based on the charter capital stated in the business registration certificate or in the enterprise registration certificate or in the cooperative charter. In case there is no charter capital, it is based on the investment capital stated in the investment registration certificate or investment policy decision document.

- Regarding invoices: Enterprises paying value-added tax directly based on added value equal to the percentage multiplied by turnover shall buy invoices issued by tax offices. Newly established enterprises that have voluntarily registered to apply the tax deduction method, if entitled to invoices self-printing, can create self-printed invoices to be used for goods selling and service provision. Newly established enterprises eligible to invoices self-printing according to regulations, if not using self-printed invoices and enterprises are not subject to purchase invoices of tax agencies, can design invoices for order-printing to be used for goods selling and services providing. In a number of cases where enterprises use electronic invoices, the use of electronic invoices must comply with current regulations on electronic invoices.

2.2.2. Declaration of tax calculation and payment

During operation, enterprises must declare, calculate and pay the following key taxes.

- The value added tax: The newly established enterprises declare their value added tax on quarter basis. After a 12-month operation, from the following calendar year, the declaration of value added tax will be decided as per month or quarter based on revenue of goods selling and services provision of the previous calendar year (full 12 months). If the total revenue of goods selling and services provisions is from or less than VND 50 billion the value added tax declaration will be per quarter. If the total revenue of goods selling and services provisions is from or less than VND 50 billion the value added tax declaration will be per month.

Whether or not an enterprise generates value added tax must prepare a tax declaration according to the prescribed form; if an enterprise is implementing an investment project but have not started its production or businesses, the value added tax is declared on the project. The deadlines for submission of the quarterly value added tax declaration document and value added tax payment is on the 30th day of the first month of the following quarter at the latest, for submission of monthly value added tax declaration document and value added tax payment is on the 20th day of the following month.

- *Corporate income tax*: Based on production and business results, enterprises shall temporarily pay the enterprise income tax amount of the quarter no later than the 30th day of the following quarter in which tax obligations incur; the enterprise is not required to submit a quarterly provisional corporate income tax return every quarter. At the end of a fiscal year, the enterprise shall declare and pay corporate income tax, the deadline for submission of annual tax finalization is the 90th day since the end of the fiscal year. In case enterprises are eligible for corporate income tax incentives, at the end of the fiscal year, corporate income tax finalization shall be carried out together with exemption and reduction annexes.

- *Personal Income Tax*: For incomes that the agency pays the income to individuals, the tax deduction method at the source is applied, which is that income-paying agencies, units and enterprises shall deduct personal income tax before paying personal income. If an enterprise declares its value added tax on a quarterly basis, personal income tax is declared on a quarterly basis; if an enterprise declares value added tax on a monthly basis, and during the month the personal income tax payable on one tax return sheet is from VND 50 million or more, the declaration must be on monthly basis, if less than VND 50 million, the declaration must be on a quarterly basis. If personal income tax is not incurred, it is not required to tax declare but must submit an annual personal income tax return finalization using the Form 05/KK-TNCN.

In addition to the above taxes, in the course of production and business, there are other taxes and fees incurred such as: Special Consumption Tax; Natural resource tax; Environment protection tax, non-agricultural land use tax; Land rent tax, etc., enterprises must declare and pay taxes according to current regulations.

In addition, newly established businesses must obey all the regulations on tax payment, procedures for tax exemption, reduction, refund and comply with tax administrative decisions during its operations.

2.3. Restrictions on mechanisms and tax policies to attract individuals and organizations to develop creative innovation start-ups or invest in creative innovation start-ups from abroad into Vietnam

2.3.1. Restrictions on tax policies

It can be easily recognized that the term ‘creative innovation start-ups’ has been rarely used in current tax law in Vietnam.

Firstly, There has not been a specific policy for start-up businesses in general, and regulations on tax policies for start-ups businesses in particular. Currently, only the SME Support Law was enacted in 2017 and the Decree No. 39/2018 dated 11 March 2018 stipulate the Law on supporting SMEs. Although the SME Support Law stipulates tax and accounting support for SMEs, there is no similar provision for start-ups. Decree 39/2018 / ND - CP does not mention this issue also. Besides, the regulations on venture capital funds are not official. Although Decree No. 38/2018 / ND-CP dated March 11, 2018 details the investment in innovative start-up SMEs, there are no specific provisions on obligations of investors.

Secondly, Although there has been orientation for preferential tax rates for SMEs in the Law on Supporting SMEs, the tax policy has not discriminated in the direction of giving higher incentives

to start-up businesses. Specifically, the current enterprise applies the common corporate income tax rate as other businesses which is 20%. The preferential tax rates or exemption or reduction of corporate income tax for limited time for activities of a number of industries and sectors entitled to incentives are the same as any newly established enterprises from new investment projects.

Thirdly, Currently, there is no specific tax policy for investors in start-ups when transferring capital. Tax policy stipulates tax for each capital transfer, each securities transfer for investing in any enterprise then transferring capital. Investing in these businesses is highly risky, the tax policy has not yet allowed investors to offset losses from investing in a number of start-ups on the profits of some investment projects in other startup projects. This has a certain influence on the attraction of foreign investors' investment in start-ups.

The regulations on personal income tax for individual investors for start-up activities have not received any preferential yet apart from general regulations for individual income.

Fourthly, specific mechanisms and policies for new nurseries are in the pilot application stage, applicable to Vietnam - Korea Industrial Technology Incubator in Can Tho city, which has not been widely applied to the subjects of nurseries in general.

2.3.2. Restrictions on tax mechanisms and procedures

Firstly, tax administrative procedures have recently been simplified; however, many forms and profile components are not really simplified.

Secondly, the propaganda and support for taxpayers, those who intend to start a business or carry out start-up have not been given adequate attention, thus there are cases where startup individual or organizations have not grasped specific regulations on tax policies and procedures.

Thirdly, facilities for tax administration have not been modernized, which has a certain effect on tax administration efficiency

3. CONCLUSION

Tax and financial policies and mechanisms have certain influence on attracting domestic and foreign individuals and organizations to do creative innovation start-up and to invest in this activity.

Thus, the systematization of tax incentives for individuals and organizations investing in creative innovation reflects the tax procedures and mechanisms for individuals and organizations invested in creative innovation start-ups. On the basis of reflecting the actual situation, the author has drawn remarks, assessments, and pointed out the shortcomings of tax policies and mechanisms for foreign individuals and organizations investing in Viet Nam

REFERENCES:

1. Circular: Consolidated Document No. 14 / VBHN-BTC dated May 9, 2018 guiding VAT Circular No. 38/2015 / TT-BTC dated 25 March 2015 Stipulating customs procedures, customs supervision and inspection, export tax, import tax and tax administration on exported and imported goods
2. Circular No. 39/2018 / TT-BTC dated 20 April 2018 amending Circular 38/2015
3. Circular: Document of consolidation 11 / VBHN-BTC dated May 15, 2017 providing guidance on corporate income tax
4. Circular 25/2018 / TT-BTC dated 16/3/2018 Guiding Decree No. 146/2017 / ND-CP and amending and supplementing a number of articles of Circular No. 78/2014 / TT-BTC, Circular No. 111/2013 / TT-BTC
5. Circular: Consolidated document 05 / VBHN-BTC dated March 14, 2016 guiding PIT.
7. Vu Van Ninh, Pham Thi Thanh Hoa (2018), *Credit policy for SMEs*, Finance Publishing House, Hanoi;
8. Diem Thi Thanh Hai, Hoang Phuong Anh (2018), *Some proposals for credit policies in order to create favorable conditions for startups to innovate their operations*, Finance Publishing House, Hanoi;
9. VCCI (2017), Research Report “*Mechanism to support innovative start-ups - International experience - propose solutions for Vietnam*”;
10. Dan Senor and Saul Singer, Start-up Nation, *The Story of Israel's Economic Miracle* (Start-up Nation: The Story of Israel's Miraculous Economy), World Publishing House, 2013.

CURRENT STATUS OF TAXATION MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE STARTUP IN VIETNAM IN RECENT YEARS

Truong Thi Thuy¹

ABSTRACT

Creative start-ups could not develop without favorable eco-systems which includes specific financial policies. This paper outlines the current status of taxation mechanism applied for organizations and individuals engaged in creative start-up activities in Vietnam recently. Also, several limitations and solutions to build a favorable system for start-ups will be presents in order to contribute to the improvement of national economic growth.

Keywords: *creative startup, financial policy, taxation mechanism*

1. INTRODUCTION

Creative start-up activities started in Vietnam more than 10 years ago with the establishment of a number of creative startups working in the field of e-commerce and online teaching. After over 10 years of establishment and development of the creative startup community, the startup support network has been formed, developed and operated more effectively. However, the number of these entities in Vietnam is assessed as fairly modest.

Responsible for law design and enforcement, the Government is the agent that has the most profound influence on the startup ecosystem and one of the tools for the Government to stimulate the startup ecosystem is the system of taxation mechanism.

As it is significant issue, the article “current status of taxation mechanism for organizations and individuals engaged in creative startup activities in vietnam in recent years” aims at doing an overview research on the situation, together with analysis and synthesis. Accordingly, assessment was carried out to draw out the limitations and constraints, in order to recommend suitable solutions, towards more effective implementation of supportive policies for those entities in the group

¹ Academy of Finance, 58 Le Van Hien, Bac Tu Liem, Hanoi, email: truongthithuy@hvtc.edu.vn

2. CURRENT STATUS OF TAXATION MECHANISM APPLIED FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE START-UP ACTIVITIES IN VIETNAM IN RECENT YEARS

2.1. In-effect provisions of taxation policies applied for organizations and individuals engaged in creative startup activities in Vietnam in recent years

It could be said that in the in-effect taxation policies in Vietnam, the term of “creative startup” has hardly been mentioned. Therefore, there has not had any specific provisions in the Vietnam taxation policies directly related to organizations and individuals engaged in creative startup activities. Instead, there are a number of preferential policies granted for businesses, newly established investment projects in a number of specific industries, fields and geographical areas; of which are mainly the incentives on corporate income tax and personal income tax. Specifically, **the incentives on Corporate Income Tax (CIT)** are detailed as follows.

Firstly, Incentive tax policies granted to newly established enterprises are related to the corporate income tax rates.

The incentives related to corporate income tax are applied in accordance with the Law on Corporate Income Tax (amended in 2008) and the regulatory documents that stipulate tax rates, tax preferential rates, criteria and conditions being qualified for tax incentives or tax exemptions. Precisely, organizations and individuals engaged in creative startup activities are entitled to preferential tax rates according to the following table (Table 1).

Table 1. Preferential tax rates applied to creative startup organizations and individuals in some industries

No.	Preferential tax rate (%)	Preferential duration (year)	Application conditions to newly established enterprises
1	10	15	From investment projects in industries, scientific researches and technological development, advanced technology application and implementation in extremely difficult socio-economic areas
2	10	During implementation lifetime	Social enterprises working in public sectors, such as education - training, vocational training, health care, culture, sports and environment; enterprises working in the field of agriculture, forestry and fishery in extremely difficult areas.
3	17	10	From investment projects in the fields of research, scientific and technological application carried out in extremely socio-economic difficult areas
4	17	During implementation lifetime	People's credit funds, cooperative banks and microfinance institutions

Source: Author's synthesis.

Accordingly, depending on the type of businesses, the tax incentives of newly established enterprises will be entitled to the preferential rates of corporate income tax.

Secondly, the tax incentives granted to newly established enterprises are related to the time of tax exemption or reduction.

Incomes of enterprises implementing new investment projects, hi-tech enterprises or hi-tech agricultural enterprises shall enjoy tax exemption for no more than four years and a 50% reduction of payable tax amount for no more than nine following years.

Incomes of enterprises implementing new investment projects are subjected to the tax rate of 17% (came into effect since January 1st, 2016) as mentioned above, whereas the incomes of enterprises from the implementation of new investment projects in industrial zones are tax exempted for no more than two years and eligible for a 50% reduction of tax payables for no more than four following years.

Besides, there are a number of other incentives granted to enterprises under the Law on Corporate Income Tax which is effect, as follows.

- Granting tax exemption to some types of taxes.
- Allowing enterprise to deduct up to 10% of the annual taxable income to be used for the Science and Technology Development Fund of the Enterprise.

For technology transfer activities, the Government encourages the development of higher value-added industries as well as increasing investments in modern production equipment and methods through tax policies which is shown in Table 2.

Table 2. Tax incentives in transfer of technology

Type of tax	Tax incentives	Legal document
Corporate Income Tax	Exemption of income tax for organizations and individuals providing capital contribution by Patents and/or Technologies	Section 1, Article 44 of the Law on Technology Transfer
	Manufacturers and enterprises who invest in the installation of new production lines, expansion of production scale, renewal of technologies, improvement of ecosystem are exempted from corporate income tax for the net income in four years and a reduction of 50% of the taxes payable by the next seven years	Section 4, Article 44 of the Law on Technology Transfer
	Innovative technology - investing enterprises that use technologies in the list of technologies encouraged for transfer shall be exempted from corporate income tax for four years provided that the total value of exempted tax does not exceed 50% of the total investment capital for technological innovation	Section 5, Article 44 of the Law on Technology Transfer
	Income from activities of technology transfer applicable to projects entitled to investment incentives shall be exempted from income tax in accordance with the law on tax.	Section 4, Article 33, Law on investment 2005

	Application of a lower rate of corporate income tax than the normal tax rate for a definite period or for the whole duration of implementation of the investment project; and exemption from and reduction of corporate income tax;	Article 15 & 16, Law on investment No.67/2014/QH13
--	---	--

Source: Author's synthesis

Thirdly, tax incentives to the newly established small and medium enterprises which have come into effect since 01/01/2018.

As regulated in the Law on Support for Small and Medium Enterprises (SMEs) issued in 2017 and the Decree No. 39/2018/ND-CP promulgated by the Government on March 11th, 2018 detailing the Law on Support for SMEs, newly established businesses who are small and medium enterprises will be entitled to supportive policies such as: support to access credit; tax and accounting support; support on production grounds; technology support, support on nursery facilities, technical facilities, and shared working areas; support on market expansion; information support and legal advice; support on human resource development. Policies on tax incentives include the followings.

- The small and medium enterprises are entitled to the corporate income tax rates which are lower than the ordinary tax rates in the regulated limited time.

- Micro enterprises are eligible to apply the simple tax administrative procedures and simple accounting regime.

- In each different period, the Government decides the interest subsidy policy for the loans of the startup small and medium-sized enterprises. The interest rate subsidy is provided through credit institutions.

2.2. Current status of taxation mechanism applied to organizations and individuals engaged in creative startup activities in Vietnam in recent years.

With the introduction of the Law on Tax Administration taking effect since July 1st, 2007 (amended and supplemented in 2012, 2014 and 2016), the contents related to tax administration, tax mechanisms, tax administrative procedures of tax administration agencies as well as taxpayers were consolidated, which has created a legal foundation for the tax self-declaration and self-payment mechanisms. From the perspective of taxpayers, the Law on Tax Administration has clearly defined the rights and obligations of taxpayers; contents and procedures that taxpayers must perform in the process of tax law compliance; and penalty forms when taxpayers commit tax administrative violations, etc.

Similar to the regulations of the tax policies, the tax mechanism which is directly related to organizations and individuals engaged in creative start-up activities has not been mentioned in the provisions of Vietnamese Tax Law. Therefore, when doing these creative start-up activities, they will be entitled to the same tax mechanism or tax procedures as the newly established taxpayers. In addition, newly established enterprises must comply with the regulations on tax payment, procedures for tax exemption, reduction, refund and compliance with tax administrative decisions.

3. ASSESSMENT ON THE CURRENT STATUS OF TAXATION MECHANISM APPLIED TO ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE START-UP ACTIVITIES

Based on the hereinabove analysis, some remarks were drawn out on the taxation mechanism for organizations and individuals engaged in Vietnam's creative start-up activities as follows.

First, being in the same context of policies to support startups, the tax incentive policy for Vietnamese startups is in the stage of formation and has just been gradually applied in practice with the promulgation and issuance of the new policies, amendments or supplementations to legal regulations, the direction and organization of the implementation of those laws. This means that it is necessary to have further legal amendments and supplementations to optimize the start-up support policies in general and tax incentives for startup individuals and organizations in particular. So far, there is only the Law on Supporting Small and Medium-sized Enterprises enacted since 2017 and the Decree No. 39/2018/ND-CP dated March 11th, 2018 detailing the Law on Support for Small and Medium-sized Enterprises. Although the Law on support for small and medium-sized enterprises regulates the tax and accounting support to the small and medium-sized enterprises, there are no provisions supporting for startup enterprises. Similar situation is seen from the Decree No. 39/2018/ND-CP. Regulations on venture capital funds have not been officially enacted yet. Moreover, there are no specific provisions on obligations of investors mentioned in the Decree No. 38/2018/ND-CP dated March 11th, 2018 while it promulgates in details the investment for small and medium-sized creative start-ups.

Second, there has been no differentiation in the direction of providing higher incentives to startup enterprises mentioned the taxation mechanism. Specifically, startups are entitled to the common corporate income tax rates as other businesses which is 20%. The preferential tax rate of 10% or the exemption of corporate income tax for income from activities in a number of preferential industries and fields are the same as any newly established enterprises from new investment projects.

Third, Vietnam provides no tax incentives to all startups, but creative startup small and medium-sized enterprises. This has two policy implication as follows.

(i) Vietnam provides no tax incentives to newly established enterprises, but the newly established ones with a condition that they are creative startups;

(ii) Vietnam only provides tax incentives to creative start-up small and medium enterprises, but not creative start-up large enterprises.

In general, legal regulations on the tax incentives for start-up enterprises in Vietnam are quite similar to other countries in the world

4. CONCLUSIONS

So far, the Vietnam Government is determined to promote the implementation of favorable policies supporting for individuals and organizations doing creative startup or investing in creative startups, and considers supporting them as foremost important political target in the new era. Objectively, it can be seen from the tax policy documents that there are no specific provisions on tax incentives for the group of creative startup individuals and organizations. However, so far

Vietnam government has promulgated numerous policies related to tax incentives entitled to this group, which have some sections related to creative startup individuals and organizations.

In order to meet the needs and activities of creative start-up in a practical way, it is recommended that the measures to support creative start-up enterprises in the coming time should focus on promoting and facilitating the promulgation of tax mechanisms and policies towards synchrony, timely and right purpose, thereby boosting the development of creative startup ecosystem.

5. REFERENCES

1. Le Minh Huong (2017), Financial policies to support start-ups: Experience in some countries and suggestions for Vietnam, *National Fund Magazine*, No. 176, 2/2017;
2. Ministry of Finance (2014), Circular No. 119/2014 / TT-BTC dated August 25, 2014 of the Ministry of Finance amending and supplementing a number of articles of Circular No. 156/2013 / TT-BTC dated 06 / 11/2013, Circular No. 111/2013 / TT-BTC dated August 15, 2013, Circular No. 219/2013 / TT-BTC dated December 31, 2013, Circular No. 08/2013 / TT-BTC dated 10/2013 01/2013, Circular No. 85/2011 / TT-BTC dated June 17, 2011, Circular No. 39/2014 / TT-BTC dated March 31, 2014 and Circular No. 78/2014 / TT-BTC dated 18 / 6/2014 of the Ministry of Finance to reform and simplify tax administrative procedures, effective from September 1, 2014;
3. Ministry of Finance (2014), Circular No. 151/2014 / TT-BTC dated October 10, 2014 of the Ministry of Finance guiding the implementation of Decree No. 91/2014 / ND-CP dated October 1, 2014 of The Government amends and supplements a number of articles of the Decrees on tax regulations, effective from November 15, 2014;
4. Ministry of Finance (2015), Circular No. 96/2015 / TT-BTC dated June 22, 2015 of the Ministry of Finance guiding corporate income tax in Decree No. 12/2015 / ND-CP dated 12 February 2, 2015 detailing the implementation of the Law amending and supplementing a number of articles of tax laws and amending and supplementing a number of articles of the tax decrees and amending and supplementing a number of articles of Circular No. 78/2014 / TT-BTC dated June 18, 2014, Circular No. 119/2014 / TT-BTC dated August 25, 2014, Circular No. 151/2014 / TT-BTC dated October 10, 2014 of the Ministry of Finance, effective from August 6, 2015.
5. Ministry of Finance (2013), Circular No. 219/2013 / TT-BTC dated December 31, 2013 of the Ministry of Finance guiding the implementation of the Law on Value-Added Tax and Decree No. 209/2013 / ND-CP December 18, 2013 of the Government detailing and guiding the implementation of a number of articles of the Law on Value-Added Tax, effective from January 1, 2014, is amended and supplemented by:
6. Ministry of Finance (2014), Circular No. 119/2014 / TT-BTC dated August 25, 2014 of the Ministry of Finance amending and supplementing a number of articles of Circular No. 156/2013 / TT-BTC dated 06 / 11/2013, Circular No. 111/2013 / TT-BTC dated August 15, 2013, Circular No. 219/2013 / TT-BTC dated December 31, 2013, Circular No. 08/2013 / TT-BTC dated 10/01/2013, Circular No. 85/2011 / TT-BTC dated June 17, 2011, Circular No. 39/2014 / TT-BTC dated March 31, 2014 and Circular No. 78/2014 / TT-BTC June 18, 2014 of the Ministry of Finance to reform and simplify tax administrative procedures, effective from September 1, 2014.
7. Ministry of Finance (2014), Circular No. 151/2014 / TT-BTC dated October 10, 2014 of the Ministry of Finance guiding the implementation of Decree No. 91/2014 / ND-CP dated October 1, 2014 of The Government amends and supplements a number of articles of the Decrees on tax regulations, effective from November 15, 2014.

8. Ministry of Finance (2015), Circular No. 26/2015 / TT-BTC dated February 27, 2015 of the Ministry of Finance providing guidance on value added tax and tax management in Decree No. 12/2015 / ND-CP of February 12, 2015 of the Government detailing the implementation of the Law Amending and Supplementing a Number of Articles of the Tax Laws and amending and supplementing a number of articles of the Decrees on taxes and amendments, Supplementing a number of articles of the Ministry of Finance's Circular No. 39/2014 / TT-BTC of March 31, 2014 on goods sale and service provision invoices, effective as from January 1, 2015.
9. Ministry of Finance (2015), Circular No. 193/2015 / TT-BTC dated November 24, 2015 of the Ministry of Finance amending and supplementing Circular No. 219/2013 / TT-BTC dated December 31, 2013 The Ministry of Finance guides the implementation of the Value Added Tax Law and the Government's Decree No. 209/2013 / ND-CP of December 18, 2013 detailing and guiding the implementation of a number of articles of the Law on Value-Added Tax increase and take effect from January 10, 2016.
10. Ministry of Finance (2016), Circular No. 130/2016 / TT-BTC dated August 12, 2016 of the Ministry of Finance guiding Decree No. 100/2016 / ND-CP dated July 1, 2016 of the Government detailing the implementation of the Law Amending and Supplementing a Number of Articles of the Law on Value-Added Tax, the Law on Special Consumption Tax and the Law on Tax Administration and amending a number of articles in the Circulars on tax, taking effect since July 1, 2016.
11. National Assembly (2006), Pursuant to the Law on Tax Administration No. 78/2006 / QH11 dated November 29, 2006
12. The National Assembly (2007), Law on Personal Income Tax No. 04/2007 / QH12 dated November 21, 2007;
13. National Assembly (2008), Law on Value-Added Tax No. 13/2008 / QH12 dated June 3, 2008
14. National Assembly (2008), Law on Corporate Income Tax No. 14/2008 / QH12 dated June 3, 2008;
15. The National Assembly (2012), the Law Amending and Supplementing a Number of Articles of the Law on Personal Income Tax No. 26/2012 / QH13 dated November 22, 2012
16. Ministry of Finance (2014), Circular No. 78/2014 / TT-BTC dated June 18, 2014 guiding the implementation of Decree No. 218/2013 / ND-CP dated December 26, 2013 of the Government and guide the implementation of the Law on Corporate Income Tax

CURRENT STATUS OF TAXATION MECHANISM TO ORGANIZATIONS AND INDIVIDUALS INVESTING INTO CREATIVE START-UP IN VIETNAM

Nguyen Dao Tung¹

ABSTRACT

Recently, creative start-ups have been noticed by many scholars, businesses, media and the Vietnamese government. This paper will present briefly current system of state laws and tax policies for individuals and organizations investing in start-ups in Vietnam. Also, the current tax regime applied for this activity will be assessed. Then, several necessary support measures, especially on the tax regimes will be proposed.

Keywords: *start-ups, tax policy, financial mechanism*

1. INTRODUCTION

Although it has only been formed in the last decade, Vietnam's creative startup ecosystem can now be considered to have fully included its important components (including startups, angel investors, venture capital funds, business support organizations, incubators, research parks, a network of coaches/consultants, research and startup support facilities at universities and research institutes, etc. of both private and public sectors). Despite receiving certain the State policy priorities, social attention as well as the enthusiastic support of the stakeholders, Vietnam's startups are still facing a lot of difficulties, including the common problems that any SME in Vietnam faces, and also the problems of startups. Therefore, the State's support measures for startups should be designed to be able to effectively mitigate startups' difficulties. One of the tools for the Government to effectively support the investment into creative startups is through the system of taxation mechanisms and policies.

Understanding that importance, the article would like to provide a comprehensive and objective perspective on the system of State's laws and tax policies for organizations and individuals investing in creative startups in Vietnam. In addition, it also offers the author's own assessments of the current tax mechanisms for these activities. This will be background information to consider the necessary support measures, especially on the tax regime by the State in the future, to the investment into the creative startup, towards the further effective implementation of taxation facilitating policies to startups

¹ Academy of Finance, 58 Le Van Hien, Bac Tu Liem, Hanoi, email: nguyendaotung@hvtc.edu.vn.

2. OVERVIEW ON TAXATION MECHANISM TO ORGANIZATIONS AND INDIVIDUALS INVESTING IN CREATIVE STARTUPS IN VIETNAM

The start-up ecosystem in Vietnam has recently grown rapidly with the main motivation coming from start-up support organizations, startup organizations and individuals or investors. Responsible of law design and enforcement, the Government is the agent that has the most profound influence on the startup ecosystem and one of the tools for the Government to stimulate the startup ecosystem is the system of taxation mechanism with appropriate tax incentives. Specifically, there are two forms of tax incentives.

The first one is the direct tax incentives for startups. The preferential tax policies for startups usually focuses on corporate income tax. Accordingly, startups are entitled to preferential tax rates, tax exemption and reduction in the initial time of production and business activities. Tax exemption or reduction of corporate income tax for a limited time during its newly establishment period does not usually bring much benefit to startups, because most startups do not have profit in the first phase of operation. However, if the tax exemption period is extended to an appropriate duration or the preferential tax rates are applied for startups, this will also create conditions for these businesses to expand their production and/or business activities.

The second one is the indirect support to startups via tax incentives to their corporate income tax or personal income tax granted to investors who invest into startups and tax incentives to venture capital funds, business incubator facilities. Incentives to personal income tax are made by exempting income tax from investing capital in startups. For institutional investors, tax incentives to them are tax reduction on income from with other business activities. The preferential tax rates, exemption and reduction of corporate income tax for a regulated limited period of time are also applied by some countries to venture capital funds and business incubators. For example, Thailand does not levy a 10-year personal income tax on investors investing in 10 key technological and innovative industries including: Next-generation cars, smart electronics, diverse experience travel and health care travel, agriculture and biotechnology, food, industrial robots, transportation and aviation, biofuels, etc. In addition, venture capital firms are exempted from corporate income tax for the first five years (Le Minh Huong, 2017).

The first milestone marking the policy to support organizations and individuals engaged in creative startups or investing in creative startups in Vietnam was the Decision No. 844/QĐ-TTg dated May 18th, 2016 of the Prime Minister on approving the Project of “Supporting the national creative startup ecosystem to 2025”. Next, among the science and technology related policy system, there are policies related to the development of scientific and technological enterprises such as exemption and reduction of corporate income tax, preferential land tax, and handover of research results to scientific and technological enterprises, which are stipulated in the Decree No. 80/2007/ND-CP dated May 19th, 2007 on scientific and technological enterprises, the Law on Science and Technology in 2013, and the Decree No. 96/2010/ND-CP dated September 20th, 2010 amending and supplementing a number of articles of the Decree No. 115/2005/ND-CP dated September 5th, 2005 defining the autonomy and self-responsibility mechanism of public scientific and technological organizations; Law on High Technology in 2008; Law on Technology Transfer in 2017 and Decree 76/2018/ND-CP defining the Law on Technology Transfer. In addition, in

national programs such as the scientific and technological Enterprise Development Support Program and public scientific and technological organizations implementing its autonomy and self-responsibility mechanism and the Technology Market Development Program up to 2020 there are also a numbers of support indirectly related to startup entrepreneurship such as support to technology incubation, incubation of scientific and technological enterprises, pilot production, access to key laboratories, and intellectual property registration for research results of enterprises, events organization, communication on the commercialization of research results, trainings to intermediaries of the scientific and technological market.

Besides, the policy system on the development of small and medium size enterprises is defined in the Decree 56/2009/ND-CP dated June 30th, 2009 of the Government supporting the development of small and medium size enterprises. The Law on support to small and medium sized enterprises issued in 2007 and the Decree 39/2018/ND-CP dated March 11th, 2018 detailing the Law on support to small and medium sized enterprises mention the concept of creative startup small and medium sized enterprises and promulgate policies facilitating those group, which comprise regulations tax incentives, investment and interest subsidy (Article 17 and 18 of the Law on Support to small and medium sized enterprises).

In short, those legal document have just referred to the concept of creative startup small and medium sized enterprises, but not had particular provisions on tax and financial policies to individuals and institutional creative startups

3. CURRENT STATUS OF TAXATION MECHANISMS TO ORGANIZATIONS AND INDIVIDUALS INVESTING INTO CREATIVE STARTUPS IN VIETNAM RECENTLY

Current status of provisions of taxation mechanisms to organizations and individuals investing into creative startups in Vietnam recently For organizations and individuals investing into creative startups

So far, the Vietnam's taxation mechanism have not stipulated specifically to the investment into creative startups. Hence, taxation policies applied for investors of creative startups are stipulated the same as to investors into other enterprises. Details are as follows.

- For institutional investors: when transferring capital, they will have to pay corporate income tax at the rate of 20% for income from capital transfer.

- For individual investors:

- + The tax rate on income from capital investment is applied according to the whole tax rate table at the rate of 5%.

- + If being a resident transferring capital, they will pay personal income tax on income received from capital transfer with the tax rate of 20% of the income from transferring contributed capital. For income from securities transfer, the personal income tax is calculated at the rate of 0.1% of the securities transfer price at each time.

- + If being a non-resident individual transferring capital or transferring securities, they will pay personal income tax at the rate of 0.1% of the capital transfer price or securities transfer upon each time of income generation. For start-up support organizations.

Startup businesses and startup countries are a new issue which has been given special attention by the State in recent years. The concept of supporting startup enterprises officially was mentioned in the Prime Minister's Decision No. 844/QĐ-TTg dated on May 18th, 2016, approving the Project "Supporting the national creative start-up ecosystem until 2025". The project stated that "Special tax and financial mechanisms for organizations and individuals conducting creative start-up activities or investing in creative startups apply policies on investment incentives and tax incentives for scientific and technological enterprises". However, although the Law on Support for Small and Medium Enterprises, mentioned that tax and accounting support for Small and Medium Enterprises (Article 10), which were general provisions and there has not specifically stipulated on how to support.

Similarly, the concepts on "angel" investors, venture capital investors were mentioned in the Draft on Circular guiding the establishment, management and operation of venture capital funds for creative startup. As for venture capital funds, there have been no specific regulations on tax to encourage venture investment activities. Accordingly, for individual investors who invest in startups, when they divest, they will be charged a high tax on a profitable investment and not calculated by the method of compensation for losses. Meanwhile, due to its nature, the success rate of venture capital is only about from 3% to 10%.

For incubators in Vietnam, there have been some pilot mechanisms and policies specified for the development of the Vietnam – Korean industrial technology incubator in Can Tho city, not yet widely applied to all other incubators. The special mechanisms and policies specified for the development of the Vietnam – Korean industrial technology incubator in Can Tho city are as follows:

- The import tax is exempted for such goods as machines, equipment, spare parts, supplies and means of transport which cannot be domestically produced; technology that has not been designed and created; scientific documents, books, newspapers and magazines, and electronic information sources on science and technology of importing enterprises directly serving the technology incubation activities at incubators.

- The corporate income tax of enterprises implementing new high-tech incubation projects in the fields at the incubators or corporate income from the implementation of new high-tech investment projects on the list of technologies prioritized for development investment (according to the Law on High Technology) is entitled to the preferential tax rate of 10% for 15 years, 4-year tax exemption and 50% reduction of payable tax amounts for 9 years are applied. next. In addition, value-added tax, personal income tax, land rent also have many incentives for businesses newly established and operating in the field of technology.

4. ASSESSMENT ON THE CURRENT TAXATION MECHANISMS APPLIED FOR THE INVESTMENT INTO CREATIVE STARTUP

Firstly, it is related to provisions to venture capital funds.

Provisions to venture capital funds has not been promulgated officially. Even though the Decree 38/2018/ND-CP dated March 11th, 2018 regulated the investment into creative startup small and medium sized enterprise, there has been no specific provisions on obligations of investors.

However, due to the characteristics of each individual or institutional creative startup, the investment into those enterprises is facing high risk, whereas the taxation policies have not defined

the investors' right to offset the losses from investing in some creative startups from the profits of some investment projects in other startup projects. This has a certain effect on the attraction of investment capital from domestic and international investors into creative startups.

Secondly, it is related to personal income tax.

There have not been any incentives defined in the provisions related to personal income tax applied to individual investors investing into creative startups. Instead, the applicable provisions to this group is in compliance with the general ones applied for individuals having income.

Thirdly, there has not been any taxation policies specified to investors of startups when transferring capital. The in-effect tax policy defines taxation for each capital transfer, each securities transfer for the investment in any enterprise after which transfer capital is done. Investing in these enterprises is highly risky, while tax policy has not allowed investors to implement measures to offset losses. This has a certain influence on attracting the investment capital from domestic and foreign investors into startup businesses.

Fourthly, specific policies and mechanisms for new enterprise incubators are in the pilot stage of application, not yet applied to all subjects. In particular, the piloting policy and mechanism specified for new enterprise incubators has just been applied for the Vietnam – Korean industrial technology incubator in Can Tho city, not widely to any other incubators.

5. CONCLUSION

With the aim of promoting economic growth, increasing competition, encouraging creativity and technological development, creating more jobs and increasing revenue for the state budget, for decades governments of many countries in the world has taken measures to encourage and promote business startup, with priority given to investment and business with innovative elements, using technology and having high economic efficiency.

In nearly a recent decade, when startups have become a strong trend, the measures to support startups of governments have become more and more diversified and focused, both in terms of objectives, ways of implementation and scale of support. The governments' underneath reasons for the current startup efforts are the traditional goals and addingly the pressure of 4.0 industry revolution, orienting the digital economic future and the need for innovation, even restructuring the economic structure to improve competitiveness in the context of a globally connected economy.

In Vietnam, the tax regime and policies to support organizations and individuals investing in creative startups are quite new. Currently, there is no specific policy for organizations and individuals investing in creative startups. However, before the establishment of tax incentives for individuals and organizations doing creative startup or investing in creative startups, there has been many preferential tax policies for this group in Vietnam, which consists of provisions to individuals and organizations doing creative startup or investing in creative startups. The tax incentives such as exemption and reduction of VAT, Import and Export Tax, personal income tax and corporate income tax have positively supported individuals and enterprise with fast growth capability based on scientific and technological exploitation. Although they have not covered all of creative startup individual and enterprises and investors to creative startups, they have also contributed to the promotion and boosting of this business development.

REFERENCES

1. Hanoi University of Economics and Business (2018), Attracting foreign angel investment capital to develop startups in host countries: *International experience and implications for Vietnam*, Workshop materials international
2. Ministry of Planning and Investment, Department of Enterprise Development: Vietnam White Paper, 2017
3. Pham Tien Dat (2018), *Principles to formulate specific financial policies for start-up innovation activities - from international experience*, Finance Publishing House, Hanoi
4. Law on supporting SMEs 2017, Law 04/2017 / QH14
5. Law on Investment 2014
6. VAT Law: V consolidation 01 / VBHN-VPQH dated 28/4/2016
7. Law on Export Tax and Import Tax No. 107/2016 / QH13 dated April 6, 2016
8. Customs Law No. 54/2014 / QH 13 of June 23, 2014
9. PIT Law: Consolidated Document No. 15 / VBHN –VPQH dated 11/12/2014
10. Decree No. 188/2015 / ND - CP detailing and guiding the implementation of a number of articles of the Investment Law.
11. Decree No. 38/2018 / ND-CP Stipulating spending on investment for small and medium-sized start-up businesses.
12. Decree: Consolidated document: 09 / VBHN-BTC dated 7/5/2018 guiding CIT
13. Decree: Consolidated document No.: 14 / VBHN-BTC dated 26/5/2015 guiding PIT
14. Decree 134/2016 / ND-CP dated September 1, 2016 detailing a number of articles and measures to implement the Law on Import Duty and Export Duty
15. Decree 08/2015 / ND-CP dated January 21, 2015 detailing the Customs Law
16. Decree 59/2018 / ND-CP dated April 20, 2018 amending Decree 08/2015
17. Decree: Consolidated document 10 / VBHN-BTC dated 7 May 2018 guiding VAT
18. Resolution No. 35 / NQ-CP issued on May 16, 2016 on supporting and developing businesses until 2020
19. Decree No. 75/2011 / ND-CP of August 30, 2011 on investment credits and export credits for small and medium-sized enterprises
20. Decision No. 1726 / QD-TTg of the Prime Minister approving the scheme to improve access to banking services for the economy, issued on September 5, 2016.
21. Circular 119/2015 / TT-BTC guiding the financial management mechanism for the SME Development Fund promulgated by the Minister of Finance,
22. Circular 13/2015 / TT-BKHDT on the List of fields of priority for support and criteria for selection of priority subjects for assistance of the Small and Medium Enterprise Development Fund promulgated by the Minister of Planning and Investment The issue mentioned preferential lending rates for SMEs
23. Circular: Consolidated Document No. 14 / VBHN-BTC dated May 9, 2018 guiding VAT
24. Circular No. 38/2015 / TT-BTC dated 25 March 2015 Stipulating customs procedures, customs supervision and inspection, export tax, import tax and tax administration on exported and imported goods

SPECIFIC FINANCIAL MECHANISM AND FINANCIAL MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES OR TO INVEST IN CREATIVE INNOVATION

Nguyen Vu Viet, Nguyen Dinh Chien¹, Nguyen Thi Van Anh²

ABSTRACT

Entrepreneurial innovation has always been studied by many scholars and policy makers. In fact, there are many influential factors that influence creative activities in entities. One of them is financial mechanism. This paper will examine several financial mechanisms and their influence on innovation.

Keywords: *financial mechanism, start-up, innovation*

1. INTRODUCTION

Up to 2018-2019, some of the highlights for the creative innovation start-up activities are recognized as high internationalization with the attention of the Community of funds and individuals and organizations from abroad to the ecosystem. Vietnamese startups are getting bigger and bigger, and the interest of the authorities and departments in the startup community has become more practical. This reality poses to researchers and policy makers the need to seriously review the existing system of mechanisms and policies for those involved in the innovative start-up ecosystem, re-evaluate strengths and weaknesses, learn lessons learned from other ecosystems, thereby propose amendments and improve the legal environment for these subjects accordingly. That is also the main reason that this article wants to mention.

2. BASIC CONCEPTS OF FINANCIAL MECHANISM AND SPECIFIC FINANCIAL MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION START-UP ACTIVITIES OR INVESTING IN CREATIVE INNOVATION START-UP

The financial mechanism is an economic category, comprising a variety of policies enacted by a national government authority to carry out the administration of the economy. Important contents of financial policy harmonize the relationship between entities, in which one is the state entity, the other is the subject of enterprises, socio-economic organizations. Through the proper creation, distribution and proper use of financial resources, the state has impacted on improving the efficiency of the use of social resources. Currently, there are a number of different concepts about the concept, namely:

¹ Academy of Finance, 58 Le Van Hien, Bac Tu Liem, Ha Noi, email:nguyenvuviet@hvtc.edu.vn.

² Hanoi university.

+ According to the US Employment Act of 1946, the mechanism “financial policy is the use of taxes and government spending to control the activities of a country”.

+ According to macroeconomics, fiscal policy is the policy through tax regime and public investment to affect the economy. Fiscal policy together with monetary policy are important macroeconomic policies for stability and development.

+ According to Dr. Pham Chi Thanh, “financial policy is the basic standards and measures set by the state to manage activities, resolve financial relationships of entities, better meet the increasing needs in social services and in line with economic development requirements ”

The above views, despite the different expressions, have the same basic content, are the mechanisms and policies of a country promulgated by a competent authority of the Government to implement the management and administration of the economy to achieve the set goals. In other words, financial policy is a set of views, regulations, and solutions issued by the competent authority to manage and regulate the resources of a country’s economy in order to create sustainable development.

+ The unique financial mechanism for organizations and individuals engaged in creative innovation activities or to invest in creative innovation is a system of financial policies including regulations and solutions promulgated by competent authorities to implement the manage and regulate the resources of a nation’s economy in order to create sustainable development for entities belonging to organizations and individuals engaged in creative innovation or investment in creative innovation. In other words, the specific financial mechanism for organizations and individuals engaged in creative innovation activities or to invest in creative innovation is the financial mechanism applied only to these target groups in order to facilitate support for the group. This object grows due to the initial difficulties.

Unlike the usual financial mechanism that is common to all sectors of the economy, specific financial mechanisms are financial policies that include specific provisions that differentiate, in a more favorable way for organizations and individuals engaged in creative innovation or investing in creative innovation to encourage these groups in start-up innovation or investment in creative innovation to improve governance, labor productivity and competing capability.

The Government’s use of specific financial policies and financial mechanisms together with other supporting policies to create change, encourage start-up and innovation of businesses and economic organizations which is necessary objectively. In addition, in order for organizations and individuals to have creative innovation activities or invest in creative innovation, in addition to developing specific financial policies, the support of social sectors such as research institutes, universities, nurseries is also required.

3. THE CONSTITUENT ELEMENTS OF A SPECIFIC FINANCIAL MECHANISM FOR ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE INNOVATION ACTIVITIES OR INVESTMENT IN CREATIVE INNOVATION

The specific financial mechanism for organizations and individuals engaged in creative innovation activities or investment in creative innovation includes the following main constituent elements.

- *Policy on capital:*

In order to achieve practical effectiveness, organizations and individuals engaged in creative innovation activities or investing in creative innovation need to have sufficient capital, even more capital than other groups, because the opposing groups are more likely to have more risk. Therefore, in order to have enough capital for creative activities or to invest in creative innovation, it is necessary to have a reasonable capital policy which will help to broaden the capital flow for businesses, contributing to ensure their operations to be conducted smoothly. Because capital is conditional factor to buy other inputs served for the operation, and the capital will determine the ability to innovate equipment, technology, management methods.

The appropriate capital policy will contribute to help organizations and individuals conducting creative activities or investing in creative innovation have more opportunities to expand, develop and diversify their activities. In fact, the scale of capital determines all activities (building business plans, investing in production machines, technological lines, building a product distribution system, analyzing the market).

Good capital policy also helps organizations and individuals who have creative activities to invest in creative innovation or invest in them to be able to cope with market fluctuations and economic crisis during their operation. On the other hand, capital policy is also a condition for implementing the strategies and strategies of these target groups.

In general, policies play an important role in the survival and development of an organization or an individual. Capital policy is effective and appropriate from capital formation stage to the efficient and rational use of capital. However, using any form of establishment, long or short term, high or low mobilization costs, it is imperative to always consider, to ensure operation, while minimizing costs and low restrictions of risk to achieve your goals. Moreover, each organization or individual has its own characteristics, advantages and limitations, so it is necessary to assess and analyze their own strengths and weaknesses in order to decide on the choice of the most appropriate capital policy. This is the key to the success of organizations and individuals in the fierce competition in a market economy.

- ***State budget spending policy***

The State budget expenditure policy is one of the policies under the financial mechanism, contributing to support initial material conditions and support in accessing favorable credit capital with preferential interest rates, through support funds, interest subsidies to support the formation and development of organizations and individuals engaged in creative development activities or investment in creative innovation;

State budget spending policy is one of the tools of national financial policy that has a great impact on the development of the economy. State budget expenditure is the distribution and use of the state budget fund to ensure the performance of the State's functions according to certain principles. The State budget spending policy is the overall viewpoints, guidelines and solutions specified by the provisions of the system of legal documents on state budget spending.

Spending policy of the State budget can support organizations and individuals engaged in creative activities or invest in creative innovation through the following channels:

+ Firstly, spending on national investment support funds and development assistance funds. These funds are a source of support for organizations and individuals engaged in creative innovation activities or to invest in creative innovation during a period of financial hardship;

+ Secondly, to support organizations and individuals engaged in MFI activities or invest in them, through interest rate subsidies for credit institutions with preferential lending programs with low interest rates for organizations and individuals who have creative innovation activities or invest in creative innovation activities;

- *Financial policy on estate*

Financial policy on estate is a system of state views, guidelines and solutions in land management and use issued by a competent authority of the Government for the purpose of clearing financial resources for socio-economic development of the country.

Financial policies on land, including: Policies on land use levy collection; policies on collection of land rents and water surface rents; land price policy; policies on compensation, site clearance, support and resettlement when the State recovers land; policies on auction of land use rights when the State allocates or leases land ...

Financial policies on land can support organizations and individuals that have creative activities or invest in creative innovation through the following channels:

Firstly, initial support on land for organizations and individuals engaged in creative innovation activities or investment in creative innovation

The support of state land will create favorable conditions for the subjects of this group in the process of investing in selecting production and business premises and in site clearance, construction of workshops and construction of the infrastructure.

Second, incentives on land rent rates, methods of determining land rents, water surface rents and land rent exemption and reduction.

In the land finance policy, the State has incentives for land rent rates, a suitable method of determining land rents or exemption or reduction of land rents for organizations and individuals engaged in creative innovation activities or investing in creative innovation which will create favorable conditions for these groups to have more capital to invest in expanding production and business.

- *Tax policy*

Tax policy is one of the important macro-economic regulatory instruments of the state. The content of tax regulation consists of two aspects: stimulation and restriction. The government has used tax policies flexibly in each period, by affecting supply and demand to adjust the business cycle - an inherent feature of the market economy. Like all economic organizations, organizations and individuals engaged in creative creative activities or investing in creative innovation must fulfill tax obligations as prescribed. A series of related taxes such as corporate income tax, PIT, VAT, excise tax, import and export tax, resource tax. The application of preferential tax policies to investment projects of organizations and individuals engaged in creative activities or investment in creative innovation will have a development-oriented role for this target group. Specifically, in

order to encourage these groups to grow, the Government needs to have policies on tax reduction or tax credit support, which are very necessary supports for these groups to have more capital to self-finance, accumulating, or improving the capacity of reinvestment. Tax reduction can reduce the tax rate in a certain time for each tax. For example, the current CIT rate for all groups of tax payers is 20%, especially for organizations and individuals that have creative activities or invest in creative innovation, they may only pay 15% in 5 year term. Some other taxes are similar.

- Credit policy

Credit policy is a part of monetary policy, composed of 5 main components, namely: Subjects of lending, lending conditions, lending methods, interest rates and loan fees, guarantee loan security. This is a policy that has a direct impact on organizations and individuals in the economy.

Credit is a financing tool for underdeveloped economic sectors and key economic sectors. In order to create favorable conditions for organizations and individuals engaged in creative activities or to invest in them, with credit tools, the Government finances these groups by providing preferential loans with low interest rates, long term, and huge capital. Enjoying low interest rates will create favorable conditions for organizations and individuals engaged in creative innovation activities or invest in them to reduce costs and reduce costs, helping to overcome the initial stage of difficulties, thereby raising high business efficiency and competitiveness of these target groups. Low interest rates are the motivation to encourage organizations and individuals engaged in creative innovation activities or to invest in creative innovation to expand investment, research on technological innovation, modern equipment, and develop business and production activities, creating conditions to improve production capacity, product quality, labor productivity and competitiveness; therefore, stimulating growth in the entire economy. In particular, initial scale of these target groups is small and super small; there is almost little endogenous capital or no collateral for bank loans. In addition, the production and business activities of organizations and individuals engaged in creative innovation activities or investing in creative innovation are high risks, so traditional channels of capital mobilization through commercial banks are very difficult. In parallel with the interest rate incentives, the State will provide a lending method suitable to the specific conditions of organizations and individuals engaged in creative innovation activities or investing in creative innovation start-up. This group has more capital to develop production and business. In addition, it is possible to implement preferential policies for these target groups in issuing stocks and bonds in order to form initial equity and also be a means to raise additional equity property. On the other hand, it is possible to apply the form of financial leasing, which is an irrevocable long-term credit financing method. Under this method, the lessor usually buys the property and equipment at the request of the lessee and holds the ownership over the leased property. The tenant uses the leased property and pays the rent throughout the agreed term and cannot cancel the contract ahead of time. At the end of the lease term, the lessee may transfer the right to own, repurchase or continue to lease the property according to the conditions agreed in the lease. Through the form of financial leasing, organizations and individuals who are engaged in creative innovation activities or invest in them can:

- (1). Increasing long-term capital to expand operations;

- (2). Easy to mobilize and use loans;
- (3). Implementing investment projects quickly, capturing business opportunities;
- (4). Helping to quickly renew technological equipment;
- (5). Help to be able to postpone income tax and
- (6). Helps to attract large external capital through borrowing and importing machine

- *Policy on investment*

Investment policy is one of the important financial policies of the State to encourage and support businesses, economic and social organizations to grow and develop, contributing to the socio-economic development of a nation. Investment policies include a system of tools, methods and measures that the State applies to investment activities in order to attract domestic and foreign investment flows and to encourage and support development of businesses and economic organizations.

Investment policy is particularly important, because it creates value for businesses and economic organizations. The right or wrong investment policy will directly affect issues such as raising capital, investing in equipment, capital structure, product quality of businesses, economic organizations and deciding on the survival of these objects. Investment policies have a great influence on the investment decisions of investors in the market. Like other financial policies, investment policy is like a “double-edged sword”, which can be a lever to stimulate growth but can also inhibit the development of investment activities. The content of state investment policies to support organizations and individuals engaged in creative innovation activities or investment in creative innovation, including: investment in land, infrastructure, and production premises; science and technology investment.

- *Other policies:*

In addition to the aforementioned financial policies, in order to create conditions for organizations and individuals engaged in creative innovation activities or invest in creative innovation start-up, the Government has favorable policies to facilitate the establishment of Supporting Funds such as the Public Innovation Fund, National Science and Technology Development Fund, Startup Support Fund, capital mobilization channel and other legal funds, including venture capital funds of private organizations and foreign organizations operating on the Vietnamese territory.

The policy to support organizations and individuals engaged in creative innovation activities or to invest in creative innovation start-up through funds, capital raising channels and start-up ecosystems is a system of guidelines and measures of the Government on organization, establishment, operation of funds and other capital mobilization channels or start-up ecosystems to help financially or create incubation and development environment for organizations and individuals engaged in creative innovation activities or invest in creative innovation start-up.

4. THE INFLUENCE OF SPECIFIC FINANCIAL MECHANISM ON ORGANIZATIONS AND INDIVIDUALS ENGAGED IN CREATIVE ACTIVITIES

Firstly, the special credit support mechanism facilitates organizations and individuals engaged in creative credit activities to access credit capital and to use credit capital with lower capital cost

compared to other owners. After having the idea of creative innovation, which is the next difficult issue, it affects the business story of the subjects implementing creative innovation start-up. Studies have shown that each form of funding is inherently associated with a specific type of innovation. Businesses often use equity to invest in research and development (R&D) and internal capital is a decisive factor to the level of science and technology through R&D. At the same time, debt mobilization is related to profitable innovation (Peter D. Casson & Roderick Martin & Tahir and authors Charles P. Himmelberg & Bruce C. Petersen). For organizations and individuals that implement creative innovation start-up, apart from the initial equity, debt mobilization is necessary to meet the funding needs for the start-up operation, especially in the early stages of product launch and commercialization to scale up. However, it is very difficult for entities to access credit capital due to the unique characteristics of this activity. Therefore, it is necessary to have a credit mechanism specific to them in accessing credit capital. There should have method of supporting and creating favorable conditions for organizations and individuals engaged in creative research activities to access and use credit capital.

Secondly, the mechanism of budget spending encourages investment, creates facilities and provides additional channels of capital mobilization for organizations and individuals engaged in creative innovation activities. The state uses central budget and a significant part of local budgets to finance economic development investment. Main spending contents include: capital construction investment; spending on investment and capital support for state enterprises, capital contribution of share capital, joint venture capital in enterprises in necessary fields; expenditures for national investment support funds, development assistance funds, and state reserves. Expenditure on development investment aims to build infrastructure in order to create an environment and favorable conditions for putting investment capital of enterprises in necessary fields and suitable to the objectives of the economy. For the implementation of creative innovation activities, the State uses the budget to spend on developing the startup ecosystem with specific policy programs such as the Technology Incubator Program, the National Science and Technology Development Program, developing venture capital industry, forming a state angel investment fund for creative innovation businesses, setting up a separate securities trading floor for creative assets, etc. Each program needs its own specific operating mechanism. Through the technology incubator program, the state gathers ideas on creative innovation, assisting those implementing creative innovation to assess the feasibility of the idea. The state based on the assessment of technical and commercial feasibility, risk and potential of projects to select potential projects. At the same time, the state will stipulate a certain percentage of investment capital for highly feasible projects, ensuring adequate supply of capital for investment activities.

Thirdly, the tax policy of direct and indirect support ensures favorable conditions for organizations and individuals engaged in creative activities. Tax policy, however, is a financial tool of the State in regulating the economy to ensure fairness and efficiency. Each tax policy is directed to specific subjects, either taxpayers or taxable subjects. Depending on the purpose and basis for formulating and promulgating tax policies, the State may make adjustments to tax such as: determination of appropriate tax rates, application of preferential tax rates and regimes of exemption, reduction and adjustment, object of application, scope of adjustment and method of implementation. For entities who are organizations and individuals engaged in creative activities, tax policy should have priority for this group of subjects.

Fourth, the specific financial mechanism on land impacts the reduction of input costs, increasing capital resources and facilitating organizations and individuals to implement creative magic. Real estate is one of the major inputs in the manufacturing process. Businesses in agro-forestry businesses face many difficulties in business space, especially in agriculture, forestry and fishery. Financial policies on land include: Policies on land use levy collection; policies on collection of land rents and water surface rents; land price policy; policies on compensation, support and resettlement when the State recovers land; policies on auction of land use rights when the State allocates or leases land; and additional documents of the Government on the above policies. The State applies a number of specific financial mechanisms on land such as (1) initial support in land clearance, shortening the time of project licensing, the impact of helping entities implement creative skills to accelerate progress; (2) Incentives on unit price of land, duration of land lease; Land rental exemption and reduction in the first years of business start-up. In essence, this is a form of direct financial support for businesses. Therefore, the specific financial mechanism on land impacts provides additional capital for organizations and individuals to implement creative magic.

5. CONCLUSIONS

The paper focuses primarily on the basic elements of the financial mechanism and specific financial mechanisms for organizations and individuals engaged in creative innovation or investing in creative innovation, in which the impact is concentrated on positive impact. Particularly, the study of other impacts of the financial policy mechanism group is strongly influenced by the actual situation of implementation, so it does not go into these generalized contents.

It is hoped that this article will serve as a basis for considering the current situation of the financial policy mechanism affecting the research subjects who are individuals, startups or invest in creative innovation in Vietnam.

REFERENCES

1. The Government (2018), Decree 38/2018 / ND-CP of March 11, 2018, details the investment for innovative start-up SMEs.
2. Cvijanović V., Marović M., & Sruk, B., "Financiranje malih i srednjih poduzeća", Binoza Press, (2008).
3. Dan cenor and Saul Singer, "Start-up Nation, The Story of Israel's Economic Mirarle", World Publishing House 2013.
4. Diem Thi Thanh Hai, Hoang Phuong Anh, "Some proposals for credit policies to create favorable conditions for startups to innovate and operate", Finance Publishing House, 2018.
5. European Commission, "Effectiveness of tax incentives for venture capital and business angels to foster the investment of SMEs and start-ups", 2017.
6. Proceedings of National Science Conference, "Tax and financial policies specific to the development of innovative start-up ecosystems", Institute of Finance 2018.
7. Le Xuan Truong, "Solutions on tax mechanisms and policies to improve the competitiveness of Vietnamese industry enterprises in the present conditions", 2002, Master thesis.
8. Ly Phuong Duyen, Do Van Hai, "Specific financial policies for developing the startup ecosystem", Journal of Finance No. 9/2018.
9. Nguyen Ba Minh et al, "Financial policies to promote the development of private enterprises in Vietnam", Ministry of Science Project 2016.

ANALYSIS AND EVALUATION ON THE FINANCIAL MECHANISMS TO ATTRACT INDIVIDUALS AND ORGANIZATIONS IN DOING CREATIVE STARTUP OF FOREIGN INVESTMENT IN CREATIVE STARTUPS IN VIETNAM

Ngo Thanh Hoang¹

ABSTRACT

Effective start-ups require policies towards developing, connecting components of the creative eco-systems, supporting enterprises in developing and expanding regional and global markets. This paper will provide thorough analysis and evaluation on financial mechanisms to attract organizations and individuals to innovate start-ups activities and promote foreign investments in creative start-ups in Vietnam recently. Also, several limitations and solutions to tackle these limitations will be presented in order to facilitate and support further development of Vietnamese start-ups in the coming time.

Keywords: *creative innovation, financial policies, start-ups*

1. INTRODUCTION

During recent years in Vietnam, the number of entities participating in creative start-up activities has been increasing, not only domestic investors but also increasing foreign ones investing in start-ups in Vietnam. The Vietnam Government pays close attention to this activity and has issued a number of mechanisms and policies to attract domestic and foreign organizations and individuals to participate in creative entrepreneurship. Especially, there are more and more international investment funds showing their interest in and doing venture capital investment in Vietnam. The reality requires researchers and policy makers to consider and evaluate the current financial mechanisms and policies applied to individuals and organizations engaged in creative startup entrepreneurship and foreign investors to creative startup entrepreneurship in Vietnam.

The objective of the study is to systematize the current financial policies and mechanisms for creative startup individuals and organizations or foreign investors to creative startup entrepreneurship Vietnam, analyze and evaluate the status of the current financial policies and mechanisms for creative startup individuals and organizations or foreign investors to creative startup entrepreneurship Vietnam, and at the same time present the limitations and constraints, which could be used as a practical basis for proposing resolutions for amendment and supplementation to financial policies and mechanisms facilitating and boosting further development of creative startup entrepreneurship in Vietnam in the coming time.

¹ Academy of Finance, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, email: ngothanhhoang@hvtc.edu.vn.

2. LEGAL FRAMEWORK REGULATING THE INVESTMENT IN CREATIVE STARTUP IN VIETNAM

Currently, the legal framework has been improved in a way that is more favorable in supporting for creative startup. The Ministry of Science and Technology (MoST) has presided and coordinated with relevant ministries and sectors to create favorable policy and institutional environment to the development of creative startup ecosystem with the issuance of Circular No.01/2018/TT-BKHCHN dated April 12th, 2018, defining the organization and management of Project 844; coordinated the participation in developing contents about creative startups and investments for creative startup entrepreneurship in the Law on Supporting to Small and Medium-sized Enterprises in 2017 and Decree No.38/2018/ND-CP on investment to small and medium-sized creative startups. The Decree No. 76/2018/ND-CP of the Government stipulates in details and guides the implementation of a number of articles of the Law on Technology Transfer; whereas solutions to attract domestic and foreign investment into creative startups are proposed in the Official Letter No.666/BKHCHN-PTTDDN dated March 19th, 2018.

Investment into creative startup entrepreneurship in Vietnam can be done via following key channels

(i) Individual/angel investors invest in potential individuals, groups of individuals or startups. Individual investors carry out their investment activities mainly based on their own information as well as experience in assessing the potential of start-ups and domestic and international market trends. Individuals trust and invest in each other through the forms of capital contribution, share purchase of startups, acting as a shareholder; or invest in groups of individuals with startup ideas to develop ideas, support starting a business and get a stake in startups. Rights, obligations and responsibilities of stakeholders are mainly governed by the Civil Code, the Law on enterprises and the Investment Law.

(ii) So far, there are stipulations for specialized organizations on investment and finance such as financial companies, securities investment companies, securities companies, microfinance institutions, non-banking credit institutions, which are doing conditional business activities (promulgated in the Law on Securities, Law on Credit Institutions, Decrees and Circulars on people's credit funds, non-bank credit institutions, microfinance institutions, etc.). The establishment and operation of these organizations must be regulated by the competent authority. Therefore, in order to determine the legal status and create a legal framework for startups operating legally, there should be separate regulations for this type of company.

(iii) From the practical surveys, there are now many private/angel investors wishing to contribute capital to form an investment fund for creative startups. However, there is only the legal framework for establishing securities investment funds stipulated in the Law on Securities, which set very high and strict requirements on establishment conditions in order to set up an investment fund following the model of a securities investment fund. For example, one of the conditions for public fund establishment is that the fund has a minimum of 100 investors, excluding institutional securities investors who purchase fund certificates and the total value of fund certificates sold is at least VND 50 billion (Clause 1, Article 90, Law on Securities); for member funds, the minimum paid-in capital is VND 50 billion and there are a maximum of 30 capital-contributing members all

of which must be legal entities (Article 95, Law on Securities); the minimum capital required to establish and operate a securities investment company is VND 50 billion (Clause 1a, Article 97, Law on Securities).

Such conditions are not suitable as well as do not create favorable conditions to encourage small private/angel investors to contribute capital for the establishment of creative startup investment funds

3. CAPABILITY IN ATTRACTING INVESTMENT

The mobilization of capital and calling for investment of the creative startups is increasingly vibrant in Vietnam. According to Topica Founder Institute, in 2016 the total investment that Vietnamese creative startups received was USD 205 millions, increased by 46% compared to 2015 (USD 137 millions), mainly from foreign investors. Investment into Vietnamese creative startups tends to be more focused. Although the total amount of capital raised by creative startups was increased significantly, but the number of deals was decreased with only 50 deals (compared to 67 deals in 2014). 07 deals of which were worth more than USD 10 millions.

Also according to Topica Founder Institute (TFI), in 2017 Vietnam received 92 investment deals into creative startups, with value of USD 291 millions, nearly doubled in terms of number of deals and accounted for nearly 50% of the total investment capital compared to 2016 (50 deals with a value of USD 205 millions). Among them, 8 were successful divestments through mergers and acquisitions (M&A) which was worth USD 128 million. In 2015, the investment value was USD 137 million and the divestment value was about USD 300 million (due to the sale of Misfit which worth of USD 260 million). The years of 2016-2017 also witnessed the participation of many Vietnamese corporations in investing in creative startups such as FPT Investment Fund (FPT Ventures), Viettel Investment Fund (Viettel Ventures), CMC Innovative Fund. Statistics from the Ministry of Science and Technology also showed that, in 2016 and 2017, the activities of Vietnamese creative startups were very progressive. Only the 5 most successful capital-raising deals totaled more than USD 50 million (Momo – USD 28 million, F88 – USD 10 million, Got It! - more than USD 9 million, Vntrip.vn – USD 3 million, Toong – USD 1 million USD). The latest is Foody, a culinary social network, which has been acquired by SEA with more than 82% of its shares for more than USD 64 million. This is considered the largest investment in 2017 to date. The large cash flows have been flowing into Vietnamese creative startups.

The number of investment deals into Vietnam is increasing, but the number of deals worthy less than USD1 million accounts for the majority. The number of deals received with an investment of more than USD 10 million is very small. The number of M&A deals is still very limited. There has been no creative startups having IPO yet. For business promotion organizations are the ones to provide training, coaching, developing business models, calling for investment capital for early stage of creative startups, and can invest with small investments from a few tens of thousands of dollars. Some typical business promotion organizations in Vietnam include Vietnam Silicon Valley Accelerator (VSVA) supported by the Ministry of Science and Technology (MoST); CLAS – Expara Vietnam Accelerator invested by Microsoft Vietnam and the Expara creative startup investment fund in Southeast Asia; The Vietnam Startup Acceleration Fund (VIISA) - both an

early stage creative startup investment fund and a business promotion organization with four main investors, namely FPT, Dragon Capital Group, Hanwha Group (Korea) and BIDV Securities Joint Stock Company. By the end of 2017, there were about 40 investment funds operating in Vietnam with the majority being foreign investment funds. Among them, only some investment funds have representative offices in Vietnam such as IDG Ventures, CyberAgent Ventures, DJF-VinaCapital, 500 Startups. In addition, there are private enterprise investment funds (Private Equity Fund), which do not focus on investing in creative startups, but can invest in the transition period from creative startups to mature enterprises, such as Mekong Capital Fund, Dragon Capital, VinaCapital.

Regarding angel investors, the number of them has not been numerous, but it starts to increase. Most of them are successful entrepreneurs who want to invest in the next generations of creative startups. A number of overseas Vietnamese and overseas Vietnamese students have returned to Vietnam to invest in creative startups, such as investor Nhan Nguyen – a famous engineer at Google, who has made investments in a number of Vietnamese creative startups, including TechElite, JupViec, Beeketing, Ybox, etc; entrepreneur Do Hoai Nam – a successful creative startup entrepreneur from the Silicon Valley in USA, who has invested in HDViet, 5S Online, etc.; entrepreneur Vu Duy Thuc – a Ph.D. from Stanford, honored as one of the typical young entrepreneurs of creative entrepreneurship in Silicon Valley, who has also guided and invested in a series of creative startups in Vietnam such as Umbala and ELSA.6. The activities of angel investors in Vietnam have been more and more systematic through connecting and forming a number of clubs and networks for creative startups such as VIC Impact, iAngel or VCNetwork.co.

A positive point of the market is the Accelerator model (accelerating start-up) which receives particular interest. Some foreign organizations have targeted Vietnam market such as Singapore's JFDI, 500 US SMEs, 1337 of Malaysia ... This trend helps Vietnam's startup ecosystem become more vibrant. The emergence of angel investors is increasing in investment deals since most of the deals are still carried out by foreign investment funds. The situation of venture capital in Vietnam in 2016 has changed compared to 2015; however these changes are not significant. New funds are in the phase of market exploration. Active funds such as IDG and Cyber agent only focus on investments to divest in stead of investing in more deals. Up to 2016, we haven't had a venture capital fund of our own.

By 2017, despite a relatively strong growth, the investment capital for innovative startups in Vietnam is rather relatively modest compared to the region and the world. According to Tech in Asia³, in 2017, Southeast Asia attracted US \$ 7.86 billion in start-up investment, which means that the amount of investment capital attracted in Vietnam accounted for a very small proportion, less than 5%. According to the prestigious magazine on startup CB Insights, from 2012 to now, Vietnam, ranked fourth in the amount of EIA attracted, after Singapore, Indonesia and Malaysia.

In short, activities in capital investment market for innovative startups in Vietnam are diversified and relatively exciting from both domestic and foreign capital. However, the scale of capital as well as the cooperation in investment in innovative startups in Vietnam are quite small, and do not commensurate with the potential and needs of the ecosystem of Vietnam's innovative start-ups.

There are many venture capital funds that want to invest in innovative start-ups in Vietnam, but encounter some challenges and difficulties as follows:

(1) Investment Certificate - IC

A startup, when having a foreign investor, even investing US \$ 50,000 at a 1% rate is also required to have IC. It takes a lot of time for companies themselves to get the IC; from preparation phase to get IC, it can take 6 months to a year and hundreds of millions for lawyers to get this certificate. In the early stages of the startup process, while not having capital and need to focus on product development and user attraction, getting ICs with great time and effort can cause many startups failure in the market. The procedures and costs for ICs are becoming a bottleneck for startups when calling for foreign investment into Vietnam.

(2) Business lines

Currently, foreign-invested companies registering business line in advertising must meet the conditions that shareholders of the companies have to operate in the field of advertising. With technology products serving end-users, many of the major revenue sources come from advertising for businesses (though more or less). Therefore, this provision, in general, limited or caused many difficulties for businesses.

(3) Proportion of ownership

There are many industries restricting foreign ownership. This is also a barrier to attract venture capital sources for startups in Vietnam.

(4) Obstacles from administrative procedures for venture capital funds

At present, the administrative procedures to register operations for a venture capital fund are often very complex and time consuming. For example, the Vietnam Science and Technology Entrepreneurship Fund is led by the leader of the Technology Commercialization Project in the Silicon Valley Vietnam model, still takes nearly a year to be operated despite calling for experienced investors to invest and financial capacity.

(5) Lack of legal mechanism to establish new investment funds

In many countries around the world such as the US, Canada, European countries, Korea, Taiwan, new type of investment organizations in the form of Angel Investor Club are very effective. They are not only a “Club” for exchanging information but also can call for investment capital, manage capital as a true venture capital fund; nevertheless the goals and ways of investment may be different. In Vietnam, if they want to operate this way, these clubs need to go through complicated administrative procedures as well as very strict regulations to establish a venture capital fund model.

In addition, a new model of venture capital fund for science and technology startups which is very effective in the world is crowd funding platform. Although the benefits of crowd funding are huge and there are some Vietnamese investors wishing to open crowd funding platforms, Vietnam’s policy mechanism is still limited, especially from the Securities Law when mandatory companies with 50 or more securities investors must be listed on the stock exchange.

4. ATTRACT INDIVIDUALS AND ORGANIZATIONS TO INVEST IN CREATIVE INNOVATION THROUGH CAPITAL WITHDRAWAL, BANKRUPTCY SUPPORT, AND MONEY TRANSFER ABROAD

Our economic management practices have obstacles that do not really encourage venture capitalists. For example, it is not easy for foreign investors to divest and transfer money abroad after a period of transferring money to Vietnam to invest. They have to go through a lot of procedures and sometimes these rules are not clear enough. The view of our government is that this cash flow must be strictly managed to avoid money laundering which causes difficulties for the development of Vietnam's startup ecosystem. Many startups often turn to business registrations in Singapore or other Southeast Asian countries to make it easier for their investors.

Moreover, our mechanism does not allow the state to invest in startups even through cooperation with a private fund, although the Ministry of Planning and Investment has just issued Decree 38 in which stipulates that "using local budgets to invest in small and medium-sized start-up businesses". The reason is very simple as the characteristic of starting a business is that there are only a few successful projects, most of them fail. According to the current regulations, the agency managing the failed projects will be considered a violation of state budget law and must face the criminal code.

The withdrawal from the Vietnamese market is still too complicated for businesses. According to World Bank, Vietnam is ranked 125/190 in terms of complexity and difficulty in the economy when completing bankruptcy procedures (Doing Business 2017, World Bank). Bankruptcy should not only be interpreted as a negative activity but also be understood as having positive implications because it helps the economy to carry out continuous restructuring, clean the business environment, and help start-up employers release all liabilities to start a new operation when having a failure. For businesses facing financial difficulties or unable to find sources of payment for overdue debts, bankruptcy activities are opportunity to restore operations, find a way out before being forced to declare bankruptcy and handle property. Therefore, the Government's policies will also help form the psychological and favorable bankruptcy procedures for businesses to withdraw from the market in order and quickly facilitate the process of "creative destruction". Accordingly, State should regard enterprises as a partner in the development process, instead of merely a management or tax revenue source, helping individuals and organizations invest in creative innovation more favorable.

5. CONCLUSION

Creative innovation start-up activities in Vietnam in recent years have been developing strongly and increasingly with the participation of many venture capital funds, incubators, co-working spaces, etc. Thereby, creative innovation start-up businesses are successfully founded, and large investments are raised. However, in order for effective creative innovation, there should be policies towards the development and connection of components of the creative innovation start-up ecosystem, supporting development enterprises to expand into regional and international markets.

Financial policies and mechanisms have a certain influence on attracting creative innovation start-up domestic and foreign organizations and individuals to invest in this activity. Hopefully, the above analyzes and assessments will create a practical basis for proposing solutions to amend

and supplement financial policies and mechanisms to facilitate further development of creative innovation startup activities in Vietnam in the future

REFERENCES

1. Hanoi University of Economics and Business (2018), Attracting foreign angel investment capital to develop startups in host countries: International experience and implications for Vietnam, *Workshop materials international*
2. Ministry of Planning and Investment, Department of Enterprise Development: *Vietnam White Paper*, 2017
3. Pham Tien Dat (2018), Principles to formulate specific financial policies for start-up innovation activities - from international experience, *Finance Publishing House*, Hanoi
4. Law on supporting SMEs 2017, Law 04/2017 / QH14
5. Law on Investment 2014
6. VAT Law: V consolidation 01 / VBHN-VPQH dated 28/4/2016
7. Law on Export Tax and Import Tax No. 107/2016 / QH13 dated April 6, 2016
8. Customs Law No. 54/2014 / QH 13 of June 23, 2014
9. PIT Law: Consolidated Document No. 15 / VBHN –VPQH dated 11/12/2014
10. Decree No. 188/2015 / ND - CP detailing and guiding the implementation of a number of articles of the Investment Law.
11. Decree No. 38/2018 / ND-CP Stipulating spending on investment for small and medium-sized start-up businesses.
12. Decree: Consolidated document: 09 / VBHN-BTC dated 7/5/2018 guiding CIT
13. Decree: Consolidated document No.: 14 / VBHN-BTC dated 26/5/2015 guiding PIT
14. Decree 134/2016 / ND-CP dated September 1, 2016 detailing a number of articles and measures to implement the Law on Import Duty and Export Duty
15. Decree 08/2015 / ND-CP dated January 21, 2015 detailing the Customs Law
16. Decree 59/2018 / ND-CP dated April 20, 2018 amending Decree 08/2015
17. Decree: Consolidated document 10 / VBHN-BTC dated 7 May 2018 guiding VAT
18. Resolution No. 35 / NQ-CP issued on May 16, 2016 on supporting and developing businesses until 2020
19. Decree No. 75/2011 / ND-CP of August 30, 2011 on investment credits and export credits for small and medium-sized enterprises
20. Decision No. 1726 / QD-TTg of the Prime Minister approving the scheme to improve access to banking services for the economy, issued on September 5, 2016.

COMPLETING POLICIES AND LEGAL REGULATIONS ON SPECIAL TAX MECHANISM FOR START-UP BUSINESS INNOVATION

Luong Thu Thuy¹, Nguyen Dao Tung²

ABSTRACT

In order to become a “startup nation”, Vietnam needs to build a special mechanism for startups, innovation and entities in the entrepreneurship ecology. At the same time, there should be more specific and more detailed rules about financial policies, including tax policies for startups business, innovation in particular direction and incentives for the this subject.

Keywords: *tax policy; specificity; start-up businesses, innovation.*

1. In Vietnam, although the start-up activity and innovation of businesses are always concerned by the Government, we still do not have a separate law. In this regard, the contents of start-up and innovation are only stipulated in relevant laws, such as: Law on Science and Technology 2013, Law on Investment 2014, Law on Credit Institutions (amended) 2017, Law on Supporting Small and Medium Enterprises in 2017, tax laws.

The Law on Support for Small and Medium-sized Enterprises identifies small and medium-sized start-up businesses (innovative startups) as businesses established to implement ideas based on the exploitation of intellectual property, technology, new business model and likely to grow rapidly (Clause 2, Article 3). On that basis, the conditions and content of support for innovative small and medium-sized start-up enterprises are prescribed in Articles 17 and 18 of this Law. After the Law on Supporting Small and Medium Enterprises, up to now, the Government has implemented the detailed guidance for supporting start-up businesses through the issuance of a number of relevant decrees. , such as Decree No. 34/2018 / ND-CP dated March 8, 2018 on the establishment, organization and operation of credit guarantee funds for small and medium-sized enterprises; Decree No. 38/2018 / ND-CP dated March 11, 2018, detailing investments for small and medium-sized start-up businesses; Decree No. 39/2018 / ND-CP dated 11 March 2018 detailing a number of articles of the Law on Supporting Small and Medium Enterprises; Decree No. 55/2019 / ND-CP dated June 24, 2019 on legal support for small and medium-sized enterprises ...

In addition, a number of policies aimed at providing target orientations and basic solutions to support startups and innovation are also issued, such as: Decision No. 844 / QD-TTg dated 18 / In May 2016, the Prime Minister approved the Project “Supporting the national innovation start-

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: luongthuthuy2001@yhao.com.

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email:nguyendaotung@hvtc.edu.vn.

up ecosystem to 2025". This is the most comprehensive policy document and is the foundation of supporting policies for Vietnamese startups. The objective of the Project is to create a favorable environment to promote support for the formation and development of fast-growing businesses based on the exploitation of intellectual property, technology and new business models. On February 7, 2017, the Ministry of Science and Technology issued Decision No. 171 / QD-BKHCN approving the list of ordering tasks under the Project "Supporting national innovation start-up ecosystem till 2025...

2. Thus, the legal system and policies with support contents for startups and innovation have been issued, including specific provisions on information, communication and trade promotion support trade, connect with innovative start-up networks, attract investment from innovative start-up investment funds, especially tax, financial incentives ... for businesses. Tax incentives provided for in the 2008 Value Added Tax Law, the 2012 Law on Personal Income Tax, the 2013 Law on Corporate Income Tax (amended), the Law on Supporting Small and Medium Enterprises 2017... have created a legal corridor for these businesses to step up their operations and development. With the high-risk start-up characteristic, tax incentives also help businesses to invest more aggressively.

Basically, tax incentives for businesses investing in startup, innovation mainly focus on: tax exemption and reduction; Land lease exemption and reduction (in accordance with the 2013 Land Law), on that basis, makes an important contribution to solving difficulties and supporting the development process of startups. Regulations on corporate income tax incentives for businesses and investors in some high-tech fields are relatively attractive, attracting many investors to invest in startups and innovation... Enterprises have been more active when implementing innovation in production and business, contributing to socio-economic development in Vietnam. In addition, the simplification of tax administrative procedures has helped businesses start up, innovate and reduce costs of administrative procedures.

However, besides the achievements, current tax regime for business startups, innovation is still having problems needed to be amended in order to promote enterprise development and attracting investments. Law an support for.

Firstly, tax incentives are mainly mentioned in the small and medium business support law, most corporate income tax laws are incentives for small and medium-sized businesses in general, including small and medium-sized businesses, creative innovation. Small and Medium Business support law enforcement guidelines also do not have detailed and separate tax guidelines for startups and innovative businesses. So far, Vietnam has not yet had a special tax policy for startups, innovation and organizations and individuals investing for startups and innovation.

Secondly, tax incentives are mentioned mainly preferential enterprise income tax which little or no incentives on taxes and other fees for business startups, innovation. Moreover, in order to enjoy the tax privileges of this, businesses must meet a variety of criteria (in addition to the criteria in the field of activities also need to meet the criteria for uptime, size of capital, provided labor model ...). This is one of the difficulties that many start-up businesses, innovation encounter and miss out the positive impact of tax incentives.

Thirdly, some provisions of tax incentives for small and medium-sized enterprises entrepreneurship, innovation is defined in the Law on Support for small and medium-sized

enterprises is not feasible. The reason is that according to regulations, issues related to taxation must be specified in writing by the Ministry of Finance on tax preparation. Therefore, there is case law support small and medium-sized enterprises preferential tax provisions but in fact does not have the text of the Ministry of Finance regulations on preferential tax rates for this case.

Fourthly, Determining criteria for small and medium-sized enterprises are defined in the Law on Support to small and medium-sized enterprises as a basis for determining the enterprise is tax incentives. However, the use of capital criteria, or differentiate by sectors and industries as a basis for determining the object is endowed with many shortcomings. If placed in the trend enterprises manufacturing business - multi-disciplinary and multi-sector at present, the total capital recorded in the statistics table of assets will have to include both registered capital and borrowed capital should not reflect the scale of the enterprise. Reality shows that the business registration capital of other enterprises is fewer than which invested in manufacturing-business. Therefore, the use of various criteria by industry, the incentives will create many difficulties for the management of tax authorities. In contrast, the use of revenue criteria has just the advantage of strictly reflecting the production-business situation of the business, fits in with the experience of many countries

Fifthly, the tax policy has no discrimination towards higher incentives for startups and creative innovation. Currently, these businesses are only applicable to business income tax rates as other enterprises are 20%. The offer of tax incentives of 10%, 15%, 17%, or exemption of corporate income tax on income from activities in some industries, the field is offered as well as any new business established by the new investment project.

In addition, the enterprise invested for startups, innovation when making the transfer of capital has not yet specified the tax policy incentives. The current tax policy rules for tax on each transfer of capital, each transfer of securities to the investment in any business subsequently transferring capital. While investing in start-up businesses, innovation is at high risk. The current tax policy has not allowed investors to take the loss compensation, so has limited the process of attracting investment of domestic and foreign investors into start-up businesses.

Furthermore, Viet Nam has no specific incentives for personal income tax for investors and employees in startups and innovation. The personal income tax rate is applicable as for all other individuals with income although article 29 high-tech law has prescribed the state to have the highest incentives and policies on personal income tax.

3. Coping with the situation, to support startups and innovation. The Government is able to adopt direct support measures through funding for startups or indirect support through tax spending. Direct funding for startups can be made through the National Technology Support Fund. However, statistics show that there are few businesses that receive funding from the National Technology Support Fund. Therefore, indirect supports for business and investors for startups, creative innovation along with tax incentives will be more effective measures.

Accordingly, it is necessary to enact new, revised and supplemented legal documents system and policy system for specific tax mechanisms for startups and innovation, focusing on:

One is, issued new, revised and supplemented legal documents relating to specific tax mechanisms.

(1) Proposals relating to small and medium enterprises support law. Under this law the incubation basis, technical basis, joint work area is exempt, reduce corporate income tax for a certain period. However, there is no specified exemption, tax reduction. The addition of incentives for these subjects will contribute to the promotion of investors to create infrastructure to attract small enterprises, small and medium enterprises to operate, save costs for enterprises and support the essential services of the Board The beginning of the new process. The proposal applies to the following subjects:

- For “nursery” facilities, technical basis, general work area supporting small business and creative start-up, proposed enterprise income tax rate of 10% for 15 years, tax exemption 4 years and a reduction of 50% of the tax payable in the next 9 year for businesses implementing new high-tech investment projects in different fields in “incubators”, or incomes from new project applying high-tech are propitiating development investments that are successfully incubated

- For investors for small and medium-sized start-up businesses, with the goal of maximum support for innovative start-up investors, in addition to the provisions on investment for small and medium-sized start-ups innovations such as Decree No. 38/2018 / ND-CP, need to have a preferential tax policy for investors, especially in the fields of venture capital or high technology research and application. . Investments in start-up small and medium-sized businesses will be eligible for tax incentives, such as incubator facilities, technical facilities and general working areas as above.

In case of having income from investment or capital transfer, enterprise income tax must be paid with preferential tax rate of 15% for income from investment or capital transfer. At the same time, the proposal allows to offset the losses of investment projects for startups with other projects to reduce risks for investors, encourage investors to invest capital for startup businesses, exchange new creation.

(2) Proposal related to Value Added Tax Law. For simplicity for start-ups, innovators, they can be specified in the first 5 years if no revenue can be declared once every 6 months. At the same time, supplementing the provisions on the lines of innovative start-up businesses if the input value-added tax has not yet been fully deducted, it can be refunded with value-added tax on a monthly basis so that businesses accumulate capital put into production.

(3) Proposal related to the Law on Corporate Income Tax. To encourage, promote and support start-up activities, the development of preferential policies on corporate income tax is always one of the key solutions because it is consistent with practical experience in the world and direct impact on beneficiaries. Start-up businesses and innovation in the first period of operation may not have revenue or income. Therefore, it is advisable to apply tax incentives higher than other businesses such as:

- Allow tax exemption for the first 5 years of operation and apply the corporate income tax rate of 10% for a longer period of time than the 15-year period of preferential rates currently applied to other businesses.

- Reducing the corporate income tax rate to 15% instead of the current ordinary tax rate of 20%. The reduction of corporate income tax rate to 15% ensures an incentive for small and medium-

sized businesses to start their businesses and innovate. This level is equal to the preferential tax rate applicable to new investment projects in areas with difficult socio-economic conditions, in the field of processing agricultural and aquatic products, and at the same time creating a strong motivation, encouraging business households and individuals to switch to the enterprise model. This is also a ploy to achieve the goal of 1 million businesses by 2020 of Vietnam.

- Allow loss transfer without time limit instead of 5 years as currently to ensure maximum support for innovative startups.

- Allow to offset the losses of investment projects for start-ups with other projects to reduce risks for investors, encourage investors to invest capital for start-ups to change to create.

In addition to the exemption and reduction of income tax for businesses investing in innovative startups, the General Department of Taxation and relevant agencies should set out conditions related to the legal aspects to enjoy preferential treatment for startup businesses innovation to strengthen the domestic business sector.

(4) Proposal related to the Law on Personal Income Tax. The exemption and reduction of personal income tax should focus on the salaries and bonuses received from research and development (R&D) activities in innovative start-ups to create incentives for stimulating innovative research high productivity for these businesses.

Supplementing the regulation that creative entrepreneurs are entitled to a 50% reduction of payable personal income tax, equal to the personal income tax incentives for high-tech human resources working in the public sector. Information Technology in Resolution 41 of the Government in 2016.

- For other start-up support organizations, there should also be more specific provisions such as tax exemption for income received from start-up support for universities, research institutes, and consulting legal subjects, business support, objects of infrastructure construction, setting up common working areas, and for promotional activities, communications ...

Second, issuing, amending and supplementing new policies on specific tax mechanisms.

Tax policy plays an important role in encouraging the creative entrepreneur community to thrive. To create a solid development motivation for startups, innovation, the tax system should aim to create a friendly environment for businesses as well as investors operating in the field of start-up and innovation. Therefore, the tax exemptions for businesses, investors in the field of start-up and innovation are essential.

For innovative startups, tax policies need to be designed with the goal of supporting start-up investors. Therefore, it is necessary to promote the review and completion of policies to support business development to ensure that the support is focused, focused, on the right target, on the right audience. At the same time, it is necessary to enhance the propaganda of the tax policy system to create transparency and clarity, support businesses in production and business activities and well perform obligations to the State.

In the context of fierce competition, increasingly fierce global competition, in order to achieve the goal of continuing to grow rapidly and sustainably on the basis of increasing investment in

scientific and technological development in association with startup and innovation. Appropriate policies, including tax incentives, to encourage investment in innovation startups are indispensable. Therefore, it is necessary to review, amend and supplement the tax incentive policy system in order to better promote the effectiveness of these policies and minimize the negative effects of tax incentives. In addition rules and regulation of, supporting tax policies should be more specific and separate from other tax incentives. Specifically:

- It is necessary to adjust and supplement tax incentive policies for investors and businesses in the direction of limiting “redundancy of incentives” for general investment activities and start-up activities and innovation in particular. To this end, a comprehensive review of the current tax incentive policies is needed.

- Supplement and strengthen tax incentives for investment in scientific and technological development associated with start-ups and innovation, such as reduction of tax obligations to be paid according to investment; allowing calculation of higher costs through rapid depreciation, accruing expenses ... in accordance with capital needs, business characteristics “with many risk and risk factors” associated with start-up, innovation instead of focusing or increasing tax incentives only; preferential tax exemption and reduction time on the basis of ensuring simplicity, transparency and consistency and taking into account the budget revenue and expenditure balance.

- Promulgating new tax incentives for startups and innovators (in the form of appropriate incentives and incentives that are similar to tax incentives for businesses)) and investors in start-ups, innovation (tax incentives for income from capital investments, capital transfers at start-up, innovation) creation).

- Reforming the tax system in a way that is consistent with international practices combined with continued tax administrative reform, reducing the costs of compliance with tax laws of start-up businesses (enterprises are allowed to apply the provisions on tax administrative procedures to reduced accounting regime).

REFERENCES:

1. *Law on Science and Technology 2013*
2. *Law on Investment 2014*
3. *Law on Credit Institutions (amended) 2017*
4. *Law on Supporting Small and Medium Enterprises in 2017*
5. *Law on Value Added Tax 2008*
6. *Law on Personal Income Tax 2012*
7. *Law on Corporate Income Tax 2013*

INNOVATION OF THE STATE BUDGET ALLOCATION MECHANISM FOR SCIENCE AND TECHNOLOGY ACTIVITIES IN VIETNAM

Dong Thi Phuong Nga¹, Nguyen Anh Tuan²

ABSTRACT

State budget allocation for science and technology activities in Vietnam is the allocation of state budget for science and technology activities. The rational and effective allocation of state budget for science and technology activities will bring into full play the potential and strengths of units in scientific and technological activities, becoming a motivation for economic-social development, national defence and security. This assignment studies the current situation and provides solutions to innovate the mechanism of state budget allocation for science and technology activities in Vietnam in the future.

Keywords: *State budget allocation mechanism, science and technology.*

1. INTRODUCTION

In the cause of national construction and development, especially from the beginning of the comprehensive renovation process, the Party and State of Vietnam had proper orientations and directions on the position and role of science and technology for social-economic development. This policy was asserted consistently from the 1992 Constitution, Resolution of the 2 plenum of the Central Party Committee Session VIII on December 24, 1996 of the Central Committee of the Communist Party of Vietnam on the strategic direction of science and technology development in the period of industrialization and modernization until 2000; Platform for building the country during the transition to socialism (additional development in 2011); Resolution of the 6th Plenum of the Party Central Committee, November 11, 2012 on the development of science and technology for the cause of industrialization and modernization in the socio-oriented market economy and international integration. Therefore, the promulgated legal documents have created a legal corridor for scientific and technological activities in Vietnam to develop such as: 2001 Constitution, 2013 Constitution, 2010 Law on Science and Technology, Law on Science and Technology 2013, Science and Technology Development Strategy for the period of 2011-2020; Law on technology transfer 2017, Law on high technology 2008, Law on intellectual property 2005, Law on intellectual property 2009, Law on intellectual property 2013, Law on investment 2005, Law on investment 2015, Law on state budget 2002, Law on State Budget 2015.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

² Faculty of Finance, Military Academy of Logistics, Ngoc Thuy, Long Bien, Hanoi, Vietnam

Vietnam's socio-economic development strategy for the period of 2011-2020 identifies: *"Developing science and technology is a leading national policy, playing a key role in developing a modern production force, protecting natural resources and environment, improving labour productivity, development speed and competitiveness of the economy"*. Scientific and technological activities in Vietnam in recent years have made progress, achieved certain progress and results, contributed significantly to socio-economic growth, national defence and security, creating many products, improving the quality of people's lives. Investment in science and technology is the shortest and most effective way for each nation's development. Besides, developing science and technology with the aim of promoting industrialization and modernization of the country, developing the intellectual economy and reaching the advanced level of the world. With such importance, the Government of Vietnam annually invests 2% of the state budget in science and technology activities. However, the state budget investment in science and technology in the past time has revealed many shortcomings such as: spreading, unfocused; lack of creative studies in production; the applicability and effectiveness of the studies is still low. Resolution No. 20/NQ-TW of the Central Executive Committee Meeting of the 6th Session clearly states: *"Scientific and technological activities are generally still quiet, has not really become a motivation for socio-economic development due to subjective reasons"*. One of the reasons is that the mechanism of state budget allocation for science and technology activities in Vietnam is not reasonable, has not created favourable conditions and encouraged for scientists and scientific and technological organizations to operate efficiently.

2. ACTUAL STATE BUDGET ALLOCATION MECHANISM FOR SCIENCE AND TECHNOLOGY ACTIVITIES IN VIETNAM

2.1. Mechanisms and Policies

Based on the views of the Party and the State, the policy and legal environment in regulating of science and technology activities in Vietnam in recent years has been continuously reformed and renewed strongly. The mechanism of state budget allocation for science and technology activities in the 2010-2018 period is based on the 2002 State Budget Law, the 2015 State Budget Law and its guiding documents, and the Science Law and Technology 2000, 2013, Science and Technology Development Strategy for the period of 2011-2020. In the 2010-2015 period, the allocation of state budget for science and technology activities complies with Decision 59/2010/QĐ-TTg promulgating the norm of regular allocation and Decision 60/2010/TTg promulgating the principles, criteria and norms of allocating development investment capital by the state budget in the 2011-2015 period of the Prime Minister, Decree 115/2005/ND-CP. From 2011-2020, the allocation of state budget for science and technology activities is regulated by the Prime Minister's Decision No. 40/2015/QĐ-TTg on promulgating principles and criteria and the norms of allocation of state budget development investment capital in the 2016-2020 period, Decision No. 46/2016/QĐ-TTg on the norm of regular expenditure allocation, Decree 54/2016/ND-CP and guiding documents of the autonomy and self-responsibility mechanism of public science and technology organizations. In addition, it is also based on the Circulars guiding in planning and budgeting of science and technology such as Joint Circular No. 121/2014/TTLT-BTC-BKHCN dated August 25, 2014 of the Ministry of Finance - The Ministry of Science and Technology shall guide the elaboration of estimates, management, use and settlement of funding for the performance of

regular tasks according to the functions of public scientific and technological organizations; Joint Circular No. 55/2015/TTLT-BTC-BKHCN of April 22, 2015, guiding the norms of elaborating, allocating estimates and settling funds for science and technology tasks funded by the state budget; Joint Circular No. 27/2015/TTLT/BKHCN-BTC of December 30, 2015, prescribing expenditures for performing scientific and technological tasks using the state budget.

2.2. Situation of state budget allocation mechanism for science and technology activities in Vietnam

Regarding the process of estimating and budgeting

There are three agencies involved in estimating and allocating state budget for science and technology activities. According to the Law on Science and Technology 2013, responsibilities and powers of each agency are clearly defined. The Ministry of Finance formulates principles, criteria and norms for the allocation of recurrent expenditures of the state budget. The Ministry of Planning and Investment formulates principles, criteria and norms for development investment allocation of the state budget and formulate a plan for allocation of development investment expenditures of the central budget. The Ministry of Science and Technology assumes the prime responsibility for, and coordinate with ministries, ministerial-level agencies, government-attached agencies, other central state agencies and provincial-level People's Committees in formulating budget expenditure estimates for annual scientific and technological activities. Therefore, the Ministry of Planning and Investment and the Ministry of Finance make estimates of expenditures on investment in scientific and technological development, and provincial-level People's Committees formulates expenditure estimates for investment in scientific and technological development, estimates of scientific and technological career.

After making estimates, ministries, branches and localities shall sum up State budget expenditure estimates for scientific and technological activities so that the Ministry of Science and Technology can reach agreement with the Ministry of Planning and Investment and the Ministry of Finance in term of the science and technology budget, and at the same time summing up the science and technology expenditure estimates into the State budget expenditure estimates of the ministries, branches and localities, and send them to the Ministry of Finance and the Ministry of Planning and Investment to aggregate state budget. Annually, on the basis of the Prime Minister's Directive on socio-economic development plans and next year's state budget estimates, the Ministry of Finance and the Ministry of Planning and Investment issue a circular guiding ministries, branches and localities to prepare estimates and hand over statistics for budget revenues and expenditures. The Ministry of Science and Technology shall issue a circular to guide ministries, ministerial-level agencies, government-attached agencies, provincial/municipal People's Committees in making science and technology plans and budget estimates. The estimation of the budget must ensure the following principles: in line with the socio-economic development orientation of the Party and the State, the science and technology development strategy, the results of the implementation of the annual budget estimate, statistics are assigned; meet the standards and norms prescribed by the State and detailed according to the contents (regular expenditures of science and technology organizations, expenditures on the performance of scientific and technological tasks, activities of management State management, spending on strengthening research capacity, combating degradation using scientific and technological career capital, and development investment

capital). The Ministry of Finance and the Ministry of Planning and Investment sum up the cost estimates and submit them to the Government for consideration and decision and the Government shall submit them to the National Assembly for approval. The estimates after being approved by the National Assembly, the Prime Minister, the provincial-level People's Committees, assign the budget estimates, the central and local state agencies and budget estimating units have the responsibility to allocate budget estimates in accordance with the approved budget estimate for science and technology.

The allocated science and technology tasks must be appraised and approved according to the provisions of the Law on Science and Technology and guiding documents. National, ministerial and provincial scientific and technological tasks must be performed in the form of ordering. State-funded scientific and technological tasks assigned by the method of selection, direct assignment and consideration of funding from the State's science and technology fund. Scientific and technological tasks belonging to national secrets, specific to security and defence; unexpected tasks; the task of having only one scientific and technological organization is directly assigned. Tasks of applying for funding from the state science and technology fund are considered for funding according to the fund mechanism; the remaining tasks are assigned through the selection process. National and ministerial scientific and technological tasks are aggregated into the central budget estimate, provincial scientific and technological tasks are incorporated into local budget estimates. Grassroots science and technology tasks are integrated into the unit's cost estimates.

Rules and bases for allocation

For recurrent expenditures: According to Decree No. 54/2016/ND-CP on June 14, 2016 of the Government stipulating the autonomy and self-responsibility mechanism of public science and technology organizations: organizations scientific research activities in the field of basic research, strategic research and policies in service of state management, which are guaranteed by the state budget for regular operating expenses according to the assigned tasks under the Stable supply mechanism. For other science and technology organizations that ensure regular expenditures, they may be allocated budgets based on the number and cost estimates of regular tasks according to their functions; The State bases on the assigned tasks to provide funding, regardless of the number of payrolls.

For expenditures on scientific and technological tasks: Allocating funding for science and technology tasks at all levels based on competent agencies' decisions on approving tasks and the ability to balance the annual state budget. Allocation principle: prioritizing national science and technology tasks and transition tasks. Only allocating funding for new tasks when it is enough for transition tasks or must be truly urgent. For those subject to approval by competent authorities, the allocation must be made at the beginning of the year. For projects whose tasks have not yet been determined, allocate estimates into the National Science and Technology Development Fund or submit them to the National Assembly for approval through unallocated funding. After determining the tasks in the year or arising unexpected tasks, the Ministry of Finance shall allocate funding to the Fund for implementation or submit it to the Prime Minister for additional funding.

For expenditure on development and investment: Ministries, branches and localities sum up projects using development investment capital for science and technology and send them to the

Ministry of Planning and Investment and the Ministry of Science and Technology. Allocating development investment capital from the state budget based on the need and ability to balance capital in line with the 5-year socio-economic development objectives and plans.

Allocation structure

Previously, investment in science and technology in Vietnam was about 1.2% to 1.3% of total state budget expenditure. However, since the Central Resolution 2 Session VIII, the proportion of investment has increased but investment in science and technology in Vietnam compared to other countries is low. Scientific and technological activities are largely invested from the state budget, allocating state budget expenditure for science and technology (including contingency and science and technology in defence and security) basically comply with the provisions of the Law on Science and Technology and the resolutions of the National Assembly, reaching 2% of the total state budget expenditure (equivalent to 0.5% ÷ 0.6% of GDP). Excluding for defence, security and contingency, it will only reach 1.36% to 1.52% of the total state budget expenditure.

Table 2.1. Investing from the state budget for science and technology

Year	Total expenditure for science and technology from the state budget (billion VND)	The ratio of science and technology expenditure to the total state budget expenditure (%)	Growth rate of funding for science and technology (%)	The ratio of science and technology spending from the state budget to the GDP (%)
2007	6.310	1,81	16,22	0,51
2008	6.585	1,69	4,36	0,41
2009	7.867	1,62	19,46	0,43
2010	9.178	1,60	16,66	0,43
2011	11.499	1,58	25,28	0,41
2012	13.168	1,46	14,51	0,41
2013	13.869	1,44	7,41	0,39
2014	13.666	1,36	-1,46	0,35
2015	17.390	1,52	27,25	0,41

Source: Ministry of Science and Technology; Statistics Statistics

The number of Vietnamese researchers is equivalent to that of Thailand and Malaysia. However, if the ratio of per ten thousand people, Vietnam is more than two-thirds of Thailand, about a-third of Malaysia and a-tenth of Singapore. Regarding the investment rate for a researcher, Vietnam is only one-third of Thailand, one-fourth of Malaysia, and only one-seventh of Singapore. However, Vietnam's total national spending on science and technology is still very low compared to the top ASEAN countries. Although Vietnam's science and technology spending ratio/GDP was 0.44% in 2015, which was shortened compared to Thailand (0.63%), but in absolute value, the amount spent on science and Thailand's technology is nearly three times higher than Vietnam.

Table 2.2. Total national expenditure on science and technology/GDP of some countries in the region and in the world in 2015

Country, territory (year data)	Total investment for science and technology (USD million PPP)	The ratio of science and technology spending to GDP (%)	Number of researchers	Average funding of science and technology/ Researcher (USD PPP)
28 EU countries	384.210,2	1,95	1.805.302	212.823
USA	502.893,0	2,79	1.351.903 ⁽ⁱ⁾	371.989
Russia	40.522,1	1,13	449.180	90.214
China	408.829,0	2,07	1.619.028	252.515
Japan	170.081,8	3,59	662.071	256.894
Korea	74.217,7	4,23	356.447	208.215
Singapore	10.066,7	2,20	36.666	274.551
Malaysia	10.637,6	1,30	69.864	152.262
Thailand	6.947,5	0,63	59.416	116.929
Vietnam	2.433,8	0,44	62.886	38.701 ⁽ⁱⁱ⁾

Note: (i) Calculated according to UNESCO data (<http://data.uis.unesco.org>) and WB;

(ii) At actual USD prices equal to USD 14,155.

Source: World Bank (<http://data.worldbank.org/indicator/>);

In the 2011-2015 period, the total direct State budget expenditure for the field of science and technology approved by the National Assembly was 69,592 billion VND, including: *Development investment fund*: 30,799 billion VND (approximately 44% of state budget invested in science and technology), of which: central: 15,274 billion VND (equal to 49% of total development investment), localities: 15,525 billion VND (equal to 51% of total budget) Development Investment). *Career funding*: 38,793 billion VND (approximately 56% of the state budget's investment in science and technology), of which: central budget: 29,478 billion VND (equal to 76% of total scientific and technological career funding), localities: 9,315 billion VND (equal to 24% of the total scientific and technological career funding). Expenditure on development investment accounts for 34% on average, expenditure on career accounts for 42% on average, expenditures on science and technology in national defence and security from the source of pre-tax income left to enterprises investing in science and technology in accordance with the regulation accounted for 24% on average.

The average spending rate on science and technology increases by 17% per year (the following year was 17% higher than the previous year). In the period of 2011-2015, the total state budget expenditure on science and technology (excluding defence and security spending and tax incentive income of enterprises as prescribed) is 4.2 times higher than the period of 2001-2005 and 1.94 times higher than the period of 2006-2010. The state budget remains the leading resource, accounting for 65% - 70% of the total investment of the whole commune for scientific and technological activities [9]. Similarly, in 2016, 2017 and 2018, all expenditures were allocated equal to 2% of total budget

expenditure: in 2016, 10,471 billion VND; in 2017, it was 11,243 billion VND; in 2018, 12,190 billion VND; in 2019, it will be 12,825 billion VND [11].

State budget allocations directly to the field of science and technology are monitored with two main expenditure categories: expenditures on scientific and technological development and science and technology career. In particular, investment expenditures are those for development of scientific and technological potential, investment and support in building material and technical foundations for science and technology organizations regardless of economic sectors. Expenses for scientific and technological careers include expenditures on the performance of scientific and technological tasks, recurrent expenditures and regular tasks of scientific and technological organizations; expenses for training and fostering to raise the professional skills of managers and researchers in science and technology; expenses for promoting the application of advanced science and technology; expenses for propagation and dissemination of knowledge; organizing conferences, seminars on science.

Table 2.3. Investment resources for Science and Technology 2011-2015

	Content	2011	2012	2013	2014	2015	Total
	Spending directly on the State budget in science & technology	11.499	13.168	13.869	13.666	17.390	69.592
1	<i>Investment</i>	5.069	6.008	6.136	5.986	7.600	30.799
	Proportion of total spending (%)	44,08	45,63	44,24	43,8	43,7	43,45
	a. Center	2.354	3.018	2.836	2.936	4.130	15.274
	b. Local	2.715	2.990	3.300	3.050	3.470	15.525
2	<i>Career</i>	6.430	7.160	7.733	7.680	9.790	38.793
	Proportion of total spending (%)	55,92	54,37	55,76	56,20	56,30	56,55
	a. Center	4.870	5.410	5.813	5.745	7.640	29.478
	b. Local	1.560	1.750	1.920	1.935	2.150	9.315

Source: Report No. 2941/BTC-HCSN dated March 4, 2016 of the Ministry of Finance

Thus, in terms of the structure of state budget allocations for science and technology activities between the central and localities by expenditure group, it shows that development investment expenditures are nearly equal (49% and 51%) but central science and technology spending is three times higher than that of localities (76% and 24%). The localities account for 51% of development investment while only 24% of the science and technology career. It is an unreasonable proportion because they are home to few topics, projects, research projects, scientific and technological capacities are limited. The consequence is that the locality cannot absorb capital, which leads to mis-spending. The centralized funding for scientific and technological development investment in the locality in the 2011-2015 period is used only for right purposes, about 63% and the remaining 37% for improper purposes [10].

2.3. Assess the state budget allocation mechanism for science and technology activities in Vietnam

a) Achieved results

In recent years, the state budget allocations for scientific and technological activities have reached 2% of the total state budget expenditure, basically ensuring the Central Resolution and

the Science and Technology Development Strategy. They have not used up the limit allowed, the settlement budget is always smaller than the allocated budget estimate. Regular allocations for science and technology organizations instead of payroll allocations as before. The state budget are also allocated on the basis of the amount and cost of performing regular tasks according to their functions, contracts and evaluation of performances.

b) Limitations and causes

Firstly, the structure of state budget expenditure allocation for science and technology activities is not rational, the budget allocation is spread evenly between central and local levels. The Law on Science and Technology and the Science and Technology Development Strategy provide for: The State guarantees to spend at least 2% of the total annual state budget on science and technology but does not apply equal to 2% of spending for central and local. But the reality shows that the proportion of state budget expenditure for central and local is almost equal. This leads to an overload of local capacity, leading to unspent spending and mis-spending.

Secondly, the allocation of state budget for science and technology activities is still based on previous years' experience, in proportion but not based on the performance and capacity of organizations. The current allocation of current expenditure, although bases on the contract for the performance of regular tasks, still comes from the needs of the budgeting unit. The distribution of development investment expenditures to localities is determined by the Ministry of Planning and Investment at the rate of 3.5% of total development investment in the local budget balance without being based on actual needs of each locality [4].

Thirdly, the allocation of state budget for scientific and technological activities is scattered, lacking in concentration and coherence. The allocation of funding for projects is still average and mainly allocated according to proposals from local units, in many cases, only to address income for researchers, not associated to the medium and long-term scientific and technological development orientations as well as the importance of research projects and topics. It is the ineffective coordination between ministries, branches and localities in identifying tasks that have led to the same content tasks but they are not combined to perform, causing great waste of resources. At the local level, scientific and technological development investment capital is assigned to the unit in charge of capital construction and equipment management, while the scientific and technological career expenditure is assigned to another unit. This shows that, with the same investment funding source, the same investment objectives, but there are two management and administration agencies. Consequently, investment is scattered, overlapping, disorganised, centralized and divided.

Fourthly, the coordination between agencies in allocating state budget for science and technology activities is not effective. The State's investment in science and technology consists of two sources, development investment and career investment, which are assigned to two different ministries. The Ministry of Planning and Investment shall organize the elaboration of plans and allocate funds for scientific and technological development investment, while investing in scientific and technological career is assigned to the Ministry of Science and Technology. The Ministry of Finance bases on the proposal to allocate resources. The fact that the Ministry of Science and Technology does not participate in the process of allocating funding for scientific

and technological development will make it difficult for later inspection and monitoring as well as evaluating the efficiency of investment in use of development investment capital. In the same situation, there is a lack of coordination between the Department of Science and Technology, the Department of Planning and Investment, and the Department of Finance in the planning and allocation for development investment capital from local budgets.

3. SOLUTIONS TO RENOVATING THE MECHANISM OF STATE BUDGET ALLOCATION FOR SCIENTIFIC AND TECHNOLOGICAL ACTIVITIES IN VIETNAM

3.1. Implementing the state budget allocations for science and technology activities based on the performance of science and technology organizations

The allocation of state budget for science and technology activities is based on payroll, not based on current performance results, does not create incentives to encourage science and technology organizations to change, improve the quality of operations and efficient use of assigned resources. Therefore, when building the distribution structure, it is necessary to base on the scientific potential and performance of the organization. 2% of total state budget expenditure is determined for both science and technology. It needs to focus on allocating important science and technology tasks, effective scientific and technological organizations, priority orientation according to science and technology development strategy, regardless of state or external units because managers and scientists have conception of quantity over quality, for many years, almost only focused on input management, loosened output. As a result, the product of key state investment programs is not in a unified chain, in spread form, in other word, the State will support anyone who needs investments but not put them together to form a key products or value chains.

In order to allocate state budget for science and technology activities associated with the operation results, the authors propose the following measures:

Firstly, the State should issue documents regulating the allocation of state budget for science and technology activities associated with the operation results. Regulations on the allocation of state budget according to the performance of tasks have been stipulated in the 2015 Law on State Budget. However, the Government and the Ministry of Finance have not yet developed detailed regulations to guide the implementation. Meanwhile, Decree 54/ND-CP 2016 on the autonomy mechanism of public science and technology organizations, the circulars and implementation guidelines of the Ministry of Finance and the Ministry of Science and Technology have not mentioned to this issue. Therefore, there should be clearer regulations on state budget allocations associated with the performance of science and technology organizations, and evaluate of scientific and technological results and potentials and criteria for state budget allocations apply to both investment and recurrent expenditures.

Secondly, conducting evaluation of the performance of science and technology organizations as a basis for state budget allocation. According to the regulations, periodically, public science and technology organizations in Vietnam have reported the results of their activities to management levels. In particular, the reports focus on achievements, positive aspects which are not based on a consistent and comprehensive set of evaluation criteria for all activities of science and technology organizations in accordance with international standards. The management agency only focuses

on managing human and financial inputs, while the output is research results, the application of the research is still loose. In the future, it is necessary to build a team of qualified and capable assessment experts. Using qualitative evaluation methods requires experts to understand the field of activities of science and technology organizations to be assessed. Quantitative assessment requires experts to rely on indicators, proficient use of data processing tools.

In order to carry out scientific and technological assessments, sufficient and high quality information and data must be available. Meanwhile, data on science and technology organizations in Vietnam is currently incomplete and fragmented. Therefore, it is necessary to build a national data system on science and technology organizations. The evaluation of scientific and technological organizations is conducted every 3-5 years. In addition, it is necessary to raise the awareness of organizations in the evaluation activities, and also set out a specific assessment roadmap for science and technology organizations to make changes in strategies and actions.

Thirdly, create an equal legal corridor in the allocation of state budget between public and non-public science and technology organizations. This will enhance the competitiveness and motivate science and technology organizations to carry out scientific and technological activities. Organizations and individuals who are eligible and meet the funding requirements will receive an operating fee.

3.2. Adjusting the structure of scientific and technological development investment expenditure and scientific and technological career expenditures between the central and local

In recent years, the allocation of funding for science and technology activities has been evenly distributed to provinces, cities and ministries and branches based on the amount allocated in the previous year but not on specific grounds and criteria. There are many localities with weak scientific and technological potentials, and lack of highly qualified scientific staves but still being given large funding, resulting in inadequate use or investment in other local construction items. Meanwhile, the ministries and branches have strong scientific and technological potentials and the highly qualified scientific staves, the allocated resources are not suitable to the research needs. This situation leads to a waste of funding, low scientific and technological performance, and incompatibility with investment funding sources. Based on the analysis of central and local budget expenditure structure for science and technology activities over the past time, the authors propose to adjust the expenditure structure for science and technology activities between the central and the local by the following methods:

Provinces and cities take the initiative in ordering science and technology organizations, central or local universities to participate in the implementation of provincial scientific and technological tasks (according to social and economic development requirements), to increase the total scientific and technological career expenditure in the local budget balance, to reduce the total balanced development investment expenditure from the local budget on the basis of at least 2% of the local budget expenditure for science and technology.

On the basis of the actual spending on science and technology of the local budget, the Ministry of Science and Technology will synthesize and recommend central budget supplementation for each locality in the case of localities have been secured 2% of local budgets through national science and technology programs and balanced development investment projects from the central budget.

In order to maximize the efficiency of using the state budget for the implementation of science and technology tasks on the basis of evaluating the efficiency and properly using the funding purposes of ministries, branches and localities in the following year. The Ministry of Science and Technology will propose the funding for science and technology of the next year's plan for ministries, branches and localities and propose the Ministry of Finance and the Ministry of Planning and Investment to adjust total amount when making next year's budget estimate.

3.3. Strengthen coordination among authorities in the process of allocating state budget for science and technology activities

The Law on Science and Technology 2013 stipulates that the proposed structure of spending on science and technology is the responsibility and authority of the Ministry of Science and Technology. The Ministry of Planning and Investment is responsible for allocating capital as proposed by the Ministry of Science and Technology. In case of any change compared to the proposal of the Ministry of Science and Technology, the Ministry of Finance shall notify the Ministry of Science and Technology. This combination is unreasonable because the Ministry of Science and Technology is the Ministry managing all scientific and technological activities. Therefore, the Ministry of Science and Technology should be involved in all stages from the proposal of cost estimation, allocation, inspection and supervision of state budget spending on science and technology. In order to ensure the effectiveness of the management process among three Ministry agencies, it is necessary to set up a specific coordination regulation as follows:

For expenditures on science and technology careers, the Ministry of Science and Technology needs to review them to ensure priority order for science and technology tasks and scientific and technological organizations are prioritized to allocate budgets on the basis of performance evaluation. For development investment expenses for scientific and technological activities, after the ministries, branches and localities send their estimates. The Ministry of Science and Technology will review the objectives, contents and subjects of each investment proposal in the development investment capital plan for science and technology, synthesizing them into the capital expenditure estimates development for science and technology. From there, the Ministry of Science and Technology will sum up the State budget expenditure estimates for science and technology activities and send them to the Ministry of Planning and Investment and the Ministry of Finance to sum them into the state budget estimate.

In case of any change compared to the proposal of the Ministry of Science and Technology, the Ministry of Finance and the Ministry of Planning and Investment shall notify the Ministry of Science and Technology to unify. In case of changing the priority order in the estimates submitted by the Ministry of Science and Technology, the Ministry of Finance and the Ministry of Planning and Investment must adjust the estimates according to the priority order and notify the Ministry of Science and Technology again.

According to the Prime Minister's Decision on assigning budget estimates, the Ministry of Planning and Investment shall detail the development investment capital plan for ministries, branches and localities for implementation. It must specify in detail the amount of development investment capital for science and technology and the list of unified projects by the Ministry of

Science and Technology and the Ministry of Planning and Investment. The Ministry of Finance assigns regular expenditure estimates to ministries, branches and localities must also specify the contents for scientific and technological causes.

3.4. Publicly and transparently allocated state budget for science and technology activities

The Ministry of Finance, the Ministry of Science and Technology and the National Agency for Science and Technology Information should coordinate to publish full data on state budget allocations for science and technology activities. State budget allocation targets for science and technology should be monitored according to international practices. Additional allocations will be monitored according to groups of subjects; basic research and applied research; direct and indirect financing for enterprises... In the budget reports, the budget for science and technology must be recorded as separate expenditures in the state budget index of ministries, branches and localities in order to prevent the use of state budget for science and technology for other purposes. When assigning development investment capital plans to ministries, branches and localities, specific levels of science and technology must be detailed. The settlement reports of ministries, branches and localities must also detail the settlement of development investment capital for science and technology.

CONCLUSION

Increasing investment in scientific and technological development together with policies on renovating financial mechanisms for scientific and technological activities in Vietnam over the past period has created momentum for scientific and technological activities to develop. Besides, the policies also reveal many limitations because some regulations are outdated and not in line with international practices. Especially, the mechanism of state budget allocation for science and technology activities is not rational and the effectiveness is not high. That not only discourages scientists to study but also tends to inhibit the development and research of science and technology. In the future, we need to change the policy mechanism, especially, the financial mechanism including the state budget allocation mechanism in order to facilitate further development of science and technology activities.

REFERENCES

1. Conference of the Central Executive Committee of the 6 th Session, Resolution 20/NQ-TW on the development of science and technology for the cause of industrialization and modernization in the condition of commune-oriented market economy socialist and international integration.
2. National Assembly of the Socialist Republic of Vietnam, Law on Science and Technology 2013.
3. Ministry of Science and Technology, Book of "*Vietnam Science and Technology 2014*".
4. Ministry of Finance, Ministry of Science and Technology, Joint Circular No. 55/2015/TTLT-BTC-BKHCN of April 22, 2015, guiding the elaboration, distribution of estimates and settlement of funding for tasks Department of Science and Technology using state budget.
5. Supervision report on "*Effectiveness of implementation of policies and laws on scientific and technological development in order to promote industrialization and modernization in the 2005-2015 period and development orientation in the coming period. in which focus on promoting supporting industries and manufacturing mechanics*", 2016.

6. The Government of the Socialist Republic of Vietnam, *“Strategy for scientific and technological development in the 2011-2020 period”*.
7. The Government of the Socialist Republic of Vietnam, Decree No. 95/2014/ND-CP dated October 17, 2014 on investment and financial mechanism for science and technology activities.
8. The Government of the Socialist Republic of Vietnam, Decree No. 54/2016/ND-CP dated June 14, 2016 on the autonomy mechanism of public science and technology organizations.
9. <http://thoibaotaichinhvietnam.vn/pages/thoi-su/2018-03-21/co-che-tai-chinh-cho-khoa-hoc-cong-nghe-da-duoc-doi-moi-manh-me-55089.aspx>
10. <http://nistpass.gov.vn/tin-chien-luoc-chinh-sach/1387-phan-bo-va-su-dung-ngan-sach-khoa-hoc-va-cong-nghe.html>
11. <http://tapchitaichinh.vn/su-kien-noi-bat/tong-chi-nsnn-cho-su-nghiep-khoa-hoc-cong-nghe-nam-2019-la-12825-ty-dong-307196.html>

INNOVATION IN PRIVATE SECTOR MANAGEMENT

Dinh Thi Nga¹, Lam Thanh Ha²

ABSTRACT

In recent years, the Vietnamese Party and State have emphasized the importance of the private sector to the development of the country both in its medium and long-term program. The reality of Vietnam's economic reform process over the past 30 years has proved that. Despite remarkable achievements in economic development and job creation, the private sector in Vietnam still has many limitations and weaknesses in both business and state management mechanisms. This paper focuses on analyzing the current situation of the private sector in Vietnam over time, the causes and obstacles that have not been addressed from both the enterprise and state management perspective, thereby taking measures to innovate private sector management in the coming time. The first part of the article briefly outlines the importance and difficulties of the private sector as a basis for conducting research, the second part gives an overview of private sector development trends and achievements as well as obstacles to private sector development, and the third part discusses the underlying causes of restrictions to provide a basis for the fourth part proposing policy reform to boost the private sector in Vietnam.

Keywords: Private sector, Private enterprise, Enterprise, State budget, Labor productivity, Competitiveness

1. INTRODUCTION

The 5th Central Meeting of the Party Central Committee (Session XII) issued Resolution No. 10-NQ / TW dated 3 June 2017 on “Developing the private sector becomes an important driving force of the socialist-oriented market economy” [Central Committee of the Communist Party of Vietnam 2017]. This is a new step, creating a motivation for the private sector and the economy as a whole, reflecting the continuing innovation of the Party's economic thinking to meet the development of the economy after 30 years of renovation.

It is undeniable that the role of the private economy in job creation, the contribution of GDP, state budget, and economic development is vital. This is also the result of innovation in management policy, as well as the necessity of developing the private economy. However, the private sector in Vietnam still has many problems both on the side of enterprises and management policies of the State. It is required to have specific solutions to bring the private economic sector to develop more

¹ Division of Economics, Ho Chi Minh National Academy of Politics, 135 Nguyen Phong Sac, Cau Giay, Hanoi, Vietnam. E-mail: nga79qlkt@yahoo.com.vn

² Faculty of International Economics, Diplomatic Academy of Vietnam, 69 Chua Lang, Dong Da, Hanoi, Vietnam

strongly in the coming time, especially when the world economy is focusing on developing and applying high technology.

From the situation of the private sector in Vietnam to the causes and problems that have not been resolved from the State management policies, the article will point out measures to innovate private sector management method, thereby solving outstanding problems.

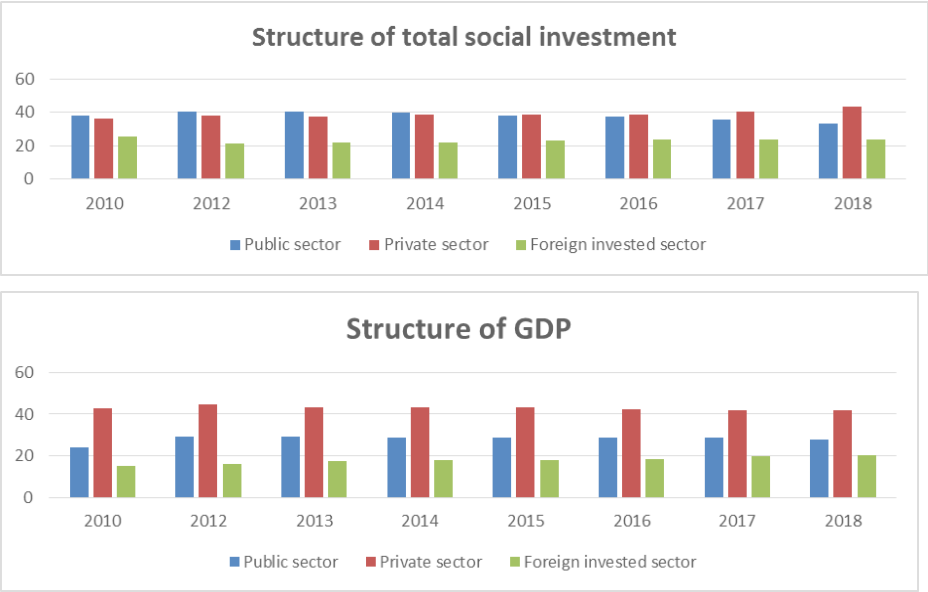
2. OVERVIEW OF THE STATUS OF THE PRIVATE SECTOR

Firstly, the private sector is increasingly playing an important role in the economy, especially in terms of growth, investment, trade, job creation, and contribution to the state budget.

- *Private economy plays a vital role in GDP and pushing for rapid economic development.*

The private economic sector contributes over 40 percent of the economy’s GDP thanks to the fact that the growth rate of private sector is faster than the overall growth rate of the economy. In 2018, it is estimated that the private sector contributes 42.1 percent of the national economy and shows signs of increasing. Currently, the growth rate of the private economy is leading and strives to increase its contribution to over 50 percent of the total domestic product, creating more jobs for workers, contributing to maintaining social stability.

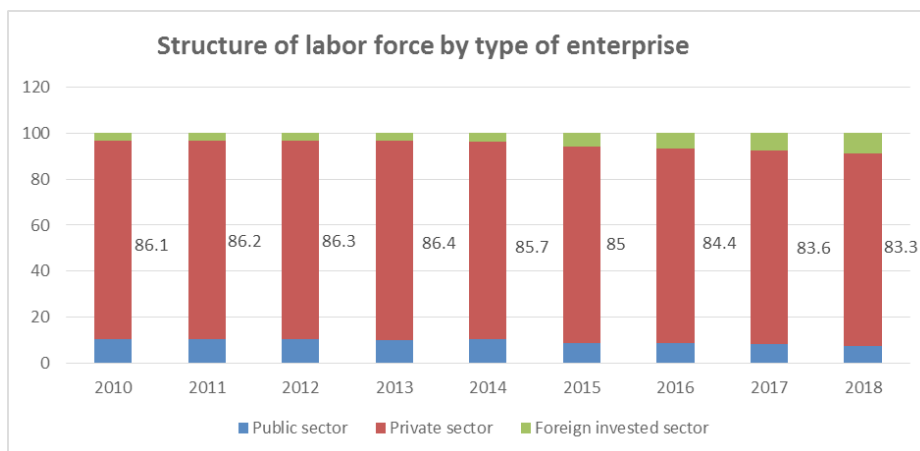
The following is a diagram of the structure of total social investment and GDP structure by type of enterprise from 2010-2018



Source: GSO

- *Private economy helps create more jobs. The number of laborers aged over 15 working in the private sector accounts for the majority of the labor force and is increasing. The private sector contributes to job creation for more than 80 percent of the labor force.*

In 2019, the number of laborers in the private sector accounted for 83.3 percent of the total number of working people aged over 15 in the country, equivalent to nearly 45.2 million people. The GSO statistics on the structure of Vietnam’s labor force by economic sector below give an insight.



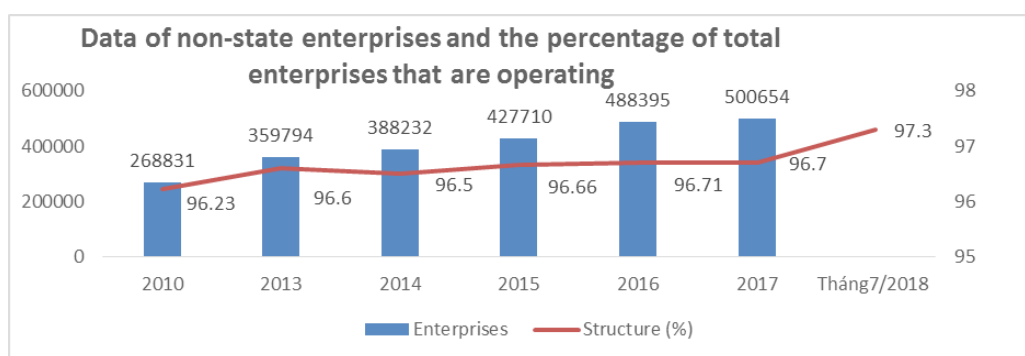
Source: GSO

The private sector is increasingly asserting its important role in the process of socio-economic development. But the reality of the whole development process over the last 30 years is that this sector creates jobs for more than 80 percent of the social force but only contributes just over 40 percent to the GDP.

Contribution of businesses domestic private sector in the total State Budget revenue increased from 11.9% in 2010 to 14.3% in 2016, that is, from about USD 3 billion to USD 7 billion per year. If including the whole area foreign-invested enterprises, the contribution proportion of the whole region Domestic and foreign private enterprises for the State budget have increased from 22.9% in 2010 to 29.1% in 2016. In the rankings published by the Ministry of Finance 1,000 businesses pay the largest corporate income tax to the State budget. In 2017, domestic private enterprises accounted for 45.8% of the number of businesses and 34.1% of the paid taxes, and foreign private enterprises (FDI enterprises) accounting for 40.4% of the number of businesses and 36.7% of the amount of corporate income tax paid

Secondly, there is an increase in the number of businesses but the scale is limited, small. The quantity is not really coupled with the quality.

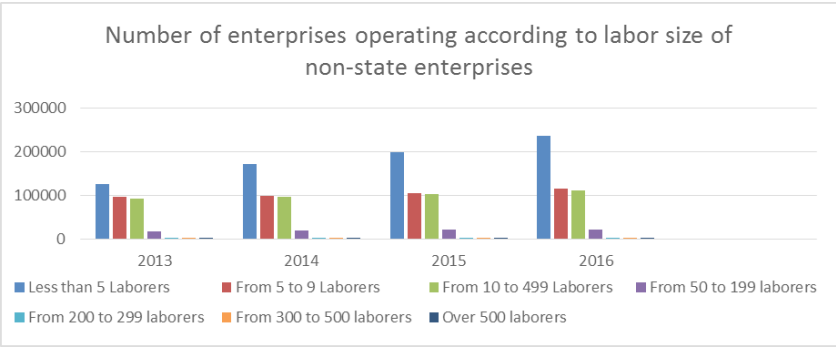
In recent years, the number of businesses as well as private enterprises is increasing and accounting for an important proportion of the total number of enterprises across the country with over 96 percent.



Source: GSO

Although it accounts for a large proportion and a large number of enterprises, the scale of private Vietnamese enterprises is still very small. On the scale of labor and the size of capital, this can be clearly seen as follows:

Vietnamese enterprises have a small size of labor, which shows that the specialization of workers is limited.

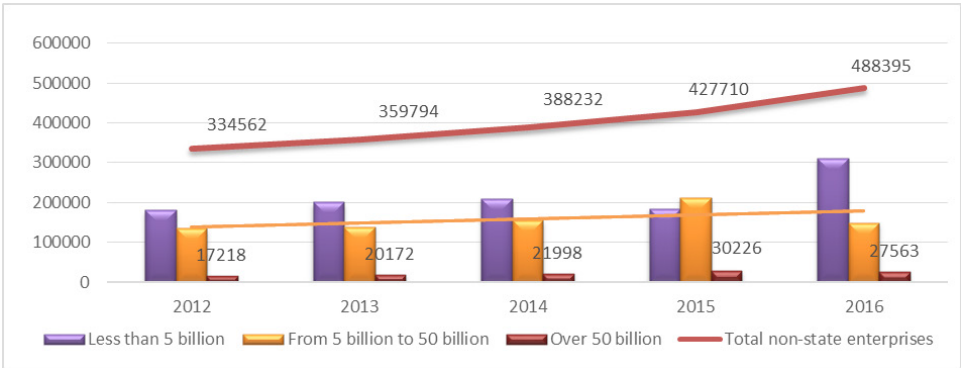


Source: GSO

According to the statistics of the General Statistics Office, enterprises with small-scale employees (less than 5 employees) account for a large proportion. In 2010, the proportion of enterprises with less than 5 employees accounted for only 28 percent, but this number increased to 48.3% in 2016. Meanwhile, the proportion of enterprises with more than 50 employees only accounted for 5.56% in 2016.

The fact that small-scale private enterprises exist in parallel with small-scale enterprises has led to a shortage of medium and large-scale enterprises.

Total number of non-state enterprises by capital size (VND)



Source: GSO

Over the past 10 years, the number of non-state enterprises continuously increased to over 10 percent. It can be seen that the increase in the number of private enterprises in the period of 2012-2015 is explained by the growth of number of large and small capital enterprises. Nevertheless, in 2016 the number of micro and small-sized enterprises increased substantially by over 69%; and the number of medium and large-sized enterprises declined compared to 2015.

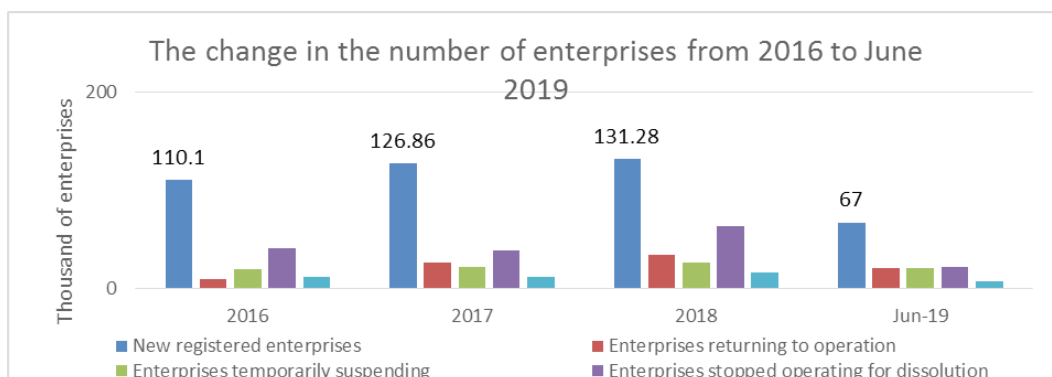
It is worth noting that the fluctuation in the number of enterprises by scale of capital since 2016 puts a bigger challenge on the economy in the coming period because of its tiny scale. Enterprises

may find it difficult to increase productivity through efficient exploitation of the economy by scale of specialization in technology investment and innovation to be able to grow stably and sustainably. This is also one of the reasons leading to high bankruptcy and cessation rates due to the lack of business impact and poor coping capacity.

The positive results of an increase in the number of businesses over the years reflect part of the formalization process of businesses as well as the establishment of new businesses. Along with that, the quality of growth of the private sector is a matter of concern. Although this sector's contribution to the economy is the largest, there is no change as expected both in terms of proportions and structure (Phung Quoc Hien, 2019). For many years, the rate of this sector has almost no changes, except for a certain increase of the business sector. The structure is still concentrated in simple service areas and the ability to participate in production networks, the value chain has not improved significantly.

Thirdly, the number of newly established enterprises, but also a large number of enterprises are unable to stand firm, compete or operate inefficiently, even tend to increase in recent years.

The chart below shows the volume of newly registered private enterprises, which are in the process of dissolution, return to operation and dissolved in the period from 2016 to June 2019.



Source: GSO

Since 2016, more than 100 thousand new enterprises have been established each year. The number of enterprises returning to business has shown signs of prosperity. In the first 6 months of this year, there were nearly 67 thousand newly registered enterprises with a total registered capital of 860.2 trillion VND, up 3.8 percent in the number of enterprises and 32.5 percent in the value of registered capital compared to the same period in 2018.

In this period, the number of newly established enterprises increased sharply in the field of real estate business (increased by 128.87% compared to 2016); In the first 6 months of 2019, this number has gone up by 22.2% compared to the same period of 2018. However, the number of newly established enterprises in the field of warehousing has decreased by 47 percent from 6296 enterprises (in 2016) to 3899 (in 2018). The number of enterprises returning to business increased sharply in real estate business by over 50 percent compared to the same period last year. This number in the field of Science and technology; Consulting and design services; Advertising and other specialties in 2018 increased 57.2% compared to 2017.

Frankly, it is not advisable to be too satisfied with the figures on the increase in the number of newly-established enterprises and the enterprises returning to operation because in this period, the number of enterprises temporarily suspending, enterprises awaiting dissolution and dissolved enterprises constantly increased over the years by more than 10 percent. The number of enterprises suspending business for a period of 6 months of this year is 21.1 thousand enterprises, an increase of 17.4 percent compared to the same period last year. This figure is alarming as it is not far from 27.12 thousand enterprises of the whole year 2018, surpassing the whole year 2016. The number of enterprises completing dissolution procedures in the first 6 months of 2019 was 7.8 thousand enterprises, up by 18.1 percent. In particular, the number of dissolved enterprises mainly concentrated in small-sized enterprises (under 10 billion VND) accounting for over 90 percent. In 2018, there were 14888 small-sized enterprises accounting for 91.2 percent.

Through analyzing the data, it can be seen that although the number of newly established and returning enterprises is increasing, it is also equal to the rapid increase of the number of enterprises waiting for dissolution and suspension of operation. This leads to many concerns for investors and individual business households who intend to register new businesses. Without drastic measures, it is difficult for private enterprises to become a driving force together with state-owned enterprises and foreign-invested enterprises (FDI) to create a new flourishing period of the increase in production of economy.

Although efforts in reforms and positive signals that contribute to the development structure are remarkable, tax revenues of business households account for a very small proportion of the total state budget revenue.

According to the General Department of Taxation, up to now, business households are still the main contributor to creating jobs and incomes for workers, accounting for a relatively high proportion of the gross domestic product (over 30% of GDP) (Statistical Yearbook, 2017). However, tax revenues of business households account for a very small proportion of the total state budget revenue. According to 2017 figures, business household sector contributes only 1.56% to the state budget excluding crude oil. The majority of business households today are micro, low-income and operate for the purpose of earning a living, earning a living, and needing governed by simpler, less stringent legal provisions can exist. However, there are also hundreds of thousands of business households that must be compelled comply with stricter tax regulations and tax obligations. General Department of Taxation estimates that there are 102,095 business households with regular turnover of over VND 1 billion / year in the year 2017. Many business households even have turnover of several hundred billion dong / year (General Department of Taxation, 2018). Many business households operate in industries that do not fit the picture business household such as chemical trading, medical equipment, construction, mineral ... Business households in these industries are not required to comply strict conditions, regulations and technical regulations that are prescribed for the conditional business industry. Households also benefit from the rules that allow for pressure use the form of flat tax. This has created an unequal competition from informal sector in comparison with officially registered businesses [Nguyen Duy Binh, 2018]

3. REASONS

3.1. Business side

Firstly, the ability to access the capital of small and medium enterprises is not high. As of August 2018, up to 60% of small and medium enterprises have not accessed capital effectively. The cause comes from all three sides: the state, the bank and the enterprise itself. However, on the enterprise side, as a result of the transparency in financial management, financial institutions have not had much confidence in these enterprises.

Secondly, the ability to self-manage is also a reason why the quality and the operation time of enterprises is narrowed.

Thirdly, the ability to innovate and apply science and technology into operation and production has not met international requirements. Without creativity and innovation to compete with enterprises in the international market, Vietnam's enterprises are immensely likely to be pushed out of the market, especially in the context of the domestic market currently receiving large quantities of imports from abroad. Hence, the domestic private enterprises themselves have to find ways to increase their competitiveness and increase product quality.

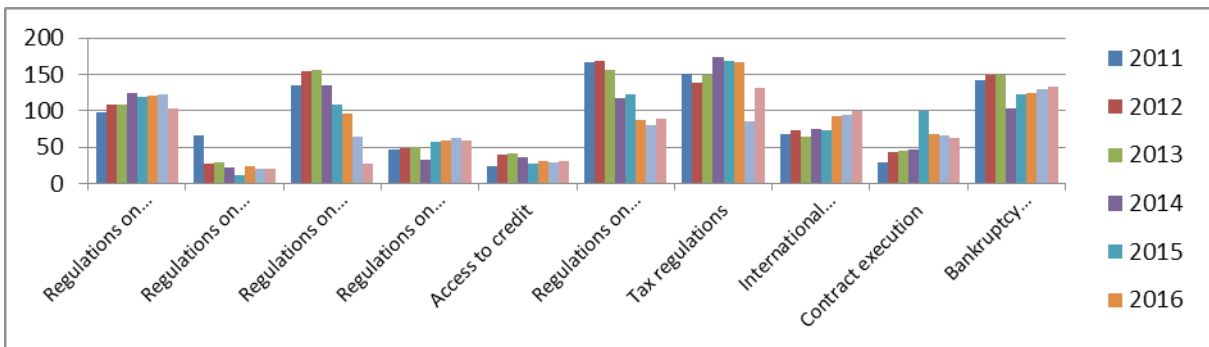
3.2. Business environment in Vietnam and state management

- *The business environment in Vietnam still has many shortcomings*

The market entry index reflecting the business environment in Vietnam still remains many difficulties despite impressive reforms in the registration of enterprises. However, the burden of "post-enterprise registration" is a big problem of many businesses. Specifically, in 2018, 18 percent of enterprises said that they had to wait for more than 1 month to complete all the procedures (in addition to the business registration certificate) to officially go into operation (higher than 15.5 percent of 2016 and 2017), and the percentage of businesses that have to wait for more than 3 months is 3.5 percent (lower than the 4.8 percent in 2017 but still higher than the 2.5 percent in 2016). These figures are still in an upward trend in the last 5 years. According to the PCI Report 2018, the percentage of businesses reporting difficulties in obtaining licenses is also alarmingly high (Malesky et al 2018: 28.06.2019). For example, 34 percent of businesses report difficulties in obtaining conditional business conditions certificates; 30 percent of businesses have to wait to receive a certificate of fire protection.

Regarding the ranking of global competitiveness, according to the results of the World Economic Forum in 2018, Vietnam's Competitiveness Index 4.0 (GCI 4.0) decreased by 3 grades (from 74 to 77). Notably, 7/12 pillars fell, of which the rating of Skills decreased by 1.5 points (from 55.8 to 54.3); Institutional factors decreased by 1.2 points (from 50.7 to 49.5); Infrastructure factors, Commodity market efficiency, Financial market efficiency went down by 0.6 points each pillar; Innovation capacity decreased by 0.5 points and Business dynamics decreased by 0.3 points [Ministry of Planning and Investment 2019: 21; 20.07.2019]. This result shows that Vietnam's desire for innovation to keep up with the trend of 4.0 is still limited and ineffective. In particular, administrative procedures are still a heavy barrier, business culture is declining, the level of exchange and diversification is still low, commercialization is limited.

Composition index on Ease of Doing Business in in the period 2011-2018



Source: *Doing Business Report 2019, 2018, 2017, 2016, 2015, 2014, 2013, 2012*

From an international and regional comparative perspective, market entry procedures and business startups are still complicated with 8 procedures and it takes 17 days to complete the procedure. Vietnam is ranked only 104/190 countries according to World Bank in 2018. Meanwhile, Singapore and Hong Kong only have 2 procedures; Brunei and Taiwan have 3 procedures; China has 4 procedures; Thailand has 5 procedures. Singapore and Hong Kong took 1.5 days; Thailand took 4.5 days; 5 days for Brunei; and China 8.6 took days. Investors have not really secured long-term investment in production and business due to many factors such as: Cost burden, time to comply with laws and high legal risks; Business safety, asset protection and business contract enforcement are still low (World Bank, 2018: 10.07.2019).

Another reason is high transaction and business costs, including formal and informal costs. Expenses for implementing administrative collection, legal compliance, logistics, labor costs (salary, social insurance) increased rapidly.

In addition, unequal competition environment between Vietnamese enterprises and foreign-invested enterprises also explains these drawbacks (Vo Van Loi 2019: 22.07.2019). There is a lack of transparency in the formulation and promulgation of mechanism policies for enterprises to implement. Many issued taxes have yet to be fair and stable compared to foreign-invested and state-owned enterprises. Administrative procedures are complicated; Administrative procedures, regulations under the law and business regulations are difficult to resolve; A large number of administrative officials have not yet served private companies. The cost of administrative procedures for taxes, fees, land and market management are still cumbersome. The increasing cost of formal and informal costs has made the price of products soar, which makes it difficult to compete on both domestic and international markets.

- ***The legal system and State management are not appropriate***

Institutional system is inadequate and slow to complete. Although the legal system has been reviewed and adjusted to be consistent with international practices and commitments that Vietnam has signed to form the necessary legal basis for organizing and managing the market economy, there is still a delay and overlap in processing of some legal provisions (Central Institute of Economic Management, 2019: 22). Besides, there are inconsistencies between Investment Law, Land Law, Bidding Law, Construction Law, Environmental protection Law, etc. In addition, the promulgation

of documents guiding laws, decrees and implementing a number of policies is still slow, lack of implementation resources; Some policies to support businesses still lack transparency and are not guaranteed to be fair.

Corruption is still ongoing; Effectiveness, management efficiency and the role of the State are limited; The quality of public service provision is not high; The application of information technology and electronic transactions, online in solving administrative procedures and providing public services is still low. Administrative procedures are cumbersome, complex and lack of consistency, especially in licensing, investment, land, property registration, etc.; The process of resolving procedures is still inadequate, there are many procedural barriers to enterprises to access resources.

Vietnam lacks of mechanisms and policies to support businesses to implement innovation and technology application, especially advanced technologies following the trend of the Fourth Industrial Revolution.

According to the 2018 Provincial Competitiveness Index (PCI), 53 percent of enterprises said that the agreement on payable taxes with officials is an important job in business; 29 percent of enterprises have difficulties in obtaining certificates of technical standards; 34 percent of enterprises face difficulties when applying for certificates of eligibility for business in conditional business lines; 70.2 percent of enterprises agree that “contracts, land and other economic resources mainly fall into the hands of enterprises with close links with the provincial government” (Malesky et al., 2018: 9-27).

The legal framework on business households, supporting policies and management organization of the relevant state management agencies is still inadequate. For example, the current Tax Administration Law states that: When selling goods or services with a total payment of less than VND 200,000 each time, enterprises and companies do not have to make an invoice but only have to make a list, until the end of the day, they must Invoice total. Taking advantage of this loophole, many business households have declared incorrectly and inadequately in order to reduce taxable turnover.

Besides, there is still no criteria for classifying business households, there is no measure to monitor revenue for business households in a number of specific industries as well as there is no synchronous database making the work. Tax administration for business households faces many difficulties.

In addition, one of the main causes for the loss of tax in this area is because many business households are now avoiding the issuance of VAT invoices to customers. Although there is a regulation that with each bill of over VND 200,000, the business establishment must issue invoices for customers, but in fact, stores only issue invoices when customers request.

Enterprises often use two accounting systems at the same time. An internal book reflects all economic transactions and an accounting system that reflects only a portion of economic transactions for tax returns. This type of behavior often occurs in private enterprises operating in the retail, food and beverage, hotel, civil construction and small manufacturing businesses.

In addition, the inspection and supervision of local tax authorities are not good, making the determination of contracted revenue not close to reality, causing loss of state budget revenues.

4. SOLUTIONS

Enhancing the private sector is a problem for both the state and enterprises. Therefore, the reforms in the mechanism, creating an open environment to promote the development of the state's business and production, and the efforts to innovate production in enterprises are often parallel activities that cannot be separated.

On the state side, it is necessary to define the objective of “promoting enterprise quality improvement instead of quantity” by:

First, promote solutions to address the lack of medium-sized enterprises by measures and policies to promote capital accumulation, encourage size growth of private enterprises. These policy measures need to encourage capital accumulation by internal resources and by means of merging, acquisition, stock investment, etc. It is also necessary to improve profitability and encourage businesses to retain profits, reinvest profits in production and business activities. This policy needs to be prioritized first since increasing the number of medium-sized businesses means more opportunities for large businesses in the medium term. As a result, many businesses will be able to take advantage from scale efficiency and get higher productivity.

Second, create a favorable learning environment to improve the capacity of enterprises in competition and technology application. In the industrial age 4.0, the application and adoption of technology must have a strategy, persistence, continuity and discovery of inventions. Private enterprises need to receive support to ensure the application of technology and knowledge, which leads to higher and stronger productivity growth. Therefore, there should be specific policies to encourage the development and application of technology research by specific jobs: private enterprises and research units should be equal in accessing funds from government research activities. It is necessary to review and reform mechanisms and policies to make it easier for enterprises and research units to be established, etc. Besides, the state needs to coordinate and create favorable conditions for experts and engineers to participate in academic exchange in developed countries.

Third, it is necessary to expand the scope of application of accounting, invoicing and voucher regimes, for micro-enterprises, business households and individuals, and implement the mechanism of self-declaration and self-payment according to regulations and deadlines, restricting tax contracts. Study and issue accounting regime for micro enterprises and households in order to create a transparent management mechanism. Because Vietnam's private sector are small and micro enterprises, tax policies need to be renewed accordingly.

Classifying large-scale business households to apply appropriate tax management forms such as applying the simple accounting regime corresponding to small and micro enterprises; apply the regime of electronic invoices, electronic tax declaration, electronic tax payment. The purpose of this job is to minimize the misuse of the business household model to avoid tax evasion, creating a tax legal framework to promote large-scale business households to transform into businesses.

Classification of business households in the service sector with cash payment transactions with consumers to apply non-cash measures in retail business transactions, restaurants, service shops food, entertainment services ... On that basis, there is a management measure for sales of invoices, or non-cash payments to promote the use of electronic invoices and connections. Sales revenue information through cash registers or payment card acceptance devices.

Classification of small-scale business households to apply the form of presumptive tax, enhance transparency, enhance the role and responsibilities of local governments and relevant organizations in the area. The purpose of this work is to minimize the practice of contracting taxes and minimize the implicit agreement between business households and tax officials.

In addition, lottery invoices may be applied to encourage organizations and individuals to participate in supervising business revenue of taxpayers (including enterprises and business households), ensuring taxpayers. Taxes declare the actual turnover. Accordingly, the shopping bill of the people will be lottery periodically. Lottery invoice will encourage buyers to get the invoice should force the seller to export, tax losses will be limited.

Fourth, strengthen the workshops and related forums to provide knowledge and business environment for businesses such as 4.0 technology forum; exchange and guide the implementation of trade defense commitments and dispute settlements; exchange guidelines for implementation of commitments on non-tariff measures, etc. Besides, organize many Expos domestically or abroad for businesses to advertise and introduce products. Learning experiences from partners is also an opportunity for businesses to connect and develop their businesses.

Fifth, Vietnam's economy is at the beginning of population aging period, no longer a golden population advantage. Thus, the party and the state need to come up with policies to promote education and training to improve their qualifications. The workforce is particularly prioritized in the agricultural sector - identified as a comparative advantage - to improve competitiveness.

Sixth, promote institutional legal reform, create a fair and open business environment for enterprises. Continuously review and inspect managers and enterprises to limit negative phenomena in business.

On the business side, this is the decisive factor to the development of the economy. Therefore, businesses should pay attention to the following issues:

Firstly, constantly striving to learn, innovate, improving production capacity and competitiveness of domestic and foreign enterprises. Linking and building systems is an extremely important factor in the prosperity of enterprises.

Secondly, improving the leadership, management of human resources and finance of the company by facilitating the learning and recruitment to prioritize the personnel with international recognized professional training, especially in corporate finance because corporate financial reporting will be recognized and transparent in many circumstances (for example, in the issue of international trade disputes).

Thirdly, it is necessary to promote the training of skilled workers with high professional qualifications, binding factors as well as enhance the use of talents in the company to boost labor productivity.

Fourthly, building appropriate production process, applying science and technology to production and business to improve labor productivity, product quality to meet export requirements.

REFERENCES

1. Central Committee of the Communist Party of Vietnam (2017), Resolution No. 10-NQ / TW dated 3/6/2017 on “Developing private economy becomes an important driving force of a socialist-oriented market economy”
2. Central Institute for Economic Management (2018), Private Economic Development and Economic Restructuring under 4.0 Industrial Revolution, Thematic No. 18
3. General Statistics Office. <https://www.gso.gov.vn/>
4. Le Duy Binh (2018), Vietnam Private Sector: Productivity and Prosperity, Hanoi.
5. Malesky et al (2018), Provincial competitiveness index of Vietnam, VCCI. http://pci2018.pcivietnam.vn/uploads/2019/BaoCaoPCI2018_VIE.pdf
6. Ministry of Planning and Investment (2019), Vietnam Enterprise White Book in 2019
7. Phung Quoc Hien (2019), Private sector becoming an important driving force of the economy, Communist Journal, available at <http://www.tapchiconsan.org.vn/Home/Quan-triet-thuc-hien-nghi-quyet-dai-hoi-dang-XII/2018/53247/De-kinh-te-tu-nhan-tro-bar-mot-dong-luc-phat-trien.aspx>
8. Vo Van Loi (2019), Private sector development in Vietnam and related issues, Financial Review, available at <http://tapchitaichinh.vn/tai-chinh-kinh-doanh/phat-trien-kinh-te-tu-nhan-o-viet-nam-va-mot-so-van-de-dat-ra-302117.html>
9. World Bank, Doing Business Report 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019

THE EFFECT OF AUDIT QUALITY ON EARNINGS MANAGEMENT: EVIDENCE FROM VIETNAMESE LISTED COMPANIES

Dao Thi Thu Giang¹, Hoang Ha Anh²

ABSTRACT

The agency theory of corporate governance focuses on the role of the audit committee in ensuring independence for both internal and external audits of a company. This paper concerned with analyzing whether the existence of audit committee as well as the hiring of Big 4 firms as external auditor would bring a more true and fair financial report. As a result, the authors make recommendations which may be of value to regulator in preparing and amending corporate governance code to improve the quality of financial reports of Vietnamese listed companies.

Keywords: *audit committee, Big4, earnings management, board of directors.*

1. INTRODUCTION

Audit committee and the association between audit quality and financial statement has regularly studied by academic researchers. Audit committee has been mentioned early in corporate governance; however, after many case of accounting frauds, the requirement to establish audit committee under the board becomes more and more necessary. In 1972, the US securities and exchange commission (SEC) required all USA listed company to settle audit committee.

According to OECD Principles of corporate governance, the role of audit committee has been enhanced as one of the most important committee under the board of director (BOD) (OECD, 2015). Audit committee is considered as an extended arm of the BOD with the main function that is ensuring the independence of audit work within the business enterprise. Because the operation of the BOD is through regular meetings rather than day-to-day working at the company, it is difficult for the BOD to be able to overseeing the company's operations and monitoring the true and fair of financial report. Therefore, it becomes essentially for the BOD to establish subordinate committees to handle specific matters and audit committee should be one of them.

The characteristics of the audit committee would impact on the efficiency of performing their responsibilities. All directors in audit committee must have finance, accounting, and auditing background in order for the audit committee to work efficiently to ensure the true and fair audited financial report to protect the welfare of shareholders (OECD, 2015). Their financial and accounting

¹ Foreign Trade University, 91 Chua Lang, Dong Da, Hanoi, Vietnam. E-mail: giangdtt@ftu.edu.vn

² Foreign Trade University, 91 Chua Lang, Dong Da, Hanoi, Vietnam

expertise contributes to the reduction of the magnitude of both negative and positive earnings management (Klein, 2002; Be'dard et al., 2004; Yang and Krishnan, 2005).

Audit committee is not only responsible for supervising the preparation of the financial statements and overseeing internal audit work but also selecting the independence external auditing company. Independence auditing company can be described as the ultimate protection fence for the shareholders in term of financial statement transparency. Choosing independence auditors would affect the reliable of audit work. Among many independence audit firms, Big 4 auditors are trustworthy and notable globally. They are Deloitte, Pwc, Ernst and Young (E&Y), and KPMG.

According to Vietstock's statistics, as of 02 April 2019 , 451 listed companies out of 733 listed companies published audited financial statements recording the difference between the before and after-audited financial statements. It is a real warning about the rising of earnings management and the true and fair of financial reports. Many preceding studies have exploited the relationship among the existance of audit committee, Big 4 independence auditor and the transparent financial statement in the world; however, this topic is not clearly taken in Vietnam stock market. A few researches about this topic in Vietnam can be mentioned such as Nguyen (2015), Tran and Hoang (2019), Vo et al. (2017)...

2. THEORETICAL BASIS AND HYPOTHESIS

2.1. Earnings management

Earnings management is a familiar topic in accounting and finance research field. However, there is no exactly definition of earnings management. In common, earnings management happens when the companies use accounting tricks to change the number in financial reports due to management's goal to deceive the BOD shareholders, and investors (Healy and Wahlen, 1999). Healy (1985), Guidry et al. (1999), Cheng and Warfield (2005) argues that managers would practice earnings management to maximize their bonus reward and incentives. Fudenberg and Tirole (1995) finds that managers manage earnings to meet the higher directors and shareholders' expectation in order to keep their jobs. Clikeman (2003) lists a variety of situations and pressures which can motivate managers to do earnings management, such as capital market target, borrowing contractual, and income tax motivation.

There are so many ways to adress earnings managements; however, earnings management usually falls into two groups: Accrual-based earnings management (AEM) and Real earnings management (REM). AEM occurs when generally accepted accounting principles allow managers to be flexible to choose accounting methods, accounting policies and accounting estimates (Healy and Wahlen, 1999). For instance, there are many events that are controlled by accounting estimates such as depreciation of fixed assets, usefull lives of fixed assets, inventory cost assumption, inventory net realizable value, provision and allowances for bad debts, assets revaluation, fair value, and so forth. If these estimates are biased in order to distort the underlying real economic performance, AEM will be applied. Meanwhile, REM happens when firms manage earnings through deviating from the normal business activities (Roychowdhury, 2006). Firms can deviate from business activities by, for example, altering expenditures, such as research and development expenditures, selling expenditures, administrative expenditures, selling fixed assets to receive a gain, changing cash and trade discounts...

This study focuses on accrual-based earnings management to measure the level of earnings management for listed companies in Vietnam stock market. Based on the accrual basis of accounting, it divided the profit of an enterprise into two categories: cash earnings and accrual earnings. Managers cannot adjust cash earnings but they can easily manage accrual earnings through accounting techniques. Accrual earnings contained two components: Non-discretionary accruals and Discretionary accruals. Non-discretionary accruals are accruals made according to accounting standards while discretionary accruals are accruals made by managers for the purpose of adjusting profit in the period. Therefore, discretionary accruals is the measure to find out whether managers have managed earnings or not. If discretionary accruals is positive, it is more likely for the manager to exaggerate profits. In contrast, if discretionary accruals is negative, it is more likely for the manager to hide the profit (Jones 1991).

2.2. The effect of audit quality on earnings management

The audit committee is a part of the BOD which plays an important role in controlling the independence of audits in enterprises. Of the four committees under the BOD, the audit committee is the most important because the audit committee has the function of supervising the process of preparing financial statements, approving independent auditing firms, and oversee independent audit results in order to ensure the quality of audited financial statements. In addition to ensuring the quality of independent audit, the audit committee is also responsible for overseeing the internal audit activities of the company, detecting weaknesses of the internal control system, and providing information timely to the BOD. The audit committee serves to minimize the risk of material misstatement of the financial statements, therefore, it contributes to protect the rights of shareholders.

Audit committees are the arbiter between management and the external auditor to produce a balanced and accurate financial report. Antle and Nalebuff (1991) argues that legitimate differences of opinion may exist between management and external auditors in how to apply accounting standards properly. The areas of inquiry include accounting estimates, audit adjustments, disagreements between management and the external auditor, and internal transactions of the firm (Klein, 2002). DeFond and Subramanyan (1998) points that external auditors prefer more conservative accounting choices due to litigation risk rather than management.

Because audit committee is considered as the intermediary between management and external auditors, they need to work independently and transparently. OECD principle of corporate governance suggested that firms should maintain audit committees with at least three directors who have no relationship to the company that may interfere with their independence from managing the company. In another word, the audit committee is founded with only independence directors of the BOD. If audit committee members has relationship to the company or the hold company shares, they may contribute to the collusion between them and the BOD to realize personal interest, therefore, the independence and oversight function of audit committee are no longer reliable (Yang and Krishnan, 2005). Many prior researches find that higher proportion of independence directors on audit committee is associated with lower earnings management (Be'dard et al., 2004; Klein, 2002; Peasnell et al., 2005). Meanwhile, the other researches fail to find any significant association between audit committee and earnings management (Xie et al., 2003; Peasnell et al., 2005).

In Vietnam, as the application of Decree No. 71/2017/ND-CP, it has not yet mentioned about the requirement for Vietnamese listed companies to establish audit committee under the BOD. Therefore, in this paper, the hypothesis regarding audit committee is:

H1: If the company had audit committee, it would have lower level of earnings management.

Previous studies generally use the Big 4/non-Big 4 audit variable to capture audit quality differences such as Becker et al. (1998), Teoh and Wong (1993), Krishnan (2003). Big 4 are generally considered to be reputable and have high quality of performance. They have abundant financial resources and professional team of independent auditors with solid knowledge and well training. Therefore, for listed companies audited by Big 4 companies, financial statements are considered to be of higher quality. Becker et al. (1998) proves that clients of non-Big 4 auditors report discretionary accruals that are, on average, 1.5% - 2.1% of total assets higher than the discretionary accruals reported by clients of Big 4 auditors.

Big 4 auditors would impose a high level of audited financial statement in order to protect their brand name reputation from legal exposure and reputation risk, which can arise from misleading financial reports by clients. In this respect, Big 4 auditors are expected to be less likely to perform low-quality audits because these firms have more to lose in terms of clients and audit fees due to an audit failure (DeAngelo, 1981). Big 4 auditors with a larger client base have to maintain a good reputation to avoid losing contracts so they would perform a higher audit quality which leads to a higher quality of reported earnings (Yang and Krishnan, 2005). Numerous studies suggest that higher quality auditors reduce the level of both negative and positive accrual earnings management (Becker et al., 1998; Krishnan, 2003).

Therefore, in this paper, the hypothesis regarding Big 4 firms is:

H2: If the company has Big 4 independence auditor, it would have lower level of earnings management.

In addition, many researches have pointed out several factors influencing earnings management such as financial leverage, cash flow, and return on assets. Financial leverage is the ratio between total liabilities and total assets. Some previous studies show that managers of highly leveraged companies have strong incentives to distort income in order to loosen loan rules (Ali et al., 2008; Jiang et al., 2008). However, companies with high liabilities may less likely to practice earnings management because they are under a closer supervision of lenders (Chung et al., 2002; Park and Shin, 2004; Peasnell et al., 2005).

Cash flow is the ratio between net cash flow from operation and total assets. Jones (1991), Chen et al. (2007), Jiang et al. (2008), and Peasnell et al. (2005) also found that firms with higher cash flow were more likely to be involved in lower discretionary accruals.

Return on assets (ROA) is another control variable that would affect earnings management. Inefficient businesses are more likely to conduct profit management. When profits are low, managers have a higher incentive to magnify income or hide expenses which leads to the higher discretionary accruals. Kasznik (1999) and McNichols (2000) finds out that return on assets are significant, positively associated with discretionary accrual estimates. On the other hand, managers tend to

perform earnings management in order to reduce the actual number of profits on the financial statements to transfer part of its revenue to another accounting period and to reduce taxes and avoiding other expenses (Chen et al, 2007).

In summary, the research model is:

$$DA_{it} = b_0 + b_1 (Audit_C_{it}) + b_2 (Big\ 4_{it}) + b_3 (LEV_{it}) + b_4 (CFO_{it}) + b_5 (ROA_{it}) + e_{it}$$

In which, variables are explained in table 1:

Table 1: The measurement of independence variables used in the study

Symbol	Description	Measurement	Expectation
Dependence variables			
DA	Earnings management	Absolute value of discretionary accruals measured using Modified Jones model by Dechow et al. (1995)	
Independence variables			
AuditC	Existence of audit committee under the Board of directors	Dummy variable that takes the value of 1 if the company has audit committee and 0 otherwise.	—
Big 4	Independence auditor is Big 4 company	Dummy variable that takes the value of 1 if the company has Big 4 independence auditor and 0 otherwise.	—
LEV	Financial leverage	Total liabilities/ Total assets	+/-
CFO	Cash flow	Cash flows from operation/ Total assets	+/-
ROA	Return on Assets	Net income/ Total sssets	+/-

Earnings management is measured using accrual variables that can be adjusted according to Modified Jones model developed by Dechow et al. (1995) from the original model of Jones (1991). The Modified Jones Model is one of the most popular model of earnings management in accounting information of enterprises (Nguyen, 2015). If the accruals increases, the company is more likely to distort financial data.

Measuring accruals as follows:

$$TA_{it} / A_{i(t-1)} = \alpha_1 * 1/A_{i(t-1)} + \alpha_2 * (\Delta REV_{it} - \Delta REC_{it})/A_{i(t-1)} + \alpha_3 * PPE_{it} / A_{i(t-1)} + \varepsilon_{it}$$

In which:

TA_{it}: total accruals for the year t of company i

A_{it-1} : total assets for the year t of company i

ΔREV_{it} : Change in net revenue for the year t with respect to year $t-1$ of company i

ΔREC_{it} : Change in account receivable for the year t with respect to year $t-1$ of company i

PPE_{it} : Net property, plant, and equipment for the year t of company i

In which, total accruals TA_{it} is measured as follows:

$$TA_{it} = NI_{it} - CFO_{it}$$

Where

NI_{it} : the net income after tax for the year t of company i

CFO_{it} : the cash flow from operating activities for the year t of company i

Non-discretionary accruals (NDA) calculated as follows:

$$NDA_{it} / A_{i(t-1)} = \alpha_1 * 1/A_{i(t-1)} + \alpha_2 * (\Delta REV_{it} - \Delta REC_{it}) / A_{i(t-1)} + \alpha_3 * PPE_{it} / A_{i(t-1)}$$

Therefore, the remainder ε_{it} in model (1) above represents an unrecognizable variable, including discretionary accruals (DA_{it}).

After estimating the non-discretionary accruals (NDA), calculate the discretionary accruals (DA_{it}) and take it as the presentation for earnings management variable in the main model of the study:

$$DA_{it} = TA_{it} - NDA_{it}$$

3. RESEARCH METHODOLOGY AND DATA

3.1. Research methodology

This study is going to use quantitative research method. Quantitative method is used as a synonym for any data collection technique and data analysis procedure that generate numerical data (Saunders et al., 2012). Therefore, this study is going to collect numerical data from reliable and reputational sources and then use highly structured quantitative testing (Stata software) to examine the data set in order to prove the hypothesis.

3.2. Data collection method

As the results of using quantitative method, the study uses secondary data collected using computational techniques. The use of secondary data has some obstacles relevant to data availability. In this study, all of the data is collected from financial reports and annual reports of Vietnamese listed company in HNX, HOSE, and UPCOM stock market. Listed companies do not include banks, insurance companies, securities companies or other businesses operating in the financial sector due to the special business activities leading to different financial reports. The observation in this study contains data of 122 companies from 2016-2018. The total number of observations in the sample data is 366.

4. RESULTS AND DISCUSSION

To run the above research model, the authors conduct econometric tests using Stata.

4.1. Descriptive statistic

Table 2: Descriptive statistic

Variable	Obs	Mean	Std. Dev.	Min	Max
DA	366	1043998	3602224	8.247447	45672923
AuditC	366	0.1010929	0.3018644	0	1
Big4	366	0.4754098	0.5000786	0	1
LEV	366	0.4607902	0.2056134	0.0153219	1.688043
CFO	366	0.1182613	0.8843467	-0.5288373	16.70619
ROA	366	0.0789052	0.072102	-0.1449147	0.4526029

The results show that the average absolute value of DA is 1 billion VND, with a relatively high variation as the maximum is 45 billion VND while the minimum is only 8 million VND. The existence of audit committee under the BOD in listed companies has a low average of 10%. Meanwhile, listed companies in Vietnamstock market tend to hire Big 4 firms to audit their financial statement. The average of Big 4 variable is 47%. The other control variable LEV, CFO, and ROA as shown in table 2.

4.2. Correlation matrix

Before running the main test, the sample data set is needed to overcome other pre-tests. As such, correlation test, multicollinearity test, and heteroscedasticity test will be presented.

Table 3: Correlation matrix

	DA	AuditC	Big4	LEV	CFO	ROA
DA	1.0000					
AuditC	0.1205	1.0000				
Big4	0.2022	0.3160	1.0000			
LEV	0.0982	-0.0840	0.0938	1.0000		
CFO	0.3376	-0.0113	-0.0350	0.0276	1.0000	
ROA	-0.0020	0.2097	0.0292	-0.4173	0.0173	1.000

Correlation test determines how strongly two variable’s movements are associated. Correlation coefficients are expressed as a value between +1 and −1. The value 1 is total positive linear correlation, value 0 is no linear correlation, and value −1 is total negative linear correlation. As the result in table 3 above, all of the variable in the sample data set weakly correlate with each other. It is a decent indication that allows us to run the main test without worrying about autocorrelation problem among variables.

4.3. Multicollinearity test

Table 4: Multicollinearity test

Variable	VIF	1/VIF
AuditC	1.16	0.858878
Big4	1.13	0.884186
LEV	1.23	0.812194
CFO	1.00	0.996602
ROA	1.26	0.794020
Mean VIF	1.16	

Multicollinearity test is to determine whether one predictor variable can be linearly predicted from the others with a substantial degree of accuracy. Multicollinearity problem is quantified by the *variance inflation factor (VIF)* in an ordinary least squares regression analysis. If VIF is more than 10, it indicates high collinearity problem in the data set. As the results in table 4, VIF for all variables included in the two models is closely to 1 which indicates that there is no multicollinearity problem in the sample data set. It is a good signal that will lead to run the main test without worrying about multicollinearity problem among variables.

4.3. Heteroscedasticity test

Table 5: Heteroscedasticity test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity	
Ho: Constant variance	
Variables: fitted values of DA	
chi2(1)	= 116.98
Prob > chi2	= 0.0000

Heteroscedasticity exists when standard errors of a variable over a specific amount of time are not constant. To test for the existence of heteroscedasticity, Breusch-Pagan test is runned. As the results shown in table 5, P-value is 0.000 which is less than 0.05, the null hypothesis is rejected so that heteroscedasticity happens. To fixed the problem, robust standard errors will be applied.

4.4. Regression result

There are 3 models to apply for panel data: OLS, random effect, and fixed effect. To choose the best fitted model, Breusch and Pagan Lagrangian test and Hausman test is conducted.

Table 6: Breusch and Pagan Lagrangian test for random effect or OLS

Breusch and Pagan Lagrangian multiplier test for random effects		
DA[code,t] = Xb + u[code] + e[code,t]		
Estimated results:		
	Var	sd = sqrt(Var)
	-----+-----	
DA	1.30e+13	3602224
e	7.66e+12	2767008
u	3.45e+12	1857495
Test:	Var(u) = 0	
	chibar2(01) = 32.39	
	Prob > chibar2 = 0.0000	

When running Breusch and Pagan Lagrangian multiplier test to select whether OLS or random effect is more appropriate, the result prints out P-value of 0.000 which is less than 0.05. It means that random effect model fits better than OLS.

Table 7: Hausman test for random effect or fixed effect

---- Coefficients ----				
	(b)	(B)	(b-B)	sqrt(diag (V_b-V_B))
	fe	re	Difference	S.E.
AuditC	480783.6	754380.1	-273596.5	782764
Big4	471469.8	1278404	-806933.9	1076961
LEV	-13408.64	1106153	-1119562	1333885
CFO	1423879	1418448	5431.278	92110.19
ROA	1032934	323998.9	708935.1	3675301
 b = consistent under Ho and Ha; obtained from xtreg B = inconsistent under Ha, efficient under Ho; obtained from xtreg Test: Ho: difference in coefficients not systematic $\text{chi2}(5) = (b-B)'[(V_b-V_B)^{-1}](b-B)$ $= 1.67$ $\text{Prob}>\text{chi2} = 0.8925$				

After choosing random effect from Breusch and Pagan Lagrangian multiplier test result, Hausman test is runned to choose between random effect and fixed effect. The result turns to P-value of 0.98 which is greater than 0.05, so random effect is choosen over fixed effect to analyze the data sample.

Table 8: Random effect for panel data

Random-effects GLS regression		Number of obs = 366				
Group variable: company		Number of groups = 122				
R-sq:		Obs per group:				
within = 0.17045		min = 3				
between = 0.1675		avg = 3				
overall = 0.1688		max = 3				
		Wald chi2(5) = 5930.21				
corr(u_i, X) = 0 (assumed)		Prob > chi2 = 0.0000				
Robust		(Std. Err. adjusted for 122 clusters in company)				
DA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
AuditC	754380.1	888661.6	0.88	0.396	-987364.5	2496125

Big4	-1278404	334119.9	3.83	0.000	623540.8	1933267
LEV	1106153	903380.1	1.22	0.221	-664439	2876745
CFO	1418448	20899.46	67.87	0.000	1377486	1459420
ROA	323998.9	1876259	0.17	0.863	-3353402	4001400
_cons	-343047.5	371864.3	-0.92	0.356	-1071888	567421.1
sigma_u	1857494.7					
sigma_e	2767008.2					
rho	0.31065132 (fraction of variance due to u_i)					

P-value of the random effect model is 0.000 which is less than 0.05 significant level. It indicates that the null hypothesis: “There is no significant relationship between dependent and independent variables” is rejected. Therefore, there is significant relationship between dependent and independent variables so that our model is appropriate and the result is reliable.

R-squared represents the total amount of variance accounted for the dependent variable by the independent variable. In this result, the independence variables explain 16.68% of the variance in dependent variable - DA.

The result from STATA shows that P-value for AuditC is 0.396 which is insignificant. Therefore, the hypothesis H1 “If the company had audit committee, it would have lower level of earnings management” is reject.

P-value for Big 4 variable is 0.000 which is significant at 1% level, so that the hypothesis H2 “If the company has Big 4 independence auditor, it would have lower level of earnings management” is accepted. The coefficient between Big 4 and DA is -1278404 which indicates that choosing Big 4 firms as independence auditors help to lower earnings management in the case of listed companies in Vietnam stock market. The results is in line with previous studies such as Becker et al. (1998), Teoh and Wong (1993), Krishnan (2003)...

For control variable, only CFO significantly impacts on DA since the P-value for CFO is 0.000. The relationship between CFO and DA in the case of Vietnam is positive, which means that companies with higher cash flow ratio tends to practice earnings management. This results is reverse to the results of Chen et al. (2007), Jiang et al. (2008), and Peasnell et al. (2005).

4.5. Conclusion

Based on the observation sample of 122 companies listed on Vietnam stock market from 2016 to 2018, this paper examines for the impact of good audit quality on the quality of financial reports of listed companies in Vietnam stock market. The findings of this study make the following contributions. First, the existence of audit committee does not significantly impacts on earnings management in the case of Vietnam. There are not too many listed companies in Vietnam establish audit committee since it is not required by the law. The role of audit committee is not recognized in the case of listed companies in Vietnam even though there have been many case of fraud accounting recently happened such as Hung Vuong, Kinh Do.... The authors’ suggestion for the law maker is to highlight the role of audit committee and force all listed companies to establish audit committee under the BOD in order for the BOD to work more efficiently and for the financial reports to be more transparent.

Second, choosing Big 4 as independence auditors effect significant negatively on earnings management. Due to the reputation and professional of Big 4 firms, listed companies in Vietnam tends to hire Big 4 firms as 50% of listed companies in this studies choose Big 4 firms to audit their financial statements. With the conservative accounting procedure, the audited financial statement made by Big 4 is believed to have higher quality, which support for investor protection in the stock market.

Finally, investors may take benefit from the results because it provide deeply insight into the impact of audit work on earnings quality. Understanding how earnings quality varies with audit work provides potential benefits and also protection to investors.

However, this study has some limitations. First, the small number of observations could influence the findings. This limitation is an consequence of the small size of the Vietnam stock market. It is also a constraint in time and data availability for the authors to be able to collect. Second, selecting discretionary accruals calculated by the modified Jones model by Dechow et al. (1995) as the proxy for earnings management is the authors' choice. Even though the model is widely accepted in accounting research, the accuracy of discretionary accruals estimate depend on the accuracy of segregating discretionary accruals from total accruals. Finally, the selection of control variable (LEV, CFO, ROA) can lead to ommision some important determinants of earnings management. There are still many other variables that affect earnings quality such as managment ownership, BOD size, BOD independence, BOD financial background, CEO duality, managerial compensation structure.... (Becker et al., 1998; Xie et al., 2003; Klein, 2002).

REFERENCES

1. Ali. SM, Salle. NM, & Hassan. MS (2008). 'Ownership Structure and Earnings Management in Malaysian Listed Companies: the size effect', *Asian Journal of Business and Accounting*, 1(2), pp. 89-116.
2. Antle, Rick, and Barry Nalebuff, 1991, Conservatism and auditor-client negotiations, *Journal of Accounting Research* 29, pp. 31-54.
3. Be'dard, J., Chtourou, S.M., and Courteau, L. (2004) The Effect of Audit Committee Expertise, Independence, and Activity on Aggressive Earnings Management. *Journal of Practice & Theory*, 23, 2, pp.13-35.
4. Becker, C.L., DeFond, M.L., Jiambalvo, J. & Subramanyam, K.R. (1998), "The effect of audit quality on earnings management", *Contemporary Accounting Research* 15, pp. 1-24.
5. Chen, K.Y, Randal J. Elder, Yung-Ming Sieh (2007). Corporate Governance and Earnings Management. SSRN eLibrary.
6. Cheng, Q. and Warfield, T. (2003). Equity Incentives and Earnings Management. *SSRN Electronic Journal*.
7. Chtourou, S. M., Bedard, J., & Courteau, L. (2001). Corporate governance and earnings management. SSRN eLibrary.
8. Chung, R, Firth M & Kim, JB (2002). Institutional monitoring and opportunistic earnings management. *Journal of Corporate Finance*, 8,1, pp. 29-48.
9. Clikeman, P. M.: 2003, 'Where Auditors Fear to Tread', *The Internal Auditor* 60(4), pp.75-79.

10. DeAngelo, L. 1981. Auditor size and audit quality. *Journal of Accounting and Economics*, 3, 3, pp.183–199.
11. Dechow, P., Sloan, R. & Sweeney, A. (1995), “Detecting earnings management”, *The Accounting Review* 70, pp. 193-225.
12. DeFond, Mark. L., and K. R. Subramanyam, 1998, Auditor changes and discretionary accruals, *Journal of Accounting and Economics* 25, pp.36-67.
13. Fudenberg, D. and J. Tirole: 1995, ‘A Theory of Income and Dividend Smoothing based on Incumbency Rents’, *The Journal of Political Economy* 103(1), pp. 75-93.
14. Guidry, F., J. Leone, A. and Rock, S. (1999). Earnings-based bonus plans and earnings management by business-unit managers. *Journal of Accounting and Economics*, 26(1-3), pp.113-142.
15. Healy, P. M.: 1985, ‘The Effect of Bonus Schemes on Accounting Decisions’, *Journal of Accounting and Economics* 7, pp.85-107.
16. Healy, P.M. and Wahlen, J.M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13, pp.365-383
17. Jiang, W, Lee, P, & Anandarajan, A (2008). ‘The association between corporate governance and earnings quality: Further evidence using the GOV-score’. *Advances in Accounting Incorporating Advances in International Accounting*, 24(2), pp.191-201.
18. Jones, J. (1991). Earnings Management During Import Relief Investigations. *Journal of Accounting Research* 29, pp.193-228
19. Kasznik, R., 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research* 37 (1), pp.57-81.
20. Klein, A. (2002), “Audit committee, board of director characteristics and earnings management”, *Journal of Accounting and Economics* 33, pp. 375-400.
21. Krishnan, G. (2003). Audit quality and the pricing of discretionary accruals. *Auditing: A Journal of Practice & Theory*, 22, 1, pp.109–126.
22. Krishnan, J. (2001). Corporate governance and internal control: An empirical analysis. American Accounting Association Annual Meeting. Atlanta, Georgia.
23. McNichols, M.F, 2000. Research design issues in earnings management studies. *Journal of Accounting and Public Policy* (19), pp 313-345
24. Nguyen Trong Nguyen (2015). ‘Tac dong cua quan tri cong ty den chat luong thong tin bao cao tai chinh tai cac cong ty niem yet o Viet Nam’. Luan an tien si. Truong Dai hoc Kinh te TP. Ho Chi Minh.
25. OECD (2015), G20/OECD Principles of Corporate Governance, OECD Publishing, Paris.
26. Park, W.Y and Shin, H (2004). Board composition and earnings management in Canada. *Journal of Corporate Finance*, 10, 3, pp.431-457
27. Peasnell, K. V., Pope, P. F., & Young, S. (2005). Board monitoring and earnings management: Do outside directors influence abnormal accruals? *Journal of Business Finance and Accounting*, 32, pp.1311–1346.
28. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42, 3, pp.335-370.
29. Teoh, S., and T. J. Wong. 1993. Perceived auditor quality and the earnings response coefficient. *The Accounting Review*, 68, 2, pp.346–366.

30. Tran Thi Kim Anh and Hoang Ha Anh (2019). Tác động của cơ cấu hội đồng quản trị đến chất lượng báo cáo tài chính của các công ty niêm yết trên thị trường chứng khoán Việt Nam. *Tạp chí Kinh tế & phát triển*, 263, pp. 33- 42
31. Vo Van Nhi, Tran Thi Thanh Hai, Tran Thi Vu Tuyen (2017). Impact of ownership structure to profit management behaviors – Experimental research on Ho Chi Minh city stock exchange. *International conference on accounting and finance*, 3, pp. 374- 385.
32. Xie, B., Davidson, W. N., & Dadalt, P. J. (2003). Earnings management and corporate governance: The roles of the board and the audit committee. *Journal of Corporate Finance*, 9, pp.295–316.
33. Yang, J. and Krishnan, J. (2005). Audit Committees and Quarterly Earnings Management. *International Journal of Auditing*, 9, 3, pp.201-219.

ADOPTION OF INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) BENEFITS AND CHALLENGES: A BUSINESS PERSPECTIVE

Nguyen Thi Hong Van¹, Luu Duc Tuyen², Nguyen Huong Giang³,
Pham Phuong Anh⁴, Nguyen Thi Phuong Tuyen⁵

ABSTRACT

International Financial Reporting Standards (IFRS) has increasingly been required and adopted globally. Vietnam is expected to adopt IFRS instead of the current Vietnamese accounting standards (VAS) by 2025 in its efforts to enhance comparability and improve transparency. Through the conducted questionnaires to Vietnamese listed companies' perceptions on IFRS, various advantages of IFRS adoption were revealed. Besides, difficulties and challenges of the adoption were addressed, in which effective solutions to adopt IFRS into Vietnam soon have been concerned.

Keywords: *IFRS, adoption, listed companies, benefits, challenges.*

INTRODUCTION

The study of the process of convergence and the proposal of the application of IFRS in Vietnam has been the concern of researchers, enterprises and accounting policy-makers in recent time. The research contributes as following aspects: Firstly, studying and assessing perceptions of benefits and challenges of IFRS application from the perspective of financial statements preparers in listed companies on Vietnam's stock market. Secondly, recommendations on the plan and roadmap for applying IFRS at Vietnamese enterprises; recommendations to complete the necessary conditions to prepare for the application of IFRS; recommending the completion of the Vietnamese accounting legal framework in the direction of applying IFRS.

LITERATURE REVIEW

By studying the research works of domestic and foreign authors related to IFRS application, the authors realized some of the following gaps:

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, Email: vanhong.hvtc@gmail.com, Tel: +84902198919.

² Department of Accounting and Auditing Regulations, Ministry of Finance, 28 Tran Hung Dao, Hoan Kiem, Ha noi, Viet nam

³ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam.

⁴ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam.

⁵ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam

Firstly, the studies and articles of domestic and foreign authors have only assessed the adoption of IFRS in each separate perspective and focused on qualitative aspect, ((Higgins,2006) PricewaterhouseCoopers,2003) (Mazars,2005),(Lantto,2006),(Armstrong et al,2010), (Lasmin, 2011)). There are no studies that assess based on the business perspective for IFRS implementation and point out the benefits and challenges on both qualitative and quantitative aspects.

Secondly, for studies in Vietnam, existing literature on IFRS is very limited. Most of articles discussing benefits and challenges in general, (Nguyen & Gong, 2012) Nguyễn Thế Thọ, 2017) (Lê Vũ Trường, 2017)) on many different perspective but there is no single study on corporate perspectives, especially listed companies on Vietnamese stock market. According to the survey, a few studies have focused on the attitude of financial statements preparers,(Pham et al, 2011). In essence, the results show that Vietnamese companies' readiness to apply IFRS is quite low. Therefore, the need for a study to consider the views of financial statements preparers in Vietnam is indispensable.

RESEARCH METHODOLOGY

The research used both primary data and secondary data. The research team collected primary data by sending survey questionnaires to 217 listed companies on both HOSE and HNX. With the scale of this survey, the authors gather information from the chief accountants or accountants who are working at these businesses via email, and fill out the survey form directly. Moreover, secondary data source is the data available due to studies; legal documents issued by agencies. During the research of the project, secondary data sources served primarily for an overview of IFRS and VAS.

After conducting the survey, the results are processed, synthesized and analyzed by statistical methods. The results are calculated and presented in the form of diagrams, tables or descriptions to draw conclusions assessing benefits and challenges of applying IFRS.

THE RESEARCH RESULTS

Benefits of IFRS application

The benefits to corporate governance

Table 1: Benefits corporate governance

Questions	Opposition (%)	Neutral(%)	Consensus (%)
A1. Improve considerably interaction and effective performance between subsidiary and foreign parent companies.	6,1	13,6	80,3
A2. IAS/IFRS application change Board of Director's assessment on the enterprises' financial position and performance.	8,3	15,9	75,8
A3. IAS/IFRS improve corporate governance	6,8	18,9	74,2
A4. IAS/IFRS is one of effective tools used for corporate governance and management	6,1	25,0	68,9
A5. Increase interaction between the parent companies and foreign subsidiaries.	3,8	28,0	68,2
A6. IAS/IFRS smooth significantly internal audit	3,0	40,9	56,1

Source: Authors compiled

Highly agreeable answer was recorded for question A1, A2, A3 which confirm the effective performance of IFRS on corporate governance, management assessment, interaction between parent and foreign subsidiaries and vice versa.

For question A6, 40,9% of neutral response and 3,0% of opposite opinions show that the number of companies either do not care or have insufficient evidence to answer the question.

The benefits to financial information disclosed on Financial Statement

Table 2: IFRS in relation with quality information disclosed on Financial Statement

Question	Opposition (%)	Neutral (%)	Consensus (%)
B1. Improve corporate's financial statement quality	0,8	9,1	90,2
B2. Present more financial information to investors, creditors in decision making process	6,8	6,8	86,4
B3. Financial statements are presented transparently, increasing comparability	10,6	4,5	84,8
B4. Improve comparability and performance assessment of subsidiaries in foreign countries	9,8	17,4	72,7

Source: Authors compiled

As be presented on table 2, 90% observed enterprises believe that IFRS improves financial information disclosed on financial statement. The question with the least consensus is B4. However, with the percentage of 72,7% agreeable idea, it is presented that most enterprises understand the important role of IFRS on improvement of comparability and performance assessment of subsidiaries in foreign countries. IFRS offer the same financial reporting standard over different geographical and political area. Hence, financial reporting is more easier to compare among countries.

The benefit to capital market development

Table 3: The benefit to capital market development

Question	Opposition (%)	Neutral (%)	Consensus (%)
C1. Increase the number of foreign investors involved in stock market	10,6	33,3	56,1
C2. Decrease cost of international capital	16,7	53,0	30,3
C3. Offer more opportunities for companies to			
C3.1. To be listed on foreign stock exchange	11,4	8,3	80,3
C3.2. Invest into foreign enterprises	10,6	19,7	69,7
C3.3 Cooperate with foreign business	4,5	5,3	90,2

Source: Authors compiled

As can be observed on table 3 – question C1, 56.1% agreed that IFRS helps increase foreign investors in Vietnam stock market meanwhile 33,3% propose neutral respond. This answer

presents awareness on foreign capital rising is still limited. Some companies are skeptical about the feasibility of providing information to foreign shareholders under IFRS in a transparent and comparable manner. This opinion argues that fair value under IFRS is still inadequate, especially obstacles in accessing information in the market. There are many transactions that do not exist yet, so the information is not available and cannot be reliably determined.

On the other hand, most respondents believed that IFRS has massive impact on creating opportunities for Vietnamese enterprises to participate in international markets. This shows that enterprises are aware of the usefulness of IFRS application for capital investment activities in the international market.

Other benefits from IFRS adoption

Apart from questions relating consensus on IFRS applicable, authors also request open answer on other benefit of IFRS. The benefit of IFRS application from enterprises' point of view includes:

- For companies with foreign subsidiaries, consolidation preparation process is simplified considerably.
- Notes on risk of financial instrument are always useful for risk management in banks (liquidity risk, operating risk, interest rate risk, etc...).
- IFRS allows to record and present fair value of financial instrument. Meanwhile VAS only allows recording impairment, and recording nothing if fair value increases. This IFRS regulation help financial statement's users have full understanding about financial instrument.

The challenges of adoption IFRS

Applying IFRS raises costs

Table 4: IFRS adoption and its impacts on the costs of the business

Questions	Opposition (%)	Neutral (%)	Consensus (%)
E1. Increasing the costs of training and staff development of the business	0,0	0,0	100,0
E2. Increasing the costs of hardware, software and maintenance of accounting information systems of the business	0,0	9,8	90,2
E3. Increasing costs payable to auditors and other external experts	0,0	15,2	84,8
E4. The costs of implementing IFRS outweighs the benefits	32,6	50,8	16,7

Source: Authors compiled

From the results of the summary table, it can be seen that businesses with high consensus with the statements regarding the application of IFRS will increase staff training and development costs, hardware and software costs, and the cost of maintaining the enterprise's accounting information system, while also increasing the cost to auditors and other external experts.

The 100% consensus that the adoption of IFRS increases the cost of staff training and development (E1) suggests that this is the biggest obstacle to IFRS adoption that listed companies are concerned about. This is consistent with the reality of Vietnam when the dissemination and update of IFRS to accountants is very limited. Accountants are familiar with the specific rules and guidelines of the Vietnamese accounting regime and VAS, so the access to IFRS's flexible guidelines will require a long training period.

The change in applied accounting standards also requires businesses to change accounting software to the old standards they are using. This change must not only be done in a single enterprise but also must be synchronized in all units of the enterprise, making the costs related to changing, updating and synchronizing accounting software become much expensive and take time to do. Thus, more than 90% of enterprises surveyed agreed with the idea that applying IFRS will increase the cost of hardware, software and maintenance of the accounting information system of the enterprise (E2).

In addition, when new IFRS is applied, businesses will increase the need to consult with auditors and experts who are knowledgeable about IFRS in their accounting work. Therefore the cost to these consultants is also increased (E3).

For the perception that the cost of implementing the IFRS will outweigh the benefits, the opposition and neutral rate are higher than the consensus (E4). This shows that the majority of businesses are aware that applying IFRS will benefit them. However, the neutral ratio is the highest (50.8%), indicating that businesses still have not had a specific assessment and comparison between the benefits that IFRS application brings and the cost to apply IFRS.

Table 5: IFRS and obstacles

Questions	Opposition (%)	Neutral (%)	Consensus (%)
F1. Increasing the complexity in preparing the financial statements of the business	9,1	9,1	81,8
F2. Increasing jobs related to preparation of financial statements	0,0	25,0	75,0

Source: Authors compiled

In this section, we make two comments on the obstacles that applying IFRS will bring when preparing the financial statements. The results show that the consensus is high that IFRS application will increase the complexity of the financial statements of the entity (81.8%) and increase the work related to the preparation of the financial statements (75.0%). For corporations with many subsidiaries, the financial statements made according to IFRS are mostly established on the consolidated level only and the subsidiaries still apply VAS in preparing the financial statements. Therefore, the data provided from the subsidiary for preparing the consolidated financial statements under IFRS has not been proactive, requiring a lot of time for checking and reviewing. Requiring subsidiaries to set up financial statements applying IFRS is sometimes not possible because the subsidiaries do not have enough potential to prepare financial statements according to IFRS. In addition, when applying IFRS, the gap between tax and accounting will be wilder, making it

difficult for businesses to track the difference between tax and accounting, and will have to spend a lot of resources to explain to the tax authorities about these differences.

The challenge in availability of market information

In this section we make a comment about the availability of market information for some IFRS requirements. According to the survey, 88.6% of enterprises agree that the availability of information in the market is an obstacle to the application of IFRS in Vietnam. This challenge stems from the following:

- Vietnam's financial market has not developed; information about fair value is quite limited. Businesses often have to build models, use statistical methods or hire professional valuation units to calculate fair value, and spend a lot of time and resources on preparing the financial statements;

- Assumptions related to asset valuation often have differences between domestic and foreign individuals / organizations, it is difficult to get the fair value of the market;

- The reliability of the financial statements can be reduced when the fair value is determined based on many unobserved inputs in the market.

Other challenges in applying IFRS:

We also asked open-ended questions to surveyors to solicit their opinions on other challenges that may be encountered when applying IFRS, the results show that businesses still face the following problems if they apply IFRS:

- Lack of legal framework for IFRS application;

- IFRS is inconstantly changing, so the accounting work must also be changed from time to time. This makes accounting work unstable, easy to make confusions and errors;

- Management does not have much knowledge of IFRS and often focuses on tax regulations instead of accounting regulations;

- Users of financial statements information (state management agencies, investors, domestic lending organizations...) do not have sufficient knowledge about IFRS;

- Professional ethics of accountants;

- IFRS is drafted in English, so the language barrier is also a difficulty for deployment. When there is a dispute between enterprises and auditors, inspectors, etc., the language barrier can be one of the most controversial causes.

- Psychological reluctance to change of businesses.

CONCLUSIONS AND POLICY IMPLICATIONS

According to the figures mentioned above, the adoption of IFRS brings significant benefits to business, including challenges to business, especially to listed companies. However, Vietnamese companies will have many benefits from implementing IFRS.

To successfully implement IFRS, Vietnam could consider the following measures:

The legal framework for accounting

Vietnamese accounting system is strictly regulated by law, from laws on accounting (the highest hierarchical level) to circulars (the lowest hierarchical level). The Accounting Law can be said that it is in the process of reforming the legal system and legal documents in the long-term. This work helps create a legal corridor compatible with international practices, creating favorable conditions for businesses to integrate and develop. Moreover, it is necessary to harmonize the relationship between new accounting guidelines with new financial or taxation policies. Also, clarify the limited scope of application of accounting standards, the financial mechanism and tax policies in Vietnam.

Updating Vietnam's current system of accounting standards and issuing a number of new accounting standards that Vietnam's system has not had yet according to IFRS/IAS while taking into considerations specific conditions of Vietnam. VAS were built based on IAS/IFRS according to the principles of selective application for international policies, suitable to the characteristics of the economy and the level of management of enterprises in Vietnam at the publication time of the standards.

Mechanisms for adopting IFRS

Firstly, having a specific roadmap to implement IFRS. Vietnam should adopt IFRS step by step to suit the economic conditions, foreign language ability, labor market level and the development of Vietnam stock market before full implementation.

Secondly, enhancing the role of accounting and auditing associations. Implementing IFRS is not a simple and very important issue. Therefore, Vietnam should have the consultancy and support from accounting and auditing associations. They can provide material, training or technical support in the process of applying IFRS.

Thirdly, improving the quality of accounting training. One of the crucial reasons Vietnam does not fit into other convergence models is the limited capacity of accountants. In fact, most universities do not introduce IFRS in the curriculum. In addition, the foreign language ability of students has not met the requirements of international integration. Therefore, if Vietnam wants to implement IFRS successfully, they should pay more attention to training human resources.

CONCLUSION

The implementation of IFRS as a revolution in the accounting and financial reporting requires great effort by all the parties concerned to overcome the challenges and obstacles. In the future, for IFRS to be applied more commonly and to meet the requirements of international economic integration and accounting, Vietnam should conduct more solutions that are not only urgent but also long-term, including a direct solution for the system of accounting standards and solutions in terms of environmental economics and law. The research into the possibility of adopting IAS/IFRS in Vietnam is extremely relevant and benefits for the accounting literature, given that research into accounting in Vietnam. This paper is conducted based on an interpretation of the literature in the field of accounting development, accounting standard-setting, and especially the process of adopting accounting standards, and this is part of a long-lasting debate. Considering

the findings and recommendations documented in the current literature with, special consideration of the Vietnamese listed companies situation, the paper proposes that adoption of IAS/IFRS with selection is practically possible in Vietnam.

REFERENCES

IN VIETNAMESE

1. Bộ Tài chính - Cục kiểm tra và giám sát kế toán kiểm toán, 2018, “Đề án áp dụng Chuẩn mực Báo cáo Tài chính Quốc tế vào Việt Nam”.
2. Đường Thị Quỳnh Liên (2017), “Khó khăn, thách thức khi áp dụng IFRS tại Việt Nam và lộ trình thực hiện”, Kỷ yếu hội thảo “IFRS – Cơ hội và thách thức khi áp dụng tại Việt Nam” năm 2017, 113-117.
3. Hệ thống chuẩn mực kế toán Việt Nam (VAS)
4. Hướng dẫn tóm tắt các chuẩn mực IFRS năm 2016: Ngôn ngữ BCTC toàn cầu
5. KPMG (2017), “Khảo sát về việc áp dụng Chuẩn mực Báo cáo Tài chính Quốc tế tại Việt Nam”.
6. Nguyễn Thế Thọ (2017). “Áp dụng chuẩn mực báo cáo tài chính quốc tế (IFRS) đối với các Công ty niêm yết trên thị trường chứng khoán Việt nam lợi ích, thách thức và lộ trình”, Kỷ yếu hội thảo “IFRS – Cơ hội và thách thức khi áp dụng tại Việt Nam” năm 2017, 22-24.
7. Lê Vũ Trường, Đinh Minh Tuấn (2017), “Áp dụng IFRS ở Việt Nam – Cơ hội và thách thức”.

IN ENGLISH

8. Ball, R. (2006), “International Financial Reporting Standards (IFRS): Pros and Cons for Investors”, Accounting & Business Research, International Accounting Policy Forum, 5- 27.
9. Christopher S. Armstrong, Mary E. Barth, Alan D. Jagolinzer, and Edward J. Riedl (2010), “Market Reaction to the Adoption of IFRS in Europe”, The Accounting Review: January 2010, Vol. 85, No. 1, pp. 31-61. <https://doi.org/10.2308/accr.2010.85.1.31>
10. Lantto, A-M (2006), “Usefulness of Accounting Information: IFRS Compared to Domestic GAAP”, Working Paper, Department of Accounting and Finance, University of Oulu .
11. Lasmin (2011), “An Institutional Perspective on International Financial Reporting Standards Adoption in Developing Countries”, Academy of Accounting and Financial Studies Journal, Vol. 15, 31-40
12. Mazars (2003), “The Impact that Changing to IAS – IFRS Will Have on European Companies: Somewhere in Between Opportunities and Complexity”, <http://www.mazarsdenge.com.tr/publishDocument.php?id=1527>
13. PricewaterhouseCoopers (2003), “Illuminating Values: The Business Impact of IFRS”, Available at: <http://www.pwcglobal.com>

SOLUTIONS FOR APPLYING INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) IN VIETNAM

Nguyen Dinh Do¹

ABSTRACT

Adoption of international financial reporting standards (IFRS) is globally accepted. Vietnam is not besides of this road with the theme of true and fair presentation. The study raises the probable suggestions in convergence Vietnamese accounting standards (VAS) into IFRS. Particularly, the issue of recognition and measurement base will be concerned in details.

Keywords: *applying, international financial reporting standards, Vietnamese accounting standards*

Along with the policy of economic openness and integration with other countries in the region and over the world, Vietnamese accounting system has experienced tremendous challenges such as innovation, integration and development towards accounting equality in the region and over the world. Vietnamese accounting system has affirmed its significance in implementing one of the three breakthroughs of the country's socio-economic development strategy through the 11th National Congress of the Communist Party of Vietnam in 2011, which is "Perfecting the socialist-oriented market economy institution focusing on creating a fair competitive environment and administrative reform" It is also one of important objectives of the accounting-auditing development strategy to 2020 and vision to 2030 under the Government's Decision No. 480/QĐ-TTg of March 18, 2013, namely: To set up a complete accounting and audit system conformable with the Vietnamese State's management mechanism and the development of regional and world accounting and audit professions in order to satisfy information requirements for management, administration, inventory and control of economic resources and national economic and financial activities.

In recent years, to achieve the objectives, strategies of socio-economic and accounting - auditing development of the country to meet the renovation requirements of the market economy and the economic development of the country with the policy of opening up and integrating into the regional and international economy more and more deeply, the accounting system has been making lots of changes in the content, methods as well as the functions and roles of accounting. Accounting is not only an economic management tool, a science subject, a profession but also a business language, an information system that provides users more and more reliable information presented in the reporting system and timely updated changes in the market economy so that users can make appropriate and effective economic decisions.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: dodinhnguyenhvtc55@gmail.com

In order to meet the requirements of providing information on financial statements in the trend of international economic integration and development, countries need to prepare and present their financial reporting system according to the International Financial Reporting Standards (IFRS).

The International Accounting Standards System includes International Accounting Standards (IAS) issued and updated, supplemented, amended and replaced by the International Accounting Standards Board (IASB). IAS is a necessary and important condition to ensure the preparation and presentation of financial statements in accordance with international practices. In the current trend of international openness and integration for economic development, most countries have applied IFRS. According to information from the IASB, over 130 countries and territories have declared the application of IFRS. Vietnam, unfortunately, is one of the few countries where IFRS have not yet been applied. Through the research on the application of IFRS in the world, the need as well as the great effect of applying IFRS on strategic objectives of the accounting and auditing development of Vietnam, the research application of IFRS has been considered as urgent and necessary.

The necessity of preparing and presenting financial statements according to IFRS comes from:

- Limitations, and problems of Vietnamese Accounting Standards (VAS)
- Demands for using information of different entities in the current market economy condition
- Practical effects of financial statements prepared according to IFRS:

+ Affirming the important role, nature and functions of accounting in the context of current international accounting development, that is an effective management tool providing useful, practical and effective financial information.

+ Increasing the attraction of foreign investment capital, serving as a basis for international financial institutions, foreign corporations and companies to make investment decisions to Vietnam.

- Accelerating and deepening this international economic integration of Vietnam into the regional and world economy.

With the above-mentioned necessity and great effects, Vietnam has realized the need and significance of the application of IFRS.

To apply the IFRS system to Vietnam, the following solutions should be implemented:

1. COMPLETION OF PRICING PRINCIPLES AND METHODS IN VIETNAMESE ACCOUNTING

One of the first important solutions to apply IFRS in Vietnam is perfecting pricing principles and methods in accounting toward applying a fair value accounting model in accordance with international accounting practices.

Financial statements are both an accounting method and general reports on financial position, business performance and cash flow of an enterprise. Assets and liabilities presented in the financial statements are valued according to the prescribed principles and methods of price calculation. The pricing principle is understood as the main price type used to calculate the price of elements of financial statements, while the price calculation method is the accounting method that determines value of the price calculation objects according to specified principles. Expressions of the pricing

method are the types of prices used and the calculation techniques. There have been different pricing models in Vietnam, namely:

- Historical cost model (actual price)
- Market price model
- Fair value model

The historical cost model uses the historical cost to calculate the prices of accounting objects at all times: initial recognition, after initial recognition and financial statements preparation.

At the market price model, prices are determined at their historical prices and market prices: the historical prices are used to calculate the prices of objects at the time of initial recognition while market prices are used to calculate prices when preparing financial statements.

With the fair value model, accounting objects are determined on a basis of voluntary and understanding the value of objects among parties involved in the valuation. In Vietnam, the awareness, understanding and utilization of the fair value model is quite new and it is only officially mentioned in Article 6 of the Law on Accounting 2015 (after amending and supplementing to the Law on Accounting 2003). With provisions on the use of fair value, there is a legal basis to implement the pricing principles and methods according to the important fair-value model – an important basis for applying international accounting standards into Vietnam. Specific issues and orientations for the application of fair value according to international practice will be addressed in the following solutions regarding the promulgation of Vietnamese accounting standards “Determination of fair value”.

2. COMPLETION OF VIETNAMESE ACCOUNTING STANDARDS (VAS) APPROACHING TO IFRS

In our opinion, the next important solution to apply IFRS in Vietnam is to complete, amend and supplement new accounting standards of Vietnam approaching to IFRS.

Vietnamese Accounting Standards (VAS) after 5 publications includes 26 standards. The publication of the promulgation of Vietnamese accounting standards on the basis of international accounting standards from the early years of openness has marked great results in reforming the Vietnamese accounting system on the basis of the implementation of the EURO. TAPVIET project to gradually formulate the legal framework for accounting in Vietnam. Along with the promulgated accounting standards, there are circulars guiding the application and regulations of the Vietnamese corporate accounting regime such as Decision 15 and Circular 200.

The VAS as well as IAS is understood as a system of regulations on accounting principles and methods for recording and preparing financial statements.

International accounting standards (IAS) are regularly updated and supplemented to suit the development of the market economy and new requirements on providing financial information for users in the trend of deep integration and development into regional and global economy.

In order to implement the new regulations on accounting standards prescribed in the Law on Accounting 2015 and to improve Vietnamese accounting standards approaching to IFRS system, we need to issue the following additional Vietnamese accounting standards:

2.1. Vietnamese accounting standards “Determination of fair value”

It is well known that the foundation of Vietnamese Accounting Standards is the historical price, so the financial statements have not reflected correctly and fully the financial situation of the businesses at the time of preparing the report because of the value of the assets and liabilities in the market economy always change, so to integrate towards the application of international accounting standards, it is necessary to change the pricing principles and methods together with the study to promulgate standards “Determination of fair value” based on the approach to the IFRS 13.

In the world, fair value has been widely used in accounting standards and financial statements. In 2010, the draft of the International Financial Reporting Standard No. 13 (IFRS 13) determined the fair value as a basis used to calculate the prices of some accounting objects. After research and discussion, this Standard was published in 2011 and became effective from 2013. Accordingly, the fair value is understood as “The price at which an asset can be exchanged among parties eligible for knowledge in a parity transaction”

In the IFRS system, fair value is used in the following cases:

- To determine historical cost

According to provisions of the accounting theory framework of the International Accounting Standards Board, fair value is not a basis for measurement to identify elements of financial statements but only used to determine the value at initial recognition for certain assets and liabilities.

- To determine value after initial recognition

In this case, fair value is used to determine the value of assets and liabilities such as real estate, plants, machinery, financial instruments, etc.

- To determine asset depreciation

According to IFRS 13, the fair value, depending on each case, is determined by one of the following three levels:

a. The reference data is the listed price of assets or liabilities homogeneous on the operating market that the entity may collect at the specified date.

b. The reference data may be collected for assets or liabilities directly at market prices or indirectly based on listing prices of markets other than level 1. If assets or liabilities are related to a specific provision, the reference data at level 2 must be collectible reference data of all essential provisions related to assets or liabilities.

c. The reference data on assets or liabilities are not based on the active market (there is no market as biological assets, agricultural products - discuss later).

In Vietnam, fair value has been mentioned scatteredly in some related accounting standards such as: VAS 03 “Tangible fixed assets”, VAS 04 “Intangible fixed assets”, VAS 06 “Leases”, VAS 10 “Effects of changes in foreign exchange rates”, VAS 11 “Business combinations” and VAS 14 “Revenue and other income”.

The concept of fair value has also been mentioned in the VAS when referring to the object to be priced that the standard mentioned. According to provisions of the above-mentioned standards, the

fair value mentioned in the VAS for determining value of accounting objects are primarily assets at initial measurement and recognition of tangible, intangible fixed assets, revenue, other incomes and cost of the business combination as well as initial recognition and reporting of monetary items denominated in foreign currencies.

Although there are regulations on fair value in each standard and the method of measuring the fair value, they are not legal and uniform but only specific to each content, and this is also one of the reasons for limitations in the widespread application of fair value. Therefore, to approach the fair value model and to ensure compliance with the international practices on financial statements, the Law on Accounting 2015 has specified provisions in Clause 1, Article 6 “Accounting Principles” accounting “and Clause 3, Article 7 “Accounting standards and codes of ethics for accountants”.

Based on the studies of fair value models in countries with developed market economies, Vietnam needs to study and gradually approaches the fair value model to complete the pricing method of Vietnamese Accounting System in the trend of deep economic development and integration with the region and the world in order to promulgate the “Measurement of fair value” standard approaching to IFRS No. 13. Accordingly, the fair value standard needs to specify the purpose, scope of application and the following basic contents:

- **The concept of fair value:** In our opinion, fair value is the value at the time of selling an asset or paying a liability between parties engaging in a transaction voluntarily and having an understanding of the parity exchange of transactions made.

- Basis of fair value measurement: With Vietnam’s current conditions, the basis for fair value measurement should be based on market prices and conform to international practices.

- Method of fair value accounting: there should be regulations on accounting methods for each type of assets, liabilities and the use of the “Market Access” method is suitable.

- Assessment and recognition of fair value

The assessment and recognition of fair value should be done in accordance with the Law on Accounting as follows:

- + Assets and liabilities assessed and recognized at their fair values at the end of the financial period include:

- Financial instruments required by accounting standards must be recognized and reviewed at fair values

- Monetary items denominated in foreign currencies are revalued at actual exchange rates

- Other assets or liabilities that are subject to constant fluctuation as required by accounting standards must be revalued at fair values.

- + The reassessment of assets and liabilities at fair values must be made from reliable grounds. If there is no reliable basis for measurement, assets and liabilities must be determined at historical cost.

- + The Ministry of Finance stipulates that assets and liabilities are recognized and revalued at fair value as well as accounting method for recognition and revaluation at fair value.

- Provisions on the use of fair value in accordance with international accounting standards
- + Use of fair value for initial assessment and recognition of the asset in the following circumstances:
 - When enterprise does not spend money to buy or manufacture new products
 - Even if there is an original cost of the asset, in this case, there will be a difference between the fair value and the historical price, the difference will be recognized as a profit or loss at the time of initial recognition.
 - The cost of business combination is determined on the basis of fair value of exchanged assets
- + Use of fair values for calculating prices after initial recognition and when preparing financial statements
 - Financial assets and investment properties are stated at fair value at the reporting time
 - Assets are machinery, equipment, and plants that are assessed at fair value
 - The biological assets and its products are recognized at fair value subtracting estimated cost of sale at harvest.
- + Solving differences of volatility due to changes in fair value
 - Recognition as income, expense including profit (loss) in business performance.
 - Recognition of the increase or decrease of the equity source in the balance sheet of assets held for sale.

2.2. Issuance of accounting standard “Financial instruments” to develop the stock market

In the context of a developed market economy, restructuring of enterprises and financial institutions and equitization processes have generated transactions related to particularly complex financial instruments when many enterprises used derivative financial instruments for hedging purposes. There were no regulations on accounting and guidance, therefore, the research and promulgation of Vietnam’s accounting standards on financial instruments are needed.

Up to now, there have been no regulations or guidelines on accounting of financial instruments in Vietnam. At the international level, there are three accounting standards on financial instruments, including: IAS 32-Financial instruments; IAS 39-Financial instrument: recognition and valuation and IAS 7-Financial instrument: information disclosure. The international accounting standards for financial instruments always subject to changes and supplements to meet the management requirements of growing market economy.

In Vietnam, there is only Circular No. 210/2009/TT-BTC dated November 06, 2009 guiding the application of international accounting standards on presentation of financial statements and disclosures of financial instruments. This Circular applies to all transactions related to financial instruments with the following basic contents: provisions on terms; guidelines on the presentation of financial instruments in the financial statements and guidance on the interpretation of financial instruments for users.

In order to issue the Vietnamese accounting standard “Financial instruments” approaching IFRS, the basic contents of the standard should include:

- Provisions and guidelines for recognition, measurement, presentation and disclosure of financial statements of financial instruments
- Classification, identification, recognition and disclosure requirements
- Regulations on accounting principles of derivative financial instruments
- Accounting for derivative financial instruments for hedging purposes

2.3. Accounting standards on agriculture

Agriculture is an important production sector of the Vietnamese economy, accounting for a large proportion of the total domestic product value of the economy. However, the accounting regulations of agricultural activities as a specific economic sector of Vietnam have not yet met the requirements of providing information adequately, transparently and reliably according to international practices as well as new requirements of Vietnam’s agricultural economy to suit the information needs of subjects.

In fact, from the perspective of regulations on accounting in agriculture in Vietnam, there are only a few standards such as: VAS 02; VAS 03 and on the basis of the historical cost principle but not having access to international practices, therefore, it is necessary to research and promulgate accounting standards on agriculture approaching to IAS 41.

Based on the study of IAS 41 according to Vietnam’s conditions, it is necessary to stipulate a standard in the content of Vietnam accounting standards “Agriculture” with the following basic contents:

- Concept and classification of agricultural production activities, biological assets and agricultural products
- Provisions on conditions for recognition and measurement of biological assets and agricultural products
- Methods and grounds for measurement of fair value of agricultural products at the time of harvest
- Provisions of increasing or decreasing value after initial recognition
- Government subsidies for agriculture
- Presentation of Financial Statements

2.4. Accounting standards for property losses, environmental accounting standards, etc.

The study contents of the promulgation of Vietnam’s accounting standards on property, environment losses and etc are presented at the following conferences.

3. PREPARATION OF HUMAN RESOURCES FOR IFRS APPLICATION IN VIETNAM

With the above two important solutions on changing accounting principles and methods, the finalizing, supplementing, amending and promulgating Vietnamese accounting standards

approaching to international accounting reporting standards requests the participation of various ministries, agencies, organizations, businesses and especially accountants.

One of the reasons that the application of IFRS to Vietnam is still slow in comparison to the requirements of renovating the market economy institution as well as integration goals of the accounting and auditing system according to the strategic objectives of socio-economic development of the country and the strategy of auditing accounting development under the development strategy to 2020 with a vision to 2030 is the lack of qualified human resources to understand and apply IFRS into Vietnam: lack of human resources for accounting in Vietnam; lack of in-depth experts in international financial reporting standards and preparation skills, therefore, the training of human resources is very urgent in current conditions. The process of training human resources for IFRS application in Vietnam is directly related to the Ministry of Finance, companies, businesses, auditing and accounting training institutions, occupational agencies and associations, thus depending on the roles and functions of each organization to actively develop research plans, promulgate, guide and implement IFRS.

REFERENCES

1. Vietnamese Law on Accounting 2003 and 2015 and the Decrees guiding the implementation
2. Vietnamese Accounting Standards and the guiding Circulars, enterprise accounting regime
3. Translated documents of international accounting standards systems (ias and ifrs)
4. Accounting-auditing development strategy to 2020 and vision to 2030
5. Prof. Dr. Nguyen Dinh Do, Completing the accounting and auditing legal framework in the process of innovation, integration and comprehensive development in the region and the world, AOF Scientific Conference 2015: "Completing the Law on Accounting in the process of reforming Vietnam's accounting and auditing system"
6. Prof. Dr. Nguyen Dinh Do, Pricing principles and methods of Vietnamese accounting system in the present conditions, Journal of Financial Accounting No. 01 (150) 2016.
7. Prof. Dr. Nguyen Dinh Do, Monograph on international accounting practices and standards, Construction Publishing House 2003.

DEVELOPING OF ACCOUNTING IN VIET NAM IN THE CONTEXT OF INDUSTRIAL REVOLUTION 4.0

Hoang Van Tuong¹, Bui Thi Thu Huong², Tran Thi Duc Hanh³
Nguy Thu Hien⁴, Tran Thi Ngoc Han⁵

ABSTRACT

The relationship between accounting and automation has attracted a lot of attention from organizations and individuals, but the number of researches in Vietnam is still low. This study was conducted to analyze the developing of accounting in Vietnam in the context of the industrial revolution 4.0. In order to achieve the above objectives, the authors conducted a qualitative research based on semi-structured interviews with 31 accounting experts from various sectors. The results show that technologies are automating routine accounting activities resulting job cut around the world. Technology cannot replace emotional intelligence and critical thinking abilities of a human in near future. As technology is spreading the scope of the profession, knowledge of trending technologies along with some survival skills are required for accountants. This paper tried to present the upcoming trends of the accounting profession in Vietnam, at the same time discusses the required skills to adapt to the technological changes and tries to give some suggestions.

Keywords: Accounting development, technology revolution 4.0, automation, Vietnam, financial information.

1. INTRODUCTION

On behalf of the Politburo, Party General Secretary and President Nguyen Phu Trong has recently signed Resolution No.52-NQ/TW on September 27, 2019 on a number of guidelines and policies to actively participate in the fourth Industrial Revolution (also known as Industry 4.0). As stated by this new Resolution, Industry 4.0 has brought about several chances as well as challenges for each nation, organization, and individual. Vietnam is taking strong actions from the central to the grassroots level to speed up the application of Industry 4.0 technology, making changes in fields of production, business, cultural and social life, as well as national defence and security.

At Google's annual Input/output developer conference, Google affirmed its desire to integrate Artificial Intelligence into people's daily life through a smart personal assistant (Staff, 2017). Other technology giants as Apple, Facebook, Microsoft and Amazon are also interested in AI and invest heavily in this technology. The use of Artificial Intelligence and automation can reduce the need for human labour. This leads to uncertainty concerning certain professions, such as accounting (Manjoo, 2017).

^{1,2,3,4,5} Faculty of Accounting, Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam

According to a study conducted by Frey & Osborne (2017), 702 job titles are at risk of automation. Among these professions, accounting is on top of the list with 94 percent probability of being computerized in the next two decades (Nagarajah, 2016). Artificial Intelligence can be integrated into accounting processes and thereby replace humans. In fact, an artificial agent called Amelia has already started at Shell and Baker Hughes (two of the biggest gas groups) to take over the duties of accountants and call centre agents. The system has the ability to understand natural language that allows to interact with humans. It does not only recognize words; it also understands the meaning of them. These are tangible signs that the employment of white-collar workers could be threatened by the rise of Artificial Intelligence (Twentyman, 2017).

This paper studies how the persistent rise of advanced automation in accounting is changing the profession, globally as well as in Vietnam, and the necessary skills of accountants to survive in the future. At present, human-being and software are working together in this sector. Advancement in machine learning, artificial intelligence and robotics are also contributing to the overall development of the accounting profession. Accountants need to be more adaptive and improve their skills to keep pace with machine. Artificial intelligence, robotics, and machine learning are free from human error and have higher processing power; which causes erosion in traditional accounting job. Though, technological platforms are replacing accounting jobs; demand for skilled and high-quality accountants are on the rise. Artificial intelligence helps professionals to learn, think and perform better. A global and practical view of Vietnam, through this paper, will help to analyze the condition in a better way.

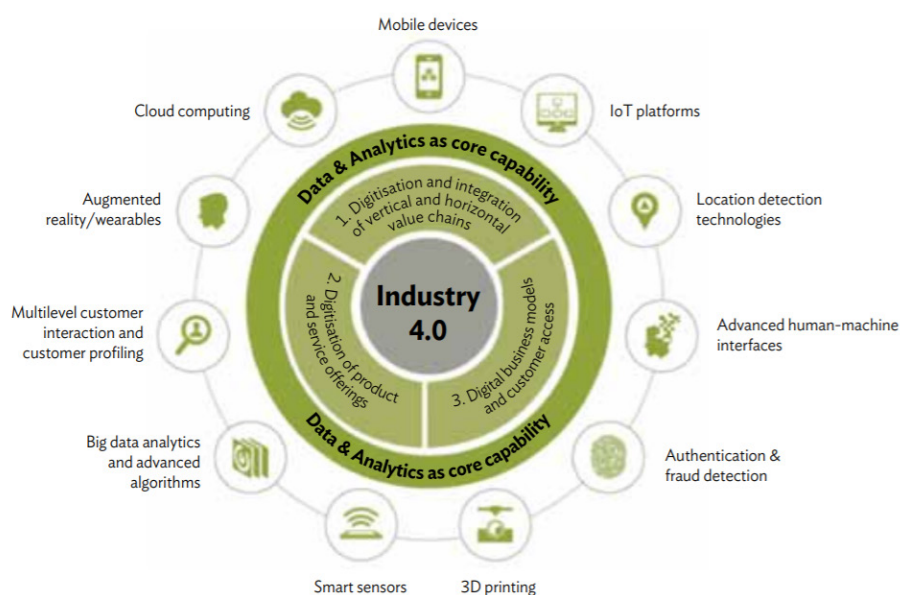
The remainder of this paper is structured as follows: Section 2 provides a review of industrial revolution 4.0. Section 3 we described the triple- accounting. The qualitative characteristics of useful financial information will be found in section 4. In section 5, we outline the research methodology design. The findings are presented in section 6. The last section, Section 7, provides the conclusion and some implications of this study.

2. INDUSTRIAL REVOLUTION 4.0

We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrated and comprehensive, involving all stakeholders of the global polity, from the public and private sectors to academia and civil society.

The First Industrial Revolution used water and steam power to mechanize production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third, the digital revolution that has been occurring since the middle of the last century. It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.

Industry 4.0 is still happening with high probability of more innovations in the future - and is denoted by a complex combination of a variety of technologies, building on the digital power and will arguably impact our world in a way that the humankind has never experienced before (Figure 01).



IOT = internet of things.
Source: PricewaterhouseCoopers, 2017.

3. TRIPLE-ENTRY ACCOUNTING

One of the great innovations made possible with the advent of blockchain technology is the development of triple-entry accounting. Triple-entry accounting is a term for a new method of accounting, that was proposed in the 1980’s. It was more recently popularized when Ian Grigg associated it with blockchain technology. Triple entry accounting is an enhancement to the traditional double entry system in which all accounting entries involving outside parties are cryptographically sealed and linked through a smart contract to a third entry. But to understand the value of this we need to appreciate a little bit the history of accounting systems and where we are coming from.

Single-Entry Accounting

There is evidence that even during the Mesopotamian era, some four or five thousand years ago, a fairly complex accounting of property, purchases, and expenditures existed on tablets. This single-entry accounting system is a method of bookkeeping relying on a one-sided accounting entry to maintain financial information. This creates a system that is very difficult to examine for accountability. There would be no way for investors to scrutinize the changes in equity. With a single-entry system, all you have to do is remove a line in the ledger and that money no longer exists. There was no way to verify, no way to audit, no way to reconcile, for people to agree. The development of double-entry accounting opened the realm of accounting into a whole new world.

Double-Entry Accounting

Double entry bookkeeping revolutionized the field of financial accounting during the Renaissance period some six hundred years ago.

Modern financial accounting is based on a double entry system. Described simply, double entry bookkeeping allows firms to maintain records that reflect what the firm owns and owes and also

what the firm has earned and spent over any given period of time. The idea is you want to minimize the errors in your books so what you do is that for each transaction you do two entries in your books. The issue with double entry accounting is that there is not really any connection between the different sets of books each firm holds. The records are themselves separate. Likewise, as the organizational structure and sophistication of companies developed they were expected to share their records with outside stakeholders, such as investors, lenders and the state. This created the problem of how outsiders could trust the company's books and thus required auditors. Although you did your double entry accounting in your book there was absolutely no guarantee that the bank, or whomever else you were dealing with, saw the transaction the same way and recorded the same numbers. In fact, as part of an audit, one would have to write to the bank and ask did this organization really have this money at this date and do you agree on this number. So all this massive amount of administration could be removed if we have an economy-wide accounting system.

Triple-Entry Accounting

Triple-entry accounting can be thought of as a way of agreeing on objective economic reality. Triple entry accounting is an enhancement to the traditional double-entry system in which all accounting entries involving outside parties are cryptographically sealed by a third entry.⁵ Thus placed side by side, the bookkeeping entries of both parties to a given transaction are congruent. The third entry in the system, entered into the blockchain, is both a receipt and a transaction. It's proof that something happened between two parties, which goes beyond the receipts that each party holds in double entry. Since the entries are distributed and cryptographically sealed, falsifying them or destroying them to conceal activity is practically impossible. A seller books a debit to account for cash received, while a buyer books a credit for cash spent in the same transaction, but in separate sets of accounting records. This is where the blockchain comes in: instead of these entries being recorded separately in independent sets of ledgers, they occur in the form of a transfer between wallet addresses in the same distributed, public ledger, creating an interlocking system of permanent and objective accounting records.

The idea about triple-entry accounting is that instead of each firm having their own books the transaction goes through a contract and this contract includes everything about the transaction; this may record, what the product was, the prices, who is the seller, who is the buyer, it's digitally signed and it can have a hash that links to further public documentation. So the books are now linked together by this third entry, the triple-entry, that can potentially be viewed for external auditing purposes. Triple-entry is quite a confusing term because we are not creating a third entry, we are just linking two separate double entries. That link is created via a smart contract that works to ensure that the two double entries in separate legal entities are always the same; this is auto enforced by the smart contract and as with all smart contracts it is tamper proof.

The advantages of a triple entry system are numerous in terms of reconciliation, transparency, trust, and auditing. Triple-entry accounting allows us to reconcile the balance, the transaction, and the reporting process so that organizations can trust their own books. Typically, each party is responsible for maintaining their own financial records. However, this can lead to fraud or other errors. The use of triple-entry accounting reduces this risk by keeping a non-biased record.

Many blockchains are publicly viable or easily exposed to external viewing making them transparent. With blockchain networks, the entry is the transaction, because the assets are on the blockchain, the ledger is not an account of what happened, it is what happened, and as the ledger is tamper proof this makes it trustworthy. For auditing, blockchain accounting is ideal as it creates a list of transactions, thus it creates an immutable history of all the exchanges within the system which could be mined using analytics. There is a perfect audit trail.

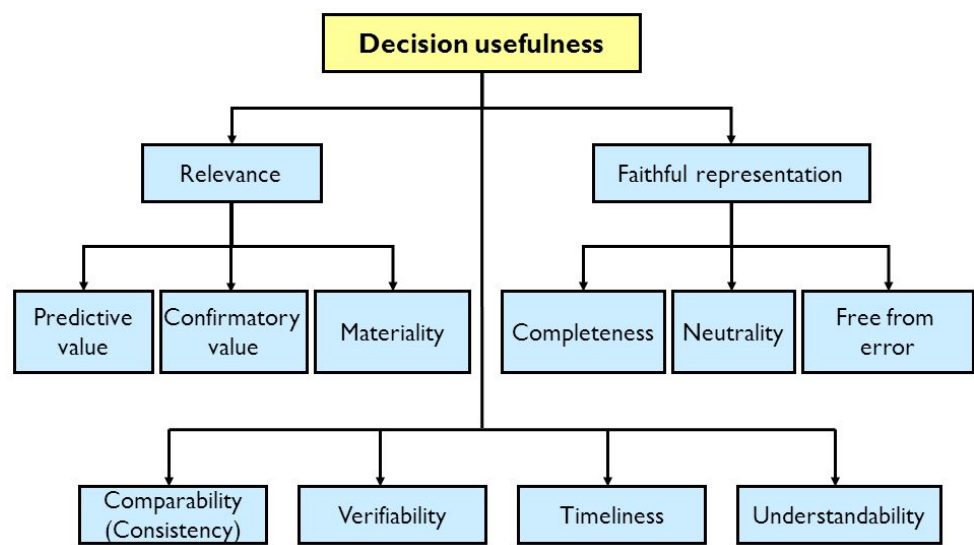
4. QUALITATIVE CHARACTERISTICS OF USEFUL FINANCIAL INFORMATION

The purpose of financial reporting is to provide useful financial information about an entity to potential investors, lenders and other creditors who use that information to make decisions about buying, selling or holding equity or debt instruments and providing or settling loans or other forms of credit.

To achieve this objective, the financial reports must provide information on the economic resources of the entity, their counter party and the transactions and other events and circumstances that affect them. The degree of usefulness of financial information depends on the qualitative characteristics.

The qualitative characteristics of financial information, as set out in the Conceptual Framework of the IASB are fundamental to identify the types of information that are most likely to be useful for the purpose of making decisions about the reporting entity based on the information presented in its financial report. The revised Framework distinguishes two types of qualitative characteristics that are necessary to provide useful financial information: fundamental qualitative characteristics and enhanced qualitative characteristics (Figure 02).

Figure 02: Qualitative characteristics of useful financial information



Source: IFRS

5. RESEARCH METHODOLOGY

This paper follows qualitative research. Past literature and research findings are used to gather information on a global perspective. Journal articles and websites are also used

for collecting information. For conducting research in Vietnam about the development of accounting sector, a questioner has been prepared and interviewed. Some information is also collected through telephone conversation.

5.1. Systematic literature study

On the ProQuest, Science Direct database and science websites, the selection of studies was determined by two steps: the studies were first filtered on relevance of the title (n= 82). After that, the studies were filtered on relevance of the abstract (n=62). Studies that did not relate to this study were excluded (n=36). The 26 selected articles underwent quality appraisal.

The results of the researches have focused on clarifying four main issues: 1) the impact of technology on the future on accounting profession, 2) the role of accounting in the 4.0 technology era, 3) the impact on the labor market and 4) solutions.

First, the impact of technology on the future on accounting profession

The first step is to distinguish routine tasks (which can easily be automated) and non- routine tasks (which are more difficult to be performed by machines or software). Jobs that require critical thinking and human contact will not be automated soon (Oschinski et al., 2017). These occupations need high-level creativity and training. Jobs that generally consist of routine tasks do not require a level of high education and only little human interaction is needed compared to non-routine tasks. Non-routine tasks can be divided into manual occupations and intellectual occupations. Manual occupations generally require lower qualifications than cognitive jobs that generally require a high level of education (Oschinski et al., 2017).

Herbert et al. (2016) explored the possibilities for transforming the way professional work in the future, by using automation. The study describes that since automation is used to eliminate routine and repetitive tasks, it will allow employees to focus on more creative, non-structured tasks that require more thinking. While focusing more on creative, non- structured tasks, the value of the accountant's contributions will increase.

According to the authors, many accounting tasks are already automated in firms, such as invoicing, payroll and book- keeping, which involve the processing of large amounts of data and consists of repeated, stabile and structured tasks. In general, the process of accounting information has already become largely automated. According to Liu et al. (2014), automation will constantly develop and make some tasks -like bookkeeping- disappear and at the same time create new ones.

The study of Gamage (2016) explored the latest developments in Big Data and its impact on accounting education. According to these findings, the decision-aid is one of the greatest benefits of Big Data. Accountant researchers have already been using automation for the decision-making process. The measurement of the data has been enhanced and the information is better understood (Liu et al., 2014).

Nevertheless, relying on the data provided by technology and not using the experience and knowledge of accountants could be dangerous. Accountants are sceptic regarding the reliability of the financial information provided by automation (Al-Htaybat et al., 2017). The lack of sufficient knowledge of Big Data and the analysis of the data could generate inappropriate results,

accountants may not be able to analyse and interpret the results correctly. Marcello et al. (2017) held a roundtable discussion on the past, present, and future of the auditing profession. One of the professionals from the roundtable discussion believes that accountants and auditors need to be careful when using Artificial Intelligence. According to this respondent, human intelligence exceeds machine learning. The professional is sceptical about the use of Artificial Intelligence and does not trust machine learning concerning the decision-making.

Second, the role of accounting in the 4.0 technology era

Beaman (et al., 2007) studied the role of the management accountants in the future and state that the accountant's role is dominated by scorekeeping and other requirements. Accountants need to develop their skills regarding the use of AI if the employees want to keep adding value to the firm. The authors concluded that management accountants who continue spending much time in scorekeeping activities (instead of providing decision support services to managers), risk losing their jobs. Management accountants need to know what the critical pieces and the outcomes of data are, in order to add value to the business (Gamage, 2016).

Young accountants coming into the profession need to understand what are the skills needed to work alongside automation. The need to acquire and develop these skills is crucial to avoid job loss. Many of the jobs that will persist in the future will require interpersonal interaction, flexibility, adaptability and problem solving (David, 2015). Future accountants will be required to have diversity of experience, curiosity and the ability to learn continuously. The profession does not only need students who understand audit standards, the students also need to know how to solve problems and how to think critically (Marcello et al., 2017).

Parham et al. (2012) examined which skills are important for the future career of accounting students, these skills are: written and oral communication, motivation, decision-making, financial analysing and professional judgement. Accounting companies are looking for employees who are not afraid of technology, but who are creative and open-minded. These employees also need to know how to work with and how to use the data provided by technology (Al-Htaybat et al., 2017).

Universities will have to work with companies to make sure the students learn the required skills to work with Big Data. Accountants that are able to work with Big Data, extract the necessary information and make the information useful at the right time will be needed in the accounting field. Silverman (1966) explored the effect of automation and came to the conclusion that automation destroys old skills, but at the same time creates new skills that require the knowledge of how to use complex machines. Accountants will have a more proactive role in the business and will be required to stay in contact with employees working in different areas -like Information Technology (IT)- (Coyne et al., 2017; Gamage, 2016).

According to Kokina et al. (2017) the following types of activities will exist in accounting jobs:

- Working with machines to improve performance and results of the company;
- Overseeing the use of intelligent machines and determining if a different automation tool is necessary;

- Working with vendors to develop Artificial Intelligent systems and to maintaining the existing ones;
- Performing tasks that are still impossible to perform with automation;
- Performing accounting tasks, in which the use of an automated system would not be efficient.

Third, the impact on the labor market

Rattunde et al. (2016) examined the impact of automation on the employment in the United States. Specifically, the authors analysed how computer-based technologies and robotics have contributed to job polarization by reducing the number of “middle-skilled” jobs, while reinforce employment in both low-and-high skilled jobs. This paper indicated that automation did not reduce the overall employment. Automation has replaced some tasks, but also complemented other tasks. Formalized and codified tasks have already been automated, since machines represent less labour costs for the companies and are more accurate and more productive. Tasks that require flexibility, judgment and common sense are more complex to automate. Humans still have the advantage of being able to make decisions in a situation of uncertainty.

Some low-skilled manual jobs that require language recognition, social interactions and situational adaptability are difficult to automate, just as the high-skilled professions that require creativity, critical thinking and problem-solving skills. Blum (1966) also reported that there has been an increase and a decrease in the number of jobs requiring less skills, as well as both an increase and a decrease in the number of jobs requiring more skills. Automation can replace some tasks, but at the same time also create new tasks. The amount of blue-collar jobs decreased compared to the white-collar jobs, due to the different skill requirements and training. According to Blum (1966), technological unemployment affects especially young workers, old workers, low-skilled and low educated workers. Workers who possess only one skill in that specific occupation will have difficulties to develop new skills in other occupations.

Sorgner (2017) provided an overview of current trends and developments on the labour markets due to the automation of jobs. This study also describes the most recent dynamics of self-employment related to the risk of the automation of jobs. The author reported that middle-skilled workers in routine jobs are more susceptible to automation, while people with low and high levels of education are less likely to have changes in their work occupation. Middle-skilled workers looking for a job will have to possess or develop skills that are hard to automate, such as creativity or social interactions. This paper indicated that people who are willing to take risks (like starting a completely different job or developing new skills) have less probability to be unemployed.

Fourth, solutions

Kim (et al., 2017) described two temporary solutions regarding the change of existing jobs and two long-term decisions concerning the creation of new jobs. The first solution is to reduce work time of the employees. By decreasing the working hours of each employee, the companies can maintain every employee and avoid an increase in labour costs. Machines can do the work

of a human more efficiently and effectively. The machines will aid in reducing labour costs and enable a company to lengthen working hours as the company improves its financial performance. The retirement age could be reduced, opening job positions for young workers. The employees will thus have more time to spend besides work and improve their quality of living. However, reducing work time might provoke dissatisfaction of employees because it represents less salary. Therefore, sharing work time with machines is only a temporary solution.

Another solution is to propose social programs to the jobs that could be replaced by technology. The susceptible jobs that could be replaced by automation are the jobs that are relatively low paid and do not require much creativity. Hence, these unemployed workers could be helped by programs provided by the government to motivate these persons to work in another field. However, these programs are often expensive and would be covered by taxes from citizens, entrepreneurs and capitalists. Thus, it would help unemployment only for a short period.

The creation of new jobs proposed by the government could be a long-term solution. For instance, accelerating the creation of new jobs by stimulating business through tax benefits. Unfortunately, government programs are often seen as national embarrassments and it represents a huge investment.

5.2. Semi-structured Interview

5.2.1. Model design and sample research

All the literature regarding the future of the accounting is gathered, it is important to test these results in an empirical study. For conducting the research in Vietnam about automation in the accounting sector, a questioner has been prepared and interviewed. Some information is also collected through telephone conversation.

The interview sample is 31 accounting experts in different units. The interview is conducted through the following forms: face-to-face interviews, telephone or email responses. The interviewees requested anonymously.

5.2.2. Data collection

The study chose to use semi-structured interviews. Semi-structured interviews are interviews based on the list of questions or topics that need to be addressed, but the order and how to ask questions may depend on the context and characteristics of your interviewee. The interviews focus on the following key issues: the use of automation in accounting at the company, the role of the accountant, the quality characteristics of financial information, the skills of accountants and small accounting firm issues as well as demographic issues.

The results of the interviews were processed in the following way: The interviews were recorded as responses of each interviewer.

6. RESEARCH RESULTS

6.1. Describe the research sample

A total of 31 direct interviews and through questionnaires are shown. General information about the surveyed subjects can be described as follows (Table 01).

Table 01: Demographics summary of respondents

Measure	Items	Frequency	Percentage
Current position	COF	3	9,7
	Chief Accountant	4	12,9
	General accountant	8	25,8
	Accountant	13	41,9
	Accounting Expert	3	9,7
Tenure in current position	Less than 5 years	10	32,3
	5- 10 years	12	38,7
	More than 10 years	9	29
Be trained automation on accounting	Yes	31	100
	No	0	0
Firm's Ownership	Private	11	35,5
	Joint Venture	2	6,5
	Joint Stock	13	41,9
	FDI	1	3,2
	State- owned	2	6,5
	Others	2	6,5
Automation Application	Yes	31	100
	No	0	0

Source: Gathered from the research results by the author

6.2. The application of automation in accounting

The number of units and length of application:

The survey results indicate that all surveyed units (31 units, accounting for 100%) are currently applying accounting automation with different levels of application. The starting time to apply automation in accounting varies from unit to unit, of which 9 units (29%) have applied for a period of less than 5 years, 15 units (48.4%) applying from 5 to 10 years ago, and the number of units applying automation in accounting over 10 years was 7, accounting for 22.6%.

The reason for the application:

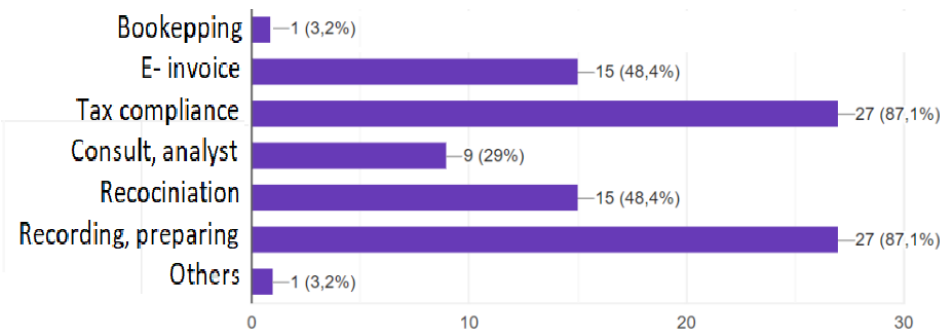
There are many different reasons for units to choose to apply automation in accounting, of which providing timely information is the most selected answer by 28 units/individuals (90, 3%) out of 31 surveyed units. Another reason is that the application of automation will ensure the accuracy of accounting information (answered by 27 units, accounting for 87.1%). Saving labor costs is also one of the reasons considered by units when applying automation in accounting (25 units, accounting for 80.6%). In addition to the basic reasons above, when deciding to apply automation in accounting, the units also considered many different reasons such as data security, brief accounting books, quick statistics and reports, creating close links between departments, enhancing control.

The automation in accounting derives from many reasons, but the application also faces many different barriers. The survey results show that the main barriers come from human factor. Specifically, the barriers are described as follows: managers' requirement (19 units, accounting for 61.3%), the level of operating staff (18 units, accounting for 58.1%), investment budget (17 units accounting for 54.8%) and the ability to ensure success (11 units, accounting for 35.5%).

Accounting activities applying automation:

Automation plays an important role in accounting activities at units currently. Many accounting activities have been automated at different levels in different units. The statistics are shown in Figure 01.

Figure 01: Automated accounting activities



Source: gathered from the research results by the author

As can be seen from the survey answers, automation in accounting is done mainly in the following order: the accountant manually enters the input data into the accounting software, which will be automatically processed and extracted by the software to construct reports. The units are currently investing a lot of human and material resources in technology, but the modules have not yet been connected to each other, resulting in ineffective information exploitation. Accounting automation plays an important role in the production and business activities of the units, the tasks that used to be done manually are gradually being replaced by machines and technologies. Automation contributes to improving the efficiency of the units’ operations, improving the quality of services.

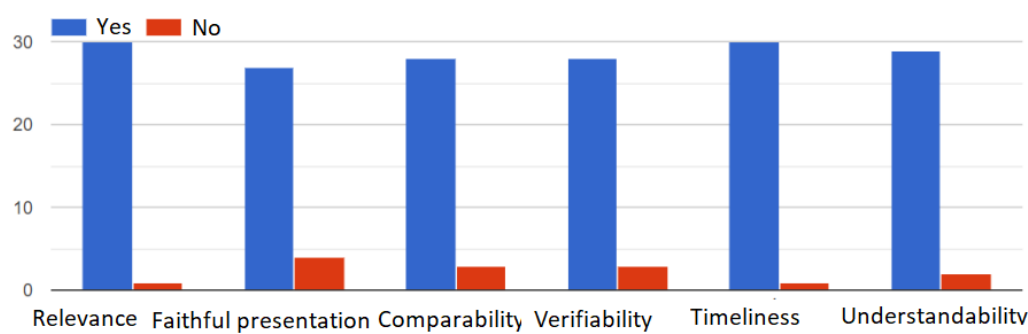
Mr.Cuong, Chief accountant in Tae Yang Vina Co Ltd, noted:

The repetitive activities creating little new value are automated and accountants focus more on activities creating more value. Automation is a mandatory trend, which derives from customer demand, especially young customers interested in technology and pressure from competitors as technology becomes more and more popular. Due to urgent need for automation, accountants at these units have been proactive as well as attending accounting software training courses in centers conducted by invited experts in on-the-job training.

6.3. Qualitative characteristics of useful accounting information

The problem posed for accounting units as well as subjects using accounting information is that when applying technology and automation in accounting, the quality characteristics of useful accounting information obtained can be either guaranteed or not guaranteed. The survey results show that most of the respondents confirmed that when automating, these features are guaranteed. However, with each specific feature, the influence of technology in each unit is different. The research results are illustrated in Figure 02.

Figure 05: Qualitative characteristics of useful accounting information



Source: gathered from the research results by the author

Financial information is not always reliable, because the accountant does not have enough accurate information or the accountant is collecting the wrong information. Accountants may not know if the algorithm set is true or false. Choosing an appropriate software supplier is very important for the units. Honest presentation cannot rely solely on technology without human intervention. Automation will help accountants perform repetitive and predictable tasks, but human intervention is still necessary because accounting is an occupation requiring judgment and specialization, especially for unexpected situations. If every task is automated without human consideration, there will be a risk of making an error. Consequently, machines or technology are human products that can sometimes make mistakes. 93% of the respondents said that the error will be reduced when applying automation. Accountants should use automation to reduce the risk of human error. A tired person can make mistakes. A machine, on the contrary, is normally not the same as humans. By using the scanning process, the files go straight into the system without any human intervention and thus can avoid human error. This applies only to basic billing information, such as supplier and customer dates. The rest of the information may be wrong and should be checked by an accountant.

Information extracted from the system makes it easier for accountants to follow and make better decisions. The computer program provides standardized data and when an error occurs, the accountants need to know how the information has been handled. It is important that the report users understand the analysis of financial information.

Ms.Bich, Senior accounting team leader in NSRP LLC, opined that:

The report is provided more timely when applying automation. Automation can improve the information verification feature because documents are available and accessible at any time, since paper-based documents have been converted into electronic documents. Automation makes it easier and more accessible to find necessary documents. Moreover, the risk of document loss is minimal. On the other hand, the risk with digital documents is that they can be manipulated. Therefore, an electronic document is only valid when the original document can be authenticated.

Mr.Cuong added:

Automation allows for improved comparability, because automation allows for easier comparisons between different periods. Time for searching for documents is limited, because they are already linked to the software. The software can help analyze data quickly and more conveniently than doing it manually.

6.4. The necessary skills of accountants in the future

Applying technology and automation in accounting brings many benefits as mentioned in the results analyzed above. However, automation cannot replace all human activities. Respondents agreed that automation should be considered as a means of accounting support.

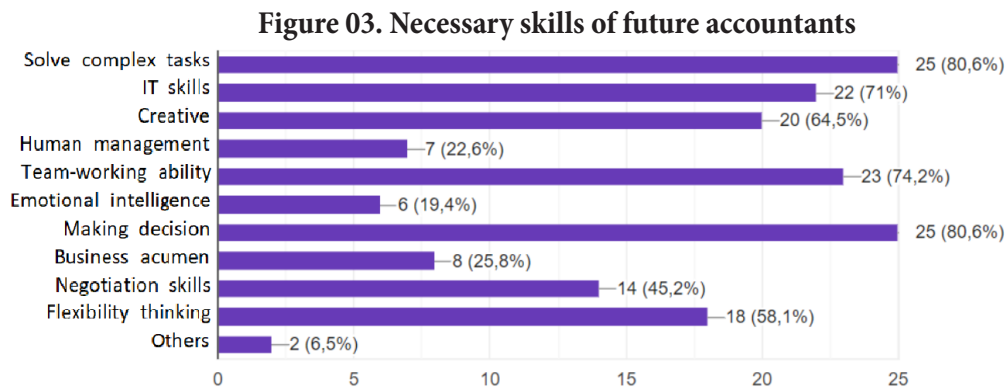
Ms. Xuan, Chief accountant in VBP Company, noted that:

There are many accounting tasks that automation cannot replace human, such as analysis, consulting, evaluation and testing, especially when it is necessary to make judgments about uncertain situations.

Ms.Bich further opined that:

In order to meet the needs of the accounting and auditing labor market in the future as well as improve the efficiency of the use of technology and automation, future accountants are required to have a lot of skills.

The survey results are illustrated in Figure 03.



Source: Gathered from the research results by the author

Other skills mentioned here include: skills in updating legal documents as well as controlling skills.

Although automation can perform many accounting tasks, it cannot provide every attribute of the qualitative characteristics that make financial information useful. Therefore, human intervention will still be necessary in the accounting process to provide faith full presentation of financial information. Frequent tasks have been automated, while tasks requiring creativity, critical thinking and judgment will be performed by accountants. Therefore, the accountant’s role will change: the accountant will perform tasks that add value to the company, such as consulting or advisory offer. IT, tax, social and analytical skills will have to be developed.

From the perspective of the firms, Mr.Cuong stated that:

Universities and training institutions will need to change their educational programs so that graduated students will have the sufficient knowledge, skills and attitudes that meet the labor market requirements in the technology 4.0 era as follows:

- *Consider changing educational philosophy: The world is constantly changing, technology is growing fast, shelf-life of knowledge is shorter, thus instead of focusing on current knowledge provision, there should be a change in the direction of increasing flexibility;*
- *Promote accounting training in combination with technology application;*

- *Enhancing the practice;*
- *Designing a training program based on identifying user's needs, etc.*

CONCLUSION AND IMPLICATIONS

The 4.0 technology revolution is taking place globally. Vietnam is in the process of rapid and extensive integration in all areas and strongly affected by this technological revolution. Automation in accounting is an inevitable trend. The product of this process, however, is financial information with useful quality characteristics.

Frequent and repetitive jobs can be easily automated. Critical thinking, creativity, analysis and evaluation are the accounting characteristics that cannot be replaced by technology. Automation will replace non-value-added tasks (called routine tasks), so accountants can focus on more important tasks such as data analysis and customer consultancy. IT, taxation, social and analytical skills will be increasingly important. The main reasons for using automation in accounting include: market pressure, time saving and quality improvement.

The quality characteristics of useful financial information is guaranteed but human intervention is still needed. Business models of accounting firms will change, accounting will shift gradually to consultancy requiring IT, social, tax and analytical skills. Accountants who are not willing to learn to acquire these skills are at risk of being replaced by automation. In order to develop Vietnam's accounting in the context of the 4.0 technology revolution, it is necessary for many organizations and individuals to get involved, and educational institutions and university programs need to readily change educational philosophy for specific issues to provide society with accountants who meet the needs of the future labor market.

Some implications have been given basing on the findings as:

For Teaching

Future accountants will increasingly need education in digital technology (including cloud computing and use of big data), globalization (outsourcing of accounting services), and evolving regulations (tax regulation, new forms of corporate reporting, integrated reporting regulation, and so on). Universities will need to develop or incorporate new units, such as cloud computing, big data, digital technology, integrated reporting, carbon emission accounting, and so on for accounting students. Professional accounting organizations should consult with universities to collate experts/lecturers in the new areas and run new courses. At the same time, universities should either invest in existing faculty members for training and learning or recruit experts to coordinate and lecture new units.

For Research

Big accounting firms are conducting surveys on cloud computing, big data, technological change, new forms of fraud and corruption, and corporate sustainability in order to address the ongoing and future opportunities and challenges facing the profession. Despite ongoing efforts by professional accounting organizations and academic researchers, there is a surprising gap in research that deals with the changes that will impact accountants and professional accounting organizations. Future research should drive industry collaborations and collaborations between inter-disciplinary academic researchers in order to reveal strategic responses to and pro-active strategies on changes in digital technology, the continued globalization of standards, and new forms of regulation and associated stakeholder expectations.

REFERENCES

1. Alexander, R. J. (2002). History of Accounting, Association of Chartered Accountants in the United States,
2. Al-Htaybat, K. & Alberti-Alhtaybat, L. von (2017). Big Data and corporate reporting: impacts and paradoxes, *Accounting, Auditing and Accountability Journal*. 2017;30;4: 850 – 873,
3. Anh Sa (2017), Do you know how many jobs in accounting and auditing have been replaced by blockchain?, *Young knowledge*. Available at <https://www.dantrisoft.com/2017/11/ban-co-biet-bao-nhieu-viec-lam-trong-nganh-ke-toan-kiem-toan-da-bi-thay-the-boi-blockchain.html>
4. Anonymous (1987). Expert Systems for Accountants: Has Their Time Come? *Journal of Accountancy*. 1987;164;6: 117 – 125,
5. Baldwin, A. A., Brown, C. E. & Trinkle, B. S. (2006). Opportunities for artificial intelligence development in the accounting domain: the case for auditing, *Wiley Periodicals Inc*. 2006;14;3:77 – 86,
6. Beaman, I. & Richardson, B. (2007). Information Technology, Decision Support and Management Accounting Roles, *Journal of Applied Management Accounting Research*. 2007;5;1: 59 – 68,
7. Chase, M. D. & Shim, J. K. (1991). Artificial Intelligence and Big Six Accounting: A survey of the current uses of expert systems in the modern accounting environment. *Computers & Industrial Engineering*. 1991;21;1-4: 205 – 209,
8. Chelliah, J. (2017). Will artificial intelligence usurp white collar jobs? *Human Resource Management International Digest*. 2017;25;3: 1 – 3,
9. CPA Journal. 2015;85;8: 10 – 12,
10. David, H. (2015). Why Are There Still So Many Jobs? The History and Future of Workplace Automation. *Journal of Economic Perspectives*. 2015;29;3: 3 – 30,
11. Galarza, M. (2017). The changing nature of accounting. *Strategic Finance*,
12. Galarza, M. (2017). The changing nature of accounting. *Strategic Finance*
13. Henry, B. & Hicks, M., (2015). A Survey of Perspectives on the Future of the Accounting Profession
14. International Financial Reporting Standards (n.d.). The Conceptual Framework for Financial Reporting.
15. *Journal of Emerging Technologies in Accounting*. 2017;14;1: 115 – 122
16. Kim, Y. J., Kim, K. & Lee, S. (2017). The rise of technological unemployment and its implications on the future macroeconomic landscape. *Futures*. 2017;87: 1 – 9,
17. Kokina, J. & Davenport, T. H. (2017). The Emergence of Artificial Intelligence: How Automation is changing Auditing.
18. Manjoo, F. (2017), Google, Not the Government, Is Building the Future. *The New York Time*
19. Minh Son, Tuan Hai (2019), “ The 4.0 Train “: Don’t be a passenger who misses the train, visit the website: [http://www.lsvn.vn/van-de-su-kien/goc-see / quot-move-40-quot-content-la-lu-lu-bo-l-turning-after-28952.html](http://www.lsvn.vn/van-de-su-kien/goc-see-quot-move-40-quot-content-la-lu-lu-bo-l-turning-after-28952.html)
20. Nagarajah, E. (2016). Hi, Robot. What does automation mean for the accounting profession?
21. Prime Minister (2013), Decision on approving the Accounting-Auditing Strategy to 2020, with a vision to 2030
22. Seek (2017). How automation is transforming the Accounting industry.
23. Staff, V. (2017). Google I/O 2017: highlights from the developer conference. *The Verge*
24. Truong Thanh Tra (2019), Triple accounting and forgotten invention, At <http://www.the-glam-light.com/2019/02/21/ke-toan-tam-blockchain-and-phat-minh-bi-lang-familiar/>
25. Twentyman, J. (2017). Intelligent virtual helpers whittle away at human jobs.

COMPLETE ACCOUNTING OF BORROWING COSTS IN VIETNAM ACCORDING TO INTERNATIONAL ACCOUNTING PRACTICES

Do Minh Thoa¹

ABSTRACT

Borrowing capital always plays an important role in the investment and development process of enterprises. For businesses, loans are mainly from the bank credit market and the bond market. In the structure of capital sources of enterprises, the proportion of loans accounts for a large proportion in addition to equity. Borrowing capital for qualifying assets is a major borrowing in the enterprise's borrowing activities. The information of those borrowing costs of such loans is presented in the financial report which is reflected in the essence and in the correctness of science that has been experiencing real difficulties in the enterprise of Vietnam. This study introduces the provisions of the International Accounting Standards 23 (IAS 23) on recognition of borrowing costs, recognition of capitalized borrowing costs and borrowing cost accounting, orientations to contribute to the preparation and completion of legal documents of Vietnam on the cost of borrowing in the coming time

Keywords: *borrowing costs, accountants, qualifying asset, IAS 23, VAS 16*

1. INTRODUCTION

Raising capital from credit loans, issuing bonds is a popular way of raising capital in Vietnamese businesses. Most of enterprises' capital is borrowed from the banking system; in "Credit balance report for the economy and growth rate", until July 2019, credit balance for the economy was 7.628.015,24 billion dong, up 5,78 % compared to the end of 2018. For the bond market, in the past years, Vietnam's bond market has gradually become an effective capital mobilization channel for businesses in the financial market. The corporate bond market recorded explosive growth, first half of 2019 with over VND 89,000 billion of bonds issued, increased by 34% over the same period in 2018, corporate bond size is equivalent to more than 10% of GDP. Specific objectives in the Vietnam Bond Market Development Roadmap for the period of 2017-2020, vision to 2030 of the Government, striving to bring the bond market debt balance to about 45% of GDP by 2020 and about 65% of GDP by 2030 (State Bank of Việt Nam, 2017).

The loan market of Vietnam is currently developing on a large scale and holding an important position in the economy, the large scale of loans leads to large borrowing costs. Loans from businesses for various purposes of investment and business, require different ways of recognizing borrowing costs, depending on the content and purpose of the loan consumption.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam

Presenting information about borrowing costs of loans on the Financial Statements in enterprises accurately and in a transparent manner is always required and urgent.

Borrowing costs in Vietnam in recent years have attracted the attention of researchers, but the number of publications is limited and only focuses on certain aspects of borrowing costs. Mai Thanh Thủy (2017) research on practical application of accounting standards VAS 16 - Borrowing costs; Chu Thị Bích Hạnh (2016), Đặng Thị Thuý Hà (2011) research on exchange issues of borrowing costs accounting (VAS accounting standards 16); Nguyễn Thị Mai Lê (2016) research on capitalization of borrowing costs in Vietnamese Accounting Standard No. 16 - Borrowing costs; Trịnh Xuân Hưng (2016) research on accounting of loan interests to be exempted or eliminated for enterprises.

Towards completing Vietnam's accounting system in the direction of harmonizing international accounting, in this article, the author clarifies from the study of International Accounting Standards IAS 23 on determining the cost borrowing and borrowing costs are capitalized, in order to provide persistence and orientations to improve Vietnam's accounting system on borrowing costs in the context of international economic integration.

2. Research overview, theoretical basis and research method

Recently, in the market economy, enterprises have a very high demand for capital mobilization to serve the investment and production scale expansion, innovating technology chains to produce products to meet the increasing demands of the market. One of the main capital mobilization channels of enterprises is borrowing from commercial banks, credit institutions and bond issuance. Accompanying the loan is the interest payable as agreed by the loan agreement. Borrowing costs account for a large proportion in the reasonable cost structure of enterprises. Therefore, accounting for borrowing costs has a very important role in supporting businesses achieve the desired effect through adjusting financial policies.

International Accounting Standards IAS 23 - Borrowing costs provide scientific principles on accounting of borrowing costs. Issued history of International Accounting Standards IAS 23 - Borrowing costs: March 1984, International Accounting Standards Board (IASC) issued IAS 23 - Capitalization of borrowing costs; December 1993: IASC issued IAS 23 - Borrowing and replacement costs IAS 23 - Borrowing capitalization; In the convergence program between US Accounting Principles US GAAP and IFRS, borrowing capitalization is included as a short-term project, from 2006 to 2007, IASB then amended International Accounting Standards IAS 23 - Borrowing costs (1993 version), this revised version was issued on January 1, 2009 and took effect from April 2001

One of the most controversial topics in previous international accounting history is "Borrowing costs for the construction or fabrication of assets are capitalized, which means taking into account the original cost of assets?". In the Basis for conclusion of IAS 23 (2008), IASB stated and analyzed the arguments of both parties "support" and "oppose" capitalization. Here are some basic views on borrowing costs in the world:

- Viewpoint of supporting capitalization: Borrowing costs that are directly related to the purchase, construction or production of uncompleted assets are part of the cost of assets. When

assets are under construction or in production, funding is required and this grant incurs costs. The cost of the asset should include all costs necessary for the asset to be ready for use or for sale, including the cost to finance the above. Therefore, borrowing costs directly related to asset formation must be capitalized into the cost of uncompleted assets.

- Viewpoint of opposing capitalization: The determination of the relationship between borrowing costs and unfinished assets is not a simple problem, because businesses do not always borrow for one purpose. Loans can be used for many different purposes. Meanwhile, the immediate recognition of expenses is much simpler and does not burden businesses.

Comparability may be affected by capitalization. Suppose two businesses build two similar constructions, the first borrowed and capitalized the borrowing costs, the second business does not need to borrow so there are not borrowing costs capitalized. Thus, the capital structure of an enterprise will affect the cost of assets formed.

Explanation of IASB: IASB argues that from the point of view of the cost of the asset, it must reflect all the costs necessary for the asset ready for use or sale, capitalization of borrowing costs is compulsory. The formula for calculating borrowing costs is capitalized based on the weighted average cumulative cost of uncompleted assets allow to determine borrowing costs related to uncompleted assets. To reduce the burden on businesses, IASB assigned IAS 23 (2007) will be applied retroactively. About the ability to compare, IASB agrees that this approach affects the comparison between the two cases of loan financing and equity financing. However, IASB also said that eliminating the recognition of costs will help increase the likelihood of comparison between all businesses funded by loans.

Vietnam Accounting Standard on borrowing costs (VAS 16) was issued and announced by the Ministry of Finance according to Decision No. 165/2002/QĐ-BTC on December 31, 2002 and Circular 105/2003/TT-BTC, issued on November 6, 2003. After that, in Circular 161/2007/TT-BTC, guidelines for re-implementing 16 Accounting Standards issued on December 31, 2007, borrowing costs are also repeated by the Ministry of Finance. However, there is not many change in the content compared to the previous Circular 105/2003/TT-BTC. Since its publication, VAS 16 has revealed many drawbacks in the application process and there has not been any change or adjustment to match the reality. Therefore, the review and discussion of VAS 16 is one of the issues to be implemented in the current period.

Research Methods: From the collected material, the author conducts qualitative research, through such methods: analyzing and synthesizing theory, experts, analyzing and summarizing experience, studying history ... On dialectical materialistic perspective: use translation to speculate the corollary, use comparisons to make intermediate judgments, thereby using induction to make conclusions, summarize to propose recommendations and solutions.

3. RESULTS AND DISCUSSION

3.1. Content of International Accounting Standards IAS 23 - Borrowing costs

3.1.1. Scope of application of IAS 23 - Borrowing costs

IAS 23 - Borrowing costs, giving the scope of application of the standard as follows (IASB International Accounting Standards Council, 2016):

This standard applies to the accounting of borrowing costs. This standard does not apply to direct costs or the opportunity cost of equity including preferential capital which is not classified as liabilities.

Enterprises are not required to capitalize borrowing costs directly related to the purchase, investment, construction or production of:

(a) Uncompleted assets are measured at fair value; for example, biological assets within the scope of IAS 41 - Agricultural accounting; or

(b) Inventories are produced or manufactured in large quantities according to the repeat process.

3.1.2. Identify borrowing costs and uncompleted assets

Borrowing costs: are interest and other costs directly related to the loan of the business (IASB, 2016). Borrowing costs include: (i) Interest expenses (calculated according to the actual interest rate method specified in IFRS 9); (ii) Financial costs of financial leased assets recorded under IFRS 16 - Property leases; (iii) Foreign exchange differences arising from loans in foreign currencies if this difference is considered an adjustment of interest expenses.

Uncompleted assets: are assets in the process of investment in construction or production that need a long enough time to be used for intended purpose or for sale (IASB, 2016). Example of uncompleted assets: production plants; energy production facilities; invisible treasure; investment property; office buildings; park ...

The following three types of assets are not incomplete: (i) uncompleted assets are measured at fair value: such as biological assets accounted for under IAS 41 - Agricultural Accounting; (ii) Inventories are produced and manufactured in large quantities on a repeat basis in a short time; (iii) assets purchased are ready for use for the intended purpose (IASB, 2016).

3.1.3. Recognize borrowing costs and capitalized borrowing costs

• Recognize borrowing costs

Enterprises that capitalize borrowing costs are directly related to the procurement, construction or production of uncompleted assets at their original prices. Other borrowing costs are recognized into production and business expenses at the time of incurred.

Borrowing costs that are directly attributable to the procurement, construction investment or production of uncompleted assets included in the cost of assets when fully satisfying the following conditions. (IASB, 2016): (i) when businesses are sure to gain future economic benefits from using that asset; (ii) Borrowing costs can be determined reliably.

• Recognize capitalized borrowing costs

- Where a separate loan is used only for the purpose of investment in construction or production of an uncompleted asset, then borrowing costs eligible for capitalization for uncompleted assets will be the actual borrowing costs incurred from the loan minus (-) the income generated from the temporary investment of these loans.

+ Actual borrowing costs are borrowing costs directly related to the procurement, construction or production of uncompleted assets, is that borrowing costs will only arise when the purchase, construction or production of such uncompleted assets is made. When an enterprise has its own loan used for the purpose of procurement, construction or production of a specific uncompleted asset, the borrowing costs incurred directly related to the uncompleted asset can be determined immediately.

+ Income arising from temporary investments in these loans: when businesses borrow to invest in building or producing an uncompleted asset and incurring borrowing costs, but part or all of the loan has not been used for uncompleted assets and is taken for temporary investment, then the income generated from this temporary investment will be deducted from the capitalized borrowing costs.

- In case of arising common loans both used for normal production and business purposes, and for investment in uncompleted assets, then the amount of borrowing costs eligible for capitalization in each accounting period is determined according to the capitalization rate for accumulated expenses arising from the investment in the construction or production of such assets. The capitalization rate is calculated based on the weighted average interest rate of the enterprise's unpaid loans in the period, except for a particular loan for the purpose of having a specific uncompleted asset. Capitalized borrowing costs during the period do not exceed the total borrowing costs incurred in that period (IASB, 2016).

In some cases, the capitalization rate will be reasonably determined if all loans of the parent company and its subsidiaries are included when calculating borrowing costs at the weighted average interest rate; In other cases, each subsidiary calculates the borrowing cost according to the weighted average interest rate applied to that company's loans.

- In some cases, it is difficult to determine whether the relationship between individual loans and uncompleted assets and whether direct borrowing costs are arising is difficult. For example, when corporate finance is coordinated or when corporations use multiple debt instruments to borrow money at different interest rates and then re-lend to other companies in the same group with different interest rates; or when the use of a loan has a par value or a link to a foreign currency, when the group operates in economies with high inflation or exchange rate fluctuations. In these cases, it is difficult to determine interest costs directly related to uncompleted assets, and businesses need to make judgments. (IASB, 2016).

3.1.4. Time of capitalization, time of capitalization suspension, time of capitalization termination

According to IAS 23:

Time to start capitalization

Capitalization of borrowing costs into uncompleted asset values begins when simultaneous conditions are satisfied (IASB, 2016): (a) expenses directly related to asset formation begin to arise; (b) borrowing costs incurred; (c) activities required in preparing to put the property into use or sale are underway.

+ Costs directly related to uncompleted assets include cash payments, transfer of other assets or acceptance of interest-bearing debts. Businesses that are entitled to or receive subsidies related

to assets must write down their value. The average book value of assets in the period, including previously capitalized borrowing costs that are the basis for determining the capitalization rate applied during the period.

+ Activities necessary for preparing to put the property into use or for sale include: construction, production, technical and general management activities before construction or production begins as activities related to obtaining permits before starting construction or production. However, these activities do not include keeping an asset when not conducting construction or production activities to change the state of this property. For example, borrowing costs related to the purchase of a piece of land requiring site preparation activities will be capitalized during the period when activities involve the preparation of that site. However, borrowing costs incurred when buying that land to keep without construction activities related to the land, borrowing costs are not capitalized. (IASB, 2016).

Time to suspend capitalization

- Capitalization of borrowing costs will be suspended in stages where the construction and production process of uncompleted assets is interrupted.

- Enterprises are not capitalizing borrowing costs incurred during the period when the business has suspended the necessary activities to bring the property into a state ready for use or for sale, for example, asset holdings are partially completed and do not meet capitalization requirements. Borrowing costs that are not eligible for capitalization are recorded as production and business expenses in the period until the construction or production of unfinished assets is continued.

- Enterprises continue to capitalize borrowing costs when important technical and administrative tasks are carried out, or when a temporary delay is a necessary part of the process of bringing the property into a state ready for use for a predetermined purpose or for sale. For example, businesses continue to capitalize borrowing costs during periods when high water levels delay the construction of bridges, If the high water level is common in the relevant geographic area during the construction phase (IASB, 2016).

Time to terminate capitalization

- Capitalization of borrowing costs will be terminated when the essential activities necessary to prepare the uncompleted asset for use or sale have been completed.

- An asset is ready to be put into use or sold when the construction or production investment process has been completed even though general management jobs may continue. In case of minor changes (such as asset decoration at the request of the buyer or user) but these activities are not completed, the main activity is still considered completed.

- When the investment process of construction of unfinished assets is completed according to each component and each part can be used while continuing the investment process of building other parts, then capitalization of borrowing costs will cease when all major activities necessary to prepare each part for use or sale have been completed.

A commercial area consisting of many buildings, each of which can be used separately, the capitalization will be terminated for loans used for each individual building completed. However, for

the construction of an industrial plant consisting of many construction items on a line such as a steel plant, the capitalization only ends when all construction items are completed together. (IASB, 2016).

3.2. Restrictions and solutions to improve Vietnam's legal system on borrowing costs

The Ministry of Finance is implementing Decision 480/QD-TT dated March 18, 2013 of the Prime Minister on approving the accounting - auditing strategy to 2020, vision to 2030 and implementing the Government's Resolution No.35/NQ-CP of May 16, 2016, on supporting and developing enterprises till 2020. Accordingly, the development and improvement of the legal framework for Financial Reporting Standards in Vietnam is one of the key and urgent tasks that need to be implemented soon to meet the requirements of the economy in the new period. To do this, the Ministry of Finance is developing a proposal to bring IFRS into Vietnam and update, issue new VAS / VFRS, which mentions the direction for Vietnam, the roadmap to apply and measures to implement it.

At the time of issuance, VAS 16 was assessed as being in harmony with IAS 23 and there was progress in regulating borrowing capitalization. However, so far after more than 15 years put into practice in practice, VAS 16 has revealed many limitations that need to be completed in accordance with the movement of the Vietnamese economy as well as integration with international accounting.

3.2.1. Limitations and complete solutions to the scope of application of VAS 16 - Borrowing costs

VAS 16 only states quite general about the scope of application: "This standard applies to borrowing cost accounting", but in particular this borrowing cost applies to any type of loan, VAS 16 is not specified. In fact, users often imply that this is the borrowing cost of operations related to bank loans and bond issues, and expenses incurred while raising equity will not be covered by VAS 16. Under this interpretation, the costs incurred in the process of mobilizing equity in the form of preferred shares (such as incentives with redemption rights to invest in assets) will not apply VAS 16. But these are investments classified as liabilities, so is it not reasonable to apply VAS 16?

Thus, VAS 16 should clarify the object of the standard to avoid causing difficulties or misunderstandings for users. Specifically, VAS 16 should specify the scope of application as IAS 23: "This standard does not apply to direct costs or the opportunity cost of equity including preferential capital which is not classified as liabilities".

3.2.2. Limitations and complete solutions for identifying borrowing costs and uncompleted assets of VAS 16 - Borrowing costs

(i) For identification of borrowing costs

VAS 16 stipulates four borrowing costs (Ministry of Finance, 2002):

- Short-term loan interest, long-term loan interest, including loan interest on overdraft amounts.
- The allocation of discounts or extra payments related to loans issued by bonds.
- The allocation of extra expenses incurred in connection with the process of borrowing procedures.
- Financial costs of financial leasing assets.

The first three elements of VAS 16 are considered to be quite cumbersome and unnecessary. With these rules, it can be difficult for users, especially in the case of determining the borrowing costs of bond issuance. Especially, it is possible to mislead users when comparing VAS 16 with revenue and income standards (VAS 14) when this standard stipulates that financial income is recognized at actual interest rates. More importantly, this creates an unequal difference between VAS 16 and IAS 23, when IAS 23 stipulates that interest expense is determined by the actual interest rate method.

On the other hand, VAS 16 has not mentioned the determination of borrowing costs that need to be capitalized when arising in foreign currency loan operations. This makes it difficult for some businesses to invest in foreign currency loans. However, this is a rather complex issue, not just the interest arising in the borrowing process. Therefore, in the future, VAS 16 also needs to carry out more research and give some specific guidelines, to help businesses determine the cost of borrowing when the loan is in foreign currency.

Orientation in determining the cost of borrowing is capitalized when arising transactions in foreign currency loans to invest in uncompleted assets:

Besides domestic borrowing, businesses can choose to borrow foreign capital, i.e. corporate loans are made in foreign currency. Enterprises choose to borrow foreign loans because they can compare lending rates between markets and choose where there are lower interest rates. Banks or credit institutions also have different lending procedures, so businesses can choose the lender who has the easiest or suitable procedure for them. In addition, many businesses that are subsidiaries of overseas parent companies have good credit relations with foreign credit institutions. At this time, the parent company plays a “central” role, is the focal point to mobilize loans from domestic and foreign sources, then transfer this capital to subsidiaries. This model is applied by many large enterprises in the world, because it helps increase the efficiency of capital use, while optimizing because coordination activities will be focused on a focal point as a parent company.

When using loans in foreign currency, businesses will have to pay interest and generate exchange rate differences from fluctuations in exchange rates. According to IAS 23, interest is payable from loans and exchange rate differences arising from foreign currency loans if this difference is considered an adjustment of interest expense. It is called “borrowing costs”.

Investment loan for uncompleted assets in foreign currency, that investment loan in currency is different from the functional currency of the unit, Exchange rate differences should be adjusted for interest expenses when the actual loan interest rate of a foreign currency loan is different from the normal deposit rate in the capital market where the business operates. Foreign exchange differences arising from foreign currency loans to invest in uncompleted assets. This difference is considered an adjustment of interest expense incurred in the following cases:

Case 1: If a foreign currency loan is invested in an uncompleted asset, the actual interest rate of the loan < normal interest rate. In this case, every business will pay the actual interest rate lower than the interest payable if borrowing on the capital market where the unit operates, news that businesses benefit from interest rates. In other words, interest expenses on corporate loans are lower than normal interest expenses.

Accounting principles for interest expenses and exchange rate differences from the above loans are as follows:

- Interest rates based on actual interest rates will be capitalized into the uncompleted asset value.

- By the time of making financial statements: determine the exchange rate difference arising from a loan in foreign currency:

- + If the exchange rate falls: arising from exchange rate differences: record exchange rate difference gain on profit / loss on profit / loss statement.

- + If the exchange rate increases: arising exchange rate differences: handling exchange rate difference losses as follows: taking this exchange rate difference to make up for the interest rate difference due to “Actual interest rate of the loan < Normal interest rate” capitalized into uncompleted assets; the remaining exchange rate difference will be recorded in the loss on the profit / loss report.

Consider the specific situation of applying the identification of borrowing costs in the case of foreign currency loans invested in uncompleted assets Real interest rates of loans < Normal interest: At US Foods, a US-based company, the functional currency is USD:

January 1, N: Investment company built a building in Chicago, the company has chosen to borrow Japanese Yen to implement the project with the amount of 200 billion JPY in the international bond market to enjoy an interest rate of 1%/year from January 1, N. If you borrow in Japanese Yen at a US bank, the interest rate is 3% / year. Exchange rate at January 1, N: 1JPY = 0.007 USD. The accountant acknowledges the debt: Dr Bank: $200 \times 0.007 = 1.4$ billion USD (loan amount received from the bond market); Cr Loan in Yen: $200 \times 0.007 = 1.4$ billion USD (debt acknowledgment).

December 31, N: Exchange rate on the market: 1JPY = 0.003 USD.

The accountant records interest on bonds payable in year N:

Determine payable bond interest: $200 \times 1\% \times 0.003 = 0.006$ billion USD

Accounting records Real interest payable from loans with JPY is capitalized into uncompleted assets: Dr Chicago Building: 0.006 billion USD; Cr Bank: 0.006 billion USD.

The accountant recognizes the exchange rate difference of the loan at 31 December / N: exchange gain (exchange rate decreased): $200 \times (0.007 - 0.003) = 0.8$ billion USD.

Accounting recognized Foreign exchange differences are recorded into P/L on the P/L statement: Dr Loan in Yen: 0.8 billion USD; Cr P/L -exchange gain: 0.8 billion USD.

December 31, N: Exchange rate on the market: 1JPY = 0.009 USD

The accountant records interest on bonds payable in year N+1:

Determine payable bond interest: $200 \times 1\% \times 0.009 = 0.018$ billion USD

Accounting records real interest payable from loans with JPY is capitalized into uncompleted assets: Dr Chicago Building: 0.018 billion USD; Cr Bank: 0.018 billion USD.

The accountant notes the exchange rate difference of the loan at December 31, N+1: exchange loss (exchange rate increased): $200 \times (0.009 - 0.003) = 1.2$ billion USD.

Interest payable in year N + 1 if borrowing Japanese yen at a US bank: $200 \times 3\% \times 0.009 = 0.054$ billion USD.

Dr Chicago Building: $0.054 - 0.018 = 0.036$ (billion USD) (exchange loss compensates lower interest capitalized in PPE)).

Dr P/L - exchange loss: $1.2 - 0.036 = 1.164$ billion USD (Excess ex loss recognized in P/L).

Cr Loan in Yen: 1.2 billion USD (exchange loss).

Case 2: If a loan in foreign currency is invested in an uncompleted asset, the actual interest rate of the loan > Normal interest rate. In this case, the business will pay the actual interest rate higher than the interest payable if borrowing in the capital market where the business operates, that enterprises are disadvantaged about interest rates, or in other words, interest expenses on corporate loans are higher than normal interest expenses.

Accounting principles for interest expenses and exchange rate differences from the above loans are as follows:

- Interest rates based on actual interest rates will be capitalized into the uncompleted asset value.

- By the time of making financial statements: determining the exchange rate differences arising from loans in foreign currencies:

- + If the exchange rate increases: arising from exchange loss: exchange loss recognized in P/L.

- + If the exchange rate falls: arising from exchange gain: exchange gain compensates higher interest due to "Actual loan interest rate > Normal interest rate" capitalized in PPE; exchange gain recognized in P/L.

Consider the specific situation of applying the identification of borrowing costs in the case of foreign currency loans to invest in uncompleted assets Real interest rates of loans > Normal interest rates: At the US-based Toshiba company, the subsidiary of Toshiba Corporation of Japan Corporation, functional currency is USD.

January 1, N: Toshiba Corporation invests in building a music museum in Las Vegas. The company can borrow 200 billion JPY at an interest rate of 2% per year at JP Morgan Chase & Co. of the US to implement the above investment project. But Toshiba's US parent company requires that its subsidiary borrowed from Japan as the parent company's country at an interest rate of 6% per year at Mizuho Bank from January 1, N.

Exchange rate at January 1, N: 1JPY = 0.007 USD

The accountant acknowledges the debt under the following accounting: Dr Bank: $200 \times 0.007 = 1.4$ billion USD (the money received from the bond market); Cr Loan in Yen: $200 \times 0.007 = 1.4$ billion USD (Debt acknowledgment).

December 31, N: Exchange rate on the market: 1JPY = 0.009 USD.

The accountant recorded N-bank interest in year N:

Determination of interest payable to the bank: $200 \times 6\% \times 0.009 = 0.108$ billion USD.

Accounting recognizes the actual interest payable from loans with JPY capitalized into uncompleted assets as follows: Dr Music Museum: 0.108 (billion USD), Cr Bank: 0.108 billion USD.

The accountant recognizes the exchange rate difference of the loan at 31 December/N:

Exchange loss (exchange rate increase): $200 \times (0.009 - 0.007) = 0.4$ billion USD.

Excess exchange loss recognized in P/L: Dr P/L - exchange gain: 0.4 billion USD; Cr Loan in Yen: 0.4 billion USD.

December 31, N+1: Exchange rate on the market: 1 JPY = 0.006 USD

The accountants recorded bond interest payable in N + 1 years:

Determine payable bond interest: $200 \times 6\% \times 0.006 = 0.072$ billion USD.

Accounting records Real interest payable from loans with JPY is capitalized into uncompleted assets:

Dr Music Museum: 0.072 billion USD; Cr Bank: 0.072 billion USD.

The accountant notes the exchange rate difference of the loan at December 31, N+1:

Exchange gain (exchange rate decreased): $200 \times (0.009 - 0.006) = 0.6$ billion USD.

Interest payable in N + 1 if borrowing JPY at a US bank: $200 \times 2\% \times 0.006 = 0.024$ billion USD.

Dr Loan in Yen: 0.6 billion USD (Exchange gain)

Cr P/L - exchange gain: $0.6 - 0.048 = 0.552$ billion USD (excess exchange loss recognized in P/L).

Cr Music Museum: $0.072 - 0.024 = 0.048$ billion USD (exchange gain compensates higher interest in Music Museum).

(ii) For identifying uncompleted assets

First, Uncompleted assets are regulated by VAS 16 “are assets in the process of construction investment and assets in the process of production that need a long enough time (over 12 months) to be put into use for the intended purpose or for sale”(The Ministry of Finance, 2002). The specific provision of assets must have “a full production process longer than 12 months” of VAS 16 making the standard lose mobility and make it difficult to apply. In Vietnam, for ease of application, VAS 16 offers a 12-month timeframe; this helps enterprises to judge but it will certainly cause problems when applying in “near-threshold” cases such as construction period of less than 12 months. However, this must be accepted in Vietnam as a “trade off” for ease of application, reducing judgments which are often controversial issues in Vietnam. For example, assets whose production time is less than 12 months is not capitalized. Meanwhile, the borrowing costs of these assets and those with production process are 12 months, there is no big difference.

The milestone of distinguishing uncompleted assets must have a completion time of 12 months or more leading to the following problem: The same uncompleted asset project, enterprise

A completes faster (e.g. 11 months) will not be capitalized, while enterprise B is constructing more slowly, borrowing costs will be capitalized. Is this fair and does it reflect the achievements of businesses? in a fair way: in preparing and presenting financial statements there is no fair standard. The problem is whether or not to be honest. When construction companies spend time leading to borrowing costs to capitalize, the value of the business assets made must increase to reflect the full cost of creating it. In terms of achievement, enterprise A works faster and will have a lower cost, resulting in higher profit from business. This is true about the performance of enterprise A. However, the financial cost is higher because it must be recorded as non-capitalized borrowing costs. This will result in the readers of the financial statements being able to assess the business incurred larger borrowing costs, while the actual cost of borrowing of enterprise A is smaller than that of construction company B. This is exactly the limitation of VAS 16 compared to IAS 23.

VAS 16 should allow enterprises to make their own decisions based on the key principles of production time “long enough” to be capitalized like IAS 23 to create flexibility when applied to businesses. In particular, those assets that have a production time close to threshold or high value assets, borrowing costs incurred during construction are critical. With construction works, it takes less than 1 year to complete the key principles applied in this case, means that when the loan period is long enough that the borrowing cost has a significant effect on the information presented on the financial statements, the asset will be considered an uncompleted asset.

Second, VAS 16 defines uncompleted assets as assets “in the process of being built and in production” (The Ministry of Finance, 2002). Thus, VAS 16 is required to apply to all assets including long-term inventory and does not exclude any kind of inventory, especially mass-produced inventories and large quantity. However, in practice, businesses cannot apply VAS 16 to all types of inventory that meet this standard; because businesses have difficulty in allocating and monitoring borrowing costs for these inventories.

Therefore, to facilitate businesses, IAS 23 is not required to capitalize borrowing costs for these inventories. However, IAS 23 does not prohibit enterprises from performing capitalization. Thus, it can be seen that VAS 16 restricts the right to decide the accounting policies of enterprises and the elimination of large quantities of VAS 16 produced in bulk and bulk production, causing considerable difficulties for people.

3.2.3. Limitations and solutions to complete the recognition of borrowing costs and capitalized borrowing costs of VAS 16 - Borrowing costs

Limitations on how to determine borrowing costs for a general loan

Although VAS 16 does not stipulate how to calculate capitalized borrowing costs in the case of loans to be shared, but in Circular 105/2003/TT-BTC and Circular 161/2007/TT-BTC, the Ministry of Finance provides guidance on how to determine capitalized borrowing costs in this case. However, the guidelines for implementing this content by the Ministry of Finance are quite confusing and different from the standard regulations. According to Circular 161/2007/TT-BTC, guidelines for re-implementing 16 accounting standards issued on December 31, 2007, the Ministry of Finance (2007) has guided how to determine capitalized interest expenses for general loans as follows:

The amount of borrowing costs capitalized for each accounting period (1)

=

Accumulated average cost incurred for investment in construction or production of uncompleted assets until the end of the accounting period (2)

×

Capitalization rate (%) (3)

Weighted average cumulative costs (2)

=

\sum

Cost for each asset (4)

×

Number of months of actual expenses incurred in the accounting period (5)

Number of months arising in the accounting period (6)

Capitalization rate (%) (3)

=

Total actual loan interest of loans arising in the period (7)

The weighted average balance of original loans (8)

×

100%

The weighted average balance of original loans (8)

=

\sum

Balance of each original loan (9)

×

Number of months that each loan arises in the accounting period (5)

Number of months arising in the accounting period (6)

According to VAS 16, when determining the capitalization rate, it is necessary to “except for separate loans for the purpose of having an uncompleted asset.” (The Ministry of Finance, 2002).Meanwhile, the guiding circulars mentioned the total “balance of each original loan”, means all loans of the business at the time of allocation including separate loans. On the other hand, according to the guiding circular, “capitalized borrowing costs for each accounting period” is determined based on “weighted average cumulative cost” and “cost per asset”. This provision of VAS 16 is unreasonable, since capitalized borrowing costs must be calculated from the time of payment for the asset-related expenses, the portion of borrowing costs incurred before the payment of these loans is construed as loan capital serving normal production and business activities, not for asset formation. Therefore, this part of the cost should be recorded in the production cost of the period and not capitalized.

In order to overcome these limitations, the author formulated a formula to determine the borrowing costs capitalized for a general loan as follows:

The amount of borrowing costs capitalized into uncompleted assets from common loans	=	Expenses from general loans for construction investment or production of unfinished assets by the end of the accounting period	×	Time to invest in uncompleted assets using common loans	×	Capitalization rate (%)
---	---	--	---	---	---	-------------------------

$$\text{Capitalization rate (\%)} = \frac{\text{Total Interest reality of loans incurred in the period}}{\text{Total outstanding principal of general loans}} \times 100\%$$

Consider the specific situation of applying the formula to determine the borrowing costs capitalized for a general loan as follows:(unit: CU): On January 1st/N, Newstar Company signed a contract worth 2,200 to build a swimming pool. The swimming pool is completed on September 30/N + 1. On September 30/N + 1, Newstar Company has the following loans:

- A separate loan for a swimming pool project is a 4-year bond, the issue price is equal to the face value of bonds is 700, interest generated from January 1st/N to September 30/N + 1 is 65, Income from this money source during this period is 20.

- 10-year tenor bonds with a single interest rate of 12.5%; the issue price is equal to the face value of bonds is 1,000, borrowed on January 1, N-1 and remained unchanged for the year.

- 10-year tenor bonds with a single interest rate of 10%; the issue price is equal to the face value of bonds is 1,500, borrowed on January 1, N-2 and remain unchanged for the year.

Knowing that the payment schedule in the construction process is as follows: January 1/N: payment 200; September 30/N: payment 600; March 31/N+1: payment 1,200; September 30/N+1: payment 200.

Private loans are prioritized for prepayment.

Determine capitalized borrowing costs for the above loans into the value of the pool as follows:

+ Interest expense is capitalized for a separate loan: $65 - 20 = 45$.

+ Interest expense is capitalized for a general loan:

Capitalization rate of common loans: $(1,000 \times 12.5\% + 1,500 \times 10\%) / (1,000 + 1,500) = 11\%$.

September 30/N: spending from general loans is 100, capitalization time: 12 months.

March 31/N+1: payment from general loan is 1,200, capitalization time: 6 months.

September 30/N+1: payment from general loan is 200, 0-month capitalization period.

Interest expenses are capitalized into the value of the pool for a general loan: $(100 \times 11\% \times 12/12) + (1,200 \times 11\% \times 6/12) = 11 + 66 = 77$.

Total interest expense is capitalized: $45 + 77 = 122$

3.2.4. Restrictions and solutions to determine the time to start capitalization, stop capitalization, stop capitalization of VAS 16 - Borrowing costs

In paragraph 16 of the VAS 16 standard, it is stated “The capitalization of borrowing costs will be temporarily halted during periods of incomplete investment in construction or asset production, unless such interruption is necessary.” (The Ministry of Finance, 2002). So, how is the necessary disruption? Borrowing money to buy land to invest in building houses for sale, in the process of building a dispute (or legal issues occur) leads to delaying construction to solve these problems then is that interruption considered necessary?

Meanwhile, according to IAS 23, the regulation is very clear: “enterprises continue to capitalize borrowing costs when important technical and administrative jobs are carried out, or when a temporary delay is a necessary part of the process of bringing the property into a state ready for use for a predetermined purpose or for sale” (International Accounting Standards Council IASB, 2016). So the suspension of construction in this situation is still capitalized.

For example:

+ Enterprises continue to capitalize borrowing costs during periods of high water delaying bridge construction, If the high water level is common in the relevant geographic area during the construction phase; enterprises stopped capitalizing borrowing costs during periods of high water levels delaying the construction of bridges, If the high water level appears unexpectedly, unexpectedly in the relevant geographic area during the construction phase.

+ Enterprises continue to capitalize borrowing costs during the festival, delaying the construction of monuments in the city, If the festival is a traditional annual activity in that city; enterprises stop capitalizing borrowing costs during the festival, delaying the construction of monuments in the city, if the festival is an unexpected activity in that city of the enterprise.

Therefore, VAS 16 should remove the phrase “unless such disruption is necessary” in the provisions on the period of capitalization suspension, VAS 16 should approach the same rules as IAS 23.

4. CONCLUSION

Lending capital always plays an important role in the total capital of enterprises. However, accounting and recording of borrowing costs of loans is always difficult in practice of businesses. That difficulty stems from the awareness of the nature of the borrowing costs of the business; derived from regulations of the legal system of the State. Recognizing the role of loans in businesses, after a period of research and study related legal documents, derived from the reality of the business, the author presented the views and content of International Accounting Standards IAS 23- Borrowing costs, point out the limitations in Vietnamese legal regulations from which to propose solutions to perfect Vietnam’s legal system of borrowing costs in order to create favorable conditions for enterprises to apply this standard in practice, contribute to helping Vietnam’s economy integrate into the world.

REFERENCES

1. Chu Thị Bích Hạnh (2016), “Some exchanges on borrowing costs accounting (Accounting Standards VAS 16)”, *Journal of Financial and Accounting Studies*, số 5(154) 2016
2. Dang Thi Thuy Ha (2011), “Discussing borrowing cost accounting when applying Accounting Standard No.16 at enterprises operating in the current financial sector”, *Electronic Portal State Audit*, accessed July 20, 2018, from <https://www.sav.gov.vn/>
3. International Accounting Standards Council (2016), *IAS 01 – Presenting the Financial Statement (Translated by Ministry of Finance and ACCA 2018)*
4. International Accounting Standards Council (2016), *IAS 16 – Factory, machinery and equipment (Translated by Ministry of Finance and ACCA 2018)*.
5. International Accounting Standards Council (2016), *IAS 21– Effect of exchange rate changes (Translated by Ministry of Finance and ACCA 2018)*.

6. International Accounting Standards Council (2016), *IAS 23 - Borrowing costs (Translated by Ministry of Finance and ACCA 2018)*.
7. Mai Thanh Thuy (2017), "Practically apply accounting standards VAS 16 - Borrowing costs", *Industry and trade magazine*, visited August 10, 2018, from <http://www.tapchicongthuong.vn/>
8. Nguyen Thi Mai Le (2016), "Capitalize borrowing costs in Vietnamese Accounting Standard No.16 - Borrowing costs", *Central Vietnam Accounting and Auditing Association*, accessed August 12, 2018, from <http://vaa.net.vn>
9. Prime Minister(2013), *Decision 480/QĐ -TTg dated March 18, 2013 of the Prime Minister approving the accounting - auditing strategy to 2020, vision to 2030*, issued on March 18, 2013.
10. Prime Minister (2016), *Resolution No. 35 / NQ-CP dated May 16, 2016 of the Government on enterprise support and development to 2020*, issued on May 16, 2016.
11. Prime Minister (2017), *Decision 1191/QĐ-TTg dated August 14, 2017 of the Prime Minister approving the bond market development roadmap for the period of 2017 - 2020, vision to 2030*, issued on 14-8-2017.
12. State Bank of Vietnam, "Report of credit balance for the economy and growth rate", July 2016. Available at <https://www.sbv.gov.vn>
13. The Ministry of Finance (2002), *Decision number 165/2002/QĐ - BTC December 31, 2002 promulgating and announcing (06) Vietnamese accounting standards (phase 2)*, issued on December 31, 2002.
14. The Ministry of Finance (2003), *Circular 105/2003/TT-BTC guiding the application of Vietnamese Accounting Standards*, issued on November 6, 2003.
15. The Ministry of Finance (2005), *Vietnamese accounting standards system*, Finance Publishing House.
16. The Ministry of Finance (2007), *Circular 161/2007/TT-BTC guiding the implementation of 16 Accounting Standards*, issued on December 31, 2007.
17. Trinh Xuan Hung (2017), "Research on accounting of loan interests to be exempted or eliminated for enterprises", *Financial magazine*, accessed August 15, 2018, from <http://tapchitaichinh.vn>

THE ROLES AND CHALLENGES OF CLOUD COMPUTING TO ACCOUNTING SYSTEM OF VIETNAMESE ENTERPRISES IN THE FOURTH INDUSTRIAL REVOLUTION

Phan Huong Thao¹

ABSTRACT

In the context of the 4.0 revolution, technology applications, especially cloud computing will have strong impacts on all areas, including accounting systems of enterprises. Cloud computing contributes to helping the enterprise accounting apparatus become compact, help automate the input process, improve the accuracy of the input data. Besides, the issue of accounting, reporting, risk control and information security also became better, contributing to improving the effectiveness of accounting. However, besides the positive impacts, businesses also face many difficulties in deploying and applying cloud computing. However, this application requirement will become an inevitable trend contributing to improving the operational efficiency of enterprises. To promote this process requires from the State as well as businesses themselves must have awareness and appropriate decisions.

Keywords: *Cloud computing, accounting, enterprise, the fourth industrial revolution.*

1. OVERVIEW OF CLOUD COMPUTING

Today, with the impact of the 4.0 industry revolution and the growth of big data, the spread of internet-based applications has created the appropriate context for the emergence of a number of new technology concepts such as Cloud Computing (CC), Internet of Things (IoT), big data (Big Data) and artificial intelligence (AI). In particular, cloud computing is the basic platform, any application about AI, IoT or Big Data needs the underlying infrastructure - the Cloud - to operate. The Cloud computing emerges as a new computing paradigm which aims to provide reliable, customized and QoS guaranteed dynamic computing environments for end-users. In this paper, we study the Cloud computing paradigm from various aspects, such as definitions, distinct features, and enabling technologies. This paper brings an introduction review on the Cloud computing and provides the roles and challenges of Cloud computing technologies to accounting system in enterprises.

Cloud computing is understood as “a computing resource procurement and deployment model that allows an organization to obtain its computing resources and applications from any location via an Internet connection” (Chan et al., 2012). According to Abdullah Mohammad Al-

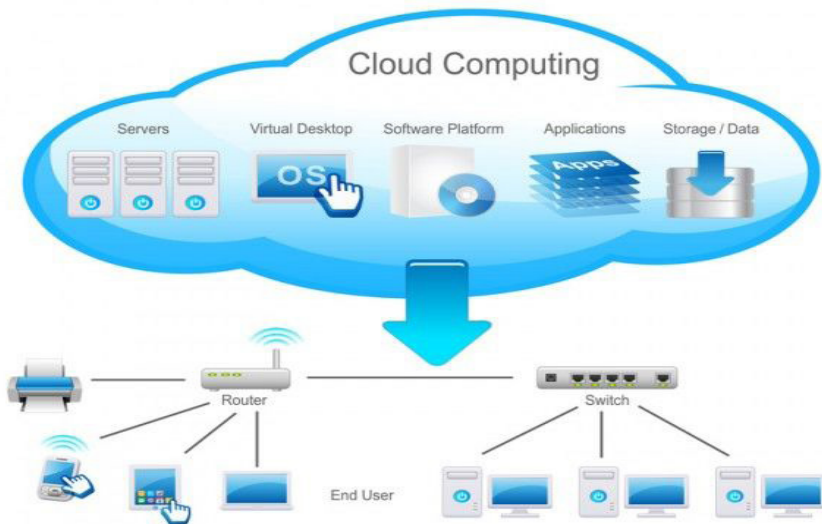
¹ Faculty of Accounting – Auditing, Thuong Mai University, 79Ho Tung Mau, Cau Giay, Hanoi, Vietnam. E-mail: thaoktc@gmail.com. Mobile: 0973.046.699

zoubi (2017) “Cloud computing is a term used to describe the use of computer technology based on the Internet”.

The US National Institute of Standards and Technology (US NIST), again, introduced the concept of cloud computing as “a model to allow online access to shared resources (for example, networks, servers, storage devices, applications, and services) conveniently and on demand. These resources can be provided quickly or recalled with minimal administration costs or minimal interaction with the service provider.”

Thus, *cloud computing can be interpreted as a computing model using computer technologies and is developed based on the Internet, which is the use of computational resources that can change according to the needs, provided as a service from providers with payment per use.* Enterprises can access to any resource that exists in the “cloud” at any time and from anywhere through the Internet.

Figure 1: Cloud computing



If with the traditional model, businesses will buy software installed and used on site to serve the activities such as management, accounting, etc. This method creates a problem: restrictions on data sharing and regarding the decentralization and responsibility of the members. On the contrary, cloud computing applications with features on servers provide online services that enable users to access anytime, anywhere. The use of software installed on site on personal computers and cloud computing are fundamentally different, as follows:

Table 1: Comparison between using on-site software and cloud computing

	<i>On-site software</i>	<i>Cloud Computing</i>
<i>Investment costs</i>	Large investment is required to purchase hardware, software, servers and training IT staff to manage the system. Besides that is the requirement for upgrades and maintenance.	Low initial investment because no physical installation is required, only necessary for software development and internet access. Upgrades and maintenance are done by the service provider.

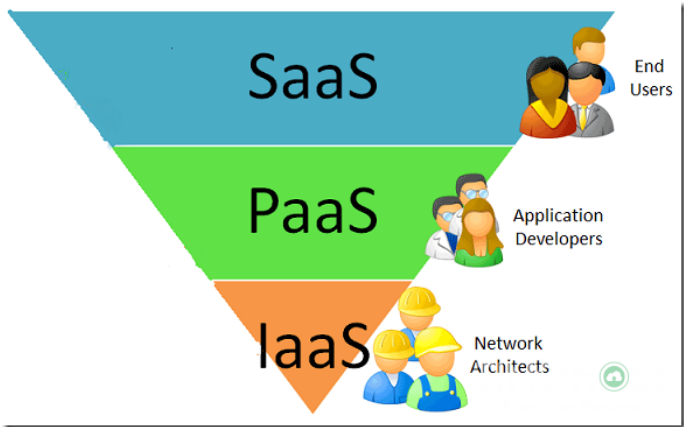
<i>Flexibility</i>	Less flexibility in the process of working and upgrading due to infrastructure requirements and staff capabilities	More flexibility because it can be accessed from any browser. And because data in the cloud is stored externally, access can easily be provided to third parties.
<i>Security</i>	Considered less secure than the cloud because it is affected by human factors.	Considered safer than using on-site software because cloud providers keep data secure through encrypted solutions, firewalls, backups, etc.
<i>Features</i>	Can be designed according to the organization’s business needs	Operated on a large scale and is not likely to be customized by a specific business.

Source: Ashok Kumar Gupta, Ms. Pragya Gaur, 2018

Cloud computing service models include:

- Software as a Service (SAAS): This is a service that provides software applications via Internet for users upon request. SAAS providers can host the application on their server or download the application to a client device, then disable it after the end of the term. The requested function can be controlled internally to share the copyright of a third application provider.
- Platform as a Service (PAAS): This is a service available for developers to create mobile applications without setting up a server or server infrastructure, database or network required for development. Service providers will provide businesses with server systems and operating systems for users to deploy.
- Infrastructure as a Service (IAAS): This is a service provided by a cloud provider in which the infrastructure can be rented - which means businesses will rent the whole infrastructure services (line systems, networks, lines, servers, etc.) of cloud service providers. IAAS allows users to access remote computer infrastructures, with the aim of enabling the expansion of that person’s own system by using this powerful virtual infrastructure.

Figure 2: Cloud computing service models



On that basis, cloud computing is deployed into 3 types:

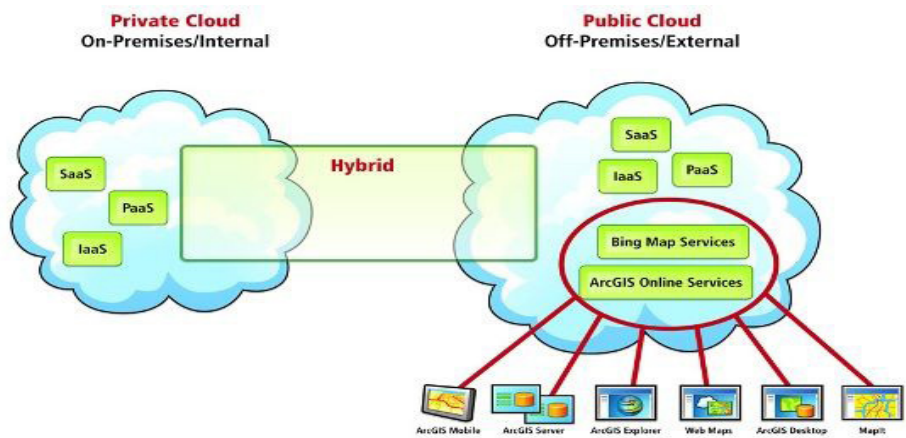
There are three types of cloud computing deployment models are: Private Cloud, Public Cloud and Hybrid Cloud as shown in Fig 3.

- **Private cloud (Internal cloud):** is operated for a single enterprise. It can be installed in the data center of that organization. In particular, services and infrastructure are maintained on a private network and are only accessible to the parties involved in that organization. This is an inevitable trend for businesses to optimize information technology infrastructure.

- **Public cloud (External cloud):** is provided to the general public or a large-scale industry and is owned by a cloud service business organization. The network, server, or any computer will be made available to users by managing accounts in the cloud service providers' web browsers. All users have the right to sign up for the service and the level of use depends on the policy of the provider and the provider's charges.

- **Hybrid cloud (Mixed cloud):** combines public cloud and private cloud. It allows businesses to exploit the strengths of each model as well as provide optimal usage methods for users. These "clouds" are usually created by the enterprise and the management will be split between the enterprise and the public cloud provider.

Figure 3: Three types of Cloud Computing Deployment Models



In short, cloud computing is a method of managing, storing and processing data via the Internet instead of on-site servers or personal computers for easy access to stakeholders. It allows users and businesses to store and process their data in a privately owned cloud or on a third-party server to make data access more convenient and reliable.

Cloud Computing Features

Cloud computing brings an array of new features compared to any other computing paradigms. There are briefly described in this section.

- **Scalability and On-Demand Service:** Cloud computing provides resources and services for users on demand. The resources are scalable over several data centers.
- **Quality of Service (QoS):** Cloud computing can guarantee QoS for users in terms of hardware or CPU performance, bandwidth, and memory capacity.

- **User-Centric Interface:** Cloud interfaces are location independent and they can be accessed by well-established interfaces such as Web services and Web browsers.
- **Autonomous System:** Cloud computing systems are autonomous systems managed transparently to users. However, software and data inside clouds can be automatically reconfigured and consolidated to a simple platform depending on user's needs.
- **Pricing:** Cloud computing does not require upfront investment. No capital expenditure is required. Users may pay and use or pay for services and capacity as they need them.

2. THE ROLES OF THE CLOUD COMPUTING FOR THE ACCOUNTING SYSTEM

Cloud computing in the field of accounting originates from the information society, in the context of the 4.0 industrial revolution, businesses are ready to switch from the use of traditional data processing and storage methods to web-based solutions. In the inevitable development trend of the technology revolution, cloud computing has had strong impacts on enterprise accounting. Through cloud computing, it performs accounting functions via the Internet, no need to install software in local servers, all accounting functions will be performed by users by logging in the cloud. Cloud service providers provide remote servers or applications for a fee and online access so that businesses can manage and maintain accounting data. Data is stored in the cloud over time, ensuring the reliability of the data to be accessed and different users can access the data at the same time, helping the process of exchanging and linking information quickly, fast and efficient.

When financial information is provided in a timely manner through sharing and receiving information in the cloud, decision making is enhanced throughout the organization (Chan et al, 2012). All information is stored and all transactions are carried out in the cloud, during operation, only a laptop with modem or smartphone, a company can continue its business, accounting department can still operate effectively.

When doing cloud accounting, this system helps to reduce the burden of data entry and other manual reporting tasks through cloud accounting solutions offered by service providers and in the case of fluctuations, the flexibility of cloud-based services will be able to make adjustments that correspond to customer needs and business requirements. Businesses regardless of size when using cloud computing will only have to pay for the usage but not have to pay a lot of investment costs for hardware, servers, thus will contribute financial support for the company in growth stages - this is especially meaningful in the period when businesses are in trouble.

According to ShabanMohammadi and Ali Mohammadi (2014), implementing cloud-based accounting has much more positive characteristics than traditional accounting models because the cloud computing techniques integrated with the Accounting applications help improve the efficiency of accounting in data analysis, information control and assist in the decision-making process on a regular and continuous basis.

Ebenezer et al (2014) suggested that cloud computing can be successfully applied to accounting purposes. Although cloud accounting in reality may not seem too different from accounting on a computer based on on-site software, cloud computing has many ways to enhance the efficiency of accounting work. The objective of all accounting information systems is to collect and store data

about activities and transactions; process data for decision making; and provide adequate controls to protect an organization's assets. The benefit of cloud computing gives everyone the opportunity to be mobile with everything they do. Cloud accountants can do mobile accounting by approving transactions; payment authorization; enter financial data; create financial statements; ... anywhere through importing and sending to the "cloud", then return to users as required, without performing on a desk computer in the traditional way.

This mobile feature will bring accountants benefits through timely information sharing, helping to speed up decision making. Moreover, financial data can be stored at relatively cheaper costs without investing in infrastructure and maintenance costs.

With the above characteristics, cloud computing has positive roles to the Vietnamese enterprise accounting system, specifically as follows:

- *Firstly, the role of cloud computing in organizing the accounting department*

When studying the impact of cloud computing on business accounting, author Abdullah Mohammad Al-Zoub (2017) said that when applying cloud computing to accounting activities, enterprises can organize an accounting system quickly because not affected by geographic location and equipment, employees and stakeholders have access to applications via computers and mobile devices from anywhere through the Internet access. Thus, for businesses of different sizes, including large enterprises, corporations with offices and offices located in different areas and locations, only one accounting department is required at any location. It is possible to manage and perform accounting work for the whole enterprise through processing, analyzing and accessing data from the "cloud" instead of fixed software located on the desk computers at a certain location.

In addition, when cloud computing applications buy and sell information directly from customers and are automatically processed through cloud computing systems without the need for direct transactions - this not only contributes to reducing the number of enterprise employees in general, but the number of accountants can also be reduced. Information is set up once and shared directly with parties inside and outside the enterprise, ensuring the transparency of information during trading activities between the parties. In addition, the application of cloud computing helps to save costs on hardware and software during deployment and installation, and businesses can add new, simple and easy-to-use software.

- *Secondly, the role of cloud computing in the accounting information system*

For accounting documents, when performing cloud accounting, documents can be scanned and entered into the system automatically then accountants can check and confirm entries. This helps to save costs during processing because the invoice scan can be done simply and in bulk by the enterprise itself. In addition, cloud-based accounting systems provide tools to eliminate the risks of inaccuracy and inconsistencies of data that systems run by other models create.

For accounting books, most cloud platforms create information through a collective general ledger, which makes it easier to audit and track historical data.

For accounting reports, the quality of information on the accounting reports will be improved thanks to the timeliness and accuracy with the support of processing and reporting over time.

Cloud users can receive financial statements provided by the system at any time according to the authority granted (Abdullah Mohammad Al –Zoub, 2017).

- *Thirdly, the role of cloud computing in backing up and storing accounting data*

With cloud computing, all important accounting files and data are accessible from any device and any location with an Internet connection, with no limit on the ability to work and complete. In addition, businesses will not have to back up data regularly to protect against system errors or unforeseen disasters because these will never happen to the cloud. In accounting, in many cases, enterprises will have to analyze big data for management but sometimes, companies have more data than the management capabilities of on-site computer solutions, now they can use cloud computing to manage and process this large amount of information.

In addition to these positive effects, cloud computing technology can be combined with applications based on ERP, AI, Blockchain, etc. to meet the requirements of input data processing, providing output information quickly, promptly and transparently, contributing to improving the efficiency of accounting organization in enterprises.

In general, through the research results from the authors, it showed the positive effects when applying cloud computing to accounting - which helps organize accounting in enterprises more effectively, input and output data can be automatically and easily shared for related subjects, contributing to increasing transparency and quality of accounting information.

3. CHALLENGES FOR VIETNAMESE ENTERPRISES WHEN APPLYING CLOUD COMPUTING

In the context of integration and the strong development of the 4.0 technology revolution today, Vietnam cannot stand outside that development trend. IBM was the first unit in our country to launch a cloud computing center in 2008, followed by a number of other companies providing cloud services, but most focused on narrow market segments, such as QTSC, VNNTT, Prism, Exa, HostVN, MOS, BiakiCRM. Some suppliers such as Bkav, FPT, VDC, NEO, ... only provide individual services on office management, human resources, customer relationship ... According to a 2015 survey of Vietnam ICT Outlook in the market of Vietnam, 3% of organizations and businesses said that they do not have a plan to deploy cloud services, 25% of businesses are studying, researching and evaluating but have no plan to use, 8% of businesses will use cloud services after 6 months, 39% of businesses are using cloud services and 19% of businesses are using cloud services and will increase usage.

In general, cloud computing has been gradually concerned by Vietnamese businesses, but there are still many challenges in implementation:

The first challenge to mention is the awareness of cloud computing of enterprises: Currently, enterprise administrators still do not have enough awareness and understanding of cloud computing. Besides is the concerns about being dependent on the service provider. All data, information of businesses, especially accounting information are located “on the cloud” and are managed by suppliers and businesses cannot be proactive in ensuring the confidentiality of those information. Cloud computing model was developed based on 3 basic elements including central computer, server/client and web application, but the nature of these 3 components has security issues. In the

case of “cloud” being attacked, the possibility of losing and occupying data is completely possible and detrimental to enterprises.

The second challenge is the availability of systems and the risk of business continuity is also one of the main challenges when applying cloud computing. This problem is explained that software running on cloud computing needs a prerequisite of connecting to the Internet. Accordingly, business operations may be interrupted when there are situations of disconnection or poor data transmission speed is also an obstacle for the application of cloud-based software, including accounting software.

The third challenge is the concern of businesses about the ability to use services. When businesses depend on the cloud computing environment, if the service provider stops providing services at any time, the enterprise will not be able to access the services and data during those periods, affecting general work.

Although there are still challenges and difficulties affecting the application of cloud computing, but above all, it is the positive impact of this application on the activities of enterprises in general and accounting activities, in particular. In the inevitable development trend, businesses will have to gradually deploy to use cloud computing and to accelerate this process, it requires the attention and coordination of related parties. Specifically:

- *For the government:* it is necessary to introduce laws and documents regulating binding conditions for service providers in ensuring the quality of services provided, security and responsibility when having incident occurred affecting businesses.

- *For the businesses:* administrators need to put their faith in the supplier. In addition, depending on the current situation and features of your business, you can choose the type of service as well as how to deploy cloud computing in accordance with the actual conditions of financial capacity, human resources of your business. On the other hand, accountants also need to catch this trend and at the same time broaden the knowledge and skills necessary for these services to catch up and meet the work requirements in the technology era.

4. CONCLUSIONS

The 4.0 technology revolution has been affecting all fields and accounting is not an exception. The application of new technologies, especially cloud computing, has and will drastically change the accounting field. Information quality of accounting information system when applying technology will become faster, more timely and more accurate, integrated information will be more diverse and extensive. This will help administrators get multi-dimensional and extensive information when conducting analysis and making decision in business. For Vietnamese enterprises, the application of cloud computing still has certain challenges due to many factors but in the future this will still be the inevitable trend. Therefore, to be able to accelerate the application process to occur faster, contributing to improving the operational efficiency of businesses requires each enterprise itself as well as the Government to take appropriate measures.

REFERENCES

1. Abdullah Mohammad Al-zoubi (2017), *The Effect of Cloud Computing on Elements of Accounting Information System*, Global Journal of Management and Business Research.
2. Ashok Kumar Gupta, Pragya Gaur (2018), *Impact of cloud computing on accounting: Aids, challenges and its future growth*, EPRA International Journal of economic and Business Review, Volume - 6, Issue- 3, March 2018
3. Ayman Mohamed Zerban (2015), *Can accounting information system benefit from cloud computing: the case of Saudi Arabia*, International Journal of Current Research Vol. 7, Issue, 03.
4. Chan W., Leung E. and Pili H., (2012), *Enterprise risk Management for cloud computing*, Committee of Sponsoring Organizations of the Treadway commission (COSO), Crowe Horwath LLP.
5. Chang (2001), *Contingency factor and accounting system design in Jordanian companies*, Journal of Management Information systems, Vol 8,
6. Ebenezer E. E. S., Omane-Antwi K. B. and Kyei M. E., (2014), *Accounting in the Cloud: How Cloud Computing Can Transform Businesses (The Ghanaian Perspective)*, Proceedings of the Second International Conference on Global Business, Economics, Finance and Social Sciences (GB14Chennai Conference) ISBN: 978-1-941505- 14-4 Chennai, India 11-13 July 2014
7. Laudon, JP (2003), *Management Information System, Organization and Technology*, Macmillan Publishing Company, New York, 2003, 3rd edition
8. ShabanMohammadi& Ali Mohammadi (2014), *Effect of Cloud Computing in Accounting and Comparison with the Traditional Model*, Research Journal of Finance and Accounting, Vol 5.
9. Wang H (2011), *Cloud Computing-Based IT Solutions for Organizations with Multiregional Branch Offices*, International Conference on Information Management and Evaluation, Academic Conferences International Limited, United Kingdom

CLOUD COMPUTING AND THE FUTURE OF ACCOUNTING

Le Phuong Tra¹, Nguyen Hong Chinh²

ABSTRACT

Cloud computing, though has been introduced decades ago, is a topic that has recently attracted increasing concern in many sectors. The adoption of this technology is starting to make profound enhancement for businesses through cost and time saving, flexibility and mobile access, especially in the field of accounting where data access and storage play a crucial role. This paper aims at providing an introduction of cloud computing concepts and terminologies as well as a clear picture of adopting cloud computing in the accounting industry.

Keywords: *benefits, cloud computing, cloud computing-based accounting.*

1. INTRODUCTION

The accounting industry has evolved substantially over the past decades due to advanced technologies such as machine learning, AI, big data... Such innovations have made accounting much easier for business owners and professionals. Cloud computing, though it is not a new idea, has recently attracted a lot of attention in various sectors, including accounting because it enables users to reduce cost and give organizations more flexibility by allowing them to access an enormous amount of data from anywhere, at any time and using any devices without having to maintain expensive IT infrastructure. There are a number of enterprises now relying on cloud platforms as a growth catalyst and taking advantage of this technology to gain business success.

Despite of the benefits and availability of cloud computing, its deployment in accounting field is still in early stages. There are a variety of cloud computing definitions and concepts that confuse business owners and accounting professional. Differences between traditional and cloud-based accounting are yet to be clarified by people working in this field. Benefits and potential risks of cloud computing are not fully recognized by businesses, making them more hesitate in adopting cloud computing-based accounting.

The purpose of this paper is to raise awareness on the adoption of this powerful tool in businesses by providing an introduction to the cloud computing concepts and terminologies. The article also discusses the utilization of this technology in accounting field as well as the benefits and drawbacks of adopting cloud computing in accounting in businesses.

¹ Hung Yen University of Technology and Education, email: lephuongtra271@gmail.com

² Academy of Finance, email: nguyenhongchinh@hvtc.edu.vn

2. LITERATURE REVIEW

There has been a large number of theoretical and empirical studies conducted on the topic of cloud computing and its impacts and adoption in accounting field.

One of the commonly known definition for cloud computing is the one given by National Institute of Science and Technology (NIST). NIST defines cloud computing as “a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources”. According to NIST, there are five characteristics of a cloud computing model: on-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service.

A. Huth and J. Cebula (2011) also give a clear definition of cloud computing as “a subscription-based service where you can obtain networked storage space and computer resources”. A. M. Gamaleldin (2013) provided another interpretation of cloud computing and an example of Amazon EC2 IaaS solution.

Companies are often concerned about data security and privacy when considering cloud-based accounting. There is fear of losing data or leaking confidential information to other parties. Molnar and Schechter (2010) suggested that the user's data are in fact safer in the cloud.

Xinding Ma (2015) studied the adoption of cloud computing for small and medium accounting firms and provides a clearer picture of the present state of cloud computing and the reason behind its apparent popularity.

3. RESULTS AND DISCUSSION

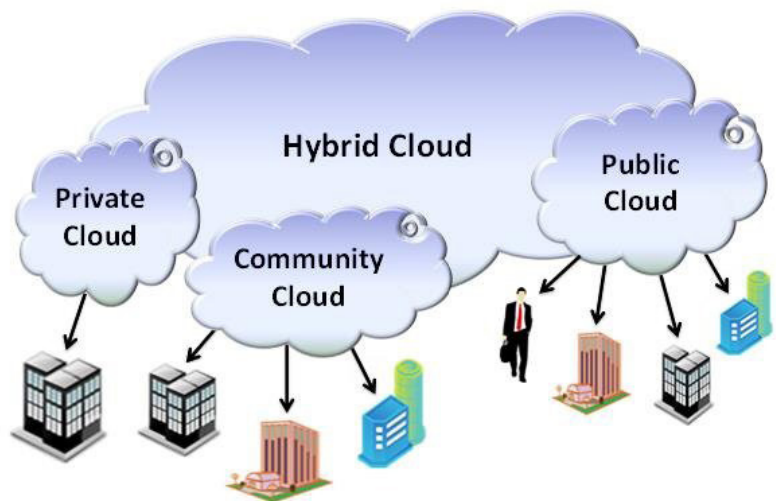
3.1. Introduction to cloud computing

Cloud computing can be referred to as a model that enables users' to access a pool of shared resources. Cloud computing relies on sharing of various resources such as networks, servers, storage, applications, and services that can be rapidly provisioned and released with minimal management effort from the user side and minimal service provider interaction (Ahmed Mohamed Gamaleldin, 2013, p4). Alexa Huth and James Cebula also define cloud computing as a subscription-based service where users can obtain networked storage space and computer resources (Alexa Huth and James Cebula, 2011, p1).

The cloud enables users to access their information from anywhere, at any time, using any platforms ranging from smartphones, laptops, tablets and computers while traditional setup requires users to work on the same data storage device in only one location. However users need to be connected to the Internet in order to get access to the cloud.

There are four deployment models of clouds for businesses to choose from, depending on their needs.

Fig. 1. Deployment models of cloud computing

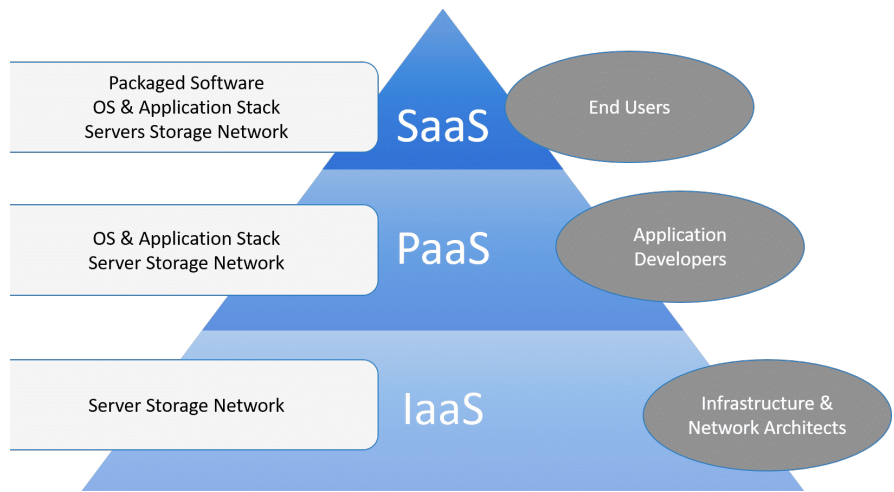


Source: Mervat Adib Bamiah (2015)

- Public cloud – The cloud is widely used by members of the public for free or with little charges each time they use the cloud.
- Private cloud – The cloud is solely established and utilized within one particular organization.
- Community cloud – The cloud is shared among a number of organizations with similar interests.
- Hybrid cloud – The cloud includes of two or more clouds which enable data to be moved from one cloud to another. This can be a mixture of private, community and public cloud.

There are three types of cloud providers that a user can subscribe to: Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a service (IaaS). The difference among these types is the level of control users have over the information and data in the cloud.

Fig. 2. Cloud service models



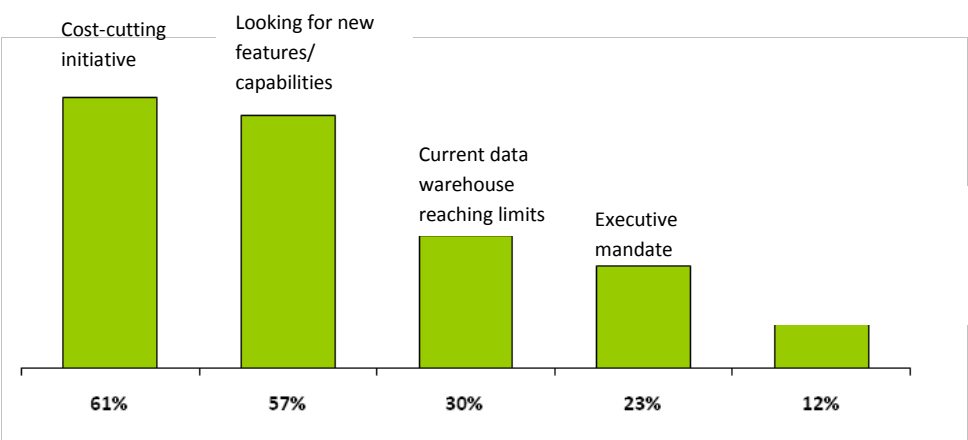
Source: Arron Fu (2017)

- **Software as a Service –** Subscribers can make access to data and resources without having to install any software on their devices because they can access the software on the cloud. SaaS is therefore known as software deployed as a hosted service and accessed over the Internet. It is not necessary for subscribers to have knowledge or control of the underlying infrastructure. The burden is shifted from users to providers. This is however the service model where users have the least control over the infrastructure.
- **Platform as a Service –** PaaS allows subscribers to get access to the components they need to develop their own applications then deliver it to their customers. Users are given more control but they still cannot control the operating system, hardware and networking infrastructure in which applications and programs are running.
- **Infrastructure as a Service –** This is considered to be the most flexible service model which enable users to get control over the operating system, hardware and applications of the environment as they need but not the underlying infrastructure.

3.2. Cloud computing-based accounting

For a long time, accounting has been one of the driving forces of IT development. It is undeniable that advanced technologies have radically changed the way accountants do their work and create more value for businesses. Among other important breakthroughs of the 4th industrial revolution, cloud-based accounting has been adopted by a considerable number of companies ranging from small, medium to large firms and proven to bring them substantial benefits. In January 2019, Flexera, a provider of technology assets management solutions that help enterprises gain insights on how optimize spend and reduce risk, questioned 786 technical professionals from organizations operating in different economic sections and found that 84 percent of companies surveyed have a multi-cloud strategy, 91 in every 100 firms used public cloud and the percentage for private cloud adoption was 72 percent (Flexera, 2019, p2). The primary reason for cloud computing adoption in businesses is cost reduction and desire for new features and capabilities is the second most important reason why firms use cloud (Datometry, 2019).

Fig. 3. Main drivers to re-platform



Source: Datometry (2019)

Cloud computing is becoming a widely known technology in accounting sector. Many enterprises start to replace traditional accounting software by web-based accounting software enabled by cloud computing services. The difference between conventional accounting and cloud-based accounting are illustrated in the following table.

Table 1. Comparison between traditional accounting and cloud computing-based accounting software

Traditional Accounting Software	Cloud Computing-based Accounting Software
Data are entered manually	Data are entered automatically
Remote access to system is not available	Remote access to system is available
Independent working outside workplace is not available	Independent working outside workplace is available
Back-up is done at local destination	Back-up can be done at cloud computing system and local destination
Legislative amendments are followed individually	Legislative amendments are followed through cloud computing system
Declarations are filled in and sent manually	Declarations are filled in and sent automatically
Time loss in transactions	No time loss in transactions
Invoices and other official documents are filled in and sent manually	Invoices and other official documents are filled in and sent through web
Managers of establishment cannot remotely access to financial data at any time	Managers of establishment can remotely access to financial data at any time
There is not a constant communication with customer establishments for financial consultants	There is a constant web-based communication with customer establishments for financial consultants

Source: S. Ozdemir and C. Elitas (2015)

3.3. Benefits of cloud accounting

Cloud computing and its application has attracted a lot of businesses’ attention, especially in accounting and auditing sector. It is not only because of its superior advantages compared to traditional accounting approaches but also due to its growing availability in the digital age. Cloud providers have physical data centers to provide virtualized services to their users through Internet, making it an ideal way for businesses and stakeholders to make better decisions. Cost-savings, scalability, reliability, maintenance and mobile accessible are outstanding benefits that cloud computing-based services offer to its users.

- Cost-savings: Cloud computing does not require in-house IT equipment to be installed or software licenses to be purchased, therefore companies can cut down on their upfront capital expenditure. The costs incurring in hiring IT staff, maintaining servers or upgrading applications would also be reduced. Users can rent storage space and applications and most models of cloud computing allows users to pay as they go. This is particularly helpful for small and medium sized firms which cannot afford to maintain an on-premise IT system. The monthly cost paid for the providers is non-fixed because it depends on the requirements and size of businesses.

- Scalability/Flexibility: Businesses can easily change its capacity of cloud deployment by switching to a larger service package at peak times to meet their clients’ need and get back to smaller scale if necessary.

- Reliability: One problem of using an in-house system is that vendors need to pay for backup service providers to keep their data safe in case of fire, flood or other disaster. This is what cloud computing services can solve effectively by replicating their customers' data using multiple redundant sites.

- Maintenance: Cloud service providers are responsible for software update and system maintenance. That means subscribers always use the latest version of software and gain access to the newest features without having to pay upgrade fees.

- Mobile accessible: There is a growing demand of employees and managers to access to their network remotely. Since all data, software and applications are available on the cloud, staff can get the data they need from anywhere, any time and on any internet-connected devices which they have on hand. This can lead to significant energy and time saving, and thus contribute to the productivity improvements. Cloud computing provide managers and stakeholders real-time information which allows more effective decision making by business owners. It allows not just access of up-to-date information but even up-to-hour or up-to-minute information.

3.4. Potential risks of adopting cloud computing-based accounting

While cloud computing is a powerful tool for accounting sector, there are still drawbacks of this technology. Information technology is so risky in nature and understanding the risk can help businesses take precautions and minimize the negative effects that cloud computing may bring about.

- Security and privacy: The major concern of those shifting to cloud computing is the safety of their data. Many companies worry that their confidential business data would become vulnerable when outsourcing in a third party. There is also the risk that cloud service providers would access or monitor users' financial information. In addition, vendors are concerned about the possibility of losing control of their data, especially when it is not guaranteed by contract. It is also possible that cloud environment would become a target for cyber-attack which can cause data losses.

- Deceptive pricing: Since companies do not need to invest on equipment and software or hire IT personnel, it always appears to be a good financial choice to use cloud computing-based accounting. However, it should be noted that expenditures go from capital expense to a monthly operating cost. Cloud computing should reduce costs for enterprises but it is believed that in some cases the costs of using cloud services in the long term with a large amount of data can be as high as maintaining an on-site accounting system. The dependence on a particular cloud service provider is also a concern of vendors when switching from a provider to another can be very costly.

- Legal concerns: Customers' data may be provided for government agencies for investigation and research purposes without notification. On top of that, tax-related problems of customers can be revealed by cloud service providers.

- Lack of features: In most countries, governments have not introduced any regulations or standards associated with cloud computing services, thus it is not known whether cloud providers will address the needs of the people deploying the services by offer them the features they need.

4. CONCLUSIONS AND POLICY IMPLICATIONS

Cloud computing-based accounting, as an emerging structure, has offer firms opportunities to improve accounting tasks. Cloud computing is expected to improve the quality of accounting practices in businesses by cutting cost, saving time, allowing scalability and mobile access. But the fact is that the development of this technology cannot ensure a one hundred percent safety. This makes it necessary for companies to take precautions against the risk of cloud computing in accounting field. It is very important that business check thoroughly that kind of guarantee the cloud provider offers in terms of security and service quality. The economic contract between providers and users must have adequate information on what services will be purchased, service features and level of data security to minimize the risks mentioned above.

It is obvious that the legal infrastructure in terms of maintain the information security and protecting the personal data has not been formed yet in most countries and users are taking their own responsibility to gather information and maintain security in cyber environment. Therefore, security policies for cloud computing must be developed and put into effect by governments to protect users' data and private information. It must be mandatory that cloud service providers must meet the necessary preconditions and international standards in order to operate in this area.

The adoption of cloud computing will radically change the accounting industry, giving accounting personnel potential for utilizing their skills and expertise to innovating new level of services. Accountants should take the cloud technology as a big opportunity to step up. They should be trained to adopt cloud technology to enhance their job performance.

REFERENCES

1. Ahmed Mohamed Gamaledin (2013), 'An introduction to cloud computing concepts – Practical steps for using Amazon EC2 IaaS technology', *Software Engineering Competence Center*, 6.
2. Datometry (2019), 'Replatforming on-premise data warehouses to the cloud', available on <http://datometry.com/resources/surveys/cloud-data-warehousing-survey/>.
3. Flexera (2019), 'Right scale's state of the cloud report', 2. available on <https://hostingtribunal.com/blog/cloud-adoption-statistics/>.
4. Huth and J. Cebula (2011), 'The basics of cloud computing', *US-CERT*, 2.
5. J. Srinivas, K. Venkata Subba Reddy, A. Moiz Qyser (2012), 'Cloud computing basics', *International Journal of Advanced Research in Computer and Communication Engineering*, 344 (3), 343-347.
6. Molnar, D., Schechter, S.E. (2010), 'Self hosting vs. cloud hosting: Accounting for the security impact of hosting the cloud', *paper presented at the WEIS*.
7. O. Dimitriu, M. Matei (2014), 'A new Paradigm for Accounting through Cloud Computing', *Procedia Economics and Finance* 15. 842 (3), 840-846.
8. P. Mell, T. Grance (2011), 'The NIST definition of cloud computing', *NIST Special publication*, 2, 800-145.
9. S. Ozdemir, C. Elitas, (2015), 'The risks of cloud computing in accounting field and the solution offers: The case of Turkey', *Journal of Business Research Turk*, 52(9), 43-59.
10. Xinding Ma (2015), 'The adoption of cloud computing for small and medium accounting firms', *a thesis in the University of Canterbury*, 11.

VIETNAMESE ACCOUNTING AND INDUSTRIAL REVOLUTION 4.0 OPPORTUNITIES AND CHALLENGES

Nguyen Phu Tuan Anh¹

ABSTRACT

The Industrial Revolution 4.0, a technological integration around the world, has been changing the environment, conditions and nature of work. The Industrial Revolution 4.0 helps Vietnam's accounting industry to participate more and more effectively in the global value chains, in the financial service market, and contribute positively to the country's growth. The author presents some opportunities and challenges of accounting in Vietnam in the integration period and especially the measures and directions to promote the development of individuals and organizations operating in the field of accounting in particular and accounting profession in general.

Keywords: *Industrial Revolution 4.0, opportunities, challenges and Vietnamese accounting*

1. INTRODUCTION

In Vietnam, Industrial Revolution 4.0 is based on the IoT platform, artificial intelligence, virtual reality, virtual reality interaction, social networks, cloud computing, mobile, big data analysis, etc. to transform the entire real world into the digital world which will bring a fundamental change in almost all fields and industries, including accounting. The current accounting work is mainly done on records and papers. Meanwhile, Industrial Revolution 4.0 will change the accounting method and process, in which the most obvious manifestation is the conversion of all that data into electronic information, blockchain technology will become "giant" ledger.

2. OPPORTUNITIES AND CHALLENGES

- Opportunities

Expand the work scope:

The Industrial Revolution 4.0 with internet helps the accounting work not to be limited by geographical distance. The accountants in Vietnam may perform accounting work in any country worldwide provided that the individuals conducting that accounting work meet all conditions of accounting profession. On the contrary, any accountant accepted to duly practise in Vietnam may perform the accounting work of an enterprise or organization in Vietnam.

Access to the "advanced" international accounting:

¹ Email address: tuananhctxd@gmail.com.

Currently, in Vietnam, the use of accounting support tools has been developed on a large scale. Many organizations and businesses have built specialized software to help accounting work be streamlined, compact and bring high accuracy and conformity with the requirements of providing administrator information. Along with these advantages, accounting software in Vietnam also revealed some certain limitations. For example, if using common software, it will be difficult to calculate the cost of works/products at units with construction or manufacturing activities. Instead of it, every business or organization that has costing activities will have to order custom-designed software that is appropriate to the unit. That will bring about rising costs, few units can meet this expense. The worldwide development of the artificial intelligence system will open up opportunities to access new and affordable accounting software.

In addition, the vigorous support of technology helps the Accounting industry to use its resources more efficiently, save time and manpower, and get closer to the international accounting system. For the accounting profession, the Industrial Revolution 4.0 will bring auditors and auditing agencies more favorable working conditions. For example, by using the state-of-the-art equipment, programs, and digital technologies, the auditors can collect information that they could not previously; can extract data from huge data sources, serve all kinds of decisions, leadership levels, all kinds of decision-making information checkpoints, and all individuals with relevant interests; improve the reliability and rationality of information in reports by self-control or self-inspection mechanism.

2.2. Challenges

Human resources in accounting profession:

According to Ms. Penetope Phoon, branch manager of the Association of Chartered Certified Accountants of the UK (ACCA) in Singapore, the majority of newly graduated students are unable to meet the job requirements because the training at the university is not appropriate to reality. Vietnam has a huge potential for cheap labors but lacks professional and skilled ones. Especially in the field of accounting, this has reduced the competitiveness of Vietnam compared to other countries in the region. Regarding the quality of Vietnamese accounting human resources, there have been many conferences discussing about this issue. Typically, at the International Conference “Global trends of accounting and finance & Strategy of Vietnam to 2020” organized by the Ministry of Finance and the Association of Chartered Certified Accountants (ACCA) in Hanoi in June 2016, Dang Thai Hung - Director of the Auditing and Accounting Policy Department, identified that Vietnam’s accounting human resources were ready for economic integration, but the quantity and quality of international stature still need to be improved. Sharing the same view, Mr. Dao Quang Vinh, Director of the Institute of Science, Labor and Social Affairs, said: “Productivity and quality of Vietnamese labor are quite low at present, there is still a shortage of labor in the segment of high qualification. In some fields such as finance, banking, auditing, hospitality, we still lack senior officers, CEOs, managers and must hire foreign workers”...

According to statistics of the Vietnam Association of Accountants and Auditors until 2016, number of Vietnam’s accountants in the whole country was estimated at 4,000 people with accounting practicing certificates, accounting for 2% (4,000/196,000) of the total number of existing

accountants and auditors of ASEAN countries. Accounting and auditing is one of eight occupations requiring skilled workers who are allowed to move in the agreement area. At the conference “Joining TPP & AEC- opportunities and challenges for Vietnam accounting and auditing”, the current audit service market consists of 150 enterprises, serving about 40,000 customers, including businesses at home and abroad; more than 100 accounting service organizations with over 10,000 employees. It is forecasted that in the coming time, the number of business and production enterprises will increase, accordingly, the number of accounting service enterprises will need to increase to meet the market demand. Especially, once the Industrial Revolution 4.0 becomes widespread worldwide, the demand for good quality accounting human resources will increase. The accountants should have comprehensively professional knowledge and they must also be able to apply and control digital technologies for their work. These studies show that the accounting human resources in general and the accounting human resources with international qualifications will still be in short supply for many upcoming years. However, recent surveys made by the Vietnam Association of Certified Public Accountants have shown that up to two-thirds of accounting graduates are unable to meet the needs of employers in a lot of respect.

From the aforementioned issues, it shows that Vietnam now not only has a deficit in quantity, but also in quality of accountants. Although the accounting training is numerously organized, the accountants and auditors of international quality who are able to meet working standards in a competitive regional environment are still a concerned issue.

Apply the international accounting standard to Vietnam

Currently, the international economic integration, free trade and fair competition require the financial information to be transparent, reliable and presented in accordance with standards not only in the national scope but also in the international scope. Moreover, during the onset of the Industrial Revolution 4.0, with the creation of a new structure of economy based on hi-tech application, internet of things, artificial intelligence, Smart robots, blockchain technology, cloud computing, digital, ... it greatly affects the cycle and accounting methods.

In Vietnam, Vietnamese Accounting Standards (VAS) includes 26 standards, built on the basis of international accounting standards (IAS), in accordance with the principles of the economy and the situation of businesses. There is still a significant gap between VAS and IAS/IFRS affecting Vietnam's international integration process in Vietnam. VAS still has many shortcomings, especially transactions of the emerging market economy that have not been fully resolved by VAS, such as the recognition and evaluation of assets and liabilities at fair values, asset losses, accounting of derivative financial instruments for business purposes and risk prevention ... no specific instructions and the biggest difference between the two systems are the multiple items in the financial statements made according to IFRS which are evaluated at fair value or receivable value, but made according to VAS which is recorded at cost price, this makes the value of assets and liabilities of the business not be reflected as truly as the actual situation of the market.

Through a survey of the International Accounting Standards Board (IASB), 116/140 countries being surveyed asked the listed companies to apply IFRS. Most of the remaining countries have allowed the application of IFRS. All organizations that have an important impact on the world

economy such as G20, World Bank (WB), International Monetary Fund (IMF), Financial Stability Board (FSB) and International Organization of Securities Commissions (IOSCO) all support and assist the application of IFRS globally. Vietnam is now one of 10 countries standing outside this commitment. The experts admit that, in order to speak the common accounting language with the world, promote business environment, create confidence for investors ..., Vietnam needs to unify VAS and IFRS.

Develop skills for accountants

According to Mr. Dao Quang Vinh, Director of the Institute of Science, Labor and Social Affairs: *"In general, in terms of technical requirement, our trained workers can satisfy. However, soft skills such as teamwork, foreign languages, critical thinking, creativity, technology compliance ... of Vietnamese workers are still quite weak. Our labor is still sometimes considered to be agile, creative, but not compliant with, or breaking the requirements, affecting the product quality"*.

From the perspective of an insider, President of Vietnam Association of Accountants - Auditors, Assoc. Prof. - Dr. Dang Van Thanh said: *"In many countries in the region such as Indonesia, the Philippines, there are more than half of accountants practising in foreign countries. They are professionally trained and quickly integrate into the culture, customs and habits of other countries. The problem is that it is necessary to have a training strategy appropriate to Vietnam and international practices. Such training process not only takes place at school but also must be continuous after practising"*

At the APEC 2017 on human resource development in the digital era held on 11th May 2017 in Hanoi. Ms. Nguyen Phuong Mai, CEO of Navigos Search, said: *"The English proficiency of job seekers is always the top concern of the employers."*

In the trend of economic integration, worldwide trade is taking place vigorously, it has been attaching special importance to the need of using international language, the ability of team-working, the ability of communication, critical thinking and problem solving. In fact, most prestigious domestic and foreign units and organizations give priority to the employees with proficient foreign language and ability of team working then their professional skills when they are in need of recruitment.

Internet system, blockchain application will become a giant "ledger"

In Vietnam today, the accounting work is mainly done on records and papers. However, the Industrial Revolution 4.0 will transform all of such data into electronic information, both diversified and elusive. Without knowing digital technology, the accountants and auditors will not be able to execute their jobs. Meanwhile, the knowledge, understanding, and level of information technology application of accountants, officials and civil servants are still limited and unequal. And the training is now just limited to the transfer of background knowledge according to the professional fields of each auditor and accountant without intensive and multidisciplinary training, especially for knowledge of technological characteristics and artificial intelligence. That puts forward a big challenge for organizations, units, firms supplying telecommunication services and software that are constantly innovated to design useful and easy-to-use technology software to support the accounting sector.

The data made through the internet connection may leak by sending email to audited units or outside organizations and individuals, exchanging via shared networks. The bad elements may take advantage of unofficial accounting information and results to serve the purposes that are harmful to such individuals and organizations. Meanwhile, the quality of IT infrastructure throughout the accounting industry has generally not met the requirements set out, and thereby requiring better preparation of IT infrastructure, especially network security.

3. SOLUTIONS AND RECOMMENDATIONS

- For governing body

Firstly, strict implementation of the guidelines set out for 2020 will issue the Vietnam accounting standards in the direction of updating the changes of international standards, i.e., issuing VAS/VFRS. By 2025, the Ministry will apply IFRS at three levels: the public interest companies implement prototypal IFRS; other companies apply VAS/VFRS; Small and medium-sized enterprises (SMEs) shall follow the accounting regulations for SMEs. The full application of IFRS will help Vietnamese accounting open a new era that changes the way of recording, measuring and presenting the factors of financial statements. Because, IFRS - referred to as the “global financial language” helps ensure comparability, consistency and transparency – it will “give wings”/laissez-passers for businesses to take advantage of opportunities to access the international capital resource, additionally helping to promote the development of Vietnam’s economy in general and enterprises in particular.

Secondly, focus on investment, development of IT infrastructure in a synchronous and prompt manner to meet the development trend of the global digital system. Particularly, attach special importance to construction of network security systems, ensure high confidentiality for accounting information. In addition, it is required to study and apply auditing methods effectively and appropriately, including basic methods and techniques in the context of the Industrial Revolution 4.0. Especially, they are the methods of collection and assessment of audit evidences, technical analysis methods in the context of the accounting industry that use electronic invoices, blockchain technology, cloud computing, etc.

Thirdly, regulations are necessary to support enterprises in policies of training accounting human resources as well as developing guidelines on orientation and encouragement of labor transfer in the ASEAN Economic Community in particular and Economic community around the world in general.

Fourthly, continue to promote international cooperation, constantly develop healthy and sustainable accounting service markets. Develop accounting service activities in consistent with the development trend of regional and international countries, create and expand professional exchanges. At the same time, exchange and learn experiences to deal with the Industrial Revolution 4.0.

- For organizations, businesses supplying accounting service

Apply the proper policies, regimes and regulations of the State, sustainable development, and development with clear itinerary. Invest in developing a skilled staff with comprehensive knowledge of professional skill and ability of integration. Particularly, strengthen the training

and development of soft skills such as effective Vietnamese and English communication, active teamwork and proficient use of digital technology according to the needs of the economic market. Regarding the advanced services such as providing financial analysis data, intensive advice, etc.

- For training institutions

Firstly, it is necessary to make changes in the viewpoints of training. Training does not come from what we have, but from practical requirements, the requirement of the digital age is to supply high quality human resources for society.

Secondly, focus on specialized training programs on accounting and auditing in line with the development trend of the world education. Therefore, the training institutions should review accounting training programs, based on the market demand research made by both learners and employers to meet the requirements of accounting human resources and it must be regionally and internationally recognized.

The training program must be built to ensure the integration requirements and meet the quality standards with advanced programs of regional and international universities, with the training programs of occupational associations aiming at mutual recognition among professional training institutions for degrees and certificates. In the UK, Oxford Brookes University is one of the top 5 universities according to the ranking of QAA (Quality Assurance Agency), officially cooperated with ACCA, which allows ACCA's students to receive bachelor's degree after completing the first 9 subjects of this ACCA program, and this bachelor's degree is recognized by QAA. This reassures the employers about the quality of candidates who are ACCA's members or students. In Vietnam, Ho Chi Minh City University of Industry has signed a cooperation agreement with ACCA since 2011 on accounting training for students, which will bring 5 out of 14 ACCA subjects into the training contents for 3rd-year and 4th-year students of Accounting - Audit Faculty under the support of curriculum and lecturers from Smart Train Center. The Academy of Finance has now integrated a number of subjects in accordance with ACCA's and ICAEW's curriculum into high-quality accounting curriculum, and is committed to recognizing the mutual results.

Thirdly, develop the training content to help students promptly adapt to the age of IoT. In addition to providing professional knowledge, it is necessary to focus on training the necessary skills that are effective communication skills, working in many different groups, critical thinking and problem solving skills on the basis of respecting the professional ethics.

Fourthly, change from traditional teaching methods to positive teaching methods. Develop the teaching in the direction of learners' active, initiative and creative promotion, consider the learners as the main focus. According to this method, teachers are only the instructors, supporting students to carry out their research works. Positive teaching methods in training can be implemented according to the methods of Problem-based learning, Role playing and Brainstorming.

Fifthly, improving the teachers' qualifications in terms of expertise, foreign language skills, and soft skills plays a key role in the industrial revolution 4.0. There are many ways to achieve the above goal like investing in overseas study under the cooperation policies of the Government and the Ministry or directly concluding among universities and studying at home. In cases the training institution does not have sufficient resources for self-training, it is possible to hire

experts, who are good at expertise and rich in practical experience. Hanoi University of Industry has also made a certain investment to help lecturers make intensive researches on accounting and develop soft skills.

Sixthly, establish the relationship between training institutions with domestic and foreign enterprises. In the age of Industrial Revolution 4.0, establishing relationships with businesses has been increasingly expanded to not only domestic units but also foreign ones, because that makes training and research activities attached and close to reality, helps solving problems of reality, meeting well the requirements of enterprises.

- For accountants and auditors

In the age of Industrial Revolution 4.0, machines are artificial intelligence that can do things humans cannot. However, they are just a tool to support the work in accounting - auditing, operating under inherent programming, they are difficult to make comments and advices in some special and new situations which has never happened before. Therefore, each individual working in the field of accounting and auditing must be aware of the importance of technology to apply it to be appropriate to the trend, save resources and increase work efficiency. ACCA has conducted many survey researches. The general research results show that, in order to survive and develop in the digital accounting era, ethics is the basic core issue that promotes the development of the profession in addition to technical ability, intelligence, creativity and vision.

In addition, the indispensable means to help accounting - auditing reach beyond the scope of its activities at present in future is the *international language*. Particularly for the field of accounting and auditing, the language bringing about increased values and benefits is not only the communication language but also professional knowledge of international stature.

Therefore, the opportunity will be widely opened for staff of accountants - auditors of international standards, recognized to work in many countries around the world such as ACCA, CMA, CIA, etc. These certificates can help Vietnamese accountants and auditors to maximize their scope of activities and improve the competitiveness of human resources in Vietnam's accounting field.

REFERENCES

1. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future(Generation next): Ethics and trust in a digital age;
2. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future(Generation next): Managing talent in finance shared services;
3. Ministry of Finance, Association of Chartered Certified Accountants of the UK (ACCA) (2016). Global trends of Accounting and Finance Industry & Strategy of Vietnam by 2020. Materials of International Conference (June 2016)..

4. Websites:

<http://www.hpu.edu.vn/qt/QTtintuc-3394-266-0-1-Chuan-Muc-Bao-Cao-Tai-Chinh-Quoc-Te-Ifrs-Va-Doi-Hoi-Doi-Moi-Chuong-Trinh-Dao-Tao-Chuyen-Nghanh-Ke-Toan-Kiem-Toan-Tai-Cac-Truong-Dhcd-Viet-Nam.html>

<http://tapchitaichinh.vn/tai-chinh-kinh-doanh/tai-chinh-doanh-nghiep/ke-toan-kiem-toan-va-cuoc-cach-mang-cong-nghiep-40-136982.html>

ACCOUNTING, AUDITING IN THE ERA OF INDUSTRY 4.0 – DEVELOPMENT SOLUTIONS IN THE NEW ERA

Tran Hai Long¹, Le Thi Yen Oanh²

ABSTRACT

The fourth industrial revolution on technology has been effecting on every social domain. This is a key factor to create a new stage in human society in the context of increasing global industrialization and modernization. With the development of technology such as artificial intelligence, the fourth industrial revolution would generate changes on every industry including the accounting and auditing industry. This paper will present an overview of the Fourth Industrial Revolution (or Industry 4.0) and its impacts on accounting and auditing. Therefore, accounting and auditing in this Industry 4.0 era should change accordingly in order to develop sustainably. Also, several solutions supporting the development of accounting and auditing in Industry 4.0 era will be suggested.

Keywords: *accounting and auditing; Industry 4.0*

The Fourth Industrial Revolution affects all economic and social fields. This revolution has many opportunities but also significant challenges for the industry sectors, including accounting and auditing. The accounting field will be strongly impacted by Industry 4.0 and will require significant changes to fit the time.

So, how to improve and develop appropriately in the context of Industry 4.0 taking place strongly? This is an issue for the accounting and auditing industry in Vietnam. So first we have to understand about the Fourth Industrial Revolution.

The Fourth Industrial Revolution is the keyword appearing in many places today. So what is the Fourth Industrial Revolution? How does it affect the field of accounting and auditing?

The Fourth Industrial Revolution or Industry 4.0, is the current trend of automation and data exchange in production technology, based on three main areas: Digital including Big Data, Internet of Things (IoT) and artificial intelligence (AI); Biotechnology including applications in agriculture, medicine, pharmaceuticals, environment protection, renewable energy, chemistry and materials; Physics including new generation robots, self-driving cars, new materials, nanotechnology... whose nature is based on digital technology and integration of all intelligent technologies to optimize production processes and methods. It emphasizes the technologies, which are and will

¹ Thuong Mai University, 79 Ho Tung Mau, Mai Dich, Cau Giay, Hanoi, Vietnam, Email address: ngothuhonghn@gmail.com

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

be having the greatest impact, including 3D printing technology, biotechnology, new materials technology, automation technology, robots...It includes physical networking, Internet of things, and cloud computing.

Meanwhile, Industry 4.0 is a revolution in smart production, based on the use of IoT to transform the entire real world into a digital world. This revolution has a strong and comprehensive impact on economy, society and environment all over the world, and affects all industries and fields with an unprecedented speed of technological breakthrough in history, including accounting and auditing. Vietnam is in the process of deep integration into the world economy, and indeed, will not be excluded from this global revolution.

“The first industrial revolution used water and steam energy to mechanize production. The second revolution took place thanks to the application of electricity for mass production. The third revolution used electronics and information technology to automate production. Now, the Fourth Industrial Revolution is emerging from the third revolution, which combines technologies together, blurring the boundaries between physics, digital and biology”.

Industry 4.0 will take place in three main areas including Biotechnology, Digital and Physics.

The core elements of Digital in Industry 4.0 will be: Artificial Intelligence (AI), Internet of Things (IoT) and Big Data

In the field of biotechnology, Industry Revolution 4.0 focuses on research to make great leaps in agriculture, fisheries, medicine, food processing, environmental protection, renewable energy, chemistry and materials.

Finally, in the field of Physics there are new generation robots, 3D printers, self-driving cars, new materials (graphene, skyrmions ...) and nanotechnology.

Currently, Industry 4.0 is taking place in developed countries like the US, European countries and some of Asian countries. Besides new opportunities, Industry 4.0 also presents humanity with many challenges.

Industry 4.0 and the impact on accounting and auditing

Industry 4.0 brings both opportunities and challenges to the field of accounting and auditing.

In the era of information technology development, Industry 4.0 with the internet helps accounting and auditing works not be limited by geographical distance. Accountants and auditors in Vietnam can perform accounting and auditing works in any country around the world, if the organization or individual carrying out accounting and auditing works satisfies all conditions for doing those works.

Conversely, any accountant and auditor in any country accepted to practice in Vietnam can perform accounting and auditing work in enterprises and organizations in Vietnam when satisfying the requirements of an accountant or auditor. This creates both opportunities and challenges, for those who practice accounting and auditing in Vietnam. It is the need to improve one's competence as well as condition in order to meet international practice conditions, improve ranking position, and expand the scope of practice.

Big data gives people access to an infinite amount of knowledge, enabling them to learn anything they need to know but also has the drawback of non-mainstream information. It makes us cautious when accessing information and using it.

Besides, many factors affecting Industry 4.0, including the factor that greatly influences the industrial revolution 4.0 which is artificial intelligence (AI).

With AI, economic experts predict that many industries will disappear because of automation trend. That can happen with accounting and auditing profession and the number of unemployed will be relatively much. That phenomenon will happen with the development of artificial intelligence leading to labor redundancy. In the world, many activities are mostly replaced by robots and automation, which can cut hundreds of thousands of workers. Then, many automation industries will replace people; and workers' skill requirements will be high.

In the field of accounting and auditing, artificial intelligence can replace manual works such as collecting, processing and calculating data but the stages such as analysis, finding the cause to give solutions for each specific situation really need human thinking. However, to synthesize data and make financial decisions for the company, there is always a need for human involvement. Although AI does not replace people, it is changing the working environment of accounting and auditing.

And we see that Industry 4.0 affects security issues, management accounting, payment operations, investment activities, auditing... This requires the financial system to take more responsibility for the safety and privacy in accounting and auditing information. And also the increasingly sophisticated technology will affect the security vulnerability, enabling high-tech criminals to be active. These are challenges for the accounting and auditing industry such as security for information systems, information security issues, high-tech crimes as well as the competence requirements for accountants and auditors.

Accounting and auditing development trend in the era of Industry 4.0

All of above factors are creating a new trend for the profession of accounting and auditing.

Accounting includes stages such as collecting, processing, analyzing and providing information. All of these stages can be replaced by machines. At this time, accountants must be people who understand technology and use technology for their jobs. Therefore, the tendency of accountants is to have a firm grasp, understanding and mastery of technology.

Machines are artificial intelligence that can do things that humans are unlikely to do. However, they are just tools to support the work in accounting and auditing, operating under inherent programming; they can hardly make comments and advice in each case arising, especially with new situations that have never happened. It really needs the thinking, creativity and skills of humans, which robots do not have.

Moreover, accountants and auditors need to follow certain laws; people are always needed with the update stage for equipment as tools for their work. Artificial intelligence is a product created by humans and serving human purposes; automation can change working conditions but it cannot be asserted that AI can completely replace humans in the field of accounting and auditing, but it will also place higher demands on accounting: computer processing, information security, data analysis, and computer networks.

However, every individual, organization operating in the field of accounting and auditing must be aware of the importance of technology to apply it to suit the trend, save resources and increase work efficiency. In order to survive and develop in a digital age, future accountants and auditors not only need factors such as intelligence and emotional index, but also need to be supplemented with the necessary elements for career development such as technology skills, vision, language...

In the era of Industry 4.0 - digital era, each professional accountant will reflect their competence and skills in the following fields: professional skills and ethics, experience, intelligence, digital skills, creativity, emotional index, vision, and language.

Solutions for developing accounting and auditing with Industry 4.0 in the new era

Firstly, for individuals who have been and will be working in the field of accounting and auditing, there are two highlights in a digital age that each person must be aware of to change, that is the technological ability and the ability to make judgment (vision). Moreover, a core factor, besides professional competence, is professional ethics.

When all jobs can be handled by technology, professional ethics become more essential than ever, so that they can build and determine the true image of the enterprise. Only accountants, who have professional ethics and respect the truth, are able to create genuine value for shareholders so that shareholders continue to invest in the business. Only auditors with professional ethics can help investors determine the path with less risk and more opportunities, helping protect the legitimate rights of the public.

To take full advantage of opportunities in the digital age, first of all, accountants and auditors must understand the basic principles of all professional conduct to know if the behavior is right or wrong compared to the norms and principles set out, and must understand the most basic knowledge; only then can we advance to the higher level of knowledge in the process of becoming professional accountants and auditors.

In order to do this, those who work in the field of accounting and auditing must have a good understanding of background professional knowledge, gain experience, and keep up to date with changes. In addition, it is necessary to uphold professional ethics and put the public interests ahead of oneself. That will contribute to the formation and development of professional skills and professional ethics, experience, and vision for accountants and auditors.

Secondly, the field of accounting and management accounting is also playing an increasingly crucial role in the new trend, helping enterprises to regulate business activities both in the present and in the future. Therefore, at the basic level, accounting work can be done automatically, but enterprises still need people to check, analyze, and even make assessments for current and future financial situation. Depending on the level, employers pay their employees; therefore, management accounting is also one of the important contents to help the development of accounting trends in the new era.

Thirdly, an accountant or auditor who knows how to seize an opportunity is someone who fosters professional skills, has the ability to use technology for his or her job, has a vision, and has professional ethics besides being creative, sensitive and intelligent.

In the era of Industry 4.0, every current and future accountant and auditor need to foster for themselves how to use artificial intelligence (technology) for their jobs from simple things such as excel function to accounting software, management and analytic software, and ways to keep information confidential for enterprises and their customers, thereby exploiting the customer market thoroughly. In addition, it is essential to foster knowledge and apply the ability to recognize issues of management accounting in enterprises, in addition to the current financial accounting trend. This is the field that helps increase the investment benefits for the enterprise itself.

Fourthly, the indispensable means to help the current and future accounting and auditing reach beyond the scope of its operations is the international language. Particularly for the field of auditing and accounting, the language that brings added value does not only stop at the communication language but also international expertise.

Therefore, the opportunity will be expanded for accounting and auditing groups of international standards, recognized to operate in many countries around the world, such as ACCA, CMA, CIA, CPA Australia... These certificates can help Vietnamese accountants and auditors to maximize their scope of operations, improving the competitiveness of human resources in the field of accounting and auditing of Vietnam on a global scale.

Fifthly, for organizations providing accounting, auditing, financial advisory services, in the global trend, investing far beyond the national scope, it is necessary for professional accounting and auditing to have a vision, evaluate financial capacity honestly, preserving investors. Companies that provide financial advisory services must change to avoid being interrupted, or may be excluded from the market when they fail to exploit the value brought by the digital age.

Basic, easy-to-perform services such as accounting services, providing basic data-based financial information bring in regular profits; but advanced services such as providing financial analysis data, in-depth advice... are the source of high profits for enterprises. Thus, globalization, big data, the internet, and technology are bringing a global market for enterprises operating in this field, especially enterprises with staff and service quality of an international level.

Finally, attention should be paid to network security, investing and equipping security and confidentiality solutions, regularly checking and supervising the compliance with security and confidentiality regulations, promptly detecting and handling security gaps, improving financial and corporate governance capacity, especially risk management, ensuring the confidentiality of accounting and auditing information of individuals, enterprises and organizations.

Performance conditions

On the side of management agencies

Industry 4.0 requires management agencies to prepare better information technology infrastructure to keep up with the development of technology; paying attention to ensuring safety in network security management. Industry 4.0 has raised the level of information sharing, thereby creating a huge demand for network security. Management agencies on accounting and auditing should pay special attention to building data backup centers, upgrading the system of security and confidentiality at a high level with many levels and layers, ensuring the expansion of the operation scope to be stable and safe, and bring long-term efficiency...

It is necessary to continue promoting international cooperation, research and application of international accounting and auditing standards currently used by countries around the world, thereby, learning and exchanging experience to prepare for the Fourth Industrial Revolution.

In particular, continuing to improve the institutions of accounting and auditing activities, ensuring compliance with market principles and commitments in the process of international integration. Government agencies need to review legal documents, policies, regulations, and guidelines related to accounting and auditing activities.

On the side of accounting and auditing enterprises

It is essential to invest, build modern infrastructure, enhance regional and world integration; improving access to accounting and auditing services of enterprises and organizations.

It is needed to create a strategy to develop accounting and auditing human resources, continuing to increase the number, scale and quality of audit services. It is necessary to organize advanced training courses for auditors to promptly grasp and adapt information technology applications, with modern auditing facilities to meet the increasing requirements of the job. Auditors need to be trained and fostered to master the new audit process and program establishing on the basis of technology and digital. They need to proficiently use audit software, understand the processing process as well as how to aggregate accounting information, how to prepare and present financial statements in accordance with financial reporting standards in the context of digital technology.

On the side of higher education institutions

Industry 4.0 requires bachelor training programs, content as well as methods in accounting and auditing at universities must have a very fundamental innovation. Training institutions need to study and analyze the characteristics of this revolution from which to propose and recommend innovations on all aspects, especially innovating training methods, content, and programs. It is necessary to continue improving the curriculum quality with the knowledge associated with the development trend of Industry 4.0.

It is necessary to apply virtual accounting and auditing models on economic activities, which are both simulated and skilled, for students to practice. When software, electronic documents, electronic signatures, calculations, rotation and record of information on the form have been programmed and automated, it is essential to gradually abandon the method of teaching accounting and auditing according to the regime as well as dealing with manual professional operations.

On the side of accountants and auditors

Accountants and auditors must understand the basic principles of all professional conduct to know if the behavior is right or wrong compared to the norms and principles set out. Besides, they need to foster for themselves how to use artificial intelligence (using technology) for their jobs from simple things such as excel function to accounting software, management and analytic software, and ways to keep information confidential for enterprises and their customers, thereby exploiting the customer market thoroughly. In addition, it is necessary to foster knowledge and apply the ability to recognize issues of management accounting in enterprises, in addition to the current financial accounting trend.

Thus, globalization, big data, the internet, and technology are bringing a global market for enterprises operating in this field, especially enterprises with staff and service quality of an international level. Vietnam's accounting and auditing industry needs to make more efforts to take advantage of opportunities, and to overcome challenges in the integration process that has been increasingly extensive for sustainable development in the future.

REFERENCES

1. National Assembly (2015), Accounting Law;
2. Standing Committee of National Assembly (2010), Resolution No. 927/2010/UBTVQH12 dated April 19, 2010 on the issuance of the Strategy for development of the State Audit to 2020;
3. The Government (2016), Decree No. 174/2016 / ND-CP dated December 30, 2016 detailing a number of articles of the Accounting Law;
4. Doan Thi Hong Thinh, Nguyen Thi Huyen (2018), “Phát triển lĩnh vực kế toán – kiểm toán trước cuộc cách mạng công nghiệp 4.0”, Review of Finance, Available at: <http://tapchitaichinh.vn/nguyen-cuu-trao-doi/phat-trien-linh-vuc-ke-toan-kiem-toan-truoc-cuoc-cach-mang-cong-nghiep-40-138913.html>;
5. The Association of Chartered Certified Accountants (11/2017), Professional accountant – the future (Generation next): Managing talent in small and medium sized practices;
6. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future (Generation next): Ethics and trust in a digital age;
7. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future (Generation next): Managing talent in finance shared services;
8. The Association of Chartered Certified Accountants (11/2016), Professional accountant – the future: Generation next;
9. The Association of Chartered Certified Accountants (6/2016), Professional accountant – the future: Drivers of change and future skills.

THE CURRENT IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION ON HUMAN RESOURCES FOR ACCOUNTING AND AUDITING IN VIETNAM

Ngo Thi Thu Hong¹, Nguyen Ba Linh²

ABSTRACT

International economic integration has set requirements in training high quality human resources in general, accountants and auditors in particular in Vietnam and especially, in universities. Being aware of that matter, universities in recent years have continuously improved their training methods, programs and content. Especially in this day and age, the Fourth Industrial Revolution (or Industry 4.0) is booming and spreading globally. This has a significant impact on the training of human resources in general, accountants and auditors in particular. This paper focuses mainly on the impact of Industry 4.0 on the training of human resources for accounting and auditing in Vietnam currently.

Keywords: Industry 4.0; accounting, auditing training.

I. INTRODUCTION

Human life has achieved great turning points through three Industrial Revolutions, including the First Industrial Revolution that used water and steam energy to mechanize production. The second revolution took place thanks to the application of electricity for mass production. The third revolution used electronics and information technology to automate production. And so far the Fourth Industrial Revolution – the Industrial Revolution aims at bringing technologies together, blurring the boundaries between physics, digital and biology.

Currently, Industry 4.0 is taking place in many countries around the world. This is an unprecedented revolution in human history which is fast-paced, creating entirely new possibilities, and has profound impact on all areas of life. This revolution brings many opportunities but also poses many challenges to fields and professions. In particular, the field of accounting and auditing is determined to be affected, and requires changes to adapt.

II. WHAT IS THE FOURTH INDUSTRIAL REVOLUTION?

The Fourth Industrial Revolution or Industry 4.0 is one of the most debated and discussed topics today.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: ngothuhonghn@gmail.com

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam.

Industry 4.0 is the birth of a series of new technologies, combining all the knowledge in the fields of physics, digital, biology, and influencing all fields, economy, and economic and industrial sectors.

Industry 4.0 is the current trend in automation and data exchange in manufacturing technology, taking place in three main areas including Biotechnology, Digital and Physics.

In the field of Biotechnology, Industry 4.0 focuses on research to make great leaps in Agriculture, Fishery, Medicine, food processing, environmental protection, renewable energy, chemistry and materials.

The core elements of Digital in Industry 4.0 are Artificial Intelligence (AI), Internet of Things (IoT), and Big Data.

In the field of Physics, there are new generation robots, 3D printers, self-driving cars, new materials (graphene, skyrmions, ...), and nanotechnology.

III. FEATURES OF INDUSTRY 4.0

Industry 4.0 promotes the digital transformation of manufacturing through the integration of various systems and processes, which was previously through computer systems that are interconnected through supply and value chains. The Fourth Industrial Revolution is signaling a change in the traditional production context that includes three technological trends that drive this transition: connectivity, intelligence and flexible automation.

It can open a new era of investment, make the production process faster, consume less manpower, increase productivity and quality of people's lives: The application of the advancement of science, technology and machines into life and production helps increase labor productivity, thereby improving people's lives. For investors, Industry 4.0 will open up opportunities to gain a huge profit which is similar to ones from the previous revolutions.

However, many workers will lose their jobs due to machine replacement. Enterprises also have difficulty in recruiting human resources to meet the requirements of the job. This can lead to inequality, even disrupting the labor market. In addition, Industry 4.0 requires enterprises to change. To survive and develop, they must invest and upgrade technology, and at the same time, improve the quality of personnel.

IV. IMPACTS OF INDUSTRY 4.0 ON ACCOUNTING AND AUDITING

The Industrial Revolution is in the beginning stage but certainly will create big turning points for accounting and auditing field in the near future. This paper discusses the benefits and challenges Industry 4.0 brings to the field of accounting and auditing, and provides some recommendations to prepare for this revolution in the coming time.

Opportunities

About the scope of work: Achievement of Industry 4.0 with wireless network, digital data will help accounting and auditing work be not limited by geographical distance. Accordingly, accountants and auditors in Vietnam can perform accounting and auditing work in any country in the world.

About accessing to international accounting and auditing technology: The impact of Industry 4.0, namely the internet, IoT, large-scale data storage, cloud computing, the development of artificial intelligence systems, all things connected worldwide, will open up good opportunities for

the accounting and auditing profession to access utility accounting software with appropriate costs, from which resources are used effectively, time and manpower are saved, and the international accounting and auditing system is approached.

About collecting, storing and providing information: Auditors can exploit data sources and information quickly and effectively. The storage of electronic documents helps to save storage space and time, and to store in larger volumes, thereby saving storage costs, and helping to check documents regularly. For information provision stage, thanks to the wide coverage of the Internet, the time to transfer electronic documents from the document delivery unit to the document receiving unit is faster; besides, financial products, which are financial statements, through the software, will be presented clearly and professionally.

About the reliability of the report: The reliability and rationality of reporting will be enhanced through self-control or self-control systems. It is forecasted that in the next 3 to 10 years, smart software and systems will replace manual works, automate complex and multifaceted processes, and support the trends of outsourcing services and internal reuse of some other services.

About making decisions: The construction of big data center helps analytical science and data management in the field of accounting and auditing to have more and more advantages. Collecting, analyzing and processing big data will create new knowledge, support to make quick and effective decisions, reduce costs, and create competitive advantages for enterprises. For example, instead of checking on papers and records, auditors can perform audit procedures in a computerized environment through the use of modern equipment, programs, and digital technologies; they can collect the information that was previously difficult to collect, simplify the classification of documents, handle each economic activity individually, record all kinds of accounting books... They can extract data from huge data warehouses to serve all kinds of decision making, leadership levels, all kinds of decision-making information checkpoints, and all those with related interests.

For the accounting process: Industry 4.0 is based on digital technology, integrating intelligent technologies to optimize production processes, business processes, profession processes, production methods, including the process of handling, providing information for accounting and auditing. Big data technology allows quick and simple processing of accounting practice tasks, allowing quick access to data in a short time, and fundamentally changing the accounting process.

For individuals, enterprises, organizations operating in the field of accounting and auditing: Advances from Industry 4.0 affect the perceptions and actions of each staff member in the field of accounting and auditing; it is a motivation to help them endeavor to study and improve their science and technology level, apply technical advances in professional work to promptly capture and change to adapt to new technologies, improve labor productivity and quality of work. It is also a tool to help accounting and auditing firms improve their quality and services, and expand their markets to other countries thanks to internet connection.

Challenges

The reliability of information: Big data gives people access to an infinite amount of knowledge, enabling them to learn anything they need to know, but also has the drawback of non-mainstream information. It makes us cautious when accessing information and using it.

Breaking up the labor market: Automation coming to the throne will replace gradually manual labors. The easiest jobs to be automated and replaced with software include: manual accounting entry, bookkeeping, preparing year-end financial statements, and preparing reports on business activities, salaries and financial analysis. Robots replace human in many areas such as customer care, financial advice... Therefore, many workers will lose their jobs due to machine replacement. In addition, enterprises also have difficulty in recruiting human resources to meet the job's requirements.

Challenges on the quality of labor resources: The actual survey shows that accountants and auditors' current knowledge, understanding and application level of information technology are still limited and uneven. The training has just stopped at the transfer of background knowledge but not in-depth, multidisciplinary, especially for the knowledge specific to technology, security and artificial intelligence.

In Vietnam: The current accounting and auditing work is mainly carried out on documents and papers. While Industry 4.0 converts all of that data into electronic information, which is both diverse and elusive, so in the long run, if accountants and auditors do not have technological savvy, it will be difficult to perform the tasks. Therefore, it can be seen that Vietnam not only has a deficit in quantity, but also a deficit in the quality of its accountants and auditors. Although accounting and auditing training has been concerned, accountants and auditors of international quality, being able to meet working standards in today's competitive environment is still a matter of concern. According to Vietnam Association of Certified Public Accountants, up to two thirds of accounting and auditing graduates have not met the needs of employers in many aspects.

The Fourth Industrial Revolution comes with the strong development of information technology and artificial intelligence, so the object of the audit agency also becomes "more advanced". This requires auditing agencies and auditors to renovate and upgrade themselves to meet new requirements during their tasks performance.

About information security: The increasingly sophisticated development of digital technology will increase security holes, enabling high-tech criminals to operate. Audit information and results may leak from sending e-mail to audited units or external organizations and individuals, exchanging via shared networks. Bad actors may take advantage of unofficial audit information and results to carry out sabotage, and cause public confusion which adversely affect the image of the auditing agency, and cause unpredictable consequences.

During Industry 4.0, competition not only took place among companies providing traditional accounting and auditing services, but also among non-traditional enterprises and technology ones. There have even been some warnings that once blockchain technology is widely applied in the financial sector, it creates the risk of narrowing the traditional audit service. In fact, nowadays, technology companies in the world such as Google and Alibaba have also provided financial advisory and tax advisory services, and easily acquired business data through the exploitation of security holes.

According to statistics, the digital breakthrough in accounting will create new trends; specifically, about 66% of small and medium-sized enterprises will replace the services that accountants currently perform with cloud services. 50% of small and medium-sized enterprises will replace accountants if they are not adaptable to cloud technology.

Some suggestions and recommendations

With artificial intelligence, economic experts predict that many industries will disappear because of automation trend. Artificial intelligence can replace the manual tasks of accounting and auditing such as collecting, processing, calculating data, but tasks like analysis, finding the cause to give solutions for each specific situation and even for ones that have never happened before, always need the participation of human. Although artificial intelligence does not replace human, it is changing working environment and circumstances of accounting and auditing.

Facing the strong development of the Fourth Industrial Revolution, the field of accounting and auditing needs to make the most of opportunities, and overcome challenges and difficulties. Accordingly, the following solutions need to be considered:

On the side of management agencies

It is necessary to focus on strengthening the legal corridor, continuing to perfect the institutions on accounting and auditing activities, ensuring the conformity with market principles and commitments in the process of international integration. In order to do this, state management agencies need to regularly review legal documents, policies, regulations, and guidelines related to accounting and auditing activities to grasp and correct them promptly, creating favorable conditions for enterprises to operate effectively.

Investing and developing information technology infrastructure in a synchronous and timely manner, meeting the development trend of the global digital system. In particular, focusing on building and upgrading network security systems at a high level with many levels and layers, ensuring high confidentiality of accounting and accounting data, ensuring the expansion of the operation scope to be stable, be safe, and bring long-term efficiency...

Researching and applying effectively and appropriately audit methods, including basic methods and technical methods, especially methods of collecting and evaluating audit evidence, methods of technical analysis in the context of accounting profession, using electronic vouchers, blockchain technology, cloud computing...

It is necessary to continue promoting international cooperation, research and application of international accounting and auditing standards currently used by countries around the world, thereby learning and exchanging experiences in preparation for coping with Industry 4.0. Strengthening regional and international integration to meet the requirements of high quality financial universalization for the economy; developing diverse accounting and auditing services with high levels of knowledge and technology; improving access to accounting and auditing services of enterprises and organizations.

Paying attention to developing human resources for information technology of sufficient quantity and quality, ensuring to meet the requirements of management, using information technology systems, and information technology audit: organizing advanced training courses for auditors to promptly grasp and adapt information technology applications and modern auditing facilities to meet the increasing requirements of the work. Improving the professional competence of government officers being in charge of information technology to ensure the capability of managing, operating and developing the State Audit's information technology system.

On the side of organizations, enterprises providing accounting and auditing services

Applying properly the State's policies and regulations;

It is necessary to develop a strategy for developing human resources, in which attaching importance to innovating and enhancing the training of hi-tech human resources; increasing the ability to apply information technology; building a team of accountants and auditors with sufficient competence and ethical qualities; strengthening the training and development of effective soft skills, active group activities, and proficient use of digital technology according to market demand... contributing to improving competitiveness, shortening the gap in qualifications compared to the region and the world...

Revising the organizational model to match the smart management trend to meet the increasing demands of customers;

Actively changing, creativity, and having good development plans;

Investing in and developing equipment to adapt to scientific and technological advances.

On the side of training institutions

First of all, there should be changes in the training perspective. Training does not come from what we have, but from practical requirements and the requirements of the digital age, which are to provide high quality human resources for society.

Requirements from the integration and Industry 4.0 involve programs, content as well as methods of training accounting and auditing bachelor at universities having a very basic innovation. Training institutions need to revise the training and research programs, and analyse the characteristics of this revolution, from which to propose and recommend innovations in all aspects, especially in training methods. It is necessary to continue improving the curriculum quality with the knowledge associated with the development trend of Industry 4.0. Ensuring the integration requirements and quality interference with the programs of advanced countries in the region and the world, compliance with training programs of professional associations aiming to mutual recognition among training institutions in professional qualifications, diplomas, and certificates. Thereby, it helps students to adapt promptly to the digital age after graduation.

Establishing relationships with domestic and foreign enterprises. In the era of Industry 4.0, building relationships with enterprises is expanding not only with domestic units but also foreign ones, because it helps training and research activities to be linked, solving practical problems, and meeting the requirements of enterprises.

It is necessary to apply virtual accounting and auditing models on economic activities, which are both simulated and skilled, for students to practice. When software, electronic documents, electronic signatures, calculations, rotation and record of information on the form have been programmed and automated, it is essential to gradually abandon the method of teaching accounting and auditing according to the regime as well as dealing with manual professional operations.

On the side of accountants and auditors

Fostering and mastering the background expertise, regularly updating changes. In addition, increasing the ability to be creative and sensitive to seize opportunities, especially always

complying with the basic principles of professional ethics (integrity, objectivity, professional competence, prudence, confidentiality, professional status), putting common interests ahead of personal interests.

Each individual working in the field of accounting and auditing needs to be aware of the importance of technology to foster, apply it to suit the trend, save resources, and increase work efficiency.

Individuals need to foster more foreign languages to access foreign news, books and documents, and to exchange, learn and acquire advanced knowledge.

Opportunities will be expanded for accountants and auditors of international standards, recognized operations in many countries around the world such as ACCA, CMA, CIA... These certifications can help Vietnamese accountants and auditors maximize their working scope, improve the competitiveness of human resources in the field of accounting and auditing in Vietnam.

REFERENCES

1. National Assembly (2015), Accounting Law;
2. Standing Committee of National Assembly (2010), Resolution No. 927/2010/UBTVQH12 dated April 19, 2010 on the issuance of the Strategy for development of the State Audit to 2020;
3. Doan Thi Hong Thinh, Nguyen Thi Huyen (2018), “Phát triển lĩnh vực kế toán – kiểm toán trước cuộc cách mạng công nghiệp 4.0”, Review of Finance, Available at:<http://tapchitaichinh.vn/nghien-cuu-trao-doi/phat-trien-linh-vuc-ke-toan-kiem-toan-truoc-cuoc-cach-mang-cong-nghiep-40-138913.html>;
4. The Association of Chartered Certified Accountants (11/2017), Professional accountant – the future (Generation next): Managing talent in small and medium sized practices;
5. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future (Generation next): Ethics and trust in a digital age;
6. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future (Generation next): Managing talent in finance shared services;
7. The Association of Chartered Certified Accountants (11/2016), Professional accountant – the future: Generation next;
8. <https://news.zing.vn/cach-mang-cong-nghiep-4-0-la-gi-post750267.html>
9. <https://baomoi.com/phat-trien-ke-toan-kiem-toan-viet-nam-trong-boi-canh-cuoc-cach-mang-cong-nghiep-4-0/c/29596234.epi>
10. <https://baomoi.com/phat-trien-linh-vuc-ke-toan-kiem-toan-truoc-cuoc-cach-mang-cong-nghiep-4-0/c/25657632.epi>
11. <http://enternews.vn/ke-toan-thoi-dai-cong-nghe-4-0-co-hoi-va-thach-thuc-136336.html>

TRAINING VIETNAMESE ACCOUNTING LABOR FORCE IN THE CONTEXT OF THE FOURTH INDUSTRIAL REVOLUTION

Nguyen Thu Hoai¹

ABSTRACT

The fourth industrial revolution has been placing many impacts on the whole society and economy in general as well as on the accounting field in particular. The applications of new generations of robots, artificial intelligence, cloud computing, block chain, machine learning, big data, etc. in the accounting field would bring many opportunities for accounting labors to expand careers, improve working efficiency and reduce occupational hazards. However, many challenges would be also noticed such as the replacement of machines for human engagement in simple tasks, the disappearance of several traditional jobs, the high level of competition in job market, etc. While the fourth industrial revolution in accounting field in developed nations is already in the second phase which consists of function transformation and technological application on a large range, Vietnam is still in the first phase learning and partly applying technological development. Therefore, it is necessary for Vietnamese accounting labors to understand the context of the fourth industrial revolution in order to take advantages of opportunities as well as find appropriate solutions for potential challenges. This paper will focus on the applications of technologies of the fourth industrial revolution such as artificial intelligence, machine learning, big data, etc. in the accounting field. Then opportunities and challenges will be identified. Also, based on the actual training process for Vietnamese accounting labor, several solutions for the enhancement of the training quality for Vietnamese accounting labor will be proposed.

Keywords: *Vietnamese accounting labor, training, the fourth industrial revolution.*

1. INTRODUCTION

The fourth industrial revolution has placed many impacts on the economy, the society as a whole and on the accounting field in particular. Many applications of technological development in the fourth industrial revolution have been contributing to major changes in accounting processes, principles, contents and methods. Therefore, many opportunities and challenges have been generating. Several simple and repetitive tasks such as collecting, processing and analyzing large volumes of information have gradually replaced by machinery thus improving the working efficiency and reducing occupational risks. With this, Vietnam economy could take one step closer

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: nthoai76ketoanhvtc@gmail.com

to engage in the global value chain, the international accounting professional service market, thus contributing positively to the country's growth. Besides opportunities, the fourth industrial revolution also generates challenges such as the reduction in the number of human resources required, the increase in the quality of human resources, the disappearance of several traditional jobs, the high level of competition in job market, etc. Therefore, it is necessary for Vietnamese accounting labors to understand the context of the fourth industrial revolution industry. Also, in training aspect, there should be several innovations in programs, contents, training methods, etc. in order to provide high quality accounting labor force that meets professional requirements.

2. CONTENT TRAINING VIETNAMESE ACCOUNTING LABOR FORCE

2.1. The fourth industrial revolution and its applications in accounting field

The fourth industrial revolution

The fourth industrial revolution began in the beginning of the 21st century, following great achievements of the third industrial revolution, formed on the improvement of the digital revolution. The characteristic of the fourth industrial revolution is the unified use of both hardware, robotics and large computing power to expand information technology beyond software, with the interference of advanced technologies such as cloud computing, internet of Things, artificial intelligence, virtual reality, big data, wireless mobile technology, quantum information technology, nanotechnology, etc. The fourth industrial revolution has strong impacts on many fields, with the emergence of robots with artificial intelligence generating many applications for the society. With artificial intelligence, robots become more intelligent, they are able to remember and learn immeasurably compared to human being. Regarding transportation field, the generation of driverless cars would help to enhance safety critically because there is no state of alcoholism, passing the red light, speeding over carelessly. In the field of health, the IBM Watson machine could browse millions of medical records at the same time to provide doctors with evidence-based treatment options within few seconds thanks to its huge data aggregation capacity and powerful processing speed. This "knowledgeable doctor" also allows people to check information about their health. Doctors only need to enter patient data to be analyzed, compare with the huge data available and give suggestions for the correct treatment. As regards educational field, virtual reality technology will change the way of teaching and learning. Students can wear VR glasses and feel like sitting in a classroom listening to lectures, or immersive to witness simulated battles, see monuments, bring emotions and deep memories, help lessons learn more poignant. Or when pilot training, students wear glasses and see the front is the cabin and learn to fly like a plane to practice to reduce risks during real flight.

Applications of the fourth industrial revolution in accounting field

The fourth industrial revolution has strong impacts on almost all areas related to people such as health, education, construction, agriculture, transportation, entertainment, finance, accounting, auditing, etc. In accounting field, technological applications of the fourth industrial revolution include:

Robotic process automation

Robotic process automation (RPA) supports accounting labors to achieve better working efficiency, save time and costs, reduce risks and improve customer satisfaction (regarding

accounting service providers). Robots are designed to automate, optimize and accurately solve repetitive tasks.

RPA is used in accounting to support the reconciliation between the data inventory records and the actual data. RPA application operates 24/7 with the ability to process data, connect multiple systems in the process of inventory reconciliation, shorten the period of aggregating book data from departments. With the support of robots, the process of reconciliation is smooth, the number of required workers decreased significantly, thus ensuring the reliability of the process.

RPA is also applied in accounting to perform accounting of repeated economic transactions, hence, work efficiency significantly increases. If an accountant needs 15 minutes for each entry, then the robot only needs 15 seconds.

RPA is also applied to support the provision of accounting services, consulting services, expanding more services to bring added value to meet customer needs.

Cloud computing

Cloud computing, also known as Virtual Server Computing, is a computing model that uses computer technologies and develops based on the internet. With cloud computing, entities do not need to invest a large amount of money in hardware then spend a lot of time managing that hardware. Instead, with the cloud computing, entities could be provided with exactly the right type and size of computing resources they need, they can access as many resources as they want, almost instantly and entities only have to pay for what they use. As regards accounting field, cloud computing applications allow businesses to organize their accounting systems in a compact manner, saving on hardware and software costs during deployment. Businesses can access information from anywhere to ensure flexibility. With cloud computing, businesses could focus all resources on accounting activities, accounting staff do not have to spend time checking data backups, data security, system maintenance, etc. Moreover, cloud computing allows accounting services providers to expand the service scale without worrying about whether the information technology system of the business could keep up.

Artificial intelligence

Artificial Intelligence, or Machine Intelligence, is the intelligence of machines created by humans. Machine intelligence could think and learn in the same way as human intelligence. However, it is capable of processing data at a wider scale and faster than human being. In accounting field, the application of artificial intelligence and automation technology could support the process of information acquisition, processing and analyzing information for the purpose of decision making as follows:

- With the acquisition of information: the artificial intelligence of enterprises can input recognition technology, optical character by converting images, PDF, handwriting to text soft document. Applied technology machine learning and decision tree for semantic analysis of sentences, from which to extract the important information and stored in the database. Therefore, the input data collection is automated. Diverse data are not only quantitative data but also qualitative data, not only financial data but also non-financial data such as text, context, symbols. This helps to

increase the accuracy of the input and facilitates the analysis of accounting information according to specific circumstances and circumstances as well as to support decision-making for managers.

- With the process information management: artificial intelligence with automated process is used to perform classification of economic operations arise, the accounting treatment of the entry end of the period, make accounting reports quickly, accurately and promptly. Moreover, artificial intelligence with the application of natural language processing helps the system understand the collected accounting data and convert accounting reports into reading languages along with expertly reported data.

- With the process of analyzing the information and advice to managers in making decisions: on the basis of data systems varied, using algorithms machine learning hospitality chain cognitive progress of the machine based on existing data and the system itself analyzes the trends in revenue, cost, cash flow, etc. in the future for the decision-making of the administrator. On the other hand, the integration of applications based on artificial intelligence, automation, cloud computing, block chain technology, researchers have brought data analysis systems with large amounts of information. These systems perform data analysis, statistics, and algorithms to make decisions in real time.

Block chain application

Block chain or ledger is a decentralized database system that stores information in blocks linked together by code, and is managed by everyone involved in the system, instead of an individual third party such as the state bank. It also allows secure transmission of data by a complex encryption system, and is expanded over time. With the ability to reduce most errors, prevent data modification, and high security, block chain is considered by experts to become popular in the fields of accounting, auditing, finance and banking with the following three main characteristics:

- A new transaction is made from one person and is transmitted to an identical ledger network without a control center;
- All transactions and records are permanently stored and are not likely to be forged or deleted;
- Block chain is programmed to allow automation of transactions and control via smart contracts.

2.2. Opportunities and challenges of the fourth industrial revolution towards the Vietnamese accounting labor force

The fourth industrial revolution has major impacts on all aspects of accounting. It creates a lot of opportunities but also poses many challenges for the Vietnamese accounting labor force. Therefore, innovations in training accounting are required in order to adapt to potential changes.

The fourth industrial revolution creates many opportunities to the Vietnamese accounting labor force

Firstly, the fourth industrial revolution provides opportunities to expand careers. With wireless networks, digital data, cloud computing, accounting and auditing works would be not limited by geographical distance. Accordingly, accountants, auditors and accounting and auditing firms in Vietnam can provide accounting and auditing services to entities in any country in the world. Also,

through the exploitation of information systems, massive data collected could support consulting service for clients on market expansion, pricing strategies, business strategies, etc.

Secondly, the fourth industrial revolution provides opportunities to improve the working efficiency. With the application of robots, artificial intelligence, cloud computing, block chain, machine learning, etc. in the field of accounting, it creates many great opportunities for accountants and professionals in Vietnam to access to intelligent systems, utility with appropriate cost as the system automatically enter diverse data, system data analysis, system support the prediction, system self out decisions, database management systems, etc. These systems have automated a significant portion of accounting works to help effectively use resources, save time, access to accounting systems internationally.

Thirdly, the fourth industrial revolution provides opportunities to minimize occupational risks for accountants and professional accountants. Applications of the fourth industrial revolution support accountants and professionals in data control. In particular, there should be no error with the data, data security is ensured and non-editable during storage.

Challenges of the fourth industrial revolution to the Vietnamese accounting labor force

The fourth industrial revolution has created many opportunities for Vietnamese accounting labor but also posed many challenges.

Firstly, with the replacement of machinery, human engagement are easily eliminated by technology. Application of intelligent robots, artificial intelligence, machine learning, natural language processing, etc. in the field of accounting with automatic data entry systems, automatic data processing, automatic data analysis, automatic decision making, automatic control of data and so on has gradually replaced the accounting human resources, several traditional job positions related to accounting will disappear, the industry will gradually fade. Thus, enterprises in general and enterprises providing accounting services in particular tend to need less accounting workers, if the accountants and auditors do not take advantage of technological opportunities, they would face risks losing their competitiveness in the context of digital technology, which will be excluded from the strategic decision-making process of enterprises by the development of science and technology.

Secondly, the fourth industrial revolution presents a big challenge to the accounting labor force in Vietnam, which shows that the needed labor number decrease, but the needed quality of labor force increase significantly. Applications of the fourth industrial revolution, the automated system has gradually replaced simple and repetitive jobs, thus significantly reducing human resources needed to use in the accounting work. At the same time, accounting staffs are required to control the entire automation system, understand clearly control procedures have been put in the system, the weaknesses of the system, techniques that could be used to modify data, etc. Therefore, the accountant must have a high level of expertise in the fields of accounting, business administration, human resource management, information technology, etc. They also need to be skilled in solving complex problems posed in systems that integrate management functions; creative ability to solve real-world problems when automated systems cannot solve them; ability to coordinate with all departments in the enterprise to find out the work stages, activities of the business that have not been properly managed and controlled, etc.

Thirdly, the fourth industrial revolution poses a challenge to consider the issues of professional ethics that needs to change. A digital application, with a large amount of data on transactions and events arising in the production and business process that accountants and auditors collect leads to a series of new problems. For example, how to use that data to serve accounting work, how to ensure data privacy and security, how to protect business strategies, etc. To decide thoroughly this problem is not only the monitoring system, fences control that requires both changes on accounting and ethical standards.

Fourthly, the fourth industrial revolution creates greater competition between enterprises; between accounting service providers. In this process, small and medium-sized enterprises are at risk of losing market share due to the large enterprises with technology resources acquiring customers as well as the competition of accounting and auditing firms cross-country.

2.3. The actual of Vietnamese accounting labor force and training process in the context of the fourth industrial revolution

The actual of Vietnamese accounting labor force

Firstly, the awareness of the labor force of the importance of the fourth industrial revolution is limited. Currently, information related to the fourth industrial revolution is covered on many media types. However, it is estimated that Vietnamese willingness to participate in the fourth industrial revolution is low. According to the World Economic Forum in 2018, Vietnam is in the nascent category, ranked 53rd in terms of production motivation and ranked 48th in manufacturing position. In the field of accounting and auditing, according to the survey assessing the impact of the fourth industrial revolution on accounting and auditing conducted by the Vietnam Association of Certified Public Accountant (VACPA) in June 2018, 51% of Vietnamese accountants, auditors and auditing firms are interested in the fourth industrial revolution, and of these more than 10% are particularly highly interested in this issue. The remaining 49% expressed an different attitude on this issue. And the worrying issue is that among 5% of the surveyed accountants and auditors who do not care and pay little attention to what is the fourth industrial revolution, and one third of the surveyed respondents said that the fourth industrial revolution is a normal problem like everything else.

Being aware of the impact level of the fourth industrial revolution, up to 67% of accountants, auditors and auditing firms think that the fourth industrial revolution is having and will have a great impact on the profession of accounting, auditing. There is a very few (5%) are aware that the fourth industrial revolution will profoundly and comprehensively transform the industry in the near future. However, among the accountants, auditors and auditing firms involved, 25% think that the fourth industrial revolution is just as normal as other factors currently affecting their work (such as price competition, traditional accounting and auditing techniques, standards compliance), and up to 3% think that the fourth industrial revolution has little impact on the work they are doing.

Secondly, the lack of high quality labor. According to the Vietnam Association of Certified Public Accountants, as of 2018, Vietnam has about 11,000 accountants and auditors who have achieve certificates, there are more than 150 enterprises providing audit services serving over 40 thousand customers (including domestic and foreign enterprises) and over 100 organizations providing accounting services with more than 10 thousand employees. Although accounting and auditing

training has been paid attention, there are only a few accountants and auditors of international quality who are able to meet working standards in the current competitive environment. The number of accountants and auditors in Vietnam have an international practice certificates is just over 5,000. This number, compared with other countries in the region such as Singapore or Thailand, is too modest. The quality of accounting and auditing in domestic market is still low, as many as two thirds of graduates in accounting and auditing have not met the needs of employers in many aspects.

Thirdly, soft skills of workers are still weak. According to research by the Institute of Science, Labor and Social Affairs in 2017, trained workers in general and accounting workers is considered to be agile, creative and able to meet the needs. However, many lacks soft skills such as teamwork, foreign languages, critical thinking, creativity, technology compliance, etc.

The actual of the training process for the Vietnamese accounting labor force

Training accounting labor force is conducted at many training establishments with various levels of training, from intermediate, college, university transfer, regular university, graduate and higher education. Several training institutions have traditionally trained in accounting such as the Academy of Finance, Thuong Mai University, National Economics University, etc. Before 2000, accounting and auditing were trained only at several universities and colleges in the economic sector with an annual number of graduates of about 8,000 to 10,000. So far, there have been 223 organizations offering college degrees in accounting, 126 institutions offering university degrees, 18 organizations offering master's degrees and 5 organizations offering doctoral degrees in accounting. Every year, from 50,000 to 60,000 students graduated from colleges and universities majoring in accounting, joining the labor market. Besides, the number of students granted master's degrees in accounting is also over 3,000 students.

Training programs in accounting at the current training facility is built on the common curriculum framework of the Ministry of Education and Training. In addition, the training programs of many institutions are also built in a way that links the international certification training programs such as ACCA, CPA Australia to help students be able to further study, career development at their convenience. The fact that many schools teach specialized subjects in English has helped overcome language barriers, develop English proficiency in students' study, support students who have good working ability in the international environment after their graduation. However, in the training program, the inheritance and the connection between subjects are limited; lack of modules covering interdisciplinary knowledge and high technology application; modules related to International Accounting Standards and information technology are still limited.

The content of the subjects in the curriculum is still slow to innovate, heavy in theory, not really close to the reality of the context of global economic integration and the fourth industrial revolution. To be able to solve practical problems, students must not only have thorough knowledge of accounting in accordance with international practices but also must have in-depth knowledge in information technology such as: artificial intelligence, cloud computing, big data analysis, etc., in-depth knowledge about designing accounting system in the context of successful application of the fourth industrial revolution. In fact, the content of teaching on International Accounting

Standards, on artificial intelligence, cloud computing, big data analysis, etc. at the accounting training institutions is still limited.

Faculty lecturers who teach lectures on accounting are fairly well-trained at university level, postgraduate at home and abroad. However, the quality of lecturers' resources is not uniform, especially the ability to access international accounting standards and practices, modern management accounting, the ability to access information technology, and apply information technology in accounting and auditing is limited .

Teaching methods have been improved, but the learning materials is still limited; investing in training technology such as virtual practice rooms, accounting software, online teaching technology, etc. are limited, therefore, the effectiveness of active teaching methods is not high.

2.4. Solutions to improve the quality of training Vietnamese accounting labor force in the context of the fourth industrial revolution

The fourth industrial revolution brings many opportunities and challenges to Vietnamese accounting labor force today. In order to train accounting human resources to meet the trend of the fourth industrial revolution, training institutions should pay attention to the following solutions:

Firstly, the training institutions need to change in training perspective. Training does not come from what we have but from practical requirements, the requirements of the digital age with the digital economy and e-government is to provide accounting human resources with high quality for the society.

Secondly, the training program should focus on renewing the training program of accounting majors in line with the world development trend towards reducing theory, increasing practice, increasing English skills and problem solving skills. Therefore, training institutions should review accounting training programs. The training program must be developed to ensure the integration requirements and meet the quality standards of advanced countries in the region and the world, in accordance with the training programs of professional associations aiming to mutual recognition among professional training institutions and diplomas and certificates. The training program must ensure the inheritance and continuity between the subjects; supplement modules covering interdisciplinary knowledge and high technology application; strengthen modules related to International Accounting Standards and information technology.

Thirdly, in terms of training content, there should be a change to help graduates to adapt in time to the digital age. The training content includes not only in-depth knowledge on accounting and auditing according to international practices but also in-depth knowledge on information technology such as artificial intelligence, cloud computing, and big data analysis, etc., in-depth knowledge of accounting system design, audit process in terms of application of achievements of the fourth industrial revolution. In addition to knowledge of accounting, auditing, information technology, training content also needs to focus on training necessary skills such as thinking skills, creativity, continuous innovation, effective communication skills, teamwork skills, critical thinking skills and problem solving skills, etc.

Fourthly, training institutions should change teaching methods from traditional teaching methods to applying positive teaching methods in the direction of promoting learners' positive,

proactive and creative methods. Teachers help students understand the nature of the problem, understand the principles and give topics or situations to the student group for students to learn information, discuss, and solve problems. Through this, teachers have taught students to self-study, learn how to learn and look up documents, update new information, know how to process information to become their knowledge and also practice. proactive learning attitude, teamwork skills, behavior skills, communication, information processing, etc.

Fifthly, improving the capacity of teaching staffs at the training institutions to ensure extensive and in-depth professional knowledge to be constantly updated, modern and at the same time be knowledgeable. Capacity of lecturers can be done through collaboration with professional associations at home and abroad to study professional issues, requirements of practice; at the same time, invest in teachers to participate in training sessions, seminars on exchange, update specialized knowledge and practical work, participate in training courses on innovating teaching methods.

Sixthly, training institutions need to invest in technology so that students can practice and gain practical experience in the context the fourth industrial revolution, gain the knowledge of potential social impacts of the system automation and smart systems and how to solve this problem.

Seventhly, it is necessary to establish a relationship between training institutions with domestic and foreign employers. Doing this, on the one hand, helps learners easily access practical jobs at the units to train career skills before graduation, and on the other hand helps training institutions to listen regularly. It is from employers that the requirements for the quality of training products provided as well as the appropriateness of the training program. It is the opinions and contributions of employers that will be an important basis for training institutions to timely adjust the content and training program to ensure cohesion, solve problems of practice.

3.CONCLUSION

The fourth industrial revolution comes out at a fast pace and profound impacts on all aspects of economic and social life including accounting labor force. To be able to participate more effectively in the value chain of global, accounting service internationally, contribute positively to the growth of Vietnam, the Vietnamese accounting labor force must significantly change in order to take advantage of opportunities and identify solutions to overcome challenges. Based on the applications of technological development in the fourth industrial revolution, opportunities and challenges, the actual of training process for Vietnamese accounting labor force, several solutions are proposed to improve the quality of the training for Vietnamese accounting human resources in the context of the fourth industrial revolution. The training institutions should instead change their training perspectives, rapid innovation programs and training content, invest in technology, implementation of effective methods of active teaching, linkages closely with employers to research and training activities closely associated with reality.

REFERENCES

1. Dang Van Thanh, *Vietnam's Financial and Accounting Systems in the Era of Digitalised Technology*, Annual Conference co-hosted by Ministry of Finance-ACCA.
2. Le Hong Quang, *Technology solution for Finance and Accounting in enterprise management*, Annual Conference co-hosted by Ministry of Finance-ACCA.

3. Lea Hart, *How Industry 4.0 will change accounting*, Journal of Accountancy in September 2017.
4. Pham Sy Danh, *Impact of industrial revolution 4.0 (Industry 4.0) to the profession and VACPA members*, Annual Conference co-hosted by Ministry of Finance-ACCA.
5. Mai Ngọc Anh & Lưu Đức Tuyên, *Đổi mới đào tạo kế toán - kiểm toán trong bối cảnh hội nhập và tác động của cách mạng công nghiệp 4.0*, Hội thảo khoa học quốc gia “Kế toán – Kiểm toán Việt Nam trong bối cảnh cuộc cách mạng công nghiệp 4.0 - Cơ hội và thách thức”, Nhà xuất bản Hồng Đức.
6. Lê Thị Thanh Hải & Hoàng Thị Tâm, *Nâng cao chất lượng đào tạo sinh viên ngành kế toán, kiểm toán trong thời kỳ cách mạng công nghiệp 4.0*, Hội thảo khoa học quốc gia “Kế toán – Kiểm toán Việt Nam trong bối cảnh cuộc cách mạng công nghiệp 4.0 - Cơ hội và thách thức”, Nhà xuất bản Hồng Đức.
7. Nguyễn Thị Mai, *Phát triển nhân lực kế toán - kiểm toán Việt Nam trong thời đại công nghệ 4.0*, Hội thảo khoa học quốc gia “Kế toán – Kiểm toán Việt Nam trong bối cảnh cuộc cách mạng công nghiệp 4.0 - Cơ hội và thách thức”, Nhà xuất bản Hồng Đức.
8. Phan Nguyễn Hoàng Chính- Lê Đức Thắng, *Phát triển ngành Kế toán, Kiểm toán Việt Nam thời kỳ Cách mạng công nghiệp 4.0* Tạp chí Tài chính kỳ 2 tháng 8/2019
9. Vũ Đức Chính, *Kế toán, kiểm toán chủ động trong việc ứng dụng CMCN 4.0*, <https://www.mof.gov.vn/webcenter/portal/tttc>.

THE IMPACTS OF BLOCKCHAIN TECHNOLOGY ON AUDITING ACTIVITIES, OPPORTUNITIES AND CHALLENGES FOR AUDITORS

Do Thi Thoa¹, Bui Thi Bich Thuy²

ABSTRACT

Blockchain technology is the core technology known since the introduction of Bitcoin (digital currency) in 2008. In recent years, blockchain technology has grown far beyond Bitcoin and been currently being tested in many fields such as health data, health, traceability of agricultural products, land management, and financial and business applications... Blockchain technology is receiving more and more attention of users due to the outstanding features of this technology based on the Internet. Blockchain technology has the ability to affect all document storage processes including the processing of transactions, recording and reporting. When this technology is applied at an auditing entity, the auditor needs to change blockchain-based audit techniques and procedures. This shows that blockchain technology has an impact on auditing activities as well as bring new opportunities and challenges for the auditing when blockchain technology is more widely applied.

Key words: *blockchain technology, auditor*

1. OVERVIEW OF BLOCKCHAIN TECHNOLOGY

1.1. Overview of blockchain technology

The first blockchain was invented and designed by Satoshi Nakamoto (a native Japanese expert in computer science and digital technology) in 2008. Initially, blockchain technology was implemented as a core part of Bitcoin. This technology of Bitcoin has become the inspiration of a series of other applications.

Blockchain is the combination of “block” and “chain”, the chain of connected blocks or a list of continuously developing records which are linked and secured by code. In the language of accounting and auditing, Blockchain is a digital ledger created to record the transactions made between parties within a network. Blockchain is a horizontal ledger of all Internet-based transactions.

All participants and users share databases at nodes connected to the blockchain, nodes maintain an identical copy of the ledger. Each transaction recorded in the blockchain represents the exchange of information between participants. When a network participant wants to send information to others, all other nodes in the network perform a check to see which new transac-

¹ Department of Auditing - Accounting Faculty – Academy of Finance.

² Faculty of Foreign Languages - Academy of Finance

tion is valid, this is done by a consistent mechanism. Once the transaction is accepted by the network, all copies of the ledger are updated with new information. Many transactions are often combined into a block, added to the ledger. Each block contains information regarding the previous blocks and thus all the blocks in the series are linked together in identical copies.

Participating nodes can add new transactions, timestamp. Participants cannot delete or change the information once it is put on the blockchain, which requires the consent of the majority of the network. Blockchain is designed to prevent data from being changed. Once the data has been accepted by the network, there is no way to change it. If a node modifies a previous block, it will be out of sync with the rest of the network and will be removed from the blockchain.

1.2 Main features of Blockchain

Blockchain is a distributed digital ledger and has some of the following characteristics:

- ***Near real time:*** A blockchain allows the settlement of transactions near the real time and thus reduces the risk of a party's non-payment for the transaction.

- ***Distributed ledger:*** Blockchain's database is not stored in only one location, records are stored publicly and easily verified. No centralized version of the database exists. Blockchain is stored by millions of computers at the same time and blockchain data can be accessed by any user on the Internet.

- ***Irreversible and unchangeable:*** Once a transaction is recorded in the blockchain and a subsequent block has been formed, the transaction data recorded in the block becomes immutable i.e. The blockchain network exists in a state of consensus. A blockchain contains a verifiable record of every transaction ever made on the blockchain. Nodes on a blockchain network can come and go but the integrity and reliability of the network will remain intact as long as it is being used. By this way, none of the parties controls the blockchain and no single party can modify it.

These characteristics show their sustainability, and blockchain technology can store the same information blocks on its network which is not controlled by any one entity. Blockchain was originated from the Internet and the Internet has been in operation and has been verified for durability for nearly 30 years. Therefore, this is the best tracking record for blockchain technology as the technology continues to grow.

1.3 How Blockchain works

As mentioned above, blockchain technology was originally implemented as a core part of Bitcoin and was invented by a scientist - Satoshi Nakamoto. In fact, many different types of blockchains are being developed and tested, however, most blockchains are operating under this common framework and approach.

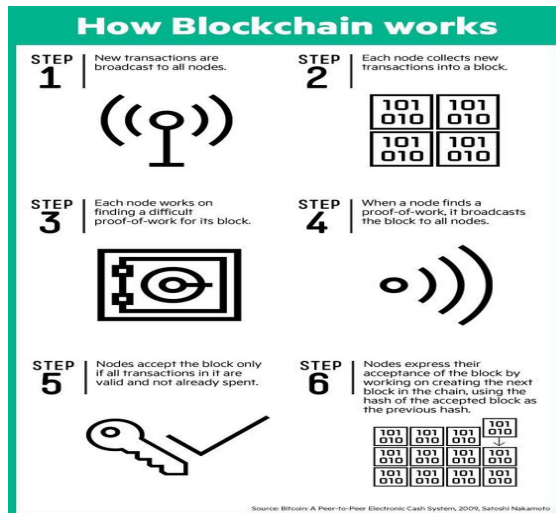


Figure 1 How Blockchain works

(Source: Bitcoin A peer - to- Peer Electronic Cash System 2009 Satoshi Nakamoto)

How Blockchain works is done through the following steps:

- *Step 1: The new transaction is broadcasted to all nodes*
- *Step 2: Each node collects new transactions into a block*
- *Step 3: Each node works to find proof of work for its block*
- *Step 4: When a node finds a proof of work, it will broadcast to all nodes*
- *Step 5: Nodes accept a block only if all transactions in it are valid and have not been used*
- *Step 6: The nodes show acceptance of the block by creating the next blocks in the sequence, using the hash function of the accepted block as the previous hash function. (Hash function - a programming term: is an algorithm to generate hash values corresponding to each data block).*

1.4. Blockchain applications

Blockchain technology will create a lot of potential for applications in many fields, advances in advanced technologies such as blockchain are expected to transform some fields and workforce by automating many activities currently done by humans. Countries around the world have applied Blockchain technology. Canada and Denmark applies this technology in digital currencies. Brazil and Sweden applies it in land registration. Some US states have applied Blockchain technology in electronic signature management and record keeping. The United Arab Emirates uses blockchain in land management. Finland applies it in traceability of product supply chain while Estonia applies it in healthcare; ...

Countries around the world have been deploying technology applications in the public sector to serve the Government's activities. Some areas where blockchain is interested include:

- **Financial Services:** A number of stock exchanges around the world are piloting a blockchain platform that allows the issuance and transfer of private securities. In addition, many groups of banks are looking at use cases for commerce, cross-border payments and other banking processes.

- **Industrial products:** Companies in the consumer industry are exploring the use of blockchain to digitize and track the origin and transaction history of commodities.
- **Life Sciences and Healthcare:** Health care organizations are exploring the use of blockchain to ensure the integrity of electronic medical records, medical bills, insurance and other records. .
- **Public sector:** Governments are exploring blockchain to support asset registration agencies such as land and company stocks.

1.5 Advantages and disadvantages of Blockchain

Based on the characteristics as well as how blockchain technology works, Blockchain technology has some advantages and disadvantages as follows:

Advantages

- Low cost of implementing activities in applying blockchain field
- All users can connect the Internet only with a computer
- Increasing transparency for transactions, document storage is public and objective.

Disadvantages: some disadvantages of blockchain technology can be listed as:

- When the number of users increases, the blockchain network weakens and takes quite a lot of memory in the computer.
- Blockchain users cannot delete data once the information has been recorded in the blockchain because of the unbreakable feature in the blockchain.

2. IMPACTS OF BLOCKCHAIN TECHNOLOGY ON AUDITING ACTIVITIES, OPPORTUNITIES AND CHALLENGES FOR AUDITORS

2.1 The impacts of Blockchain on audit activities

Users of audited information always trust the Independent Auditors, because they perform the audit work in accordance with auditing standards and ethical regulations.

In the context of applying blockchain technology in auditing entities, the transaction recorded in the blockchain may be invalid or incorrectly classified in Financial Statements. On the other hand, many transactions recorded in the Financial Statements are accounting estimates, auditors need to review these transactions and perform appropriate audit procedures even those were recorded in the blockchain. In case the transaction contains record errors, the auditors should check inaccurate information causing mistake or fraud. This can be difficult for auditors because the blockchain are irreversible and not controlled by any auditing entity, auditors need to extract data from blockchain and consider whether it is reliable or not.

The process of gathering evidence may include a review of general information technology controls (GITC) relating to the blockchain environment. This also requires the auditor to specifically understand and evaluate the reliability of the consensus protocol in the blockchain. Auditors need to review and adjust the audit procedure to take advantage of the blockchain as well as judge the increased possible risks of transactions.

2.2. Opportunities and challenges for auditors

Opportunities for auditors: In the context of widely using blockchain technology, this is also an opportunity for auditors to perform financial statement audits.

- Reconciliation of accounts, trial balance sheet, ledger extract, general ledger, detailed book and data spreadsheets are provided to auditors in electronic format. In terms of blockchain application, auditors has access to real-time data through nodes on the blockchain. This allows auditors to get the information needed for the audit in an appropriate format.

- The access to information in the blockchain is likely to become more efficient. Auditing the entity's transactions recorded in the blockchain is an opportunity for auditors to develop information technology skills to conduct audits in organizations applying blockchain. This can eliminate many manual data processing activities and reduce a lot of effort and time in preparing audits. This allows auditors to focus on riskier and more complex transactions when conducting audits close to real time.

- By appying the blockchain, auditors can deploy many activities to automate, analyze and warn related parties of the irregularities of transactions on a real-time basis. The provision of documents such as contracts, orders, invoices is encrypted and stored securely or linked in the blockchain. The auditors has access to data collection and the time of financial statements audit can be improved.

- The audit process may be carried out more continuously, the auditors must apply professional judgment when analyzing accounting estimates. In addition, for automated fields, auditors need to evaluate the internal control of financial data.

The challenges for auditors: When many industries apply blockchain in processing transactions, without information verification by an independent audit organization, users of blockchain technology may face the risk of unidentified information errors. Therefore, information users can trust auditors by improving their expertise and skills when performing audits in a high-tech environment. This poses many challenges to auditors including:

- Auditors need new skills including knowledge of programming languages and understanding of blockchain technology. This also raises questions in the audit profession such as: what audit skills they needs to have when auditing in blockchain application environment.

- Auditing standards and auditing guidelines should be established when conducting audits in the context of applying this technology.

- When providing audit services on blockchain, is it necessary to identify the customer? How will the principle of independence be applied to blockchain users? Is the information provide independence to blockchain participants? Can auditors perform audits for participants?

- The legal framework in terms of blockchain application is not clear (For example, in Vietnam, there is no legal framework related to management and administration of blockchain technology).

CONCLUSION

To be well prepared for international integration in the context of high technology application in all fields of social life, opportunities and challenges for auditors are increasing. High-tech applications like blockchain are not a substitute for auditing, but auditors need to have a plan to follow the development of blockchain technology and other technology because it will influence their customers. Auditors will face difficulties in auditing on information technology platform and must coordinate with experts to perform audit procedures related to blockchain. At the same time, auditors have opportunities to learn and promote the expert to adapt to the needs of customers in a high-tech business environment.

REFERENCES

1. Introduction to audit Coursebook - Academy of Finance, Finance Publishing House (2017)
2. <https://en.wikipedia.org/wiki/Blockchain>
3. <https://medium.com/@micheledaliessi/how-does-the-blockchain-work-98c8cd01d2ae>
4. <https://blockgeeks.com/guides/what-is-blockchain-technology/>
5. <https://blog.iqoption.com/is-blockchain-the-next-revolution-after-the-internet/>
6. Bitcoin A peer - to- Peer Electronic Cash System 2009 Satoshi Nakamoto
7. Deloitte Publication — Blockchain: Enigma, Paradox, Opportunity 2017
8. *aita.gov.vn/ung-dung-cua-cong-nghe-chuoi-khoi-blockchain-trong-khu-vuc-cong*

FACTORS AFFECTING THE ABILITY OF IFRS TO APPLY FAIR VALUE IN VIETNAMESE ENTERPRISES IN THE CONTEXT OF THE INDUSTRIAL REVOLUTION 4.0

Nguyen Thu Hien¹

ABSTRACT

The Industrial Revolution 4.0 is creating profound and comprehensive influences on a global scale. It has a strong impact on all aspects of socio-economic life in general and fields and industries in particular. In particular, the field of accounting and auditing is determined to be impacted and requires changes to adapt. The harmonization and convergence with international financial reporting standards (IFRS) will contribute to promoting the process of economic integration with the region and the world as well as the reform process in Vietnam. The objective of this study is to examine the factors that affect the ability of IFRS to apply fair value in Vietnamese businesses through the processing of data collected from the survey results of the above 200 enterprises in all provinces and cities of Vietnam with SPSS 20 statistical software.

The research results show that, out of 06 factors included in the research model, 05 factors were found to affect the ability to apply fair value according to IFRS in Vietnamese enterprises, while enterprise characterization factors were found to have no influence.

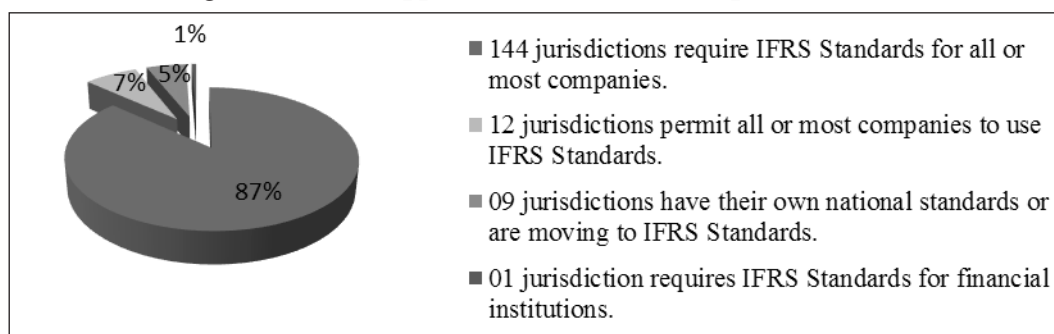
Keywords: Fairvalue, FS, Accounting, IFRS, enterprises.

1. INTRODUCTION

The rapid development of industry, or industrial revolution, has been happening for a long time and going through many different stages. The world is currently facing the latest industrial revolution called Industrial Revolution 4.0 (Industry 4.0), which will lead to a major change around the world. Industrial Revolution 4.0 has spread rapidly and changed most industries in all countries in terms of production systems, management and governance. In this context, the accounting field is not an outsider and no longer an intrinsic, specific issue of each country. It is imperative to find a common language for businesses in preparing and presenting financial statements (financial statements). In order to meet the diverse requirements of businesses as well as investors, countries often allow businesses to choose national accounting standards (NAS) or International Financial Reporting Standards (IFRS) for preparing and presenting the financial statements. The countries that choose to use IFRS also apply fair value (FV) to measure.

According to the document of the International Accounting Standards Board (IASB), up to now, 144/166 countries and territories have declared requirements to apply IFRS to all or most companies. This Figure is shown below.

¹ Accounting Department - Academy of Finance

Figure 1. Global application of IFRS until September 2018

Source: From IFRS Foundation, 2018

In Vietnam, Industrial Revolution 4.0 is bringing a great opportunity for transforming the economy to a higher level of development but there are still “bottlenecks” in terms of institutions, technology infrastructure, and human resources. These need disassembly by developing specific strategies and plans synchronously in all sectors and fields. In the field of accounting, Industrial Revolution 4.0 will open up good opportunities for Vietnamese accountants to access the international accounting system. Currently, Vietnam is one of the few countries that have not applied IFRS (IFRS is based on the principles of FV in IAS/IFRS), and is applying Vietnam Accounting Standard (VAS) for the preparation and presentation of financial statements. However, the application of VAS has shown more and more limitations, some contents are not suitable for transactions of the market economy in the new period, especially in the context of the capital market is developing strongly with the development of a variety of complex financial instruments. Because of this, Vietnam is developing and completing the “Project of applying international accounting standards into Vietnam” to be consistent with the trend of globalization and IFRS commitment. This can be seen as a third accounting reform, marking a decisive step in the comprehensive integration process of Vietnamese accounting to the global accounting (Mai Ngoc Anh, 2016). Besides, in recent years there have been many studies related to how to apply IFRS in Vietnam in general, for businesses in particular, thereby pointing out barriers, challenges and factors (macro, micro) affecting the application of IFRS to specific conditions in Vietnam, such as: political environment, legal environment, business environment, cultural environment, intergration pressure, economic growth and accountant qualifications...

Through the synthesis of the results of previous and foreign studies on the application of IFRS as well as some specific factors affecting the application of IFRS discovered in the studies. Because accounting under FV is the key trend for IFRS system, IAS should focus on analyzing and examining to find out which factors affect the ability to apply IFRS in Vietnamese enterprises. The results of this study will provide empirical evidence on the relationship, the degree of influence of each factor on the ability to apply FV according to IFRS, and also indicate which factors are the barriers and hindering the application of fair value according to IFRS in Vietnamese enterprises.

2. THEORETICAL FOUNDATIONS, HYPOTHESES AND RESEARCH MODELS

2.1. The background theory involving researches

This study uses related background theories such as Institutional theory, Stakeholder theory as a basis for researching factors affecting IFRS/FV application according to IFRS. Agency theory is the basis for research related to the choice of applying the management practice by managers, because:

Institutional Theory: According to North (1994), institutions are human-imposed constraints to formulate the framework for our interactions. Institutions include formal constraints (rules, laws, constitutions...) and informal (codes of conduct, customs, codes of conduct ...), and enforcement characteristics of them. Institutional theory is an appropriate and widely used theoretical framework in accounting research, especially analyzing the application of international accounting standards and changes and improvements in the accounting system (Albu et al., 2011). Therefore, the institutional theory that provides the basis for forming the factors affecting the application of IFRS/FV according to IFRS is culture, legal system, business environment.

Theory of associates: According to this theory, in addition to the traditional relationship of managers - owners, enterprises need to consider the relationship with other objects related to the existence and development of businesses such as creditors, employees, suppliers, customers, state management agencies, associations, etc. Therefore, in this study, the theory of associates is used to evaluate and form the qualifications of accountants, associations, professions... affecting the ability to apply IFRS.

Delegation theory: According to the this theory, when the contract is not effective, the manager will maximize his benefits, to enjoy contractual rewards or avoid risks, instead of maximizing the business value. Therefore, based on this theory, managers may not choose to apply the FV because the high cost is not commensurate with the benefits and may affect the profitability of the business or the value of information can be revealed disadvantage for business.

2.2. Fair value in accounting

Accounting under the FV has become a key trend for the IFRS system (such as IFRS 1, IFRS 2, IFRS 3 ...), international accounting standard - IAS (such as: IAS 11, IAS 16, IAS 17. ..), or in other way, IFRS is based on the principles of FV in IAS/IFRS, LHC and is increasingly used in measuring and recording the elements of the financial statements. According to Barlev & Haddad (2003), there are many definitions of FV and they are gradually improved to this day. The earliest appearing definition is presented in the US No. 13 (FAS 13) of the United States in 1976: FV is the price at which an asset can be sold in a normal transaction between unrelated parties”, and until now the definition of FV is adequately addressed to both assets and liabilities in the US FAS 157 standard issued in 2006 and IFRS 13 of IASB issued in 2011, accordingly, FV is the price received when selling assets or the price paid to pay a debt in an orderly transaction among market participants at the valuation date ”[FAS 157.5, IFRS 13.9]. In Vietnam, FV is determined in accordance with market value, which can be received when selling an asset or transferring a liability at the time of valuation (Law No. 88/2015/QH13).

2.3. Fair value in accounting in Vietnam

In Vietnam, the FV is officially recognized in the Accounting Law 2015, accounting standards, decisions and guiding circulars. In particular, FV is the value of assets that can be exchanged between the parties who have full understanding in the parity exchange (VAS 03, VAS 04) or FV is the value of the property that can be exchanged or the value of a debt paid voluntarily between the parties fully understood the parity exchange (VAS 06, VAS 10), or the value of the property that

can be exchanged or the value of a debt paid voluntarily between the parties with full knowledge and willingness in an equal exchange (VAS 11). According to Circular No. 210/2009/TT-BTC, FV is the value that an asset can be exchanged, or a liability can be paid between knowledgeable and desirable parties in a parity exchange. Recently, according to the 2015 Accounting Law, the FV is the value determined in accordance with the market price, which can be received when selling an asset or transferring a liability at the time of valuation. However, FV is mentioned sporadically and there is no general regulation. FV is primarily used in the initial recognition such as: determining the cost of M&A, initial recognition of sales, fixed assets, or determining the exchange value. Thus, it can be seen that the application of FV in Vietnam is just at the introductory level. There is not yet an official and unified guide on the method of determining, presenting and accounting for FV in accounting. Thus, many businesses do not really understand what FV is and the application of the FV has faced with many problems such as: Unable to choose the method of determining the FV, unable to collect source of data to determine FV, unable to present information on how to apply FV in the financial statements (Mai Ngoc Anh & Luu Duc Tuyen, 2017).

2.4. Factors affecting the application of IFRS/FV according to IFRS

Countries around the world have been promoting the convergence of the IFRS system, including the mention of using the FV as a key measurement base to enhance the appropriateness of the information presented on the financial statements. The application of IFRS varies from country to country according to many different factors, such as: educational level, legal, cultural, political, economic environment, intergration pressure and historical background of the nation.

The legal system: Political and legal factors have an increasing influence on the operation of businesses. In the field of accounting, the legal system is considered a factor that affects the national accounting system (Robert et al., 1998) and directly affects the way of accounting management. This is also a well-recognized factor affecting the national accounting system related to the studies of Nobes & Parker (1995), Dayanandan et al (2016). Many studies show that the legal environment has a significant influence on the development of accounting standards and practices, typically the study of the influence of two types of law, including common law-based legal systems and or code law for some accounting matters. Accordingly, the countries of the common law group usually have less detailed regulations on accounting than the countries of the system of code laws (Nobes & Parker, 1995). The common law-based legal system (Anglo-Saxon countries) affecting the accounting system is that corporate law (or similar laws) usually do not provide specific rules and details about and present the financial statements. In studying the impact of the legal system on financial disclosure, Jaggi & Low (2000) shows that firms in common law-based countries have better financial disclosure than firms in the countries based on code law. The application of IFRS is usually more judgmental and is considered on the principles rather than rules or IFRS which is geared towards recognition by fair value rather than recognition by historical cost. In addition, Dayanandan et al. (2016) contend that legality has affected the use of IFRS in European countries; or the legal system that affects IFRS application (Zehri & Chouaibi, 2013; Lahmar & Asbi, 2017). Perera & Baydoun (2007) find evidence of differences between the legal system in Indonesia and countries with Anglo-Saxon culture, which makes the application of IFRS in Indonesia face certain problems. Therefore, the improved legal environment may be useful for applying the accounting of FV (Jain, 2013).

Cultural environment: Culture is an important factor in explaining the choice of a suitable accounting system for each country, affecting the development of international accounting (Gray, 1988). Cultural values have a significant influence on the development of accounting and financial statements system (Perera, 1989). Zeff (1998) shows that culture is a major factor affecting the standards and values of social systems as well as the behavior of interaction groups within the system. According to Nobes (1998), countries affected by the same cultural values often apply the same accounting standards. Salter & Niswander (1995) suggested that in the culture of low risk avoidance, the accounting system will be less likely to be governed by mandatory legal requirements. Countries with culture of low risk fears may attract people to use IFRS. Similarly, Shima & Yang (2012) also pointed out that countries with low risk tolerance will accept the financial statements according to IFRS. In addition, when studying the impact of organizational culture on IFRS application by companies in Nigeria, Edeigba et al. (2018) found that cultural factors and corporate characteristics are important factors for deciding on the application of companies' IFRS. African countries with cultures close to the UK are more likely to adopt IFRS (Stainbank, 2014). When researching on the application of FV in China, Peng et al. (2013) also asserted that culture, social consensus are the decisive factors for the use of FV.

Accounting staff qualifications: In fact, IFRS standards are described as a principle-based accounting system rather than a rule-based accounting system, which is geared towards recognition according to the FV rather than to the original cost. Thus, it is quite complicated and requires an in-depth knowledge, which is not only accounting but also in other fields. Therefore, the lack of knowledge, education and adequate training on IFRS (Jermakowicz & Gornik-Tomaszewski, 2006) and language difficulties (Istratea, 2015) is one of the important challenges when transitioning to IFRS. Most countries that apply IFRS usually have good education systems (Kolsi & Zehri, 2008) and have the necessary training programs (Capkun et al., 2012), or training human resources with knowledge of FV will increase the ability to apply FV (Jain, 2013). When conducting research on the determinants of IAS/IFRS application in 32 applied developing countries and 32 developing countries without IAS, Zeghal & Mhedhbi (2006) show that developing advanced educational attainment is more likely to adopt IAS/IFRS. Hegarty et al. (2004) also refer to certain requirements of competence (individuals with appropriate qualifications) when applying IFRS, or accounting qualifications will affect the development of the financial statements framework and apply IFRS (Chen et al., 2002; Lundqvist et al., 2008). This means that the application of IAS/IFRS requires a team of high quality and experienced accountants to be able to understand, apply IAS/IFRS consistently and make necessary career judgments (Carmona & Trombetta, 2008, Chand & Patel, 2008). In addition, Judge et al. (2010) have discovered a positive relationship between the level of development of the training system and the application of IAS/IFRS in developing countries.

Business environment: In fact, IFRS is like a global business language. It makes the information comparable across the board, however, it is not entirely suitable for all countries due to different countries with different levels of development and technical expertise. The application of IFRS, which is mainly applied with accounting of FV, will help the national capital market easily connect with the world capital market. In some regions, accounting is governed primarily by capital market regulations. The capital market plays an important role in persuading companies to use accounting standards

effectively and strengthening financial statements frameworks in a more transparent, consistent and comparable manner (Roudaki, 2008). In multinational companies, the business environment is complex and global, so in order to fit the global market economy and financial markets, companies often have uniform rules for financial statements designed to benefit investors, creditors, financial analysts, accountants and auditors, as well as to help compare financial statements of companies in different countries. According to Kumarasiri & Fisher (2011) in developing countries, the application of FV will face many difficulties due to the lack of operating markets, the cost of application is greater than the benefits, and the lack of measurement techniques.

The role of professional organizations and associations: Professional organizations play a very important role and will affect the national accounting system (Robert et al., 1998), affecting the transformation and application of financial statements according to IFRS (Nobes & Parker, 1995). In emerging countries, the main obstacle facing in setting standards is the absence of influential professional organizations (Roudaki, 2008). Therefore, the role of accounting professional organizations in receiving IFRS is extremely important (Fikru, 2012). This shows that the development of professional organizations is an important factor affecting access to IAS/IFRS. The countries with developed professional accounting organizations will help to quickly update the changes of newly issued IAS/IFRS, so that necessary adjustments can be made in specific conditions of each country and help to apply IAS/IFRS most effectively (Chand & Patel, 2008). In addition, Halyer (2010) argues that the qualifications of accountants also affect the differences between the national accounting standards and IFRS systems. Thus, accounting and auditing associations need to assist in IFRS training implementation.

Characteristics of the business: The characteristics of the business (size, listing/cross-listing status, industry, type of business, ownership concentration) are thought to affect the type of accounting information and other characteristics of the financial statements. When researching on firm size, the status of listing/cross-listing affects the application of FV. Many studies have demonstrated that large companies will choose to apply the FV (Brown et al., 1992; Jung et al., 2013) and the application of FV for the first time is more often applied to listed companies than other businesses (Fargher, 2001). Similarly, Floropoulos (2006) confirms that firm size affects IFRS compliance and familiarity, and that the listed companies' IFRS compliance is also larger than unlisted companies. Hung & Subramanyam (2007) also confirmed that, in Germany, large companies will soon accept IFRS more than other companies and cross-listing affects the application of IFRS. Multinational companies listed on foreign stock markets will influence compliance with IFRS (El-Gazzar et al., 1999). In addition, accounting policies are influenced by the type of corporate legislation (Tzovas, 2006), which shows that public companies are more likely to appear in the public through news, regularly received by the government and reviewed for equitization programs and more disclosure than internal companies (Abd- Elsalam & Weetman, 2003). In countries with a higher level of concentration of equity, there is a greater difference between national accounting standards compared to IAS/IFRS (Ding et al., 2007), and the ownership density is inversely correlated with voluntary publication (Rahman et al., 2002). In the other words, the dispersed ownership gives investors a higher demand for FV information, and the ability to provide information under the FV will increase when the company commits to a transparent report (Muller et al. , 2008). In a study of the adoption of IFRS in France, Demaria &

Dufour (2007) found a positive relationship between the acceptance of FV and membership factors of the financial sector.

2.5. Research model and Hypotheses development

In order to solve the research objectives, the construction of hypotheses and research models is based on the theoretical basis and reviews from previous studies are very important factors. Thus, based on the theoretical basis above, six hypotheses formulated for this study are:

Hypothesis H1 - The more complete the legal system is, the higher the ability to apply FV according to IFRS is.

Hypothesis H2 - The cultural environment has a positive effect on the ability to apply FV according to IFRS.

Hypothesis H3 - The qualifications of accountants have a positive effect on the ability to apply FV according to IFRS.

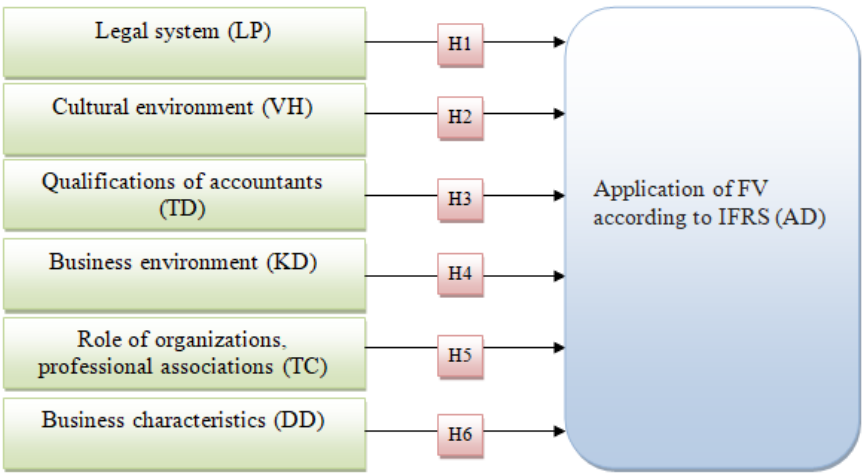
Hypothesis H4 - The more complete the business environment, the higher the ability to apply the process of FV under IFRS.

Hypothesis H5 - The role of professional organizations and associations has a positive effect on the ability to apply FV according to IFRS.

Hypothesis H6 - Characteristics of enterprises that affect the ability to apply the process of using FV under IFRS.

In order to identify factors affecting the ability to apply FV according to IFRS, the multivariate regression model is expected to be built with the dependent variable that is the application of FV according to IFRS and the independent variables including: legal system, the cultural environment, the qualifications of accountants, the business environment, the role of organizations, professional associations and business characteristics. They are described as shown in Figure 2.

Figure 2. The proposed research model



Source: Research by the author

Regression model: Based on the hypotheses and research models proposed in this study, the regression equation is expected to reflect the relationship between “factors affecting the ability to apply FV according to IFRS in the Vietnamese enterprises” are constructed as below:

$$ADI_i = \alpha + \beta_1 LP_i + \beta_2 VH_i + \beta_3 TD_i + \beta_4 KD_i + \beta_5 HN_i + \beta_6 DD_i + \epsilon_i$$

In which: ADI is the ability to apply FV according to IFRS in sample enterprises; α : Constant term; β_i : Coefficient of explanatory variables; ϵ_i : residual.

The variables LP, VH, TD, KD, HN and DD are legal system variables, cultural environment, qualifications of accountants, business environment, the role of organizations and professional associations and business characteristics.

3. RESEARCH METHOD AND DESIGN

3.1. Research Methods

This study uses qualitative research methods and quantitative research models to determine the relationship between the investigated structures.

Methods of data collection: The study is conducted through two main steps: preliminary research and formal research. Preliminary research conducted by qualitative methods through an overview of theories, previous research documents related to the research, direct interview method combined with sending the questionnaire to some business to adjust the questionnaire. The formal research was conducted by quantitative methods through the results obtained from the survey questionnaires interviewed directly or sent via email, post to businesses.

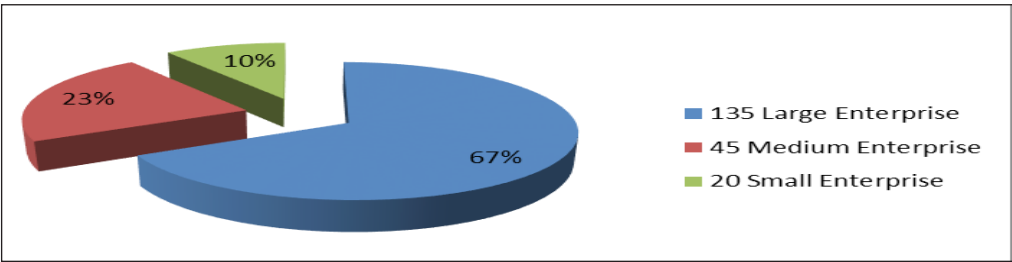
Processing and analysis methods: The study used SPSS 20 statistical analysis software for the statistical analysis described by the Multiple Linear Regression model through criteria such as: reliability of Cronbach's Alpha scale, EFA discovery factor analysis, Pearson correlation analysis, linear regression...to identify factors affecting the ability to apply the process of applying FV according to IFRS in enterprises Vietnam. The results of the multivariate linear regression model analysis are the basis for determining factors affecting the ability to apply FV according to IFRS, thereby proposing some recommendations to increase the ability to apply FV according to IFRS.

3.2. Research design

Sample size: According to Bollen (1989), the minimum sample size is 5 samples for an estimate (5:1 ratio). According to Hoang Trong and Chu Nguyen Mong Ngoc (2008), in the factor analysis of EFA discoveries, the sample size often must be equal to 4 or 5 times the number of variables in factor analysis. In addition, Gerbing & Anderson (1988) argued that in practical research applications, sample sizes of 150 or larger are necessary to obtain an estimate of parameters with small standard errors.

Research data: Data used for this study were collected through detailed survey questionnaires with a 5-level Likert scale (from 1: Strongly disagree to 5: Strongly agree) at 200 enterprises in some provinces and cities of Vietnam such as Hanoi, Bac Ninh, Hung Yen, Thua Thien Hue, Da Nang, Ho Chi Minh City, Binh Duong.... Time to conduct the survey from April to July 2019. In this survey, the size of surveyed businesses is shown in Figure 3.

Figure 3. Surveyed enterprise size



Source: Compiled from survey results

Definitions of variables in the study: variables in the study are described and defined as in Table 1.

Table 1. Meaning of variables in research

Factor group	The meaning of variables
The legal system (LP)	The four observed variables include: Accounting standards have no clear and consistent regulations on FV (LP1), No Legal decision has provided that FV is the basis for valuation in accounting (LP2), no specific and clear circular guiding the method of determining FV in accounting (LP3), no mechanisms and policies to encourage, support and create favorable conditions for enterprises to apply the process of FV in accounting (LP4).
Cultural environment (VH)	The five observed variables include: Administrative serious, light estimation, careful avoidance of risks and uncertainty (VH1), Psychology of change (VH2), Psychology of fear of publishing a lot of information related to businesses (VH3), Low acceptance of new things (VH4), no equality in relationship between State regulatory agencies and enterprises (VH5).
Accounting staff qualification (TD)	The four observed variables include: Limited professional qualifications, not yet equipped with knowledge of FV, unknown method of measurement of FV (TD1), accounting department of enterprises has not attended any training courses but only participated in a number of workshops on orientation on application of FV (TD2), limited foreign language skills of accountants affect the readability and comprehension of documents on FV in accounting (TD3), lacking a specialized accounting department to implement the application of FV (TD4).
Business environment (KD)	The four observed variables include: The underdeveloped commodity market (KD1), The elements of market activity that are very complex, often volatile and underdeveloped (KD2), people who use financial statements such as owners, shareholders, creditors, suppliers, customers...has not required accounting information to be measured according to value of transactions (KD3), lack of uniformity of the economy (KD4).
Roles of organizations and professional associations (HN)	The four observed variables include: Lack of linkage between professional associations and businesses to manage and foster professional knowledge on occupational skills under IFRS for accountants (HN1), career associations do not really represent the majority of accountants (HN2), accountants at enterprises almost do not know about the operation of professional associations (HN3), the role of professional associations does not exist or have strong influence on policy making (HN4).

Business characteristics (DD)	Four observed variables include: Enterprise size (DD1), Enterprise has no plan to issue debt instruments or capital instruments on foreign markets (DD2), type of Enterprises (DD3), Industry (DD4).
Ability to apply fair value according to IFRS (AD)	Four observed variables include: Enterprises are not eligible to be willing to apply the FV (AD1), Enterprises have not applied the FV because there is no regulation (compulsory or voluntary) of the State management (AD2), time, investment costs (training costs for employees, costs of IT systems, software ...) for applying FV according to IFRS is not commensurate with the benefits brought to enterprises (AD3), Enterprises have not applied FV because the application of FV in accounting can reveal a lot of information that is detrimental to the enterprises (AD4).

Source: Author synthesis

4. RESEARCH RESULTS

4.1. Cronbach's Alpha test reliability results scale

The scale of Cronbach’s Alpha coefficient of 0.6 or higher is good for use (Hoang Trong & Chu Nguyen Mong Ngoc, 2008). This study conducted the reliability test of the Cronbach’s Alpha scale to find the high reliability scale. The test results show that all variables have Cronbach’s Alpha coefficient greater than 0.6 (Table 2), so the scale is significant and reliable in measuring the factors affecting the ability to apply the process of FV according to IFRS in Vietnamese enterprises.

Table 2. Test results of reliability of Cronbach's Alpha scale

Factors		Observed variables	Cronbach's Alpha
1	The legal system (LP)	4	0.816
2	Cultural environment (VH)	5	0.872
3	Accounting staff qualification (TD)	4	0.805
4	Business environment (KD)	4	0.816
5	Roles of organizations and professional associations (HN)	4	0.830
6	Business characteristics (DD)	4	0.832
7	Ability to apply fair value according to IFRS (AD)	4	0.787

Source: Research results

Thus, after performing the independent variables test at the reliability assessment stage of the scale, the results remain the observed variables of the factor groups and the names of the factors remain.

4.2. EFA discovery factor analysis

4.2.1. Analyzing the scale of factors affecting the ability to apply FV according to IFRS

The results of the factor analysis to discover independent variables show that the KMO coefficient = 0.753 (satisfying the criteria of $0.5 \leq KMO \leq 1$), which meet the requirements, and Barlett’s test has Sig = 0.000 <5% (Table 3), so these observed variables are closely related and

are suitable for EFA discovery factor analysis. The total variance extracted is 66.559%> 50%, at Eigenvalues = 1.791> 1 (Table 4) should be satisfactory, and show that the independent variables included in the model explain 66.559% of the factors affecting ability applying the process of FV according to IFRS (Hoang Trong & Chu Nguyen Mong Ngoc, 2008). Performing Varimax rotation, the results show that the characteristic variables have factor loading > 0.5 (Table 5), meeting the requirements. The results of the EFA discovery factor analysis are completely consistent and the extracted factors are reliable and valuable.

Table 3. KMO and Bartlett’s Test test results

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	
	0.753
Bartlett's Test of Sphericity	Approx. Chi-Square
	2152.928
	Df
	300
	Sig.
	0.000

Source: Analysis results from SPSS 20 software

Table 4. Total variance extracted

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
				Loadings			Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.371	17.483	17.483	4.371	17.483	17.483	3.344	13.377	13.377
2	3.395	13.579	31.062	3.395	13.579	31.062	2.726	10.906	24.282
3	2.926	11.703	42.764	2.926	11.703	42.764	2.673	10.692	34.974
4	2.177	8.708	51.472	2.177	8.708	51.472	2.652	10.608	45.582
5	1.981	7.924	59.396	1.981	7.924	59.396	2.632	10.527	56.109
6	1.791	7.163	66.559	1.791	7.163	66.559	2.612	10.449	66.559

Extraction Method: Principal Component Analysis.

Source: Analysis results from SPSS 20 software

Table 5. Results of factor rotation analysis

Rotated Component Matrix ^a						
	Component					
	1	2	3	4	5	6
VH5	0.864					
VH1	0.847					
VH2	0.802					
VH3	0.771					
VH4	0.771					
HN2		0.827				
HN4		0.822				
HN3		0.786				
HN1		0.780				

LP1			0.824			
LP2			0.792			
LP3			0.768			
LP4			0.743			
DD4				0.840		
DD2				0.798		
DD1				0.790		
DD3				0.756		
KD4					0.845	
KD2					0.784	
KD3					0.779	
KD1					0.746	
TD1						0.861
TD4						0.785
TD2						0.779
TD3						0.725

Extraction Method: Principal Component Analysis.
a. 6 components extracted.

Source: Analysis results from SPSS 20 software

4.2.2. Analyzing the factors of the ability to apply the FV according to IFRS

The results of the EFA discovery factor analysis of the dependent variable showed that, KMO coefficient = 0.772 (satisfying criteria $0.5 \leq KMO \leq 1$), Barlett’s test had Sig = 0.000 (Table 6), so the model was consistent, suitable for analysis, statistically significant and the variables are correlated in the whole. Besides, the total variance extracted is $61.341\% > 50\%$; At Eigenvalues = $2.454 > 1$ (Table 7), the model is eligible for exploratory factor analysis.

Table 6. KMO and Bartlett’s Test test results

KMO and Bartlett’s Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.772
Bartlett’s Test of Sphericity	Approx. Chi-Square	227.712
	Df	6
	Sig.	0.000

Source: Analysis results from SPSS 20 software

Table 7. Total variance extracted

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.454	61.341	61.341	2.454	61.341	61.341
2	0.661	16.529	77.871			
3	0.488	12.194	90.065			
4	0.397	9.935	100.000			

Extraction Method: Principal Component Analysis.

Source: Analysis results from SPSS 20 software

Table 8. Results of matrix rotation analysis of dependent variables

Component Matrix ^a	
	Component
	1
AD4	0.847
AD2	0.803
AD3	0.748
AD1	0.729

Source: Analysis results from SPSS 20 software

The testing results of Table 8 show that the ability to apply the FV according to IFRS is satisfied (factor load factor > 0.5). Thus, after analyzing the discovery factor of EFA, there are still 04 observed variables (AD1, AD2, AD3, AD4) of AD dependent variables.

4.3. Analysis of factors influencing the application of FV according to IFRS

4.3.1. Pearson correlation analysis

Pearson correlation test results (Table 9) show that among independent variables LP, KD, VH, TD, HN, DD and AD dependent variables, all have Sig value = 0.000 < 5%, so the correlation coefficient Pearson is statistically significant, or in other words these independent variables are correlated with dependent variables and will be included in the model to explain the dependent variables.

Table 9. Pearson correlation test results

Correlations		LP	KD	VH	TD	HN	DD	AD
AD	Pearson Correlation	0.529**	0.519**	0.289**	0.329**	0.309**	0.280**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	0.000	
	N	200	200	200	200	200	200	200

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Source: Analysis results from SPSS 20 software

4.3.2. Hypotheses test using a multivariate linear regression model

The test results show that the adjusted R² coefficient R² = 61.5% (Table 10), this means that 61.5% of the dependent variable is explained by the independent variables. In other words, the variation of the ability to apply the process of applying FV under IFRS in Vietnamese enterprises is explained by the factors that entered the model as 61.5%. ANOVA test is valid for Sig. = 0.000 < 5% (Table 11), so the model is statistically significant, or in other words, at least one independent variable affecting the dependent variable AD.

Table 10. Summary of research model

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.792 ^a	0.627	0.615	0.30229	1.608

a. Predictors: (Constant), DD, VH, HN, TD, KD, LP

b. Dependent Variable: AD

Source: Analysis results from SPSS 20 software

Table 11. ANOVA test results

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	29.606	6	4.934	53.998	0.000 ^b
	Residual	17.636	193	0.091		
	Total	47.242	199			

a. Dependent Variable: AD

b. Predictors: (Constant), DD, VH, HN, TD, KD, LP

Source: Analysis results from SPSS 20 software

Regression test results in Table 12 show that the independent variable DD has the value Sig. = 0.924 > 5% should not be statistically significant in the model, or in other words the independent variable DD has no effect on the dependent variable AD. The remaining independent variables LP, KD, VH, TD, HN all have Sig value = 0.000 < 5% so the regression model is statistically significant, suitable for the data set and usable. Independent variables LP, KD, VH, TD, HN that affect the dependent variable AD. The magnification coefficient of VIF of these independent variables is less than 10, so the phenomenon of polyline collinear is low (Hoang Trong & Chu Nguyen Mong Ngoc, 2008), or multi-collinear phenomenon is not violated if VIF < 2.20 (Nguyen Dinh Tho, 2011), so there is no multi-collinearity phenomenon.

Table 12. Results of linear regression test

Coefficients ^a								
Model B		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		Std. Error	Beta				VIF	
1	(Constant)	-0.873	0.271		-3.217	0.002		
	LP	0.388	0.052	0.358	7.482	0.000	0.846	1.182
	KD	0.367	0.045	0.383	8.231	0.000	0.895	1.117
	VH	0.218	0.037	0.260	5.865	0.000	0.983	1.017
	TD	0.163	0.024	0.304	6.748	0.000	0.954	1.048
	HN	0.146	0.033	0.202	4.432	0.000	0.930	1.075
	DD	0.003	0.029	0.004	0.095	0.924	0.868	1.152

a. Dependent Variable: AD

Source: Analysis results from SPSS 20 software

Thus, after performing hypothesis testing by multivariate linear regression model, the results show that, in 06 independent variables included in the regression analysis, there are 05 independent variables LP, KD, VH, TD, HN affecting the dependent variable AD (statistically significant at 1%), so the regression coefficients found are meaningful and the model is well used. The remaining independent variable (DD) has no effect on the dependent variable (AD).

Based on the results of regression testing above, the non-standardized regression equation of this study is formulated as below:

$$AD = - 0.873 + 0.388*LP + 0.367*KD + 0.163*TD + 0.218*VH + 0.146*HN$$

5. DISCUSS ABOUT THE RESEARCH RESULTS

The purpose of this study is to examine the degree of influence of factors on the ability to apply the process of quality control according to IFRS in Vietnamese enterprises. The testing results in Table 12 show:

The legal system and the ability to apply the FV according to IFRS: The legal system is the most important factor and impacts in the same direction as the ability to apply the FV according to IFRS in enterprises (H1: $B1 = 0.388$). The above test results show that, when the legal system increases by 1 unit, the ability of applying FV according to IFRS in enterprises increases by 0.388 units. This explains that, because the application of IFRS is often more judgmental and considered on basis of principles rather than regulations, IFRS is oriented towards the recognition of FV rather than cost. While the legal system in Vietnam is based on a set of laws, the accounting system focuses on the promulgation of specific regimes, requiring less judgment of the accountant's profession. The accounting system focuses on tax issues rather than providing information to investors. Concurrently, maintaining the accounting regime is a way for state management agencies to manage the accounting and finance work of enterprises. In addition, mechanisms, policies as well as incentives for enterprises to apply FV/IFRS are currently incomplete, so there is no legal basis to implement some special IFRS techniques (recognition of loss of assets, recognition of fair value of some financial assets, investment properties, biological assets,...). Therefore, in order to increase the ability to apply the FV under IFRS, Vietnam needs to develop a comprehensive legal system, especially the legal system that regulates activities to apply IFRS, or in other words, improving the legal environment may be useful for applying the accounting of FV (Jain, 2013).

Business environment and the ability to apply the FV according to IFRS: The business environment is also quite an important factor affecting and positively impacting the ability to apply the FV according to IFRS in enterprises (H4: $B4 = 0.367$). The results of the study showed that when the business environment increased by 1 unit, the ability to apply the process of FV according to IFRS in enterprises increased by 0.357 units. In fact, because the Vietnamese economy is in the process of developing and transforming to a market economy, the level of economic development as well as Vietnam's financial market is low. At the same time, the economy in general, market factors in particular have not developed in a uniform way (the market of goods has not yet developed, there is no real market for real assets, there is a lack of reputable independent valuation organization to be able to perform the valuation of assets ...), or in other words in Vietnam,

there is a lack of information in the market operating to measure the FV so the determination of assets value used as the basis for applying the revaluation model will face many difficulties and may not be highly reliable. Whereas, the basic and dominant foundation that governs IFRS is the principle of FV, therefore, to apply IFRS /FV under IFRS requires a market that provides sufficient baseline data to be able to evaluate and note in accordance with IFRS guidelines and guidelines. The research results are consistent with the research of Kumarasiri & Fisher (2011), in developing countries, the application of FV will face many difficulties due to the lack of operating markets and the lack of measurement techniques.

Cultural environment and the ability to apply the FV according to IFRS: The cultural environment has also been shown to be one of the important factors, acting in the same direction as the ability to apply FV according to IFRS in enterprises (H2: $B2 = 0.218$). This result proves that, when the cultural environment increases by 1 unit, the ability of applying FV according to IFRS in enterprises increases by 0.218 units. Indeed, IFRS uses many accounting estimates and requires flexibility along with the necessary career judgments. Meanwhile, in Vietnam, most of the management team is trained and matured in a centralized bureaucratic centralized economy, so it is affected by a stereotypical culture, administrative, careful to avoid risks and uncertainty, and familiarity with using VAS (less accounting estimates) and being more cautious limiting uncertainty, so approaching and practicing with the new method of accounting in a market economy faces many difficulties. Besides, the psychology of not wanting to publicize the financial situation or deliberately hiding the weaknesses will be a barrier to the process of approaching the FV under IFRS. In addition, there is no equality in relationship between management agencies and businesses (there still exist many troublesome administrative procedures, unfriendly attitude ...). This can also be considered as a barrier to the application of FV under IFRS in Vietnamese enterprises. Therefore, improving the cultural environment is quite important in the application of FV according to IFRS. The research results are consistent with the results of Peng et al. (2013), culture is one of the decisive factors to the application of FV.

Accountancy qualifications and the ability to apply FV according to IFRS: The qualifications of accountants is also the next factor that has a positive impact on the ability to apply FV according to IFRS (H3: $B3 = 0.163$). This explains that, because in Vietnam, there still exists a trained and matured accounting department in the centralized and bureaucratic centralized economy, so it is very cautious, conservative and limits much initiative in making relevant decisions. Besides, most of them have not had access and intensive training on IFRS. Whereas the application of FV according to IFRS is considered to be relatively complicated, even complicated for experts in finance and accounting, the auditor's team, and difficult to understand for users, even in developed economies. In addition, IFRS uses English and some accounting terms used in IFRS are also quite complex and specialized, especially without Vietnamese equivalent/literal meaning in the field of accounting. Also, the foreign language skills of accountants are limited. It affects the ability to read and understand IFRS documents. Therefore, the qualifications of accountants are influential and one of the barriers in applying the FV according to IFRS in Vietnamese enterprises, specifically: when the level of accountants in the business increases by 1 application. then the ability to apply FV according to IFRS increased by 0.163 units. Therefore, businesses need to focus on improving

the professional skills and foreign languages of the accounting staff in order to increase the ability of applying FV under IFRS to enterprises.

Roles of organizations, professional associations and the application of FV according to IFRS: The role of organizations and professional associations is a subsequent factor that has a positive impact on the ability to apply FV under IFRS ($H5: B5 = 0.146$), in other words, when the role of an organization or professional association, the ability to apply FV according to IFRS increased by 0.163 units. This finding proves that, among the five groups of factors found in this study, the impact on the ability to apply FV according to IFRS, the role of organizations and professional associations is least affected. This shows that, in Vietnam, the Ministry of Finance is the State agency responsible and has the authority to draft and publish accounting standards, organizations and professional associations that are responsible to participate as committee members. drafting, appraising and reviewing draft accounting standards before being issued. Therefore, the Association has not played a leading role in drafting accounting standards as well as accounting practice. In addition, the Association has a role of propaganda, promotion and participation in the implementation of IFRS through training, coaching and monitoring activities. However, professional organizations and associations do not have the active dissemination and support of regular guidance on IFRS. In addition, the accounting personnel in Vietnam have not received intensive training on IFRS, the number of experts and persons in charge of accounting and auditing with knowledge, experience and skills of preparing financial statements according to IFRS are low, while organizations and professional associations (Vietnam Association of Accountants and Auditors - VAA, Vietnam Association of Certified Public Accountant - VACPA,...and domestic training units) do not have chapters for IFRS training systematically and systematically. Only a number of international professional organizations such as ACCA, CPA Australia, ICAEW,... have IFRS training programs for some students with very modest numbers. This will make it difficult and create a barrier to the application of FV according to IFRS. Therefore, professional organizations and associations need to improve and promote their role in the process of implementing IFRS in Vietnam.

Business characteristics and the ability to apply the process of using FV according to IFRS: In this study, the enterprise characteristics were found to have no effect on the ability to apply the process of FV under the IFRS in enterprises ($\text{Sig.} = 0.924 > 5\%$). These results show that, in recent years, Vietnam's capital market has grown significantly, but the capital market mainly operates within the country and there has not been much connection with the capital market of region as well as of the world. Due to the small size and few products, many businesses have not been able to access/participate or have no plans to issue debt or capital instruments on foreign markets, while the cost of investing in the IFRS accounting system/ conversion of financial statements from VAS to IFRS is quite expensive and not commensurate with the benefits brought to businesses. Besides, many businesses think that they only intend to list and raise capital on Vietnam's stock market, but the characteristic of Vietnam's stock market is that number of strategic investors and organizations holding long-term stocks, pursuing long-term revenue is still small, many investors only participate in the market to earn short-term profits, so investors and shareholders of the business are not interested/required information provided under the FV. Along with that, there is no mandatory regulation of the State management agencies on the application of FV under IFRS. Therefore,

it seems that the enterprises surveyed in this study are largely not interested in applying the FV under IFRS. Indeed, in Vietnam at present it seems that only a few businesses, banks and financial institutions who have the need to attract investment capital from abroad (issuing bonds on the international market or planning to list. on international exchanges) or receive financing in the form of loans from international financial institutions, serving international rating organizations such as S&P, Fitch, Moody's...will apply IFRS/The FV according to IFRS through the conversion of the consolidated financial statements from VAS to IFRS such as Vingroup, Vinamilk, Techcombank, Bao Viet Group...

6. CONCLUSION AND SIGNIFICANCE OF THE STUDY

The Industrial Revolution 4.0 is bringing a great opportunity for economic transformation and completely changing the channels, methods of capital mobilization, capital access, processes of accounting and information organization. accounting information... Accounting is considered as a global business language so the application of IFRS will help state management agencies, owners, investors, especially foreign investors to get a tool for assessing and comparing financial information between entities in the same language and standards for making appropriate economic decisions. However, Vietnam is one of the few countries where IFRS has not been applied and is transforming the economy, so the application of the FV according to IFRS may face certain barriers and difficulties. To clarify the barriers that can affect the ability to apply the process of applying quality under the IFRS in businesses in Vietnam, this study focuses on examining the influence of factors on the application of the process of using FV under the IFRS. The processing of survey results at 200 enterprises using SPSS 20. The research results show that there are five factors that are specific to the difficulties emerging countries, including Vietnam, will face. when choosing to apply the process of tourism under the IFRS, such as: legal system, cultural environment, qualifications of accountants, business environment and the role of organizations and professional associations. While, the business characteristics were found not to affect the ability to apply the process of using quality under IFRS.

The findings of the study indicate that the legal system, the business environment significantly affect the ability to apply FV according to IFRS in Vietnamese enterprises. This shows that, because the legal system in Vietnam is inconsistent and often changing, there is not yet a specific and clear legal system for the application of FV in general, there is no regulation on the application of FV according to IFRS in particular. In addition, the market factors have not been developed synchronously (the goods market has not been developed yet, there is no real market for real assets, there is a lack of reputable independent valuation organizations for valuation can be done...). The current provisions of law governing accounting practice accounting in Vietnam are not yet consistent with the standardized practice according to IFRS. This study also found that, the qualifications of accountants, the role of professional organizations and associations affect the ability to apply FV according to IFRS in Vietnam: professional qualifications, knowledge and limited level of understanding of FV skills according to IFRS of the accounting team. While organizations and professional associations have not fully promoted their roles in training and guidance to implement the application of FV according to IFRS. In addition, the English language is a major obstacle for accountants in applying FV according to IFRS due to the limited foreign language skills of accountants Besides there is a

large time gap between the release of new or updated IFRS with the transition of the new version of IFRS to Vietnamese. Finally, the study found that the cultural environment influences accounting judgments when explaining and applying FV according to IFRS in Vietnam because Vietnamese economy was transformed from a centralized economy to a market economy should be influenced by a stereotypical culture, heavily administrative, cautious avoiding risks and uncertainty, and familiar with using VAS (with estimates less accounting) and are afraid of changes and new methods in IFRS. Through the results of the study, the author proposes a number of recommendations to increase the ability to apply FV according to IFRS, specifically: (i) regulators, policy makers in Vietnam should consider , study to promulgate and amend regulations to ensure the transition from VAS to IFRS, (ii) improve the role of professional organizations and associations in promulgating accounting policies. , there are also training programs and seminars and the use of accounting experts to improve the qualifications of the accountant team so that they can prepare financial statements from the viewpoint of IFRS; (iii) encourage scientific research in the field of preparing and presenting financial statements according to IFRS by focusing on periodic research, organizing seminars and scientific seminars to identify strengths and development. In accordance with specific conditions of Vietnam, (iv) change the curriculum of accounting majors in universities to consolidate and improve knowledge of international accounting standards in general and IFRS of lecturer and students majoring in accounting.

Besides the achieved results, this study still has some limitations and future studies need to be considered and expanded in the research. Firstly, the data used in the study was collected through surveys at enterprises in some areas of Vietnam but it did not detail the characteristics of the business (type of enterprise, industry, situation). listing status,...). Also, the sample size in the study is small, so the representative of the whole enterprise is not seen. Secondly, in reality, there are still other factors that can affect the ability to apply FV according to IFRS such as: political environment, integration pressure, economic growth... but have not been considered in this research.

REFERENCES

1. Abd-Elsalam, O. H., & Weetman, P. (2003), 'Introducing international accounting standards to an emerging capital market: relative familiarity and language effect in Egypt', *Journal of International Accounting, Auditing and Taxation*, 12, 63-84.
2. Alsharairi, M. A., & Al-Abdullah, R. J. (2008), 'The impact of adopting IASs on the Jordanian environment: The perspective of accountants, auditors and academicians'an exploratory study', *International Conference on Business Globalization: Challenges and Opportunities in the 21st Century*.
3. Barlev, B., & Haddad, J. R. (2003), 'Fair value accounting and the management of the firm' *Critical Perspectives on Accounting*, 14, 383-415.
4. Ministry of Finance (2009), *Guidances for the application of international accounting standards on presentation of financial statements and disclosures of financial instruments in Vietnam*, circular 210/2009/TT-BTC on 06, 2009 November
5. Bollen, K.A. (1989), *Structural Equations with Latent Variables*, John Wiley and Sons, Inc., New York.
6. Brown, P. D., Izan, H. Y., & Loh, A. L. (1992), 'Fixed Asset Revaluations and Managerial Incentives', *ABACUS*, 28, 36-57.

7. Capkun, V., Collins, D. W., & Jeanjean, T. (2012), 'Does Adoption of IAS/IFRS Deter Earnings Management?', *SSRN Electronic Journal*. doi:10.2139/ssrn.1850228.
8. Carmona, S., & Trombetta, M. (2008), 'On the global acceptance of IAS/IFRS accounting standards, the logic and implications of the principles-based system', *Journal of Accounting and Public Policy*, 27, 455-461.
9. Chand, P., & Patel, C. (2008), 'Convergence and harmonization of accounting standards in the South Pacific region', *Advances in Accounting, incorporating Advances in International Accounting*, 24, 83-92.
10. Chen, S., Sun, Z., & Wang, Y. (2002), 'Evidence from China on whether harmonized accounting standards harmonize accounting practices', *Accounting Horizons*, 16(3), 183-197.
11. Dayanandan, A., Donker, H., Ivanof, M., & Karahan, G. (2016), 'IFRS and accounting quality: legal origin, regional, and disclosure impacts', *International Journal of Accounting & Information Management*, 24(3), 296-316
12. Demaria, S., & Dufour, D. (2007), 'First time adoption of IFRS, Fair value option, Conservatism: Evidences from French listed companies', *In 30 ème colloque de l'EAA*, 1-24.
13. Ding, Y., Zhang, H., & Zhang, J. (2007), 'Private vs state ownership and earnings management: evidence from Chinese listed companies', *Corporate Governance: An International Review*, 15, 223-238.
14. Edeigba, J., Gan, C., & Amenkhienan, F. (2018), 'The Effects of Organisational Culture on IFRS Adoption: Evidence from Nigerian Companies', *International Journal of Accounting and Financial Reporting*, 8(1), 198
15. El-Gazzar, S. M., Finn, P. M., and Jacob, R., (1999), 'An empirical investigation of multinational firms' compliance with International Accounting Standards', *The International Journal of Accounting*, 34(2), 239-248.
16. Elsayed, M. A., & Hoque, Z. (2010), 'Perceived international environmental factors and corporate voluntary disclosure practices: An empirical study', *The British Accounting Review*, 42, 17-35.
17. Fargher, N. (2001), 'Management perceptions of fair value accounting for all financial instruments', *Australian accounting review*. Vol 11, 62-72.
18. FASB, SFAS 157 (2006), *Fair Value Measurements*.
19. Fikru, F. T. (2012), 'The Adoption of International Financial Reporting Standards (IFRS) in Ethiopia: Benefits and Key Challenges', *PhD, Addis Ababa University*, Addis Ababa, Ethiopia.
20. Floropoulos, I. (2006), 'IFRS - First time users: some empirical evidence from Greek companies', *SPOUDAI*, 56(3), 39-70.
21. Gerbing, D. W. & Anderson, J. C. (1988), 'Structural Equation Modeling in Practice: A Review and Recommended Two-Step Approach', *Psychological Bulletin*, 103 (3), 411-423.
22. Gray, S. J. (1988), 'Towards a theory of cultural influence on the development of accounting internationally', *Abacus*, 24(1), 1-15.
23. Hair, J. F., Anderson, R. E., Tatham, R. L. & Black, W. C. (1998), *Multivariate data analysis (5th ed.)*, Englewood Cliffs, NJ: Prentice-Hall International, Inc.
24. Halyer, S. (2010, January), 'Waiting for Direction', *The Accountant*.
25. Vietnamese Accounting Standards
26. Hegarty, J., Gielen, F. & Barros, A.C.H. (2004), Implementation of International Accounting and Auditing Standards: Lessons learned from the World Bank's Accounting and Auditing ROSC Program. Washington: World Bank. Available from: http://www.worldbank.org/ifa/LessonsLearned_ROSC_AA.pdf [Accessed 1 December 2012].

27. Hoàng Trọng & Chu Nguyễn Mộng Ngọc (2008), *Reaseach data analysis SPSS*, Hồng Đức Publisher, Hồ Chí Minh.
28. Hung, M., & Subramanyam, K. R. (2007), 'Financial statement effects of adopting international accounting standards: the case of Germany', *Review of Accounting Studies*, 12(4), 623–657.
29. IASB, IFRS 13 "Fair Value Measurements", May 2011.
30. IFRS Foundation (2018), Use of ifrs Standards around the world overview, September 2018 <https://www.ifrs.org/use-around-the-world/>
31. Istrate, C. (2015), 'The Persistence of the Accounting Policies After the Transition to IFRS of the Romanian Listed Companies', *Journal of Accounting and Management Information Systems*, 14(4), 599-626.
32. Jaggi, B. & Low, P.Y. (2000), 'Impact of culture, market forces and legal system on financial disclosures', *The International Journal of Accounting*, 35(4): 495–519.
33. Jain, P. (2013), 'Fair Value Accounting: Adoptability in Indian Corporate Financial Reporting Scenario', *International Journal of Accounting, and Business Management (IJABM)*, 1(2), 24-32.
34. Jermakowicz, E. K., & Gornik-Tomaszewski, S. (2006), 'Implementing IFRS from the perspective of EU publicly traded companies', *Journal of International Accounting, Auditing and Taxation*, 15(2), 170–196
35. Judge, W., Li, S., & Pinsker, R. (2010), 'National adoption of mtemational accounting standards, an instimtional perspective', *Corporate Governance An International Review*, 18(3), 161-174.
36. Jung, B., Pourjalali, H., Wen, E., & Daniel, S.J. (2013), 'The association between firm characteristics and CFO's opinions on the fair value option for non-financial assets', *Advances in Accounting, incorporating Advances in International Accounting*, 1(29), 255–266.
37. Koils, M. C., & Zehri, F. (2008), The determinants of IAS/IFRS adoption by emergent countries.
38. Kumarasiri, J., & Fisher, R. (2011), 'Auditors' Perceptions of Fair-Value Accounting: Developing Country Evidence', *International Journal of Auditing*, 15, 66–87.
39. Lahmar, A.T., & Asbi, A. (2017), 'Factors influence Adoption of International Financial Reporting Standards (IFRS) Adoption in Libya', *Global Journal of Accounting and Finance*, 1, 18-32.
40. Lundqvist, P., Marton, J., Pettersson, A. K., & Rehnberg, P. (2008), IFRS implementation in listed companies – identification of factors leading to inconsistent application, Conference paper, School of Business, Economics and Law, Gothenburg University.
41. Mai Ngọc Anh - Lưu Đức Tuyên (2017), *Research on applying fair value in the accounting system in Vietnam* Ministry-level research projects in 2016.
42. Mai Ngọc Anh (2016), *International Standard Training on Financial Reporting (IFRS) - Opportunities and challenges for Vietnamese universities. Proceedings of the IFRS Workshop - Opportunities and challenges when applied in Vietnam*, 241-246.
43. Mai Ngọc Anh. (2011), *Accounting standards apply to small and medium-sized enterprises according to international practices and application orientations in Vietnam. Auditing Journal No. 2/2011*.
44. Muller, K.A, Riedl, E.J., & Sellhorn, T. (2008), *Consequences of Voluntary and Mandatory Fair Value Accounting: Evidence Surrounding IFRS Adoption in the EU Real Estate Industry*, (No. 09-033), Boston, MA: Harvard Business School.
45. Nguyen Dinh Tho. (2011), *Methods of scientific research in business: design and implementation*, Labor - Social Publishing House, Hanoi.
46. Nobes & Parker (1995), *Comparative International Accounting*, Prentice Hall.
47. Nobes, C. W. (1998), 'Toward a general model of reasons for international differences in financial reporting', *ABACUS*, 34(2), 495-519.

48. Peng, S., Graham, C., & Bewley, K. (2013), 'Fair Value Accounting Reforms in China: Towards an Accounting Movement Theory', Available at SSRN:
49. <https://ssrn.com/abstract=2229475> or <http://dx.doi.org/10.2139/ssrn.2229475>.
50. Perera, H., & Baydoun, N. (2007), 'Convergence with International Financial Reporting Standards: the case of Indonesia', *Advances in International Accounting*, 20, 201–224.
51. Perera, M. H. B. (1989), 'Accounting in developing countries: A case for localized uniformity', *The British Accounting Review*, 21(2), 141-157.
52. Perumpral, S. E., Evans, M., Agarwal, S., & Amenkhienan, F. (2009), 'The evolution of Indian accounting standards: Its history and current status with regard to International Financial Reporting Standards', *Advances in Accounting*, 25, 106–111.
53. Rahman, A., Perera, H., & Ganesh, S. (2002), 'Accounting practice harmony, accounting regulation and firm characteristics', *ABACUS*, 38(1).
54. Robert, C., Weetman, P., & Gordon, P. (1998), *International Financial Accounting: A Comparative Approach*, Financial Times Pitman Publishing.
55. Roudaki, J. (2008), 'Accounting profession and evolution of standard setting in Iran', *Journal of Accounting, Business & Management*, 15, 33-52.
56. Salter, S. B., & Niswander, F. (1995), 'Cultural Influence on the Development of Accounting Systems Internationally: A Test of Gray's [1988] Theory', *Journal of International Business Studies*, 26(2), 379-397.
57. Shima, K.M. & Yang, D. C. (2012), 'Factors Affecting the Adoption of IFRS', *International journal of business*, ISSN: 1083-4346
58. Stainbank, L. J. (2014), 'Factors Influencing the Adoption of International Financial Reporting Standards by African Countries', *South African Journal of Accounting Research*, 28(1), 79–95.
59. Tzovas, C. (2006), 'Factors influencing a firm's accounting policy decisions when tax accounting and financial accounting coincide', *Managerial Auditing Journal*, 21(4), 372-386.
60. Zeff, S. A. (1998), 'The IASC core standards: what will the SEC DO?', *The Journal of Financial Statement Analysis*, 67-78.
61. Zeghal, D., & Mhedhbi, K. (2006), 'An analysis of the factor affecting the adoption of international accounting standards by developing countries', *The International Journal of Accounting*, 41, 373-386.
62. Zehri, F, & Chouaibi, J. (2013), 'Adoption determinants of the international accounting standards IAS/ IFRS by the developing countries', *Journal of Economics, Financial and Administrative Science*, 18(35), 56-62.

INDUSTRIAL REVOLUTION 4.0 WITH VIETNAMESE HUMAN RESOURCES IN ACCOUNTING, AUDITING: OPPORTUNITIES AND CHALLENGES

Nguyen Ba Minh^{1,*}, Nguyen Ba Linh¹, Le Vu Thanh Tam¹

ABSTRACT

The Industrial Revolution 4.0 and worldwide technology integration have been changing the working environment and posing for the accounting – auditing industry many opportunities and challenges. This paper presents a number of issues related to difficulties and advantages of integration, especially recommendations and directions to promote the development of individuals and organizations operating in the accounting – auditing profession.

Keywords: Human resources; accounting; Industrial Revolution 4.0.

1. OVERVIEW OF INDUSTRIAL REVOLUTION 4.0

Up to now, the world has witnessed three major industrial revolutions. The first one took place in the United Kingdom in the late 18th century, when the steam engine was invented and applied to the mechanization of manufacturing industries. The second industrial revolution took place in the early 20th century, when electrical energy was used for mass production on a large scale. The third one began in the 70s of the twentieth century, with the development of computers, electronic devices and information technology used to automate production. Now, a fourth industrial revolution is followed by a unification, with no boundaries between the fields of physical, digital, and biotechnology.

Thanks to the invention and flexible use of steam engines, the UK has transformed itself into a “factory of the world,” at the forefront of the first industrial revolution. After that, the mass production method, typically Ford, was born, bringing the United States to the top of the second revolution. By the end of the 20th century - the period known as the “Japanese miracle”, witnessed the leap of automobile and electronics businesses thanks to the construction of high quality products “Made in Japan.”

The changes that took place during the Fourth Industrial Revolution were not the extension of the third industrial revolution, but the emergence of a new, different revolution. The difference is explained by speed, scope and effects. The speed of the current breakthrough is unprecedented in history when compared to previous industrial revolutions, the fourth revolution was developed at an exponential speed rather than linear speed. This revolution will also profoundly impact

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam

* Email: nguyenbaminh2009@gmail.com

governments, businesses and the people, bringing about both opportunities and challenges. These comprehensive and profound changes herald the transformation of the entire production, management and governance system of human society.

This technology will strongly promote the world economy to switch to the knowledge economy, because the most important development resource of this revolution is the manpower with technological creativity. Accordingly, the country that possesses a lot of knowledge, high quality human resources will gain global competitive advantage. The strong and comprehensive impact of this revolution takes place mainly in terms of structure, development level, growth rate, business model, labor market, etc.

2. IMPACT OF THE FOURTH INDUSTRIAL REVOLUTION ON VIETNAMESE ACCOUNTING AND AUDITING PERSONNEL

The impact of the Industrial Revolution 4.0 has opened many opportunities and challenges for Vietnamese accounting and auditing personnel.

2.1. Opportunities

In the context of Industry 4.0, employees in accounting and auditing will have many opportunities to improve their jobs. Such as:

Firstly, expanding the scope of work

Achievement of Industry 4.0 with applications such as the Internet of Things (IoT) and Big Data will help accounting and auditing works overcome the limitation by geographical distance. Vietnamese accountants and auditors can perform accounting and auditing works in any country in the world. In contrast, any accountant or auditor in the country accepted to practice profession in Vietnam may conduct the accounting and auditing task of enterprises and organizations in Vietnam.

Secondly, reducing the burden of compliance professionalism

With the support of typical technologies of Industry 4.0 such as artificial intelligence, cloud computing..., accountants and auditors do not need to worry about digitization, automation process and artificial intelligence, because not only do these technological achievements not deprive accountants and auditors' career opportunities but also help them to complete boring jobs such as manual data entry. Blockchain applications can help accountants and auditors reduce the burden of compliance.

Thirdly, maximizing labor productivity

The development of the artificial intelligence system and IoT around the world will open up good opportunities for the Accounting and Auditing industry to access convenient and affordable accounting software; since then, effective use of resources, saving time and manpower, and maximizing labor productivity approaching international accounting and auditing standards. By the use of modern equipment, programs and digital technologies, accountants and auditors can conduct information and data collection that were difficult previously. Cloud technology has been used in many businesses to store accounting data, so it minimizes risks for accountants and auditors of storing accounting data...

2.2. Challenges

Besides the opportunities, Industry 4.0 will also create many challenges for the work of Vietnamese accountants and auditors:

Firstly, unemployment or job loss stress will increase

Studies on the impact of Industry 4.0 on accounting and auditing field in general and accounting and auditing professions in particular show that artificial intelligence can replace manual jobs of accounting and auditing such as collecting, processing, calculating data... Although artificial intelligence cannot replace humans, it is changing the working environment and circumstances of accountants and auditors, thereby affecting accounting and auditing jobs. Meanwhile, cloud technology and big data bring tremendous benefits to the field of accounting and auditing thanks to storage capacity, network security...; this is threatening the career prospects of accountants, auditors or related jobs.

Secondly, the competitive pressure on the labor market is increasing

The Industrial Revolution 4.0 helps Vietnamese accountants and auditors perform accounting and auditing work in any country in the world, whereas foreign accountants and auditors can also practice in Vietnam. This creates fiercer competition in labor and job market, if the accountants and auditors do not improve their competence to meet international standards, improve their position and expand their work field, the probability of being sacked will be very high.

It is concerning that according to a recent study by the Institute of Labor Science and Social Affairs, although Vietnamese trained workers are considered to be agile, creative and able to meet the needs..., they lack and are weak in soft skills, especially critical thinking, creativity, low technology compliance...; thereby, reducing the competitiveness in the labor and job market.

Thirdly, the challenges from lately generated tasks or jobs

Industry 4.0 in general and blockchain technology in particular will eliminate some tasks, but at the same time create new jobs, or new tasks. Thus, the knowledge trained in universities, even the practical practice is not necessarily guaranteed for accountants and auditors. Therefore, accountants and auditors must not only understand the theory, be proficient in practice, be knowledgeable in technology but also have to grasp the trends and envision new accounting processes in the course of their work.

Fourthly, pressure to improve the information technology level of accountants and auditors

In Vietnam, accounting and auditing work is now mainly carried out on documents and papers. Meanwhile, Industry 4.0 will change the method, process of accounting and auditing in which it is most evident that the conversion of all that data into electronic information; blockchain technology will become a giant “general ledger” ... Therefore, in the long run, if accountants and auditors do not deeply understand the technology, they will face many difficulties in accessing and applying technology in carrying out the assigned tasks.

3. SOME RECOMMENDATIONS

In order for Vietnamese accounting and auditing personnel to effectively adapt to Industry 4.0, accountants, auditors as well as stakeholders need to pay attention to the following recommendations:

3.1. For accountants, auditors

Firstly, constant learning, updating professional knowledge, information technology, foreign language

In order to increase the competitiveness of professions, expand the scope of practice in the digital age, Vietnamese accountants and auditors need to constantly learn, improve their qualifications and apply information technology through participating in international practice certificate training courses such as ACCA, CPA, ...

In addition, accountants and auditors must also improve their foreign language, so that they can work with accounting and auditing firms in other countries during the integration process. In the future, businesses need more accounting professionals than normal accountants and auditors, so accountants and auditors must have high accounting and auditing skills, the ability to work independently, and a strong professional bravery. On the one hand, they must be able to meet the management needs of the business, on the other hand, they must proactively propose solutions to help businesses perfect the accounting and auditing work in an effective, professional manner.

To become an accounting expert, accountants need to ensure the compliance with the accounting, auditing standards and relevant legal provisions. The objective of the accounting and auditing profession is to maximize the benefits of businesses, create added value for businesses but still ensure strict compliance with laws and professional standards. The accountants and auditors must be able to creatively handle complicated situations arising in enterprises and situations where there are conflicts between legal safety and economic interests or corporate governance requirements.

Secondly, perfecting the skills to use some accounting software being used by businesses

Accountants and auditors need to be proficient in electronic invoice software, due to the time of mandatory electronic invoice application under Decree 119/2018/ND-CP dated September 12, 2018, taking effect on January 1, 2018. In order to apply e-invoices properly, accounting and auditing personnel need good expertise and understanding of how to operate e-invoices, from registration with tax authorities, creation of electronic invoices to issuance of electronic invoices and use of electronic invoices.

3.2. For stakeholders

i. Regulatory authority

Firstly, promulgating a clear and synchronized legal framework related to the application of industrial revolution 4.0

The Government should promulgate a clear and synchronized strategy and legal framework in applying the achievements of Industry 4.0 in the socio-economic fields in general and accounting and auditing field in particular, thereby contributing to orienting as well as enhancing the application of modern IT and methods, professional standardization... in professional activities.

At the same time, strictly complying with the guideline of promulgating accounting standards in the direction of updating changes of international standards, i.e., issuing VAS/VFRS in 2020. By 2025, the Ministry of Finance will apply IFRS in three levels: public interest companies implementing prototype IFRS; other companies applying VAS/VFRS; Small and medium-sized enterprises (SMEs) following the accounting regime for SMEs.

The full application of IFRS will help Vietnamese accounting and auditing to open a new era, changing the way of recording, measuring and presenting elements of financial statements. Because, IFRS - considered as a global financial language to help ensure comparability, consistency and transparency - will add wings/tickets for businesses to take advantage of opportunities to access international capital; at the same time, it helps promote the development of Vietnam's economy in general and enterprises in particular.

Secondly, focusing on investing and developing information technology infrastructure synchronously and timely to meet the development trend of the global digital system.

Particularly, attention should be paid to building network security systems, ensuring highly confidential accounting and auditing data information. In addition, it is necessary to study and apply effectively and appropriately auditing methods including basic and technical methods in the context of the impact of Industry 4.0; especially, the methods of collecting and evaluating audit evidence, methods of technical analysis in the context of accounting and auditing using electronic documents, blockchain technology, cloud computing, etc.

Thirdly, continuing to promote international cooperation, professional exchanges in the field of accounting and auditing

Developing accounting and auditing services following the development trend of regional and international countries, creating and expanding professional exchanges. At the same time, exchanging and learning experience to deal with the Industrial Revolution 4.0.

At the same time, there should be provisions to support businesses in the policies of training human resources for accounting and auditing, as well as developing guidelines on orientation and encouragement of labor mobility in the ASEAN Economic Community in particular and the global economic community in general.

ii. Businesses providing accounting and auditing services

In the context of economic development, the regulatory environment is increasingly required and the impact of the Industrial Revolution 4.0 requires businesses to continue to increase in terms of quantity, scale and quality of audit services.

At the same time, correctly applying policies, regimes and regulations of the State, sustainable development, development with a roadmap; investing in developing skilled staffs with deep knowledge of expertise and the ability to integrate.

In particular, strengthening the training and development of soft skills such as effective Vietnamese and English communication, active teamwork and proficient use of digital technology according to the needs of the economic market, and the advanced services such as providing financial analysis data, in-depth advice, ...

iii. Training institutions

Firstly, changing the training perspective

The training perspective needs to be changed in accordance with the training principles that do not come from what we have, but from the requirements of digital technology practices to provide high-quality human resources close to international standards of expertise and skills, especially foreign languages and technology grasp.

Secondly, perfecting the accounting and auditing training programs in accordance with the development trend of accounting and auditing training in the world.

Training institutions should review accounting and auditing training programs, based on the market research study of both learners and employers, to meet the requirements of human resources in accounting and auditing in the age of digital and the Internet of Things not only in Vietnam but also in the world.

The content of the training program must be developed to ensure the integration requirements and meet the quality standards with the programs of advanced schools in the region and the world, and with the training programs of professional associations aiming to mutual recognition among training institutions of professions, diplomas and certificates.

In addition, the process of teaching specialized knowledge should focus on training the necessary skills which are effective communication skills, working in many different groups, critical thinking skills and problem solving on the basis of respect for professional ethics.

Thirdly, changing lecturing method toward integrating technology, promoting learners' autonomy

Lecturing method is developed in the direction of promoting learners' activeness, autonomy and creativity. According to this method, lecturers are only instructors, supporting students to carry out their research work. Positive method in training can be based on the problem-based learning, the role playing and the brainstorming method.

Finally, establishing the relationship between training institutions and domestic and foreign enterprises

In the era of Industry 4.0, the establishment of relationships with businesses is expanding with not only domestic organizations but also foreign ones, because it helps training and research activities be coherent and close to reality, solve practical problems and meet the requirements of businesses.

CONCLUSION

Under the impact of Industry 4.0, accounting and auditing personnel need to acquire high professional qualification and good skills, and adapt to changes in technology and globalization. Therefore, the support of professional associations, businesses as well as appropriate management policies of the State will contribute to improving the quality as well as the sustainable and long-term competitiveness of human resources for Accounting and Auditing in Industry 4.0 now and in the future.

REFERENCES

* In English

1. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future (Generation next): Ethics and trust in a digital age;
2. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future (Generation next): Managing talent in finance shared services.

* In Vietnamese

1. The revised Law on Accounting 2015;
2. Decision No. 480 / QD-TTg dated March 18, 2013 approving “Accounting - Auditing Strategy to 2020, vision 2030”;
3. Decision No. 2261 / QD-BTC dated 10 September 2013 regarding the approval of the implementation plan of “Accounting - auditing strategy to 2020, vision to 2030”;
4. *Le Thi Oanh (2019)*, Industry 4.0 and its impact on accounting profession, Finance Magazine;
5. *Pham Thi Thu Oanh (2018)*, Accounting and Auditing Vietnam in the Industrial Revolution 4.0;
6. *MSc. Doan Thi Hong Thinh, MSc. Nguyen Thi Huyen (2018)*, Developing accounting and auditing field in the industrial revolution 4.0.

STATE AUDIT OFFICE OF VIETNAM WITH THE FOURTH INDUSTRIAL REVOLUTION: PROBLEMS AND ADAPTATION SOLUTIONS

Nguyen Huu Hieu¹

ABSTRACT

The fourth industrial revolution is creating many opportunities, along with challenges for all countries, industries, agencies, enterprises and employees. Application of information technology (IT) is not only a requirement but also a key to success. In the environment that the audited entities rapidly change the way of administration, management and working, the State Audit Office of Vietnam (SAV) has a suitable and adaptive strategy to this trend. Many software supporting audit activities associated with the audit procedure has been developed and applied by the SAV. Audit quality has been improved. The SAV needs to continue developing and finalizing audit software, enhancing the equipment of IT applications, innovating audit methodologies, audit procedures and training process, fostering the state auditor team. Each state auditor needs to participate in formal training courses and self-study to improve the knowledge and skills of IT application to support the audit profession.

Key words: State Audit Office of Vietnam, the fourth industrial revolution.

1. THE FOURTH INDUSTRIAL REVOLUTION - OPPORTUNITIES AND CHALLENGES FOR STATE AUDITORS

The world is witnessing the rapid development of the fourth industrial revolution, which based on 3 main platforms - Internet of things (IoT), Centralized database (Big data) and Artificial intelligence (AI). Although the fourth industrial revolution has not yet been realized, it is expected to open many opportunities and at the same time pose great challenges for each country, organization and individual. The working environment and working methods will change radically and rapidly due to the IT application. For the state auditors, the fourth industrial revolution offers the following major opportunities:

- More information about the audited subjects and issues related to the audit is accessible.
- The application of IT and IoT enables the state auditors to collect information and data that used to be difficult to collect. Geographic distance is no longer an obstacle to access to information for auditing purposes.
- The transmission of information and audit results amongst the audit group, the audit team and the SAV is faster and timelier, meeting the requirements of administration and construction of accounting plans.

¹ Dean of Fundamental Faculty, Audit Training Institute, State Audit Office of Vietnam, 111 Tran Duy Hung street, Cau Giay district, Hanoi, Vietnam, Telephone: +84 912167655; E-mail: nguyenuhuuhieuktnn@gmail.com

- Data on the audit results are accumulated and connected to form a big data warehouse, useful for current and future audits.

- The state auditors have many opportunities to share audit methodologies and procedures, thereby improving the skills and experience of handling audit situations.

Besides the opportunities, the fourth industrial revolution also poses challenges for the state auditors, which are:

- The state agencies and state budget-using entities are robustly applying IT in organizing and handling accounting operations; the method of circulation of accounting vouchers and information storage have been changed to adapt to digital technology environment.

- Many calculations for analysis and evaluation activities in audit activities are supported by application software; the time spent on professional operations, especially simple ones, is reduced, but the requirements for knowledge and skills to use application software are reinforced.

- Auditors should be knowledgeable about IT to exploit, analyse data and conduct audits in the context of audited entities applying digital technology. In addition, it is necessary for the auditors to understand how to keep information confidential to ensure confidential requirements when performing audit tasks.

- In addition to IT knowledge, the state auditors should master English and soft skills to effectively access and exploit the data warehouse.

- The state auditors need to master professional skills in the context of rapidly increased socio-economic knowledge and to be proactive and creative to strength analytical and evaluative skills during audit implementations.

2. THE SITUATION OF IT APPLICATION IN THE AUDIT ACTIVITIES OF THE SAV OVER TIME

The SAV is an agency established by the National Assembly, performing the audit of the management and use of public finance and public assets in accordance with the Constitution and the Law on State Audit. From an agency without a predecessor, after more than 25 years of construction and development, the SAV has increasingly grown up affirming its position and prestige, making an important contribution to the transparency of public finance, improving the efficiency of business operations and corporate governance of state-owned corporations. In addition to the annual audit of the state budget settlement according to the Law on State Audit to assist the National Assembly in approving the state budget settlement, most of ministries, central agencies, provinces and centrally-controlled cities, state-owned enterprises are audited at least every 2 years. Since its establishment (1994), the SAV has conducted 2,624 audits, founded and requested for financial settlements of VND 413,145 billion, of which the state budget revenue increase was VND 92,716 billion and the state budget expenditure decrease was VND 93,730 billion. In addition, the SAV proposed to amend, replace, abolish thousands of legal documents in contravention of regulations or not in line with reality.

The above achievements are mainly due to the development of the state auditors in terms of professional skills, professional ethics, innovation of audit organization methods and especially IT

application in audit activities. IT application in the audit activities has been always concerned and highly appreciated by the SAV.

So far, the SAV has developed and applied many software to support the state auditors in the audit profession: software for management of audited entities, audit log software, audit schedule software, software for consolidation of audit results, software for monitoring the implementation of audit recommendations, software for digitization and management of audit records. The software is connected, forming the IT system to support the state auditors in performing the audit operations in the aspects of the audit procedures: audit planning, implementation of audits, preparation of audit reports and monitoring of the implementation of audit conclusions and recommendations.

The “management of audited entities” software helps the state auditors look up information and data about the audited entities, learn about historical information and updated information to develop appropriate audit plans to reduce the time spent directly approaching the audited entities. The data about the audited entities is becoming more and more plentiful and complete as the state auditors update information after each audit.

The “audit log” software supports the state auditors to record the content of work performed in the “day” according to the approved detailed audit plan. The software also supports the leaders of the SAV, the Chief Auditor of the auditing entities, the audit team leader and the audit group leader to monitor the content and work progress of the state auditors. The application of the audit information management software has contributed to the audit quality improvements through innovations brought by the software: i) Storing audit results of the state auditors to form a basis for checking and controlling the progress and content of work performed by the state auditors; ii) Improving the speed of information transmission and information sharing on audit results. All management levels (group leaders, deputy group leaders, team leaders, chief auditors) have conditions to promptly update information (on the next working day) on progress, work results and implementation directions of the work of the state auditors, providing guidance, closely monitoring and sharing information among the audit teams, minimizing the risk of detection during the audit process.; iii) Units with inspection, control and audit functions such as Department of Audit Regulations and Audit Quality Control, State Audit Inspection, etc. also update regularly information on the progress of audits carried out by the audit teams, thereby reducing the workload accumulated on the last days of the audit because the review can be performed at the same time with the audit process; iv) Contributing to controlling ethical risks in performing the audit profession of the state auditors and contributing to ensuring integrity and objectivity of the state auditors.

The “audit schedule” software enables the state auditors to update the audit progress and exploit the status of implementation of the audit schedule. By means of software, the state auditors can extract reports to obtain information about annual audits, audit status based on the audit procedures: from the stage of preparing audit, performing audit to monitoring the process of issuing audit reports. The software also provides the state auditors with information about audits conducted during the year, their implementation progress and audit report issuance progress.

The “consolidation of audit results” software supports the state auditors to update data and contents of audit recommendations, including: recommendations on data, documents, handling

responsibilities, duties, and other recommendations. By means of software, the state auditors can exploit data and content of audit recommendations such as: list of audited entities, consolidation of annual audit results, results of audit of recommendations on increase of the state budget revenue and on decrease of the state budget recurrent expenditure and the state budget development investment expenditure and other recommendations, list of proposed amendments, supplementations and abolishment, recommendations on handling of collective and individual responsibilities related to violations detected from the audit results.

The “monitoring the implementation of audit recommendations” software supports the state auditors to monitor the implementation of the audit recommendations by the audit and by the audited entity. The implementation of audit recommendations is reflected in the following aspects: the increase in state budget revenues, the reduction in recurrent expenditures of the state budget, the reduction in development investment expenditures, the situation of handling personal and collective responsibilities, the situation of improvement of mechanisms, policies, management activities.

The “digitization and management of audit records” software was built aiming to digitization, centralized storage of documents collected during the audit survey and implementation; digitization and centralized storage of existing audit records of the SAV to form a digital database of audit records. The digitization of audit records to serve the management and audit activities of the SAV when exploiting data in warehouses, including: survey documents, general audit documents, detailed audit documents, quality audit documents of the Chief Auditor, audit records after the release of audit reports.

However, the IT application in the audit activities of the SAV still has some limitations as follows:

- The data is slowly digitized and stored. Although many efforts have been made to boost the data input, currently the database served for audit activities of the SAV is still deficient in terms of quantity and poor in terms of content. The data extraction supporting audit planning and control of the implementation of audit recommendations by the state auditors is very limited.

- The application software in audit activities is not user-friendly. The audit support software system of the SAV is developed quite comprehensively, embracing the audit procedure. However, many applications have not been used by the state auditors because of its inconvenience, difficulty to use and not beautiful format. The data extraction is rudimentary, not diverse and not very helpful for analysis and evaluation.

- A significant number of state auditors have not properly perceived the impact of the fourth industrial revolution and have not focused on improving the skills of IT application in audit activities. This is a general weakness of the majority of Vietnam’s workforce nowadays, especially the group of civil servants and public employees working in public service agencies. Many state auditors are currently only able to use conventional office computer software, the utilization of IT applications to exploit information and data of the audited entities is at a fairly limited level. Therefore, the audit quality and efficiency of this group of state auditors are not high.

Infrastructure and facilities serving audit activities in the transition to the IT environment are still inadequate. The limitation of financial resources is also the main reason that the audit support software is not user friendly and its features and utilities are not diverse and plentiful. Besides, the SAV currently only equips basic tools (e.g. computers) for the state auditors when performing the audit tasks. The state auditors still face difficulties in accessing data, exploiting information and transmitting data when conducting audits in areas with difficult socio-economic conditions due to the lack of modern supporting equipment.

3. SOLUTIONS TO INNOVATE AUDIT ACTIVITIES OF THE SAV TO KEEP PACE WITH THE TREND OF THE FOURTH INDUSTRIAL REVOLUTION

The forth industrial revolution is now undergoing aggressively. The awareness and actions appropriately toward the movement of this revolution is a mandatory requirements for organization as well as the employees. To improve the quality of audit, the SAV and its auditors need to implement the following fundamental measures:

Firstly, the SAV needs to complete the digitization of documents collected from audited entities and audit records soon. The effective IT application in auditing depends largely on the magnitude and plentifulness of the audit data warehouse.

Secondly, the SAV should study, formulate and promulgate audit regulations and procedures in the IT audit environment, transform from manual, paper-based audits to data-based audits with the supports of artificial intelligence technology.

Thirdly, the SAV should increase the investment in modern working equipment, in line with the new method of collecting audit evidence and new audit methodologies. Promoting the implementation of audit methodologies based on the principle that the state auditors collect audit information and conduct audit procedures at the SAV, thereby minimizing time spent auditing and limiting the impact of the audits on the activities of the audited entities.

Fourthly, the SAV should strengthen the training of the state auditors to meet the requirements of the working environment during the fourth industrial revolution. In addition to mastering professional knowledge and skills, the state auditors must be trained to formulate skills to collect, analyse and synthesize information related to audit activities based on IoT, big data and artificial intelligence and proficient use of audit software developed by the SAV.

In addition, the SAV needs to strengthen the IT staff, foster audit knowledge so that they can continue to develop, improve and make the audit support software become more user-friendly. The SAV also needs to arrange IT technicians for auditing entities or audit teams to assist auditors in handling complicated IT-related issues.

Fifthly, the state auditors need to improve their capacity to apply IT in auditing profession.

Auditing is a professional activity that requires high requirements for the state auditors on professional competence, occupational skills and other necessary supplementary skills to serve the audit works. The trend of the fourth industrial revolution and the rapid increase in socio-economic knowledge as well as innovation in the implementation of financial and accounting management

of the audited entities, etc. set out the need for each state auditor to be trained and self-trained to improve their qualification.

The opportunity that the fourth industrial revolution creates for all people is the same. The person who has the ability, good expertise, skills and ability to create more value for society will succeed. The fourth industrial revolution requires the state auditors to have new and creative skills; because simple, repeatable business operations will be performed by automated software. To well prepare for the fourth industrial revolution, the state auditors need to constantly improve their ability to self-study, improve their qualifications, especially the ability to manipulate and master IT. Each auditor should understand and master the process of dealing with economic operations, synthesize financial-accounting information of the audited entities in the context of digital technology; use proficiently and exploit efficiently information through audit support software, audit databases, etc. At the same time, the state auditors need to cultivate and improve their foreign language which is the key for accessing and exploiting information for auditing.

4. CONCLUSION

The fourth industrial revolution is taking place and is expected to have a strong impact on the activities as well as the way of working of agencies, organizations, enterprises. The SAV has focused on development of IT application software in auditing. The software system needs to be further supplemented and improved. In addition, the strategy of developing human resources in line with the working requirements in the fourth industrial revolution. The SAV needs to enhance training of knowledge and skills in IT application for the state auditors. Each state auditor needs to be aware of the importance of mastering and practicing proficiently the audit support software, skills to exploit and analyse audit information based on IT applications which are suitable to the IT application-based working environment of the audited entities.

REFERENCE:

1. Central Institute for Economic Management (2018), *Impacts of Industry 4.0 on human resources management of Vietnam*.
2. National Assembly (2015), *Law No. 81/2015/QH13 on State Audit*.
3. PWC (2018), *Industry 4.0 Vietnam Survey 2018*.

IMPROVING TRAINING QUALITY OF ACCOUNTING AND AUDITING IN THE INDUSTRY 4.0

Thinh Van Vinh¹

ABSTRACT

International Integration and Industrial Revolution 4.0 affect all aspects of socio-economic life, including training. In recent years, the university quality training in Vietnam, especially the accounting and auditing field, still have certain distances from the world and practical requirements. The objective of training in universities today is to train global graduates or workers to meet the requirements of an integrated market economy. This goal is now becoming extremely urgent of every country, including Vietnam, towards training global workers to meet the practical requirements of the current situation.

At the moment, accounting and auditing training is both a great challenge and an opportunity for experts and high quality workers to find new jobs in the open labor market with high requirements. Therefore, the article has codified the basic theories about the quality of training; criteria for evaluating training quality; the impact of the industrial revolution 4.0 on the training, exploitation, and the use of accounting and auditing; situation of training quality, opportunities, challenges and the need to improve the quality of accounting and auditing training; solutions and conditions to improve the quality of accounting and auditing training in terms of integration and the industrial revolution 4.0.

Keywords: Auditing, Training, Industrial revolution .

1. INDUSTRIAL REVOLUTION 4.0 AND THE URGENCY TO IMPROVE THE QUALITY OF ACCOUNTING AND AUDITING TRAINING

1.1. Industrial Revolution 4.0 and the impact on accounting and auditing

1.1.1. Industrial Revolution 4.0

Currently, in the international economic integration, the whole society is entering the 4th industrial revolution, also known as the Industrial Revolution 4.0. The era of technology creates a cohesive working environment between computers, big data, automation, artificial intelligence and people working on the basis of optimal exploitation according to completely new processes. Industry 4.0 currently, the focus is being paid attention to the use of automatic process by robots designed on the basis of a system of mandatory indispensable elements of humanity such as artificial intelligence. Along with that is the big data system, combined with the computer system to automate awareness and control on the basis of artificial intelligence in a strict and optimal process.

The current Industrial Revolution 4.0 is a leap to the peak of human technology. Experiencing three previous industrial revolutions (the first industrial revolution 1.0 in 1784, when the appearance

¹ Accounting Department – Academy of Finance

of steam engines) appeared machinery and equipment using steam engines. More than 100 years later, the Second Industrial Revolution (2.0 in 1870), the appearance of electric light energy prompted mass production lines. Nearly 100 years later (1969), the 3rd industrial revolution (3.0), the era of electronics and information technology exploded the automation production process, the control of programming system and automatic controls. Later, less than 50 years later (from 1969 to 2015) broke out the fourth industrial revolution (4.0). The Industrial Revolution 4.0 this time exploded quite quickly based on digital technology and integrated intelligent technologies to optimize production processes and methods. In particular, technologies have had a major impact such as 3D printing technology in product manufacturing, biotechnology, new material technology, automation technology, robotics, artificial intelligence, big data, social media and many more are changing fundamentally and quickly the production and business activities of the world in the shortest time.

1.1.2. Impact of industrial revolution 4.0 on accounting and auditing

Timely grasping, inheriting and exploiting the achievements of Industry 4.0 can be considered as a key and opportunity to create a breakthrough development of each nation as well as Vietnam's economy in order to successfully implement industrialization and modernization of the country. However, the Industrial Revolution 4.0 also has many challenges for all countries including Vietnam in the short and long term. The accounting and auditing industry was also strongly modified by the Industrial Revolution 4.0 (Industry 4.0), specifically as follows,

Firstly, the introduction of artificial intelligence and information technology combined with automation and control processes under software programmed in accounting and auditing will be widely used for the fastest and most accurate results. The current manual accounting, auditing and human processes, which are currently involved in the process, will be reduced even if people will no longer participate in these stages. Meanwhile, the countries and fields that focus on exploiting this technology will have many advantages and victories in competition. In contrast, countries or institutions that do not keep up with the trend will be obsolete, dependent, eliminated.

Secondly, artificial intelligence, big data and social networks.

Big data subscribe to the large, unique sets of information in all areas which related to people collected through the means of information and communication. Artificial intelligence can alternate replace manual accounting and auditing tasks such as collecting, processing and calculation data. However, stages such as analysis, finding causes and forecasting to provide solutions for each specific or unprecedented situation must always require human involvement. Although artificial intelligence does not replace people, it is changing the environment, circumstances, conditions and working tools of accounting and auditing.

Thirdly, data analysis.

In addition to the excel tool commonly used in accounting and auditing in the past, the development of technology will provide more modern tools and software for screening, selecting and exploiting appropriately for uses. From such analysis, the results of calculation and analysis are obtained as quickly, accurately, objectively as possible. Since then, the business processes

integrated with the internal management process are guided to implement accounting policies, auditing and information transmission more quickly, closely, reliably and effectively.

Fourthly, cloud computing technology is used to store information such as establishing accounting and auditing organization; financial activities, documents, accounting books, financial statements in optimal way with large volumes and not limited as much memory as before. Along with the automation process, most of the accounting and auditing tasks are standardized records, so automation technology can replace as much of the accounting, auditing and finance department's jobs. In particular, artificial intelligence will replace people in dealing with complex accounting transactions such as pricing, provisioning, forecasting, information storage.

Fifthly, the development of telecommunications technology and infrastructure in the 4.0 era has been posing new security challenges, firstly in security of management accounting information, in payment operations, banking transactions, and in investment activities, personal information. Therefore, cyber security has become extremely important, maintained both national and corporate financial security, as well as creating trust and protecting the interests of finance, accounting and auditing services users.

1.1.3. The development of accounting and auditing in the industrial revolution 4.0

In the first industrial revolution (1.0), accounting and auditing were carried out by hand, manual tools such as paper, pens, mechanical calculators, etc. Next, the second industrial revolution (2.0) shows that accounting and auditing have made steps to develop and apply excel tools, computer software on accounting and auditing. After that, the third industrial revolution (3.0), accounting and auditing tools made remarkable progress by exploiting and using big dat, analyzing, forecasting and controlling risks, and using accounting and auditing applications widely. Finally, the fourth industrial revolution (4.0), people perform accounting, auditing in strict automatic and semi-automated processes to fully exploit software tools, sensors, cyber physical system (CPS), Internet of things (IoT); Internet of services (IOS), smart factories (SF), GPS, data analysis and many more.

Accounting and auditing in the era of industrial revolution 4.0 will fundamentally change the method of auditing and using information and audit results to serve the administration of information users.

1.1.4. Opportunities and challenges of Industry 4.0 for improving the quality of accounting and auditing training in Vietnam

Firstly, the lecturers are mostly teaching in the traditional way about the legal documents, circulars and decrees, which make both teachers and learners passively and not creatively. University autonomy is still unclear, while the State and the governing ministry still dominate the training activities of universities.

Secondly, learners are less academically oriented and are required to obey the law. The concept of academic teaching, in-depth study of nature is limited and has not been focused properly, so it has not really encouraged Scientists to go this way. This perspective of training is not relevant to the world, reducing the integration of Vietnamese accounting as well as creativity to have new

inventions in compliance with the law. Science is a matter of nature and the rule will exist for a long time while the legal documents are low in science so the life expectancy is very short and the scope of application, acknowledgment is also narrow, limited in within each Country.

Thirdly, the current teaching curricula on accounting and auditing are mainly documents conveying legal documents with low scientific content. This is a big obstacle for lecturers and students at universities in Vietnam when they want to learn deeply about accounting, auditing and international practices. This problem also limits the application of computer engineering tools, software, objective automatic control processes and greatly affects the use of large data systems.

Fourthly, language is also a significant barrier to the 4.0 industrial revolution. Our foreign language proficiency among university lecturers and students has been much higher than before, but still has not met practical requirements. On the other hand, not all lecturers can read and understand all accounting and auditing contents in English, the most popular language of information technology.

Fifth, digital criminals and hackers.

The Fourth Industrial Revolution makes digital thriving, widely applied to facilitate and enhance the broad spectrum of human activities. However, this also creates opportunities for users with wrong functions and criminals operating in the field of information technology to take advantages.

Sixthly, the security and privacy issues of businesses, organizations and people. Emerging technology also poses a significant threat to the security and privacy of organizations, businesses and individuals. A problem is always the concern of IT managers when bad people and hackers exploit information for malicious purposes and violate laws. The exploitation of information to serve the criminal world always arises with the development of Industry 4.0.

Seventhly, standardized screening of accounting and auditing data. Data in accounting and auditing 4.0 can come from a variety of sources, such as sensors in machines and equipment, corporate ERP resource planning system, database of related external parties, and social media. These data will be analyzed by different parties with different models of data structure, format and naming rules. Therefore, there must be a screening and development of uniform data standards which is very important for exchanging information and data in terms of the 4.0 accounting and auditing.

1.2. The need to improve the quality of accounting and auditing training in terms of integration and the industrial revolution 4.0

1.2.1. Quality of accounting and auditing training

The quality of accounting and auditing training is the result or product of the training process in schools, the quality of work and the ability to adapt in practice. The quality of training includes the quality of training at university (such as facilities, lecturers, training programs, materials, quality of input), quality of practical work, adaptability to the labor market such as employment rates, practice capacity, career development ability in businesses, job acumen with the domestic and international labor market, and work environment.

Common indicators used to assess the quality of training in the context of integration and the current industrial revolution 4.0, including:

(1) Social and professional qualities (social and professional knowledge with comprehensive insights on integration, the impact of industrial revolution 4.0, dominance of the open market, career development, corporate culture, soft skills, ability to exploit technical tools and information from many primary and secondary sources, newspapers, official networks and social networks.)

(2) Health indicators (according to specific regulations of the enterprise, the State, the Ministry of Health, the region, and the world)

(3) Professional knowledge and skills (according to regulations of specific professional fields, including standards of training and practical experience, including professional areas and the ability to use tools in the industrial revolution 4.0 such as computers, communications, networks, data analysis, foreign language skills).

(4) Competence, creativity, the ability to handle arised practical problems (strong expertise, creative use, ability to handle all problems and practical situations that arise in your area of expertise).

(5) The ability to transform, adapt and be sensitive to the domestic, regional and international labor markets (highly adaptable to the working environment and labor mobility in the public, private, domestic and foreign sectors that meet the standards of global labor or global citizens)

(6) Research capacity and career development in the future (practical work capacity and research, theoretical development)

1.2.2. Current situation of quality of accounting and auditing training

Firstly, most students have good ethics, social responsibility, understand human values, empathy, tolerance, professional knowledge, community culture and soft skills.

Secondly, students have good academic knowledge about science, especially accounting and auditing in the conditions of integration and requirements on compliance with international standards in accounting and auditing services. Students have an understanding of Industry 4.0 but the real preparation for a career is still limited.

Thirdly, learners are capable of collecting and evaluating, selecting and processing information, solving accounting and auditing issues, being able to develop and expand their knowledge.

Fourthly, learners still have limitations on the skills to use accounting software, computers and other management facilities, analytical skills, and organization of modern accounting information systems.

Fifthly, the foreign language ability of the students (English) is limited, the understanding of accounting and auditing issues is still low, not sensitive. This is the cause of the difficulty to carry out extensive international integration. The ability to integrate with international accounting and auditing is possible, but the ability to converge is still quite a distance.

1.2.3. The need to improve the quality of accounting and auditing training to meet the requirements of integration and the industrial revolution 4.0 stems from the following reasons,

Firstly, integration requirements.

When joining the ASIAN economic community (AEC), Vietnam was really opened up and accepted the competitive pressure on the international market on a global scale, the pressure to move labor in the region and global in a number of industries including accounting and auditing. Accordingly, accounting and auditing have become one of the free-moving industries in ASEAN. Vietnamese accountants and auditors will have the opportunity to work in AEC member countries. In the contrary, accountants and auditors in AEC member countries are also free to work in Vietnam. This requires accountants and auditors to improve their professional qualifications, ethics and foreign language skills to actively join AEC. Moreover, the preparation of financial statements in accordance with International Financial Reporting Standards (IFRS) is increasingly supported by countries around the world. In Vietnam, the request for preparation of financial statements according to IFRS standards will be applied in the near future due to the requirement of transparency of financial information, healthy cooperation relations in the process of integration, deep participation in the international capital market. Extensive international integration also requires accountants and auditors in addition to mastering International Professional Standards, Ethical Standards and English Proficiency. This led to the renewal of training, improving the quality of accounting and auditing training in Vietnamese universities.

Secondly, the requirements of the 4.0 industrial revolution

Industrial Revolution 4.0 requires high quality of accounting and auditing human resources. Highly qualified and in-depth lecturers is essential not only in the fields of economics, finance, accounting and auditing, but also the ability to use language proficiency and use information technology, to analyze and make intensive predictions about economy, finance, accounting and auditing especially for making decisions of management. The lecturers are not only good at theory but also have high practical experience, able to advising on practical issues in economics, finance, accounting, auditing, and update future career trends in the country, the region and the world.

Thirdly, mutual recognition of the quality of training and qualifications

It is common practice and in developed countries, there are three types of training, academic training is provided by universities; vocational training by professional associations; and internal training provided by the employer itself. Training at universities with academic knowledge, objectivity, nature and rules is always respected. Currently, the universities (except for the technical department) are training with high imposition, the university training is divided into research universities (academic nature), practical universities, and university of study and practice). We need to change the way of training, especially in universities to improve the quality of training.

Fourthly, the current situation of Vietnam's accounting and auditing training

In the past, universities did not agree on the training method and did not recognize the quality of others (For example, students must complete all subjects of the school to be recognized).

Currently, there has been a change, but degree level training is still at the beginning but it is not really in line with international practice (students are not really selected subjects, teachers and period of time). Previously, the subject was completely assessed based on test results. The midterm test is only a condition for the exam, other criteria such as not absence, preparation of study materials, activeness, presentation and writing ability, practical adaptability not paying proper attention. (There are currently changes but the usual criteria are not adequate). The volume of curriculum is still large. Many courses are not needed. These subjects are not compulsory, but are elective subjects (Therefore, some other countries only train University of Economics for 3 years).

Training accounting and auditing focused on training policies, regimes and laws are not really suitable. This is the cause of limiting the creativity of both students and lecturers and difficult to adapt the labor market, especially the foreign labor market.

Innovating training programs is not associated with renovating curriculum. The curriculum focuses on accounting regime, science content is not high, when the accounting regime changes, the mode will be outdated immediately.

The accounting training program currently consists of 03 specialties corporate accounting, accounting in public sector, and auditing. In the world, the auditing is not in the accounting profession, but in the new auditing science and in accordance with international practice.

Technical facilities are inadequate and limited, failing to meet training requirements, especially practice rooms and laboratory facilities. The phenomenon of having other people study and take exams is not nonexistent and tends to increase, it is necessary to have solutions to manage, handle and strictly stop this situation.

Teaching methods do not pay enough attention to practice, focusing on theories and need to combine with practice, with businesses.

The current control of our university is much different from the world such as strict control of input and training process, but the output has not been properly controlled. (the developed countries focus on controlling output and controlling in training process).

The content and curriculum are not really scientific, there are many duplicates, overlaps and not practical.

Fifthly, from the practice of international integration on international training as well as the educational socialization, to eliminate the boundaries of domestic and foreign university training, between public and private universities.

+ Currently, organizations, businesses and employers, especially international organizations, foreign businesses are not interested in the qualifications of the candidates but they are interested in the adaptability, capacity and quality of work.

+ In fact, in Vietnam, there are now many private universities, foreign universities, affiliated universities that are training in Vietnam, which are recognized internationally, this is a serious competitor and the most difficult of Vietnamese Universities.

Sixth, from the benefits and existence, the development of each university

Universities that do not improve the quality of training, are not reputable. Graduate students are weak in quality, do not assert themselves in practice, it is difficult for society to recognize. Learners do not choose a school to study, society does not recognize products, employers do not accept workers, so it is difficult for schools to exist.

2. SOLUTIONS TO IMPROVE THE QUALITY OF ACCOUNTING AND AUDITING TRAINING IN TERMS OF INTEGRATION AND THE INDUSTRIAL REVOLUTION 4.0

Firstly, it is necessary to pay due attention to the lecturers' force, especially the core and key lecturers

This is the force that determines the quality of the training process. It is necessary to be active and enhance the proper attention to the lecturers, especially on accounting standards, auditing, informatics, foreign languages and the use of information tools in teaching and practice. This need to strengthen the mechanism of mutual exchange of lectures to learn from each other, improve the quality of lecturers on professional knowledge, teaching experience, and pedagogy.

Enhancing training and professional training for lecturers in all aspects to be ready to complete the training tasks to provide high quality products to the domestic and foreign labor markets.

Enhancing professional scientific conferences, actively writing scientific articles in domestic and foreign journals, conducting research on highly applicable scientific topics with encouragement in the direction of internationalization.

Invite leading and prestigious domestic and foreign experts to attend, comment or teach and update new knowledge for lecturers, so that all students attend.

Secondly, Regarding teaching, learning and research materials

Strengthen the review, revision and reprint of accounting and auditing curricula must ensure the scientific nature, not be too heavy on policies, regimes, and regulations that are binding.

Must clearly identify scientific documents, policy dissemination documents, regimes, laws, university documents, graduate documents, postgraduate.

Must be a clear demarcation of the training boundaries of the University and training according to the functions and tasks of professional associations, including internal training.

Thirdly, on the training method

Training must be conducted in close combination with theory and practice, between theory and practice, between schools and domestic and foreign enterprises, between domestic and foreign schools.

It is necessary for students to choose elective subjects, to select teachers, create a favorable learning environment for students, perform on-demand training, arouse positive and proactive for both students and teachers. The training method must be geared to international standard training and the global labor market.

Fourthly, regarding facilities and equipment, proper attention should be given to possible conditions, socializing education from dedicated investors.

Teaching to meet the market demand requires high quality of human resources in the fast changing trend of technology, the facilities in the industrial era 4.0 of the training institutions themselves generally need to be enhanced and compatible with the objectives and training requirements. The technology of teaching in the profession of accounting and auditing also needs to be changed to suit reality. The problem of virtual practice room, the problem of enhancing the association of reasoning with the practical application of technology, selecting technology to apply to ensure science, suitability, economy, efficiency and adaptability to diverse needs of the economy is a necessity.

The non-traditional teaching will be increasing, not only stand at the podium but also teach “Off line” lectures “Online”, teach anywhere, whenever so demanding on space and time. for facilities, teaching facilities and equipment.

Fifthly, training programs

The ongoing Industrial Revolution 4.0 will change the traditional accounting and auditing model, change the process of recording, reporting, auditing, publishing and exploiting economic - financial information - accounting and auditing. Labor in the field of accounting and auditing will have to constantly improve their skills to survive, compete, and institutions and regulations must be adjusted to suit the environment and working conditions, especially when artificial intelligence is involved. Therefore, the training programs at accounting and auditing schools need to be oriented and approach following the trend of the 4.0 revolution such as diversifying types of training, deep specialization, many options for learners; Incorporate between learning with practice in practice or in the model accounting room, virtual auditing, etc.

Sixthly, it is necessary to improve the quality of student input and care about creating jobs for good students.

In the prestigious schools today due to good quality of input, the quality of training is also higher and more favorable. This is a very favorable factor for that prestigious school and it is also a very difficult problem for newly established schools that have not asserted themselves. Select and screen out capable and excellent students to help, create jobs immediately after graduation, can receive additional training to be teachers, help with funding to study graduate, postgraduate and later students must work at the school or help these students get to work in businesses with needs and scholarship support for students.

Seventhly, it is necessary to pay attention to the situation and the impact of society on its students to have solutions to improve the quality of appropriate training. The University must regularly have an exchange between the school and the employer to link the school with the business, between the school and the society. They need to regularly gather feedback from domestic and international employers to improve, improve and improve the quality of training.

Eighthly, it is necessary to encourage teachers and students to participate in contests on professional skills in accounting, auditing, information technology, practical exposure to improve their qualifications and accumulate experience, especially in terms of integration and the industrial revolution 4.0.

3.CONDITIONS FOR IMPLEMENTING THE SOLUTIONS

3.1. For the State

Firstly, the government should promulgate and finalize the legal framework, create favorable conditions for education and training institutions to take the initiative in training. Since then, the government has encouraged to promote creativity to attract talents, to train high quality products for society, to meet global labor requirements in terms of integration in the industry 4.0.

Secondly, the Ministry of Education and Training should soon help the universities to clearly define the scope and boundary between the content of academic training in the University and vocational training and internal training. Building scientific framework programs for universities. Avoiding overlapping, duplicate and unnecessary training.

Thirdly, it must really give autonomy to universities to make their own decisions and deal with school affairs within the proper authority of the universities and comply with the State's regulations on higher education to enhance the quality of his training.

Fourthly, the State must really have a mechanism and a policy to control the quality of training objectively and strictly. Only qualified universities are allowed to study economics and accounting and auditing majors. Currently in Vietnam accounting training, audit rampant. The quality of training products of many schools has not been really and positively believed by the society.

Fifthly, the State hands over the training and granting of practicing certificates of auditors and auditors to accounting and auditing professional associations, assuring them of proper functions and professional tasks and promoting their roles (professional associations in developing their profession strictly according to international practices and integration.).

Change the practice of accounting and auditing practice certificates according to international practices (International exam anywhere, whenever, time is not limited when the learners request it, while Vietnam focuses 4-5 days and only 1 test is not suitable, not quality).

3.2. For professional associations

Firstly, for accounting and auditing professional associations, the State needs to grant the right and duties to perform according to the functions of the professional associations. It is necessary to strengthen the role and take practical solutions to improve the quality of operations. Associations need to be renewed continuously about content and mode of operation to well perform the functions of attracting, controlling, managing, guiding professional careers and professional ethics of our accounting and auditing team. At the same time, strengthen close relationships and take advantage of the help of accounting and auditing associations in the world to develop the profession of accounting and auditing in a strong way.

Second, the Career Association must regularly pay attention and organize contests on accounting and auditing professional skills, information technology in accounting and auditing.

Thirdly, strengthening the organization of examinations for granting professional practice certificates for professional development, changing the practice forms and methods and developed countries to really create favorable conditions for learners and examinations, avoiding current excessive exam.

Fourthly, the Career Association must actively work with universities to organize training, updating and fostering professional skills according to the practical requirements of the industrial revolution 4.0.

Fifth, the Professional Association needs to directly comment, organize an international seminar for the State to hand over, the association accepts the task of organizing examinations and studying changing the exam format for issuing practice certificates, according to its functions and tasks, in accordance with international practices.

3.3. For Enterprises and organizations

Firstly, employers need to work closely with the university to recruit and employ high-quality students who really meet the practical requirements of integration and industrial revolution 4.0.

Second, employers must really pay attention, give priority and encourage encouragement to accounting and auditing students with good qualifications such as introduction when students wish to practice, recruit, or give chance for work at businesses if they have good qualifications.

CONCLUSION

International Integration and Industrial Revolution 4.0 creates great opportunities and challenges for finance, accounting and auditing in general and training in Vietnam in particular. In the current conditions, the training quality of the universities, especially in the field of accounting and auditing in Vietnam, has not really met the requirements and industrial revolution 4.0. Therefore, through the article, the author has clarified about the industrial revolution 4.0 affecting Vietnam's accounting and auditing, opportunities and challenges in this industrial revolution. The article also pointed out the quality of training and the need to improve the quality of accounting and auditing training in the context of integration and the industrial revolution 4.0. The author has analyzed the solutions and implementation conditions to constantly improve the quality of current accounting and auditing training.

REFERENCES

1. International Workshop "Innovating accounting and auditing training at university in Vietnam" organized by Association of Chartered Certified Accountants (ACCA), Vietnam Association of Accountants and Auditors (VAA) in May 2011.
2. Prof. Dang Thi Loan - National Economics University "Situation and solutions to renovate the content of accounting and auditing training at university in Vietnam" - Auditing journal - Issue 6 (127) June of the year 2011.
3. State Auditor Training Program of the Federal Republic of Germany, Czech Republic, Japan, China, Canada, Malaysia, Indonesia, etc.

4. Proceedings of the national science conference: Accounting - Auditing Vietnam in the context of industrial revolution, opportunities and challenges organized by the Academy of Finance - University of Commerce - The Institute of Certified Public Accountants of England and Wales held on October 10, 2019 at the University of Commerce.
5. National Conference on accounting and auditing held by the Academy of Finance in 2014.
6. Workshop seminar document Ministry of Finance - ACCA "Industrial Revolution 4.0 - Opportunities and challenges with accounting and auditing" on 06/07/2018.
7. Vietnam Accounting Conference - Future and Prospects (May 25, 2019, in Hanoi, organized by the Vietnam Accounting and Auditing Association)
8. Website: [shortshd.com/changes in accounting in a new era](http://shortshd.com/changes-in-accounting-in-a-new-era/) /Financial Magazine.vn / Research exchange / commentary / industrial revolution 4.0 and requirements for Vietnam's education system-144016.html
9. Imaginering Audit 4.0 - Jun Dai and Miklos Vasarhelyi (2016)
10. Industry 4.0: Challenges and Solutions for the Digital Transformation of Exponential Technologies - Deloitte (2015)
11. <http://www.stateauditreport.vn/domesticaudit/auditing4.0andmajorchangesfromarevolution-14123>
12. Accounting and Auditing in the Digital Age - Charles Hoffman (2017)
13. Industry 4.0 Is your ERP system ready for the digital era? – Deloitte (2017)
14. Website: <https://aws.amazon.com/vi/what-is-cloud-computing/>
15. Website: <https://baomoi.com/industrialrevolution4.0/c/22861841.epi>
16. Website: [https://baomoi.com/new requirements in training human resources for accounting at universities](https://baomoi.com/new-requirements-in-training-human-resources-for-accounting-at-universities)

RELATIONSHIPS BETWEEN NON-FINANCIAL FACTORS AND AUDITORS' OBJECTIVITY: EMPIRICAL EVIDENCE FROM VIETNAM

Nguyen Thi Kim Oanh^{1,*} Nguyen Ha Phuong¹

ABSTRACT

This study provides empirically evidence on effects of non-financial factors, namely, auditors' identification with clients, auditors' professional identification, auditors' time budget pressure, and auditors' negotiation self-efficacy beliefs, on auditors' objectivity in the context of Vietnam. The responses of 103 Vietnamese practicing independent auditors indicate that auditors' negotiation self-efficacy and professional identification have significant positive impacts on auditors' objectivity. In contrast, time budget pressure is negatively correlated with auditor's objectivity. The study has already contributed to the extant literature about factors impacting auditors' objectivity. To the author's knowledge, it is the first to incorporate several factors in a model and to investigate their effects in Vietnamese audit environment. Research findings imply that universities and audit firms should consider teaching students and juniors about negotiation skills, promoting professional identification, etc. as efficient ways to strengthen objectivity of Vietnamese auditors in particular and to improve the audit quality in general. Audit firms should consider time budget to ensure that their employees are motivated to work diligently.

Key words: Auditors' Objectivity, Client Identification, Audit Profession Identification, Time Budget Pressure, Auditors' Negotiation Self-Efficacy, Reduced Audit Quality Acts, Client Acquiescence.

1. INTRODUCTION

Besides audit knowledge, skills and work procedures, auditors' attitude, especially independence and objectivity, is one of the most important factors contributing to audit quality. Auditors' independence and objectivity have been heavily debated among regulators, researchers, and investors. The accounting literature has investigated two main categories of threats to auditors' objectivity: financial and non-financial factors, with the former currently being of greater concern. However, financial incentives not necessarily lead to impairment of objectivity. Moreover, it is unclear how the expected financial gains can constrain auditors' objectivity, or through which psychological processes auditors' judgment is biased (Svanberg *et al.*, 2019). Despite the urgent need for understanding those attributes, extant literature on this matter in Vietnamese context is very limited. Therefore, this study attempts to contribute to the audit research body by investigating and discussing the impacts on auditors' objectivity of non-financial factors such as identification with clients, identification with audit profession, time budget pressure, and negotiation self-efficacy beliefs of auditors in Vietnam.

¹ VNU International School, Vietnam National University, 144 Xuan Thuy, Mai Dich, Cau Giay, Ha Noi, Email: oanhntk@isvnu.vn

This study relies on primary data collected via online survey questionnaire to examine the impacts of non-financial factors on auditors' objectivity. Collected data is then analyzed using Partial Least Square–Structural Equation Modeling (PLS-SEM) technique with the aid of Smart-PLS 3.2.8. Research findings confirm that auditors' negotiation self-efficacy has a significant negative impact on auditors' client acquiescence, therefore positively correlated with auditors' objectivity. Moreover, it is statistically significant that the higher auditors identify with the audit profession, the lower frequency of reduced audit quality (RAQ) acts they commit, and consequently the higher auditors' objectivity is. In contrast, analysis in terms of time budget pressure (TBP) finds out that it has a significant positive impact on frequency of RAQ acts. Additionally, both types of identification have positive effects, but not significant on client acquiescence, and client identification also has a significant, though only marginally, positive relation with frequency of RAQ acts.

This paper includes five sections. Section 1, the current chapter, incorporates background and research objectives, questions, methods, findings, and structure of the study about the impacts of non-financial factors on auditors' objectivity. Section 2 summarizes the review of prior studies and provides theoretical foundation for hypothesis development. The following section explains methods for collecting and analyzing empirical data. Section 4 presents analysis results and interpretations. Section 5 presents discussion and conclusion.

2. LITERATURE REVIEW AND HYPOTHESES FORMULATION

2.1. Auditors' objectivity

Auditors have a different relationship with users of financial statements than most other professionals have with their customers. Auditors are usually engaged and paid by management of the companies issuing financial statements, but the primary beneficiaries of the audit are statement users. Therefore, auditors' competence and impartiality are of extreme importance (Arens *et al.*, 2016). According to current International Ethics Standards Boards for Accountants (IESBA) Code of Ethics for Professional Accountants 120.1, Objectivity “imposes an obligation on all professional accountants not to compromise their professional or business judgment because of bias, conflict of interest or the undue influence of others”. The IESBA Code of Ethics as well as Code of Ethics for Accountancy and Auditing Profession in Vietnam explains Independence as being made up of integrity, objectivity and skepticism, and free from “facts and circumstances” that would lead a reasonable and informed third party to conclude that integrity, objectivity or skepticism was compromised. This has been the extant definition for a number of years, which possibly explains why auditors' independence is now largely viewed through the lens of compliance, with a detailed and strictly compulsory legal framework to follow. On the other hand, objectivity is much more concerned with internal thought processes of reasons and motivations behind certain decisions or behaviors (ICAEW, 2019).

2.2. Theoretical background

Research on auditors' objectivity prior to Bamber and Iyer (2007) rarely addresses the effects of social forces or incentives on auditors' judgment, instead focusing on the threat from financial incentives. Some discussed only the most common variables, e.g., auditor experience and tenure,

with one of the most advanced efforts is to consider the effect of group affiliation in an audit team (King, 2002). The researchers following this approach examine the relationship between auditors and their clients under the influence of social forces, based largely on social identity theory, motivated reasoning theory, and an emerging aspect named audit negotiation.

Social identity theory was introduced by Tajfel and Turner (1985) and was further developed by Turner (1987). It proposes that individuals categorize themselves as belonging to various groups. Alongside self-categorization, individuals evaluate the groups they feel they belong to (in-groups) and groups they do not consider themselves a member of (out-groups). Individuals tend to identify with groups whose values appeal to them (Alvesson, 2000). These self-categorizations act as a starting point for thinking and relating, thus social identity increases the likelihood that the individual internalizes the group's norms and values. Adoption of a particular identity affects the way ones interpret information and make decisions (Lembke and Wilson, 1998), and their behaviors are adjusted accordingly.

Prior studies have found out some effects of identification on work outcomes. For example, Iyer *et al.* (1997) finds that accounting firm alumni identify with and are inclined to benefit their former firm (such as sending business to the firm). King (2002) reports experimental evidence that a team identity between auditors motivates them to focus more on the collective goal of conducting proper audits, and Towry (2003) finds that stronger team identity leads to higher effectiveness of an financial incentive system. In general, it is suggested that professionals, including auditors, can identify with other groups, and that might affect their works. Auditors interact with their clients on regular basis as a part of their audit work – a favorable context for the development of client identification. Client-identified auditors are predicted to have a tendency of merging psychologically with their clients, taking their clients' interests to heart, so that the auditors become more intrinsically motivated to act in the clients' interests (Svanberg *et al.*, 2019).

On the other hand, just as client identification might pose a threat to auditors' objectivity, auditor's professional identification might have offsetting effect. Aranya *et al.* (1981) suggest that auditors' professional commitment is separated from and precedes commitment to any organizations. Profession-identified auditors are more likely to internalize the norms and values of their profession. As a result, professional identification should promote professional behavior and auditors' objectivity (Johnstone *et al.*, 2001).

Kunda (1990) proposes that motivation can affect the process of reasoning: forming impressions, determining beliefs and attitudes, evaluating evidence, and making decisions, through reliance on a biased set of cognitive processes: strategies for accessing, constructing, and evaluating beliefs. The cases examined fall under two major categories of motives: one is to arrive at an accurate conclusion, whatever it may be; and the other is to arrive at a particular, directional conclusion. Individuals with an accuracy goal are inclined to the use of beliefs and strategies considered most appropriate, whereas individuals with directional goals tend to adopt the use of those considered most likely to yield the desired conclusion. People with an accuracy goal are willing to expend more cognitive effort on issue-related reasoning, attend to relevant information more carefully, and process it more deeply, using more complex strategies (Kunda, 1990). In contrast, those with a directional reasoning employ a variety of mechanisms including

searching for, interpreting, and processing information in a biased manner. By conducting biased searches for and overweighting the importance of evidence that supports their goals, they construct a justification of their desired conclusion with the necessary (though inadequate) evidences to support it (Kunda, 1990). Unfortunately, this effect can be easily covered up as “objectivity”, posing potential serious threat to audit profession.

Previous approaches to objectivity research mostly focus on factors leading to auditors themselves deliberately choosing to remain professionally objective or not. However, the study of auditing as a negotiation might offer a new way to look into the matter. Negotiation is defined as a process through which two or more parties communicate to create potential agreements intended to provide guidance and regulation to their future behavior (Sawyer and Guetzkow, 1965). In the audit context, some researchers argue that financial statements are not the work of a sole party; they are the result of a negotiation between auditors and the client firm’s management. Antle and Nalebuff (1991) explain the process as follow: When the auditor is unwilling to provide an unqualified opinion, the two parties begin negotiations in which the auditor may offer a revised statement. The client may threaten to dismiss him and find one more accepting of its views, or they may decide to extend the audit. In the end, compromises are usually found, statements are revised, and the auditor issues an unqualified opinion on the revised statements. Thus the financial statements become a joint venture between the auditor and manager. In auditor-client negotiations regarding adjustments, Hatfield *et al.* (2010) find that 76% of the auditors in their study stuck with their initial offers. This means the effectiveness of auditors’ negotiation with their clients might have significant impacts on their ability to retain the appropriate adjustments, i.e., their objectivity (Perreault and Kida, 2011).

2.3. Hypothesis formulation

2.3.1. Auditors’ identifications and objectivity

The auditor-client social relationships are among the most visible social threats to auditors’ objectivity. Bamber and Iyer (2007) are the first to study a psychological mechanism as a cause of the auditor-client relationship and objectivity impairment problem. Using a sample of 257 responses from U.S. Big Four practicing auditors, they find that auditors with longer audit tenure with the clients do identify more with their clients, and are more likely to acquiesce to the client-preferred position, further supported by Stefaniak *et al.* (2012). In addition, a subsequent study, carried out by Svanberg and Öhman (2015) with 141 Swedish authorized non-Big Four auditors, finds that the problems with client identification also hold for non-Big Four auditors. Even when the audit tenure is short, i.e., in an experimental setting with no prior auditor-client history, Bauer (2015) confirms this effect still takes place: Auditors can identify with the clients by sharing common values, and thus agree more with the clients. Hence, the relationship between auditors’ client identification and auditors’ objectivity is proposed in the following hypothesis:

H1a. The more auditors identify with their clients, the higher auditors’ acquiescence with their clients is (and thus the lower auditors’ objectivity is).

Extending Bamber and Iyer (2007) study, Svanberg and Öhman (2015) examine not only auditors’ client acquiescence, but also a broader set of substandard audit behaviors (RAQ acts). Time budget pressure is recognized as the main cause of these acts, both intuitively and empirically.

However, Cianci and Bierstaker (2009) propose a deeper explanation for this phenomenon. With reference to motivated reasoning theory, they argue that time budget pressure raises efficiency concern, which is the cause of a directional goal to be efficient, and consequently biasing in judgment. When auditors suffer from this, they tend to discount negative information, emphasize positive information about the client's accounting as more relevant, and make favorable assessments of the client's internal control, i.e., employing RAQ acts with higher frequency. Svanberg and Öhman (2015) explain that it means auditors affected by this bias are more likely to perform RAQ acts to save time, as they believe that these acts do not involve an audit risk increase.

Besides efficiency concern, prior studies have developed the notion that auditors also have the directional goal to support client-preferred methods. They might allow their clients to adopt aggressive reporting methods, if they believe that the audit business risk is moderate, i.e., in a high "threat of client loss" and low "threat of lawsuits" condition. In contrast, when the audit business risk is perceived as high, the auditors respond by requiring conservative reporting (e.g., Farmer *et al.*, 1987; Hackenbrack and Nelson, 1996; Kadous *et al.*, 2003). Auditors who identify with their clients have a stronger incentive to develop such biased judgment. Altogether, auditors' client identification is a likely cause of RAQ acts. Svanberg and Öhman's (2015) study finding indicates a positive relationship between these two variables ($p < 0.05$). Therefore, the relationship between auditors' client identification and auditors' objectivity is also proposed in the following hypothesis:

H1b. The more auditors identify with their clients, the higher auditors' frequency of RAQ acts is (and thus the lower auditors' objectivity is).

According to the social identity argument, auditors who identify with their profession are more likely to internalize the profession's values. Additionally, professional identity is an important motive for accuracy on the part of an auditor, particularly when it is made salient (Bamber and Iyer, 2007). In their studies about client identification, Bamber and Iyer (2007) and Svanberg and Öhman (2015) also find that more experienced auditors and auditors who exhibit higher levels of professional identification are less likely to acquiesce to the client's position. Consistently, Bauer's (2015) study supports the conclusion that heightened salience or arousal of auditors' professional identity increases professional skepticism, thus constraining the impairment of client acquiescence. Similarly, higher professional commitment are more likely to result in appropriate audit conducting efforts, hence less RAQ acts. The relationship between auditors' professional identification and auditors' objectivity is proposed in the following hypotheses:

H2a. The more auditors identify with their profession, the lower auditors' acquiescence with their clients is (and thus the higher auditors' objectivity is).

H2b. The more auditors identify with their profession, the lower auditors' frequency of RAQ acts is (and thus the higher auditors' objectivity is).

2.3.2. Auditors' time budget pressure and objectivity

Audit work typically involves a large volume of data to be examined carefully. Moreover, many companies have the same financial year-end date (predominantly December 31st in the case of Vietnam). The number of jobs an audit firm has to process at the same time apparently makes

time budget very tight for the auditors. Due to labor-intensive nature of audits, auditors often face the cost/quality dilemma, which typically involves controlling time spent on the audit (McNair, 1991), while controlling audit quality is more difficult because of the lack of observable audit quality (DeAngelo, 1981). As a result, auditors with a directional goal in mind have abundant opportunities and incentives to sacrifice the “invisible” audit quality in favor of reducing cost by employing substandard audit behaviors (Cianci and Bierstaker, 2009).

A body of research have investigated various aspects of the relation between time budget pressure and RAQ acts. Rhode (1978) conducts a survey of 2016 AICPA members in the U.S., resulting in 58% of the respondents admitting to prematurely sign off due to tight time budget. Otley and Pierce (1996), whose study achieving broad coverage by engaging all senior auditors in three of the Irish Big Six firms with high response rate, report higher frequency of dysfunctional behaviors in seniors as time budget pressure increases. In Australia, Coram *et al.* (2003) ask 118 participants, mostly Big Five staff. This study found that participating auditors experience high time budget pressures, with more than half suggesting that time budgets were adequate only “sometimes”. Many auditors reported colleagues using various RAQ practices. About 63% of participants in this study admitted to having used RAQ behaviors at some time. The main reasons cited were that the work being performed was low-risk and that there was high time-budget pressure. Last but not least, evidences from countries such as Indonesia (Gaol, 2018) and China (Yan and Xie, 2016) indicate that this might not an exclusive problem of industrialized, developed countries. Therefore, the relationship between time budget pressure and auditors’ objectivity is proposed in the following hypothesis:

H3. The higher time budget pressure that auditors endure, the higher auditor’s frequency of RAQ acts is (and thus the lower auditors’ objectivity is).

2.3.3. Auditors’ negotiation self-efficacy and objectivity

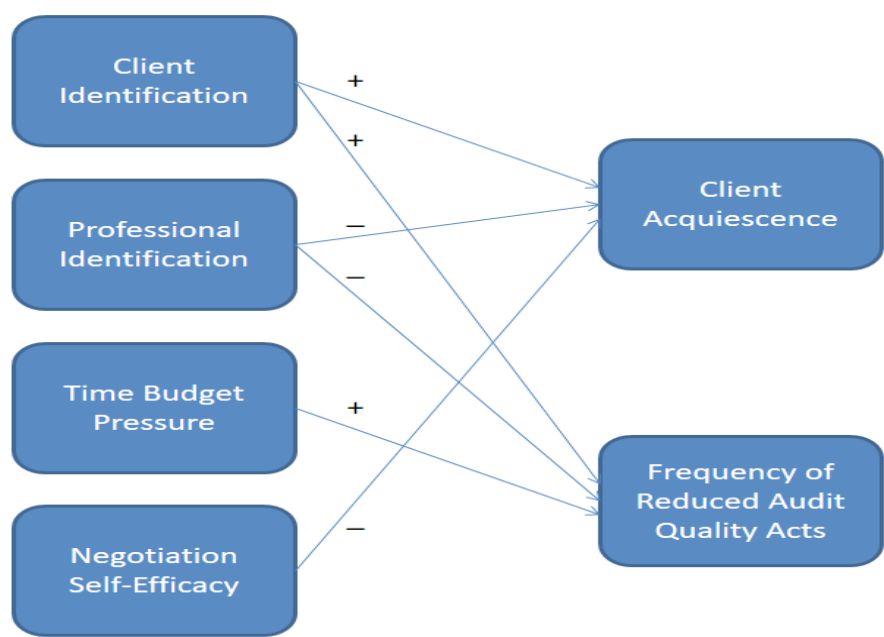
With regard to auditor-client negotiations over auditing adjustments, auditors must be able to successfully negotiate with their clients to obtain the accurate outcome they desire. A stream of literature on this matter points out that auditors are likely to be put at a disadvantage in such negotiations. Persuading the clients seems naturally difficult at times, as the clients’ accounting personnel might argue against the adjustments (Beattie *et al.*, 2001; Gibbins *et al.*, 2010). Ng and Tan (2003) suggest that some of the negotiation strategies are not to be used by auditors (such as bid high and concede), since it is neither professional nor within the guidelines of their regulatory environment. Furthermore, client managers appear to define the negotiation roles and relationships, while auditors seemingly have no explicit strategy to move the relationship toward their preferred direction (McCracken *et al.*, 2008).

Being well aware of the situation, Svanberg *et al.* (2019) propose that auditors’ individual confidence in their ability to successfully contend with clients about discretionary accounting issues, conceptualized as “auditor’s negotiation self-efficacy”, impacts the extent to which the auditor may form an objective opinion outside the client’s sphere of influence. The importance of self-efficacy has been reported to have a positive effect on job performance and other successful outcomes in many areas of behavior (Gist and Mitchell, 1992; Sadri and Robertson, 1993; Bandura, 1997). In the audit context, Iskandar *et al.* (2012) conduct an experimental research to test the

impacts of self-efficacy and accountability pressure on audit judgment performance. 65 auditors working in 14 randomly selected small and medium size accounting firms in Pekanbaru and Padang, Indonesia are divided into two groups (accountable and non-accountable), both tasked with internal control evaluation. The researchers report that self-efficacy is positively related to audit judgment performance through the process of high level of effort. More specifically, it is argued that negotiation self-efficacy predicts better negotiation outcomes only when it is a domain-level construct, but not when it is defined as a general construct or task-specific construct, since it is easier for one to predict negotiation performance in either less-ambiguous or less-complex scenarios (Miles and Maurer, 2012). Thus, Svanberg *et al.* (2019) look for the relationship between auditors' domain-level negotiation self-efficacy and objectivity. They ask the respondents to assess his or her domain-level auditor negotiation self-efficacy and to make a decision about a hypothetical case describing a situation in which the largest client has material unrecorded liabilities, retrieving a total of 146 responses. The coefficient for auditor negotiation self-efficacy is significant in the tested linear regression model ($p < 0.01$), and it is 0.412, indicating a substantial support for the hypothesis. Therefore, the relationship between auditors' negotiation self-efficacy and auditors' objectivity is proposed in the following hypothesis:

H4. The better auditors assess about their domain-level negotiation self-efficacy, the lower auditor's client acquiescence is (and thus the higher auditors' objectivity is).

Figure 1. Conceptual framework of the study



Source: Author

3. RESEARCH METHOD

3.1. Research design

To collect data for the research, we develop a questionnaire asking the respondents to state their opinions on certain professional matters, to report about aspects in their work, and to make decision

about a hypothetical audit case. All questions and hypothetical case are adopted from previous studies, with minor changes in scale wording and coding to ensure integrity and straightforward analysis. The questionnaire is then translated into Vietnamese with several alternations in wording for better understanding and familiarity without changing the meaning. The authors conduct a pilot study with two Vietnamese independent practicing auditors to improve the survey instrument.

3.2. Measurements

All of the study's measurements are taken from validated scales in earlier research. The respondents are instructed to think in terms of a specific client (the largest client) throughout the survey. Auditors' objectivity is calculated using two negative proxies: client acquiescence and frequency of committing RAQ acts. The first question constructs a hypothetical case in which respondents assess how easily they would compromise with the client's demand on a scale between 1 (very low likelihood) and 10 (very high likelihood). This case is adapted from prior research about behavior in conflict audit context (Iyer and Rama, 2004; Bamber and Iyer, 2007). The second question asks respondents to state the frequency of certain substandard audit acts they have committed in the last year, previously used by Otley and Pierce (1996); Pierce and Sweeney (2004); Svanberg and Öhman (2015). The scores are reversed so that lower score means higher level of objectivity, similar to the first question.

In line with the hypotheses, there are four non-financial factors to be measured. This part consists of three Likert-scale questions and one rating-scale question. The measurement for client identification and professional identification are adapted from the organizational identification scale (Mael and Ashforth, 1992; Wan-Huggins *et al.*, 1998), and rephrased by Bamber and Iyer (2007) to better fit in audit context. The respondents are also asked to assess the tightness of TBP, in accordance with Otley and Pierce (1996) and Svanberg and Öhman (2015). For these questions, lower score represents lower level of the concerned factor.

3.3. Sample and data collection

The research questionnaire is published on Google Form and distributed online to the target respondents, which are practicing independent auditors in Vietnam. Nearly 400 Vietnamese auditors are reached via e-mail, professional discussion groups, and private messaging systems on social networks. 103 acceptable answers are received, making a response rate of approximately 25%.

3.4. Data analysis

To test the theoretical model, we use PLS-SEM technique with two steps via Smart-PLS 3.2.8. The first step is to examine and validate the measurement model, with the second step testing the structural model and conducting hypothesis testing (Garver and Williams, 2009). Structural model is the second component of PLS-SEM model, which shows the relationships (paths) between the latent constructs. The primary evaluation criteria for the structural model are the R^2 measures and the level and significance of the path coefficients.

4. ANALYSIS RESULTS

4.1. Descriptive statistics

Table 1 presents the study's descriptive statistics. Respondents' *client identification* score (mean = 2.15) is lower than both the scale midpoint and their *professional identification*, whose mean is

3.33 and higher than the scale midpoint. *Time budget pressure* score averages 2.09, indicating that, on average, time budget pressure is a bit tight for the respondents, and that they could not achieve time budget all the times. The mean score for *negotiation self-efficacy* is 3.16, higher than the scale midpoint, showing that auditors consider themselves as relatively good at negotiating accounting issues with their clients. Auditors' *client acquiescence* has the mean score of 2.61 on a scale of 1 to 10, much lower than the scale midpoint, indicating that in general, respondents do not easily resolve the conflict by giving in to the client's preferred treatment of unrecorded liabilities. *Frequency of RAQ acts* has a mean score of 1.76, inferring that most respondents hold high standards about the work they perform and try to avoid substandard audit behaviors.

Table 1. Descriptive Statistics

Variable	n	Mean	Median	St. Dev.	Min.	Max.
<i>Client Identification^a</i>	103	2.15	2	0.91	1	4
<i>Professional Identification^a</i>	103	3.33	4	0.97	1	5
<i>Time Budget Pressure^a</i>	103	2.09	2	0.79	1	4
<i>Negotiation Self-Efficacy^a</i>	103	3.16	3	0.66	2	5
<i>Client Acquiescence^b</i>	103	2.61	3	1.29	1	9
<i>Frequency of RAQ Acts^a</i>	103	1.76	2	0.76	1	4

^a Scores are on five-point scales, with higher scores indicating higher *client identification*, *professional identification*, etc.

^b Scores indicate the likelihood that the auditor will acquiesce to the client-preferred accounting treatment and not require the liabilities to be recorded.

4.2. Measurement model assessment

Results of measurement model analysis are presented in Table 2 and Table 3. Seven items with Outer Loading lower than 0.7 (frequency of RAQ acts: 1, professional identification: 2, negotiation self-efficacy: 4) have been crossed out to ensure the reliability and validity of the constructs. The remaining items satisfy all conditions subject to assessment that Composite Reliability, Outer Loadings, and Average Variance Extracted are greater than 0.708, 0.7, and 0.5, respectively (Fornell and Larcker, 1981; Chin, 1998; De Vaus, 2002; Hair *et al.*, 2014). The square root of AVE of each construct is higher than its highest correlation with any other constructs in the model, thus ensures the discriminant validity of them (Table 4).

Table 2. Results of measurement model assessment

Construct	Composite Reliability	Average Variance Extracted
ACQUI	1.000	1.000
RAQ	0.897	0.685
CIDEN	0.923	0.749
PIDEN	0.849	0.654
TIME	0.872	0.697
NEGO	0.879	0.646

Table 3. Outer loadings of items

Item	Outer Loading
<i>Frequency of RAQ acts</i>	
Accepted weak client explanations.	0.805
Made superficial reviews of client documents.	0.856
Reduced the amount of work performed on an audit step below what you consider reasonable.	0.866
Signed off an audit-program step without completing the work or noting the omission.	0.781
<i>Client Identification</i>	
When someone praises this client, it feels like a personal compliment.	0.881
When I talk about this client, I usually say “we” rather than “they”.	0.806
This client’s successes are my successes.	0.859
When someone criticizes this client, it feels like a personal insult.	0.913
<i>Professional Identification</i>	
When I talk about my profession, I usually say “we” rather than “they”.	0.830
I am very interested in what others think about my profession.	0.882
When someone praises my profession, it feels like a personal compliment.	0.705
<i>Time Budget Pressure</i>	
Tightness of time budget in the last year	0.716
Reported frequency of achieving time budget in the last year	0.834
Actual frequency of achieving time budget in the last year	0.938
<i>Negotiation Self-Efficacy</i>	
In a negotiation about a material accounting issue with clients, I am good at convincing the client to agree with me.	0.830
I am skilled at preventing the client from exploiting my weaknesses in a negotiation about a material accounting issue with the client.	0.772
I am good at gaining the upper hand in a negotiation about a material accounting issue with my client.	0.884
I am good at persuading my client to make most of the concessions in a negotiation about a material accounting issue.	0.721

Table 4. Discriminant Validity

	ACQUI	CIDEN	NEGO	PIDEN	RAQ	TIME
ACQUI	1.000					
CIDEN	0.158	0.866				
NEGO	-0.376	-0.262	0.804			
PIDEN	0.202	0.104	-0.24	0.809		
RAQ	0.067	0.135	0.072	-0.165	0.827	
TIME	0.111	0.015	-0.025	-0.012	0.602	0.835

4.3. Structural model assessment and hypothesis test results

The inner VIF values yielded by Smart-PLS 3.2.8 are presented in Table 5. All the values are much lower than 5, indicating no multicollinearity existing between exogenous variables in the model.

Table 5. Collinearity statistics (VIF) of exogenous variables

	ACQUI	RAQ
CIDEN	1.076	1.011
NEGO	1.130	
PIDEN	1.063	1.011
TIME		1.000

The hypothesis test results are presented in Table 6. Firstly, concerning impacts of the investigated factors on auditors’ acquiescence with their clients, analysis results strongly support H4 ($\beta = -0.333$, $p < 0.01$). It can be inferred that auditors’ negotiation self-efficacy has a negative impact on client acquiescence at 99% confidence level. Client identification shows expected relationship with client acquiescence, but not statistically significant. Surprisingly, professional identification has a positive relationship, but not significant, with client acquiescence. Therefore, negotiation self-efficacy alone can be used to explain 13.3% of client acquiescence (R^2 Adjusted = 0.133).

Secondly, regarding factors affecting auditors’ frequency of committing RAQ acts, test results confirm both effects of professional identification and time budget pressure (H2b: $\beta = -0.173$, $p < 0.05$; H3: $\beta = 0.598$, $p < 0.01$). Apart from that, the authors find weak evidence supporting the hypothesized relation between client identification and frequency of RAQ acts (H1b: $\beta = 0.144$, $p = 0.073$). Overall, professional identification together with time budget pressure account for 39.0% of auditors’ objectivity in terms of frequency of RAQ acts (R^2 Adjusted = 0.390).

Table 6. Structural model assessment and hypothesis test results

Explained Variance (R^2 Adjusted) of Exogenous Variables					
<i>Client Acquiescence</i>			0.133		
<i>Frequency of RAQ Acts</i>			0.390		
Hypothesis	Path	Predicted relationship	β coefficient	p value ^a	Conclusion
H1a	Client identification > Client acquiescence	+	0.058	0.666	Not significant
H2a	Professional identification > Client acquiescence	-	0.116	0.225	Not significant
H4	Negotiation self-efficacy > Client acquiescence	-	-0.333	0.006	Significant at $p < 0.01$
H1b	Client identification > Frequency of RAQ acts	+	0.144	0.073	Marginally significant at $p = 0.073$
H2b	Professional identification > Frequency of RAQ acts	-	-0.173	0.032	Significant at $p < 0.05$
H3	Time budget pressure > Frequency of RAQ acts	+	0.598	0.000	Significant at $p < 0.01$

^a p values are calculated using a two-tailed test.

5. DISCUSSION AND CONCLUSION

This study first aims to find out factors that possess potential to affect auditors' objectivity, and to investigate how they affect objectivity, in which way and to what extent. By using online survey and analyzing data in PLS-SEM model, research findings confirm that auditors' negotiation self-efficacy has significant negative impact on auditors' client acquiescence, therefore positively correlated with auditors' objectivity. This result is in line with Svanberg *et al.* (2019). Similarly, analysis in terms of auditors' professional identification's impact finds out that it has significant negative impact on frequency of RAQ acts and consequently has positive impact on objectivity. On the other hand, it is statistically significant that the higher time budget pressure auditors have to endure, the higher frequency of RAQ acts they commit (Coram *et al.*, 2003; Pierce and Sweeney, 2004). Additionally, both types of identification have positive effects, but not significant, on client acquiescence, and client identification also has a positive relation with frequency of RAQ acts, although merely marginally at $p = 0.073$. All above relations are expected, except for that between professional identification and client acquiescence.

In contrast with prior studies (Bamber and Iyer, 2007; Stefaniak *et al.*, 2012; Svanberg *et al.*, 2019), this study cannot find significant evidence supporting the hypothesized impact of client identification on client acquiescence, although the interaction between two variables appears in the predicted direction. On the other hand, the impact of professional identification on auditors' objectivity is yet to agree with previous research, as the negative relationship between professional identification and frequency of RAQ acts is significant in this study, while it is left unsupported in Svanberg and Öhman's (2015) research. There is also an unexplained positive correlation, although not significant, between professional identification and client acquiescence. Controversial findings about these impacts of identification suggest that they may be subject to other conditions. A plausible explanation is the difference in viewpoints between cultures. People of individualistic cultures are more likely to speak up their mind to defense what they think is more appropriate, i.e. the auditors' recommended accounting treatments compared to those of client preference, while people of collectivist cultures tend to focus on the avoidance of confrontation and prefer compromising to keep harmonious relationships (e.g., Tjosvold and Sun, 2002; Wang *et al.*, 2005; Leung *et al.*, 2011). The matter should be investigated using more thorough and complex research design in the future.

Additionally, it can be noted that items in confirmed hypotheses are more likely to be experienced equally by all auditors regardless of job position or job experience, namely negotiation self-efficacy and time budget pressure. Thus, it is likely that a larger sample with higher level of diversity would provide more insights into how the factors work across classes of auditors (Svanberg and Öhman, 2015).

However, the current study has already contributed to the extant literature about factors impacting auditors' objectivity. To the authors' knowledge, it is the first to incorporate several factors in a model and to investigate their effects in Vietnamese audit environment. From the research findings, good negotiation skills and professional identification can be considered as effective ways to strengthen objectivity of auditors, beside traditional safeguards such as short audit tenure and regular audit rotation. Consequently, universities and audit firms should include training negotiation skills and

promoting professional identification in their teaching programs for students and juniors. Audit firms should set up reasonable time budget to maximize work quality and efficiency.

Despite the authors' effort to complete this study in the best manner possible, it still encounters some limitations. First and foremost, it is the complexity of the subject and lack of available data that prevent the authors from explore the matters further for the time being. Secondly, the target respondents are hard to contact and are not distributed evenly, making the humble sample size an obstacle for deeper analysis. Last but not least, this study can only cover several fundamental factors affecting auditors' objectivity, leaving a high possibility that objectivity may be driven by other unmentioned factors.

REFERENCES

1. Alvesson, M. (2000) 'Social identity and the problem of loyalty in knowledge-intensive companies', *Journal of Management Studies*, 37(8), pp. 1101-1124.
2. Antle, R. and Nalebuff, B. (1991) 'Conservatism and Auditor-Client Negotiations', *Journal of Accounting Research*, 29, pp. 31-54.
3. Aranya, N., Polibck, J. and Amernic, J. (1981) 'AN EXAMINATION OF PROFESSIONAL COMMITMENT IN PUBLIC ACCOUNTING', *Accounting, Organizations and Society*, 6(4), pp. 271-280.
4. Arens, A.A., Elder, R.J., Beasley, M.S. and Hogan, C.E. (2016) *Auditing and Assurance Services*. 16e edn. Pearson.
5. Bamber, E.M. and Iyer, V.M. (2007) 'Auditors' Identification with Their Clients and Its Effect on Auditors' Objectivity', *Auditing: A Journal of Practice & Theory*, 26(2), pp. 1-24.
6. Bandura, A. (1997) *Self-Efficacy: The Exercise of Control*. W. H. Freeman & Co.
7. Bauer, T.D. (2015) 'The Effects of Client Identity Strength and Professional Identity Salience on Auditor Judgments', *The Accounting Review*, 90(1), pp. 95-114.
8. Beattie, V., Fearnley, S. and Brandt, R. (2001) *Behind Closed Doors - What Company Audit is Really About*. Palgrave.
9. Chin, W. (1998) 'The partial least square approach for structural equation modeling', in Marcoulides, G.A. (ed.) *Modern methods for business research*. Hillsdale, NJ: Lawrence Erlbaum Associates.
10. Cianci, A.M. and Bierstaker, J. (2009) 'Auditors' Efficiency Motivated Evaluation', *Advances in Accounting, incorporating Advances in International Accounting*, 25, pp. 20-27.
11. Coram, P., Ng, J. and Woodliff, D. (2003) 'A Survey of Time Budget Pressure and Reduced Audit Quality Among Australian Auditors', *Australian Accounting Review*, 13(1), pp. 38-44.
12. De Vaus, D. (2002) *Analyzing Social Science Data: 50 Key Problems in Data Analysis*. Thousand Oaks: Sage Publications.
13. DeAngelo, L.E. (1981) 'Auditor Size and Audit Quality', *Journal of Accounting and Economics*, 3, pp. 183-199.
14. Farmer, T.A., Rittenberg, L.E. and Trompeter, G.M. (1987) 'An investigation of the impact of economic and organizational factors on auditor independence', *Auditing: A Journal of Practice & Theory*, 7(1), pp. 1-14.
15. Fornell, C. and Larcker, D. (1981) 'Evaluating structural equation models with unobservable variables and measurement error', *Journal of Marketing Research*, 18(1), pp. 39-50.
16. Gaol, M.B.L. (2018) 'The Influence of Audit Time Budget Pressure on Reduced Audit Quality Behavior', *Journal of Accounting Research, Organization and Economics*, 1(1), pp. 57-64.
17. Garver, M.S. and Williams, Z. (2009) 'EXAMINING A MODEL OF UNDERSTANDING CUSTOMER VALUE AND SATISFACTION DATA', *Marketing Management Journal*, 19(1), pp. 113-132.

18. Gibbins, M., McCracken, S. and Salterio, S.E. (2010) 'The auditor's strategy selection for negotiation with management: Flexibility of initial accounting position and nature of the relationship', *Accounting, Organizations and Society*, 35, pp. 579–595.
19. Gist, M.E. and Mitchell, T.R. (1992) 'Self-efficacy: A theoretical analysis of its determinants and malleability', *Academy of Management Review*, 17, pp. 183–211.
20. Hackenbrack, K. and Nelson, M.W. (1996) 'Auditors' Incentives and Their Application of Financial Accounting Standards', *The Accounting Review*, 71(1), pp. 43–59.
21. Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2014) *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage Publications.
22. Hatfield, R.C., Houston, R.W., Stefaniak, C.M. and Usrey, S. (2010) 'The Effect of Magnitude of Audit Difference and Prior Client Concessions on Negotiations of Proposed Adjustments', *The Accounting Review*, 85(5), pp. 1647–1668.
23. ICAEW (2019) *Independence v objectivity: what is the difference?* Available at: <https://www.icaew.com/international-accounting-and-auditing/international-standards-ethics/ethics-introduction-and-fundamentals/independence-v-objectivity-what-is-the-difference> (Accessed: Jul 13, 2019).
24. IESBA (2006) 'Code of Ethics for Professional Accountants'.
25. Iskandar, T., Sari, R.N., Mohd-Sanusi, Z. and Anugerah, R. (2012) 'Enhancing auditors' performance: The importance of motivational factors and the mediation effect of effort', *Managerial Auditing Journal*, 27(5), pp. 462–476.
26. Iyer, V.M., Bamber, E.M. and Barefield, R. (1997) 'Identification of accounting firm alumni with their former firm: Antecedents and outcome', *Accounting, Organizations and Society*, 22(3–4), pp. 315–336.
27. Iyer, V.M. and Rama, D.V. (2004) 'Clients' expectations on audit judgments: A Note', *Behavioral Research in Accounting*, 12(1), pp. 63–74.
28. Johnstone, K.M., Warfield, T.D. and Sutton, M.H. (2001) 'Antecedents and Consequences of Independence Risk: Framework for Analysis', *Accounting Horizons*, 15(1), pp. 1–18.
29. Kadous, K., Kennedy, S.J. and Peecher, M.E. (2003) 'The Effect of Quality Assessment and Directional Goal Commitment on Auditor's Acceptance of Client-Preferred Accounting Methods', *The Accounting Review*, 78(3), pp. 759–778.
30. King, R.R. (2002) 'An Experimental Investigation of Self-Serving Biases in an Auditing Trust Game: The Effect of Group Affiliation', *The Accounting Review*, 77(2), pp. 265–284.
31. Kunda, Z. (1990) 'The Case for Motivated Reasoning', *Psychological Bulletin*, 108(3), pp. 480–498.
32. Lembke, S. and Wilson, M. (1998) 'Putting the "team" into teamwork: Alternative theoretical contributions for contemporary management practice', *Human Relations*, 51(7), pp. 927–944.
33. Leung, K., Brew, F.P., Zhang, Z.-X. and Zhang, Y. (2011) 'Harmony and Conflict: A Cross-Cultural Investigation in China and Australia', *Journal of Cross-Cultural Psychology*, 42(5), pp. 795–816.
34. Mael, F.A. and Ashforth, B.E. (1992) 'Alumni and their alma mater: a partial test of the reformulated model of organizational identification', *Journal of Organizational Behavior*, 13(2), pp. 103–123.
35. McCracken, S., Salterio, S.E. and Gibbins, M. (2008) 'Auditor–client management relationships and roles in negotiating financial reporting', *Accounting, Organizations and Society*, 33, pp. 362–383.
36. McNair, C.J. (1991) 'Proper compromises: The management control dilemma in public accounting and its impact on auditor behavior', *Accounting Organizations and Society*, 16(7), pp. 635–653.

37. Miles, E.W. and Maurer, T.J. (2012) 'Advancing validity of self-efficacy in negotiation through focusing at the domain level', *Journal of Occupational and Organizational Psychology*, 85, pp. 23–41.
38. Ng, T. and Tan, H.-T. (2003) 'Effects of authoritative guidance availability and audit committee effectiveness on auditors' judgments in an auditor-client negotiation context', *The Accounting Review*, 78(3), p. 801—818.
39. Otley, D.T. and Pierce, B.J. (1996) 'Auditor time budget pressure: consequences and antecedents', *Accounting, Auditing & Accountability Journal*, 9(1), pp. 31 - 58.
40. Perreault, S. and Kida, T. (2011) 'The relative effectiveness of persuasion tactics in auditor–client negotiations', *Accounting, Organizations and Society*, 36, pp. 534–547.
41. Pierce, B. and Sweeney, B. (2004) 'Cost–quality conflict in audit firms: An empirical investigation', *European Accounting Review*, 13(3), pp. 415-441.
42. Rhode, J.G. (1978) 'Survey on the influence of selected aspects of the auditor's work environment on professional performance of certified public accountants', in *Issued as the Independent Auditor's Work Environment: A Survey*. New York: AICPA.
43. Sadri, G. and Robertson, I.T. (1993) 'Self-efficacy and work-related behaviour: A review and meta-analysis', *Applied Psychology: An International Review*, 42, pp. 139–152.
44. Sawyer, J. and Guetzkow, H. (1965) 'Bargaining and Negotiation in International Relations', in Kelman, H.C. (ed.) *International Behavior: A Social-Psychological Analysis*. NY: Holt, Rinehart and Winston.
45. Stefaniak, C.M., Houston, R.W. and Cornell, R.M. (2012) 'The Effects of Employer and Client Identification on Internal and External Auditors' Evaluations of Internal Control Deficiencies', *Auditing: A Journal of Practice & Theory*, 31(1), pp. 39–56.
46. Svanberg, J. and Öhman, P. (2015) 'Auditors' identification with their clients: Effects on audit quality', *The British Accounting Review*, 47(4), pp. 395-408.
47. Svanberg, J., Öhman, P. and Neidermeyer, P.E. (2019) 'Auditor objectivity as a function of auditor negotiation self-efficacy beliefs', *Advances in Accounting*, 44, pp. 121-131.
48. Tajfel, H. and Turner, J.C. (1985) 'The Social Identity Theory of Intergroup Behavior', in Worchel, S. and Austin, W.G. (eds.) *Psychology of intergroup relations*. Chicago: Nelson-Hall.
49. Tjosvold, D. and Sun, H. (2002) 'Understanding conflict avoidance: Relationship, motivations, actions, and consequences', *International Journal of Conflict Management*, 13(2), pp. 142-164.
50. Towry, K.L. (2003) 'Control in a Teamwork Environment— The Impact of Social Ties on the Effectiveness of Mutual Monitoring Contracts', *The Accounting Review*, 78(4), pp. 1069–1095.
51. Turner, J.C. (1987) 'A self-categorization theory', in Turner, J.C. (ed.) *Rediscovering the Social Group: A Self-Categorization Theory*. Oxford: Basil Blackwell Ltd.
52. Wan-Huggins, V.N., Riordan, C.M. and Griffeth, R.W. (1998) 'The development and longitudinal test of a model of organizational identification', *Journal of Applied Social Psychology*, 28(8), pp. 724-749.
53. Wang, C.L., Lin, X., Chan, A.K.K. and Shi, Y. (2005) 'Conflict handling styles in international joint ventures: A cross-cultural and cross-national comparison', *Management International Review*, 45(1), pp. 3-21.
54. Yan, H. and Xie, S. (2016) 'How does auditors' work stress affect audit quality? Empirical evidence from the Chinese stock market', *China Journal of Accounting Research*, 9(4), pp. 305-319.

FACTORS AFFECTING THE QUALITY OF ACCOUNTING INFORMATION SYSTEMS IN ENTERPRISES: PROPOSING THE RESEARCH MODEL

Ta QuangBinh^{1,*} Nguyen Thi Thuan²

ABSTRACT

The purpose of this study was to analyze the characteristics of transport construction enterprises that affect the quality of accounting information systems (AIS), at the same time overview factors that influence the quality of AIS in traffic construction enterprises of Vietnam. The process of reviewing the factors influencing the quality of AIS shows that the diversity of factors in both width and depth, with research focusing only on a specific factor, there are also studies combination of many different factors. However, in Vietnam, research on the quality of AIS especially in specific businesses such as transportation construction enterprises, is still limited. Since then, the article proposes factors that affect the quality of AIS supplement data for academic databases, and support Vietnamese business managers to build their AIS increasingly successful, contribute to increasing the efficiency of enterprises and promoting the development of the country.

Keywords: *accounting information systems, traffic construction enterprises, Viet Nam.*

1. INTRODUCTION

In recent years, the socio-economic environment has changed a lot of roles and position of Vietnam which has gradually been affirmed on international markets. Economic integration has led to the inevitability of accounting integration. In the process, many large-scale enterprises (enterprises) have been formed operating under the “parent company - subsidiary” model in the form of economic groups or corporations with large scale characteristics, complex management organizations, diversified fields of production and business activities. Along with the development of the financial market in Vietnam, in order to improve business efficiency and reduce risks, the reality of businesses has been taking place more and more activities of financial investment intertwined. In addition, the development of enterprises in general and traffic construction enterprises in particular has an extremely important meaning for the development of the country’s economy. With the transition to a multi-sector economy operating under the market mechanism, traffic construction enterprises must have full autonomy in production and business and financial, operations of the businesses they have to cope with many challenges due to competition and unpredictable market fluctuations.

With the purpose of studying reality of the quality of AIS in traffic construction enterprises, the article determines the factors that affect the quality of AIS and the degree of factors affecting the quality of AIS. In order to make recommendations on improving the quality of AIS in traffic

¹ Thuongmai University, 79 Ho Tung Mau, Mai Dich, Cau Giay, Ha Noi

² University Of Transport and Communications, Cau Giay, Lang Thuong, Dong Da, Ha Noi, Email: bean6789@gmail.com, Tel: +84948285289

construction enterprises in Vietnam, the author developed the research based on an overview of the factors affecting quality of AIS.

2. CHARACTERISTICS TRAFFIC CONSTRUCTION ENTERPRISES AFFECT THE QUALITY OF ACCOUNTING INFORMATION SYSTEMS

Any firm has its own business characteristics. Transportation construction businesses are infrastructure of the country so the government is the investor of these constructions. In order to receive the project, the enterprises must have the capacity and experience of construction shown by the businesses that the company has completed on schedule, with quality and at reasonable prices by way of bidding. When businesses have completed on time, quality investors will be appreciated. In order to do this well, businesses need to have cost management measures, shorten construction time, and closely supervise by managers. Similar to construction works, traffic construction enterprises is often designed and requires separate construction methods. Each building is built in different locations with different construction conditions, so it requires different construction engineering solutions. Each business sector has its own characteristics that require evaluation and therefore affects the quality of AIS, including the following characteristics:

- Characteristics of traffic construction products directly affecting the quality of AIS:

- + First, traffic construction products are single in nature, none of them are similar to each other, and each product has different requirements in terms of artistic design, structure, form and location. Therefore, each traffic construction product has requirements on organization of management, organization of construction and construction methods suitable to the characteristics of each work and work item. Therefore, this feature directly affects the aggregation of costs and product costs, affecting accounting information in daily operations of businesses such as cash flow and cash management, costs and cost control.

- + Second, traffic construction products have large mass and value of construction works, relatively long construction time. Traffic construction projects often have a long construction period, some works have to be built for more than ten years. During the construction period, it has not created a product for the society but uses a lot of materials and human resources of the society. This directly affects the quality of AIS on the perspective of cost collection, cost estimation, capital use, construction decisions or contracting, which does not ensure timely information, accuracy, auditing ability, affect financial statements.

- + Third, each traffic construction product has different locations, businesses often delegate to the manager to supervise the construction. Traffic construction projects are often scattered locations, so it is necessary to have reasonable solutions in construction and construction such as supply of materials, transfer of vehicles, construction machines, human resources, ... This will directly affect the AIS due to its wide range of activities and complex management mechanisms, so businesses need to assess the performance of management responsibilities of managers at all levels through the responsibility centers. Traffic construction products with large dispersed locations need to use outsourced labor force on the spot, construction sites and constructions to reduce relocation costs. Thus, data collection, quality control, management will be more difficult, reliability will also be reduced.

+ Fourth, traffic construction products in many different areas and often taking place outdoors should be directly affected by environmental conditions, weather and seasonal nature. Construction in many different locations, so fixed assets in businesses also often move according to the project. This characteristic affects the quality of AIS on aspects such as the monitoring and management of fixed assets moving by works, work items or transfer from parent companies to subsidiaries that need to be improved to increase project quality and effective use of fixed assets are very necessary. Other way, accounting for damages caused by demolition due to unfavorable weather conditions that affect the construction quality or may generate jobs due to re-demolition or equipment arising from stoppages export. This characteristic will affect the important function of AIS in controlling, providing sufficient information to protect the assets of the unit.

- The characteristic of the business environment: Products of the traffic construction enterprises are construction works, work items, which are usually placed according to the orders of the buyers of products but the products of the testing process is often consumed at the bidding price or estimated price on the basis of acceptance of the work volume and quality in accordance with the prescribed design and estimate, based on the signed contract. So traffic construction enterprises will not worry about being in stock and sluggish. However, traffic construction enterprises as well as other enterprises operating under the Enterprise Law have their own advantages and disadvantages due to the specific characteristics of the construction industry depending on the conditions nature, lack of stability, always varies by location and stage of construction. These enterprises not only create products for society, create jobs for workers but also contribute significantly to the State budget revenue.

- The characteristic of management organization: Particularly for traffic construction enterprises operating under the parent company - subsidiary model, they must ensure the promotion of the power of the management apparatus, on the other hand, because these are businesses that huge role in building national works to ensure art, technology and traffic safety for people nationwide. This means that these business managers must have good management capacity and political capacity, foresight in terms of transport infrastructure.

- The characteristics of firm size and staff: Due to the characteristics of businesses with relatively wide operating scale, branches are spread evenly across the provinces and cities nationwide. The staff is very large, especially the number of accountants due to the complicated and diverse nature of the types of operations in the traffic construction industry. Because these characteristics affect the quality of AIS due to the process of document rotation or accounting information, it may not be quickly provided when necessary and objective, timely, and adequate for managers.

3. REVIEW QUALITY OF ACCOUNTING INFORMATION SYSTEM

The success of the D&M model was developed by Delone and McLean (1992) and the Technology Acceptance Model (TAM) developed by Davis (1989) is widely used as a reference for many authors to measure the success of AIS. In the successful model of D&M, the quality of AIS is measure by six dimensions, include: (1) system quality, (2) information quality, (3) use, (4) user satisfaction, (5) individual impact, 6) organizational impact. In the TAM (1989) model, the factors that can lead to the best behavior for a system to later adopt and apply the system used as a

measure of success of the AIS: (1) useful, (2) easy to use and (3) usefulness (helpful). Then, a related model also proposed by Seddon (1997) includes: system quality, information quality, usefulness, user satisfaction and information system usage. In the context of the present study, usefulness, ease of use and use of information systems (IS) will be considered as an aspect of the quality of AIS. Usefulness, referring to the extent to which a person believes that using a particular system will increase efficiency (Davis, 1989). Useful information is content information useful and usable for the goal in progress.

Currently, there are many views in the world to measure the quality of AIS. Bidgoli (2004) argues that the quality of AIS gives users the necessary information quickly when necessary and objective information is presented so that users can act appropriately. Kahn et al. (2002) described the quality of AIS is information suitable for users, in which information is available with special features that meet or even exceed users expectations. In contrast, inaccurate, outdated or confusing information does not bring meaning, benefits and value to users (O'Brien and Marakas, 2010). Other way, O'Briens and Marakas (2010) described the quality of AIS can be described in three dimensions: timely, content and distance. McLeod and Schell (2007) dimensions includes: accuracy, timeliness, relevance and completeness. According to Stair and Reynolds (2010), the scale of quality of AIS includes: flexibility, efficiency, timeliness and accessibility.

Moreover, quality of AIS is multidimensional (Al-Hakim, 2007), meaning that organizations should use a variety of measures to assess the quality of their information system. The objectives to measure the quality of AIS analyzed by Gelinas et al. (2012) are relevance, timeliness, accuracy and completeness. From an objective perspective, it is relevant if information is likely to change the decision-making situation by reducing uncertainty or improving the knowledge of each specific decision. The information that is available to decision makers makes it timely. Lack of timeliness can make the information no longer valid (Gelinas et al., 2012). Studies evaluating the quality of AIS and identifying the quality of AIS are the keys to measuring the quality indicators of AIS. The quality of AIS is used to plan, implement, record, monitor and control the financial situation and accounting transactions. The opinion of quality in AIS is a reliable AIS that will create information quality (Rommey and Steinbart, 2012).

The quality of AIS depends on combination of factors such as accuracy, reliability, security, flexibility, timeliness, auditing ability and user satisfaction. Based on the model of Syaifullah (2014), the scale of the quality of technical assistance system depends on the proper combination of factors such as effectiveness, usefulness and integration. Specifically, the dimensions of efficiency, the indicator consists of 1) Using optimal equipment resources, and in carrying out the accounting information system supported by appropriate human resources with the necessary expertise; (2) The dimensions of effectiveness, the indicator consists of easy in performing accounting information systems, and easy access to information that is generated by the accounting information system.; (3) Dimensions of integration (integration), the indicator consists of having the competencies (knowledge and skills or expertise) in accordance with the level in the accounting information system, to use the data in the database, which relate to each

other in harmony, using circuits that link the activity with other activities and organize the steps that must be performed in a transaction processing cycles, and using electronic media to move data from one location to one or several locations and other components that are used to integrate harmoniously to form a data communications network.

Nusa (2015) describes criteria related to system quality measured by the success of information systems such as the ease of use, functionality, reliability, flexibility, portability and integration is in category of being. Laudon and Jane (2015) stated that the quality of AIS is measured based on the quality of information systems, in order to perform good their activities, all companies need a quality AIS. If the information in the organization is of good quality then the organization will function well. When evaluating a quality technical information system, it can be seen from the characteristics of the AIS such as flexibility, practicality, usability, integration, availability... Omran (2017) describes the quality of accounting information systems has seven dimensions which were accuracy, audit ability, reliability, security, timeliness, flexibility, and user satisfaction.

4. FACTORS AFFECTING THE QUALITY OF ACCOUNTING INFORMATION SYSTEMS

Year	Author	Factor	Contribution
1992	<i>Delone and McLean</i>	(1) system quality, (2) information quality, (3) use, (4) user satisfaction, (5) individual impact, (6).organizational impact	The D&M model is composed of elements that have been widely used and cited by thousands of researchers published to date.
2003	<i>Delone and McLean</i>	(1) system quality, (2) information quality, (3) Service Quality, (4) Intention to Use, (5) User Satisfaction, (6) Net Benefits	The research model of Delone and McLean (2003), quickly became a leading theoretical model and the most widely applied model for information system researchers. Many researchers inherited later when concerned with the quality of AIS
2013	<i>Ivana and Ana</i>	Technology Information	This paper analyzes the basic characteristics of AIS quality, discussing the model of AIS's quality measurement. The perception of the quality of AIS by accountants in medium and large companies in Croatia is also presented. The paper presents the historical overview of AIS's quality based on three empirical studies conducted in 2001, 2008 and 2012 ...

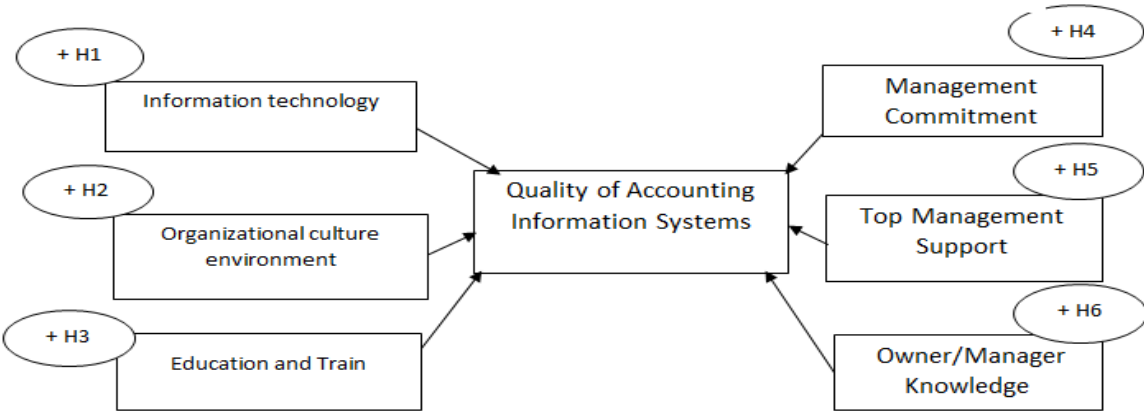
2014	<i>Rapina</i>	1)Management Commitment 2) Organizational Culture 3) Organizational Structure	The research results have only determined that there is a “linear correlation between independent variables and dependent variables” and the degree of influence (correlation coefficient between variables) is unknown, otherwise indicate which variables have the most, most positive influence on AIS.
2014	<i>Meiryani</i>	Top Management Support	The study was a theoretical research which considered the roles of top management support in quality of accounting information system and impact of quality accounting information. From studies carried out this paper concludes that top management support having improved quality of accounting information system have impacted positively to quality of accounting information, thereby improve the quality of decision-making.
2014	<i>Meiryani</i>	User Involvement	This study aims to examine: the influence of user involvement on the quality of the information system of accounting information system. This study was conducted at 55 universities in the city of Bandung. The data used in this study is the collection of primary data with media data through questionnaires. Respondents of this research is the head of the accounting information system. The method used was PLS 2.0. The results of this study are as follows participation of users of information systems significant positive effect on the quality of accounting information systems.
2016	<i>Delone and McLean</i>	(1) system quality, (2) information quality, (3) Service Quality, (4) Intention to Use, (5) User Satisfaction, (6) Net impact	The purpose is to help researchers understand the history of successful measurement of information systems as well as recent trends and future expectations for measuring information systems.
2016	<i>Ojua</i>	Accounting software	The results indicated significant improvement in the quality of AIS and support business decision making process but with varying challenges. The findings of the study may have implications for the firms’ management staff and accountants, as they revealed the acceptance of accounting software as the integral resources of the organization but the resources are not fully utilized due to management attitude and poor training.

2017	Susanto	1. Internal Control 2. Top management support	The research results show that the implementation of qualified AIS had been caused accounting information to be qualified as well.
2017	Omran	(1) top management support (2) education and training, (3) continuous improvement (4) user involvement, (5) risk management	The study is based on previous studies to build a research framework, which is still qualitative without testing whether the factors actually affect the quality of AIS. This result is consistent with the study of Halimatusadiah et al. (2015).
2018	Nguyễn Xuân Hưng và Lương Đức Thuận	1. Usefulness 2. Ease of use	The results of the study show that quality of AIS positively affect usefulness and ease of use of AIS, the perceived usefulness positively affects the use of AIS and ultimately perceived ease of use affects the perceived usefulness of AIS

5. PROPOSING MODELS AND RESEARCH METHODS

5.1. Proposing models research

Researching the factors that affect the quality of AIS and experience, the viewpoint of approaching factors affecting the quality of AIS from previous studies, and screening the research from the above models, the author expects 6 factors affecting the quality of AIS includes: (1) Information technology; (2) Organizational culture environment; (3) Education and Train; (4) Management Commitment; (5) Top Management Support; (6) Owner/Manager Knowledge.



Proposal of research model for factors affecting the quality of AIS - Source: Proposal of the authors

5.2. Research Methods

The development of the measurement scale begins with the observations of observed variables presented from previous studies, summarizing the factors affecting the quality of accounting information systems. From there, propose factors affecting the quality of accounting information systems in traffic construction enterprises of Vietnam. Specifically, the researches refer to previous studies of domestic and foreign authors on the following contents: the quality of AIS affects

economic entities, the factors affecting AIS in enterprises, combined with theoretical basis for building a research model for research. The authors synthesize the previous theories, from which, introduces the research model and conducts the actual research according to the model through the survey using questionnaires and statistical tools. The purpose of the survey is to collect data to verify that the factors that have identified the true environment in traffic construction enterprises in Vietnam or not and the extent of the impact of these factors.

On the basis of inheriting theories and research works, the authors conduct survey design, interviews directly with experts who are enterprise managers, chief accountants of enterprises ... With extensive experience in accounting, managers who are knowledgeable about AIS will give advice and support in arranging each relevant research concept on issues such as: Quality standards of AIS, General assessment of the status of the quality of AIS in traffic construction enterprises in Vietnam to confirm or make appropriate adjustments for the observed variables in their studies.

The authors synthesize and analyze into the theoretical framework of the quality of AIS. At the same time, the authors compare the reality of the quality of AIS in traffic construction enterprises in Vietnam based on the information processing by specific methods such as investigation, interview, observation ... identifying the factors affecting the quality of AIS, to build and perfect the quality scale of AIS.

* In-depth interview method is the method of collecting data in which interviewers ask questions to find out what the interviewee is doing, thinking or feeling (Nguyen Thi Tuyet Mai and Nguyen Vu Hung, 2015). In addition to saving time, controlling and aggregating and analyzing data, semi-structured interview method will be suitable in this study. The semi-structured interview method is an interview based on a list of questions or topics to be addressed.

* Questionnaire interview is built from research objectives, research overview, theoretical basis and results of exchange and interview experts. A number of interview questions used from previous studies, both domestically and internationally, have been revised and supplemented to suit the research context, characteristics and objectives. On the basis of inheriting theories and research works, the authors conduct survey design, interviews directly experts who are enterprise managers, chief accountants of enterprises.... Experts on accounting, managers who are knowledgeable about technical information systems will give advice and support in arranging each relevant research concept on issues such as: Quality standards of AIS, General assessment of the status of the quality of AIS in traffic construction enterprises in Vietnam to confirm or make appropriate adjustments for the observed variables in their research.

6. RESEARCH HYPOTHESES

After discussing and consulting experts, the results of the discussion on the research model of factors affecting the quality of AIS in traffic construction enterprises in Vietnamese, the research hypothesis is proposed:

H1: There is a positive relationship between Information technology and the quality of accounting information system.

H2: There is a positive relationship between Organizational culture environment and the quality of accounting information system.

H3: There is a positive relationship between education and training and the quality of accounting information system.

H4: There is a positive relationship between Management Commitment and the quality of accounting information system.

H5: There is a positive relationship between Top Management Support and the quality of accounting information system.

H6: There is a positive relationship between Owner/Manager Knowledge and the quality of accounting information system.

7. CONSOLUTION

In summary, there are very few scientific research projects to find out what factors affect the quality of AIS, especially specific businesses such as traffic construction enterprises as well as necessary solutions and recommendations to improve the quality of this system in traffic construction enterprises in Vietnam. In that context, besides continuing to inherit the results of scientific works so far, going into depth to study the theoretical issues of the quality of AIS through the study of structural elements therefore, the system quality, assessment of the current situation as well as the impact of the quality of information and quality of AIS on the stability and development of traffic construction enterprises in Vietnam, from which to see, development of AIS are necessary requirement for the sustainable and stable development of transport construction enterprises of Vietnam in particular and Vietnamese enterprises in general in the context of integration and development.

REFERENCES

1. Almad, A., Mohammed, H. A., Nik, K. N. M. (2013), 'Factor that affect accounting information and accounting information quality: A survey in University Utara Malaysia', *American Journal of Economics*, vol 1, no 3, pp 27-31.
2. Al-Mamary, Y. H., Shamsuddin, A., and Aziati, N. (2014), 'Factors Affecting Successful Adoption of Management Information Systems in Organizations towards Enhancing Organizational Performance', *American Journal of Systems and Software*, vol 2, no 5, pp 121-126.
3. Barki (2016), 'Effect of the use of information Technology and Organization Cultural of the quality Accounting Information System', *International Journal Of Scientific and Technology Research*, vol 4, no 5, pp. 120-125.
4. Bushman, R. M., Piotroski, J. D. and Smith, A. J. (2004), 'What Determines Corporate Transparency?', *Journal of Accounting Research*, Vol. 42, No.2, pp. 207-252.
5. Carolina, Y. (2014), 'Organizational Factors and Accounting Information System Quality (Empiric Evidence From Manufacturing Firms in Bandung Indonesia)', *Research Journal of Finance and Accounting*, vol 5, no 5, pp 192-199.
6. Cheng, M., and Lin, W., Lin, C., Huang, Y., (2007), 'Effects of Information Technology Maturity on the Adoption of Investment Evaluation Methodologies: A Survey of Large Australian Organizations', *International Journal of Management*, vol 24, no 4, pp. 697-711.
7. DeLone, W. H., and McLean, E. R. (1992), 'Information Systems Success: The Quest for the Dependent Variable', *Information Systems Research*, vol 3, no 1, pp. 60-69.

8. DeLone, W. H., and McLean, E. R. (2003), 'The DeLone and McLean model of information systems success: a ten-year update', *Journal of management information systems*, vol 19, no 4, pp. 9-30.
9. Gable, G. G., Sedera, D. and Chan, T. (2008), 'Re-conceptualizing Information System Success: the IS-Impact Measurement Model', *Journal of the Association for Information Systems*, vol 9, no 7, pp. 377-408.
10. Gorla, N., and Somers, T. M. (2014), 'The impact of IT outsourcing on information systems success', *Information & Management*, vol 51, no 3, pp. 320-335. doi:<http://dx.doi.org/10.1016/j.im.2013.12.002>.
11. Halimatusadiah, E., N. Nurhayati, and E. R. Rayandani (2015), 'Effects of top management support, education and training on the effectiveness of accounting information system (survey on Government-Owned Insurance Companies in Bandung)', *International Journal of Managerial Studies and Research*, vol 3, no 10, pp. 87-90.
12. Ismail, N. A. và Malcolm, K. (2007), 'Factors influencing the alignment of accounting information systems in small and medium sized Malaysian manufacturing firms', *Journal of Information Systems and Small Business*, vol 1, no 1-2, pp 1-20.
13. Ismail, N. A. và Malcolm, K. (2014), 'Factors influencing the alignment of accounting information systems in small and medium sized Malaysian manufacturing firms', *Journal of Information Systems and Small Business*, vol 1, no 1-2, pp: 1-20.
14. Jeffrey J. Archambault and Marie E. A. (2003), '*A multinational test of determinants of corporate disclosure*', *The international Journal of Accounting*, vol 38, no 2, pp 173-194.
15. Ivana, M. S. and Ana, O. (2013), 'Information Technology and Accounting Information Systems' Quality in Croatian Middle and Large Companies', *Journal Of Information And Organizational Sciences*, Vol. 37, No. 2, pp. 117-126.
16. Lee, J., Wu, F., Zhao, W., Ghaffari, M., Liao, L., and Siegel, D. (2014), 'Prognostic and health management design for rotary machinery systems-reviews', methodology and applications, *Mechanical Systems and Signal Processing*, vol 42, no 1, pp. 314-334.
17. Mason, O. R. (1978), 'Measuring information output: A communication systems approach', *Information & Management*, vol 1, no 4, pp. 219-234.
18. Meiryani (2014), 'Influence of Top Management Support on the Quality of Accounting Information System and Its Impact on the Quality of Accounting Information', *Research Journal of Finance and Accounting*, vol 5, no 11, pp. 124-132.
19. Meiryani, M. S. (2015), 'Influence Business Process on the Quality of Accounting Information System', *International Journal of Scientific and Technology research*, vol 4, no 1, pp. 323-328.
20. Nguyễn Xuân Hưng, Lương Đức Thuận (2008), 'The relationship between the quality of accounting information systems and the use of accounting information systems', *Conference proceeding of Quy Nhon*, pp. 419-428.
21. Rapina (2014), 'Factors Influencing The Quality of Accounting Information System And Its Implications on The Quality of Accounting Information', *Research Journal of Finance and Accounting*, vol 5, no 2, pp. 148-152.
22. Sacer, Ivana M., Zager K., and Tusek B., (2006), 'Accounting Information System's Quality as The Ground For Quality Business Reporting', *IADIS International Conference-commerce*, ISBN :972-8924-23-2.
23. Sacer và Oluis (2013), 'Information Technology and Accounting Information Systems' Quality in Croatian Middle and Large Companies', *Information technology and accounting*, vol 37, no 2, pp. 117-126.
24. Susanto, A. (2017), 'The influence of business process and risk management on the quality of Accounting information system', *International Journal Of Scientific & Technology Research*, vol 9, no 6, pp. 177-183.

25. Wang, R. Y; Strong, D. M. (1996), 'Beyond Accuracy: What Data Quality Means to Data Consumers', *Journal of Management Information Systems*, vol 12, no 4, pp. 5-34.
26. Wisna, N. (2013), 'The Effect of Information Technology on the Quality of Accounting Information system and Its impact on the Quality of Accounting Information', *Research Journal of Finance and Accounting*, 4(15), 69-75.

INOVATING THE STATE BUDGET ACCOUNTING IN VIETNAM IN THE 4TH INDUSTRIAL REVOLUTION

Nguyen Tuan Dung¹, Pham Thu Huyen²

ABSTRACT

State Budget accounting is the accounting regime with an important role in financial and budget management, always holding a pillar position in Vietnam's public accounting system. In recent years, this accounting regime has undergone strong innovations to meet new requirements in financial and budgetary management and enhance administrative reform in Viet Nam. Within the scope of the article, the author summarizes the innovative contents of the State Budget accounting regime since Vietnam implemented the State Treasury and budget management information system (TABMIS) and proposed some orientations to perfect this accounting regime before the new requirements of the 4th industrial revolution.

Key words: *State Budget accounting, State Treasury and TABMIS.*

1. INTRODUCTION

Public finance reform is the top goal of the Vietnamese Government. On April 21, 2003, the Prime Minister issued Decision No. 432 / QD-TTg on approving the Public Finance Management Reform Project (PFMRP). The objectives of PFMRP are to: (i) Modernize State Budget management, including budget preparation and compliance, reporting and strengthening the Ministry of Finance's budget accountability; (ii) Increase transparency in public finance management and financial security; (iii) Allow medium-term expenditure planning and (iv) Strengthen public debt management capacity. The Treasury and Budget Management Information System (TABMIS) is an indispensable component of the Public Finance Management Reform Project.

State Budget accounting is the accounting regime with an important role in budget financial management of Vietnam, holding a pillar position in the public accounting system. State Budget accounting is responsible for providing adequate, timely, comprehensive and systematic information on the situation of allocation of State Budget estimates; situation of State Budget revenues and expenditures; situation of borrowing and repaying loans of the State Budget; types of state assets managed by the State Treasury and activities of the State Treasury.

The important milestone marking the major change of the State Budget Accounting System has been since Vietnam successfully implemented the Treasury and Budget Management Information System (TABMIS). The process of forming and developing the State Budget accounting in TABMIS application conditions can be divided into 03 stages (illustrated diagram 1).

¹ Viet Nam State Treasury, 32 Cat Linh, Dong Da, Ha Noi.

² Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam.

The diagram 1:
The process of developing the State Budget since the implementation of TABMIS



2. ACHIEVEMENTS AND LIMITATIONS

After 10 years of deployment and operation nationwide, up to now, with the enhancement of information technology (IT) application in the direction of reforming, centralizing and modernizing the accounting system, TABMIS has made salient contributions in the budget financial management in Viet Nam. Achievements are:

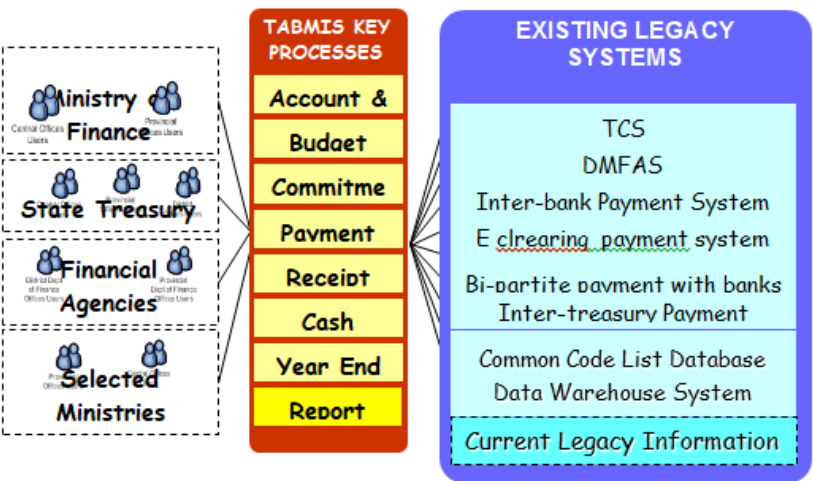
Firstly, developing and implementing TABMIS to integrate 03 stages in the budget management cycle; perform the State Budget settlement to ensure the time and requirements of the State Budget Law.

Secondly, all accounting vouchers are reviewed and amended in a simply and conveniently to meet the requirements of unifying the focal point of controlling budget expenditures through the treasury to create favorable conditions for customers to transact.

Thirdly, building and perfecting the chart of accounts (COA) with 12 segments, designing a detailed accounting account, complete and consistent with the budget catalog, compatible with the general ledger, thereby, fully reflect the information, meet the management requirements of the budget levels.

Fourthly, the system of financial statements and management reports is amended and supplemented in the direction of increasing **electrification**, reducing administrative procedures, saving time, contributing to providing complete, timely and multi-dimensional information in budget management and creating prerequisite conditions for the preparation of state financial statements (starting from the fiscal year 2018).

The diagram 2:
Treasury And Budget Management Information System (TABMIS)



Source: TABMIS training Material of State Treasury

Besides above achievements, the State Budget accounting also does have some limitations as follows:

Firstly, the discrete information collection system, managed by many agencies, has no linkage and sharing for all revenues;

Secondly, the expenditure control mechanism has not followed international practices, not the budget program, and not electronic spending control;

Thirdly, the organization of the accounting apparatus is still not scientific and optimal because it has not clearly defined the responsibilities of the relevant departments and individuals.

Fourthly, the level of IT application integration of the State Treasury is not high. The application of IT although has made great progress compared to the past, but still patchwork, not integrated between systems, applications as well as processes.

The 2019 year is the last year the State Treasury sector will implement the State Treasury Development Strategy to 2020 with the goal “By 2020, the State Treasury activities will be implemented on the basis of modern IT and the establishment of an electronic treasury”. At present, the Viet Nam State Treasury is focusing on developing the State Treasury development strategy to 2030 with the basic orientation “Focus on developing in depth the core functions of the State Treasury, suitable to the transition economy and new international public administration practices, towards Treasury services model. Basing on IT is considered as a breakthrough, reforming regulations and processes is the foundation and towards to good practices in the world”. Stemming from the achieved results, from the existing limitations of the State Budget accounting and especially before the new requirements of the Industrial Revolution 4.0, in the coming time, it is necessary to complete the State Budget accounting as follows:

Firstly, for State Budget revenue, in parallel with diversification of methods of State Budget collection, it is necessary to reform a uniform information exchange model including taxes, fees, charges and fines for administrative violations based on the application of block chain technology, ensuring detailed tracking by each State Budget revenue code (ID code); at the same time, organize the connection and exchange of information and electronic data of State Budget collection among relevant agencies and units in order to provide information, data and reports of State Budget revenues in-real time.

Secondly, for State Budget spending, to renew the mechanism to control the commitment of State Budget spending, associated with the formulation and implementation of medium - term budget plans, medium - term investment capital plans, estimates and annual capital plans. Innovating the method of controlling State Budget spending through the State Treasury, developing and implementing a public procurement management information system connected, exchanging information with the digital State Budget management and accounting information system in the direction of controlling State Budget spending according to the performance of tasks, associated with strengthening specialized inspection of the State Treasury and assigning autonomy and self-responsibility in spending of the units using State Budget, at the same time attaching combining all stages from the budget cycle to improve the efficiency of State Budget fund management.

Thirdly, implement the State Budget accounting on the principle of accrual, to ensure consistency with the accounting regulations of agencies and units of the public sector, contributing to provide full and timely information of budget revenue and expenditure in real time. Refine the COA design and develop each individual segment according to information needs.

Fourthly, organize the accounting apparatus to meet the new requirements. In the past, the Treasury relied heavily on staff with expertise in accounting. Modern Treasury management needs staff with a wide range of expertise from financial market analysis, quantitative modeling, etc.

Fifthly, perfect the IT system in the direction of integration, connecting with the relevant systems and application programs, ensuring the harmony in the overall architecture of the State Treasury's IT system, gradually building "digital treasury". In particular, the State Budget management system and digital accounting system always plays the role of the core system in the overall IT architecture of the State Treasury.

With these orientations and strong determination of the whole system, in the coming time, the State Treasury will take advantage of opportunities and overcome challenges of the 4th industrial revolution, always affirming its pillar position and vital role of the State Budget accounting in the public finance reform of Vietnam.

REFERENCES

1. Ministry of Finance (2013), *Circular No 08/2013 / TT-BTC dated January 10, 2013 detailing and guiding State Budget accounting regime*.
2. Ministry of Finance (2017), *Circular No 77/2017/TT-BTC dated August 27, 2013, of the Minister of Finance detailing and guiding State Budget and state treasury operations accounting regime*.
3. State Treasury (2013), *Summary report on the large-scale deployment phase of TABMIS system*.
5. State Treasury (2019), *Treasury Management Workshop in Vietnam: Achievements and challenges*.

PROMOTING THE IMPLEMENTATION OF ENVIRONMENTAL ACCOUNTING AT VIETNAMESE ENTERPRISES IN ORDER TO HELP THE PROCESS OF INTEGRATION INTO CPTPP AGREEMENT TO BE MORE RAPID AND SUSTAINABLE

Nguyen Tuan Anh^{1,*} Nguyen Quoc Huy²

ABSTRACT

At the enterprise level, Environmental Accounting is a part of enterprise accounting system, researched and applied popularly in developed countries. Environmental Accounting has becoming more useful in the context of global environmental issues always being cared at the regional and world forums. Because of strict environmental requires of the integration into the international economic organizations, recently the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), it is urgent to promote the implementation of environmental accounting at Vietnamese enterprises. The research mentions the main CPTPP agreement's environmental terms, the basic contents of environmental accounting at the enterprise level in the context of the international intergration as well as on the basis of analysis and assessment the actual situation about environmental activities and environmental accounting in Viet Nam in order to provide the directions in the development of environmental accounting in the next period.

Keywords: *Environmental accounting, Vietnamese enterprises, CPTPP agreement.*

1. INTRODUCTION

Today, a significant increase in the number of enterprises and other organizations involved in environmental management is part of a management strategy that addresses solutions to environmental problems and implements environmental protection activities within enterprises. The management of environmental protection activities is an effective way to direct and maintain the management and operation of a prosperous enterprise. In other words, when implementing environmental protection activities, enterprises can accurately recognize, identify and analyze the investments and the costs related to environmental protection. With full awareness of the potential benefits of these investments and costs, enterprises not only improve their performance, but environmental accounting also plays an important role in supporting enterprises to make more exact and effective decisions. Information on environmental accounting is not only used within the enterprise but also is provided and publicized through environmental reports to provide accountability to stakeholders such as shareholders, investors, customers, ...

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam

² The state Audit Office of Viet Nam, 116 Nguyen Chanh, Cau Giay District, Hanoi, Vietnam, Email: ntaaof@gmail.com

The implementation of environmental accounting will create a lot of benefits and advantages for enterprises in a number of key aspects such as: Capable of creating competitive advantage because customers often prioritize products or services friendly to environment; Allows shareholders, banks, creditors, ... to assess more accurately about the enterprise as well as contribute to building trust for the community and society; Significant improvement in labor safety will contribute to increased labor productivity; Raise usefulness in reviewing pricing policy because environmental accounting data is often hidden by managers; Provide more complete data on the compulsory costs included in the product and environmental-friendly business processes; Help improve the similarity of products or business activities to improve sales or profit ...

2. MAIN CONTENT OF CPTPP ON ENVIRONMENTAL ISSUE

The 11-member CPTPP was announced to end the negotiation process on March 8, 2018, as a result of a high-standard, ambitious, comprehensive and balanced agreement with the goal of economic development, support for creating and maintaining jobs, enhancing innovation, productivity and competitiveness, improving living standards and reducing poverty in signatories, and promoting effective, transparent management, labor and environmental protection. As countries accounting for a significant share of the world's population and natural resources, CPTPP countries signed a joint commitment to environmental protection and conservation as well as cooperation in addressing environmental challenges. Countries agree to effectively enforce their environmental laws and do not go against environmental legislation to encourage trade and investment. Countries are committed to transparency in making decisions, implementing environmental decisions, transitioning to a less-waste and quickly-recovered economy, and encouraging voluntary environmental initiatives, especially enterprises' social responsibility programs. As such, the environmental issues of CPTPP countries are of great concern and are an indispensable constraint for enterprises to enter into a free trade market but with extreme environmental standards that are strict obligatory to comply. This will be one of the reasons to promote the government and the business community in the CPTPP countries. We also cannot ignore the supply and disclosure of information on activities in order to ensure and enhance environmental protection, then we can effectively evaluate, monitor and supervise environmental commitments in these enterprises. In that context, promoting the implementation and application of environmental accounting in enterprises is a requirement to be considered properly in terms of state management agencies in the field of accounting as well the enterprises in the CPTPP countries including Vietnam.

In order to implement the environmental legal regulations and the social responsibility, it is inevitable for enterprises to invest in environmental assets and incur various costs related to environmental protection such as treatment of waste disposal, air pollution treatment, ... In addition, during the production and business activities with many arising unexpected risks such as waste tank overflow, excessive waste pollution, ... leading to the facing with many debts. This fact requires managers to have accounting information on environmental activities at their enterprises in order

to effectively manage the environmental activities and sustainable development of enterprises in the context of economic integration in general and Vietnam's CPTPP participation in particular.

3. OVERVIEW ABOUT ENVIRONMENTAL ACCOUNTING IN ENTERPRISES

3.1. Definition about environmental accounting

Environmental accounting, in wide aspect, covers various contents such as: Recognize and present financial information related to the environment on financial reports; Recognize and use artifact and monetary information related to environmental management accounting; Estimate the effects and costs of the external environment, usually related to the determination of total cost; Accounting for the flow of natural resources in both monetary and artifact terms or natural resource accounting; Consolidate and report on accounting information of environment at the enterprises, natural resources and other information for national accounting purposes; Review information on currency and artifacts related to the environment at a wider scale of sustainable accounting. At the enterprise level, it is possible to understand that environmental accounting is integral part of corporate accounting system that collects, processes, analyzes and provides information on environmental performance in enterprises for internal and external objects to make decisions. Thus, it is possible to understand environmental accounting in enterprises including environmental financial accounting and environmental management accounting.

Environmental financial accounting will recognize and report information on enterprises' environmental activities to external people such as income and expenses related to investments in environmental protection activities, environmental liabilities and other necessary expenses. Environmental management accounting will manage environmental and economic activities on the basis of a focus on both artifact information of the flow of energy, water, materials and waste as well as monetary information on expenses and relevant income to meet governance requirements.

3.2. Overview of environmental accounting in enterprises

The subject of environmental accounting basically includes assets, liabilities, costs and income arising during the enterprise's operation in terms of the environment. Therefore, according to these basic factors, the content of environmental accounting is as follows:

Environmental asset accounting:

Environmental assets are the resources controlled by enterprises to help environmental protection activities and meet the criteria for recognition of assets. It is also understood that environmental costs are capitalized and allocated during the useful life of the assets. Capitalization is to recognize an environmental cost as an integral part of any asset or as a separate asset.

Environmental assets are also part of assets serving environmental protection activity, including long-term assets such as the system of solid waste and liquid waste collection, storage, treatment and recycling, pollution treatment facilities, system of greenery and detention basin for pollution control, pollution quotas, permits or patents on environmental protection....or short-term assets such as environmental protection equipment and tool,...

In order to monitor, manage and evaluate their effectiveness of investment and performance, the types of environmental assets should be reflected in separate items or illustrated on the financial statements to provide information to stakeholders about the value as well as the status of these assets.

Environmental liabilities accounting:

Environmental liabilities are the liabilities related to environmental costs incurred in the enterprise and meeting the criteria for liabilities recognition. When it is uncertain for the value or timing of recognition of an expense, that liability may be considered as an allowance for environmental costs.

Some principles in recognizing environmental liabilities:

- An environmental liability arising should be recognized when the enterprise bears an unavoidable environmental charge.
- Environmental damage should be disclosed in the explanation of financial statements even if the enterprise has no obligation to pay compensation immediately.
- The expenses related to the compensation or liquidation of long-term assets should be recognized as liabilities at the time of the environmental damage.

Liabilities estimation is based on the most appropriate method and in case of not being estimated, it should be explained in the financial statement explanation. Actually, the net present value (NPV) method is often used to estimate the environmental liabilities.

Environmental cost accounting:

Environmental costs include the costs of managing the effects of enterprise's activities on environment on the basis of corporate responsibility as well as other costs incurred under the objectives and requirements for environmental protection of enterprises.

Types of environmental costs can be identified in a variety of ways, usually in the following two basic ways:

- By function and activity: it includes the costs related to the protection, mitigation, prevention of environmental impacts, remedy of environmental issues and disasters as well as other activities measured by currency, including:

- + The costs related to business activities: These costs are for activities to minimize the environmental impact within the enterprise, where the enterprise can directly monitor the environmental impact. They are divided into 3 groups: pollution treatment cost, global environmental protection cost and resource recycling cost.

- + Administrative costs: The costs of environmental protection activities are of administrative and indirect nature, contributing to limiting the environmental impact of business activities and also serving the providing of the enterprise' environmental information such as the cost of implementing environmental management system, labor training, promotion, environmental information, ...

- + Costs for research and implementation of environmental protection activities such as development of environmental-friendly products, pollution reduction in production areas, introduction of products, etc.

- + Costs for social activities such as activities of natural environmental protection, planting trees, protecting the landscape, financing for environmental organizations in the locality.

- + Costs for restoration of environment degraded due to the impact of business activities such as costs of reimbursement, reserve or insurance...

- + Other expenses

- By the nature and content of costs, including:

- + Costs for waste disposal and control, such as: depreciation expense, expenses for materials and maintenance services, labor costs, charges, taxes, fines, environmental insurance, costs for cleaning and reimbursement, ...

- + Prevention and environmental management costs such as outsourcing service cost about environmental management, research and development costs, over-cost for cleaning technology...

- + Material costs included in output products comprises of purchase cost of materials for producing or wrapping or packaging products such as raw materials, packaging materials, auxiliaries, energy and water....

- + Material costs not included in the output comprise of purchase costs (or processing costs) related to energy, water and other materials that are not calculated in the output.

- + Cost of less tangible nature

Some principles when recognizing environmental costs:

- Environmental cost related to damages should be recognized immediately and deducted from the income

- Environmental costs are capitalized only if they meet the regulatory criteria

- Future site restoration cost will be accrued and capitalized when there is arising environmental damage

- Environmental cost related to the operation of an environmental asset should be included in that asset

- Environmental cost that do not meet asset recognition criteria should be immediately accounted in the period

On technical methods for identifying and synthesizing environmental costs: In fact, there may be different models or techniques for identifying environmental costs depending on the characteristics and features of each type of cost as well as the specific nature of each type of cost and enterprises' business activities. Some methods are commonly such as total cost accounting (TCA), life cycle assessment (LCA), full cost accounting (FCA), activity-based costing (ABC),

Environmental income accounting:

Income from environmental protection activities is divided into actual income and estimated earnings depending on the level of authenticity of the information. Actual income is the economic benefit calculated based on the verified information. Estimated earnings are economic benefits calculated based on a specific hypothesis, serving primarily internal environmental governance requirements.

Actual income related to the environment may generate from the sale of scrap or waste for reuse by other entities, providing excess capacity of waste processing equipment, revenue obtained from environmental insurance claim, or increased profits due to the consumption of products non-toxic to the environment ... Actual income from environmental protection activities during the production period are presented on the financial statements of enterprises.

In addition, environment cost savings should also be considered and recognized. These savings tend to arise when the enterprises carry out management activities of environmental protection, such as on-site recycling, cleaner manufacturing process, research and design of “green” products, environmental management by supply chain and enhancement of enterprises’ environmental responsibility, or through environmental improvement based on environmental protection system planning.

Regarding the determination method for environmental cost savings: These savings are recognized only when there is a change in the on-going specific system; It is the difference between the arising cost of the base period and the cost of the current period. For example, if performance improvement leads to reduction of material consumption and waste, then cost savings can be measured by comparing the reduced cost of the current period to the higher cost of the previous base period. Alternatively, the comparative method can be used to adjust the level of activity of the base period, which is determined by the difference between the arising cost of the base period after adjusting by the change in the level of activity and arising cost of current period.

Present the information on the enterprise’s reports:

Major information on environmental accounting should be presented on the reporting system including:

- List of environmental costs
- Environmental costs deducted from the income in the period
- Material costs included in the current period
- Material value capitalized in the period
- Fines and compensation about the environment
- Details of liabilities on environment, the value of liabilities, provisioning and writing down environmental reserves and intangible debts on environment.
- Main environmental incomes
- Environmental policies to be applied
- Estimated emission into the environment of enterprises and restriction method,...

4. STATUS OF ENVIRONMENTAL ISSUE AND ENVIRONMENTAL ACCOUNTING IN VIETNAMESE ENTERPRISES

Today, the process of industrialization - modernization of the country as well as economic integration encourages Vietnamese enterprises to find every way to promote production and business activities in order to develop and compete in the market. In that context, enterprises have done a lot of activities affecting the ecological environment such as pollution of water, air, landscape damage ... Although Vietnam issued Law on Environment for the first time in 1993 and the Law on Environmental Protection revised in 2005 but it can be seen that the regulations as well as the sanctions against the objects, organizations and individuals causing environmental damages do not really contribute to environmental protection, especially at the enterprise level. According to the Environmental Police Department, not only small enterprises but many large companies, economic groups also do not attach importance to environmental protection, are still neglected in the management and treatment of hazardous waste. This has negatively impacted the assessment of international and regional environmental organizations, reducing the credibility of foreign investors as well as the social brand and image of enterprises causing environmental damages.

As an environmental management tool, environmental accounting can contribute to the control of pollution-causing activities as well as to the improvement of the ecological environment. However, until now, Vietnam has not promulgated and guided the main contents of environmental accounting for enterprises in a comprehensive and comprehensive manner. In other words, the regulations on environmental accounting in the accounting regime are still not clear and focus only on some aspects of environmental financial accounting related to liabilities such as environmental protection tax, provision of payables of environmental restoration cost, the cost of cleaning up and site restoration. Even if there is a regulation on the content of liabilities, the recognition and reflection also show a critical level as not negligible as only systematizing the accounts and accounting books of other amounts such as account 33381 (Environmental Protection Tax), 3524 (Other contingencies on site restoration and recovery costs) or only providing information through general indicators in the consolidated financial statements such as "Taxes and other payables to the state", "Provision for short-term payables", "Long-term provisions". There are almost no guidelines for environmental management accounting.

By studying and doing research in industrial enterprises, especially mining, chemicals, construction materials such as steel, cement,..., it can be seen that the implementation of environmental accounting at these companies are still at a very modest level; the level of separation and independence of environmental accounting information with information on financial status and operation is not high. Despite there is a popularity and increasing concern of enterprises in the costs of environmental protection such as the depreciation cost of waste treatment equipment, the labor cost to clean up and collect waste, fee of water supply and drainage, industrial waste fee... but the reflection of these costs is often be hidden or included general expenses of accounts 627, 642. Enterprises also have almost no estimate of environmental costs. This makes it difficult for managers to certify the size and nature of environmental costs in general and each environmental cost items in particular, in order to assess the effectiveness of environment protection methods according to the State regulations as well as the assessment of the responsibility of enterprises associated with the goals and trends of sustainable development.

From the general assessment of the status of environmental protection activities as well as environmental accounting at the enterprise level, it can be seen a number of basic reasons:

- The system of documents on environmental regulations issued by the State is not synchronous and closely associated with the strict environmental standards of international organizations; especially the sanctions for pollution-causing activities are still a certain level so their deterrence is not high. The inspection and examination of business activities that may cause environmental damage has not been regularly carried out but only on a case-by-case basis and by the reflection of press, media and local people.

- The system of legal documents and guidelines on environmental accounting in enterprises has not been fully promulgated, making it difficult for state management agencies to assess the level of compliance of enterprises as well as deployment in the enterprise. Besides, the awareness limitation and insufficient attention of business managers in the use of accounting information to assess the effectiveness of environmental protection are very important, so it can not contribute to improve the competitiveness and prestige of the enterprise when integrating into the international market.

5. ORIENTATION TO ENHANCE ENVIRONMENTAL ACCOUNTING IN VIETNAMESE ENTERPRISES WHEN JOINING IN CPTPP

Environmental accounting has become popular in the developed CPTPP member countries such as Japan, Australia, Canada, Singapore,... But it is still new in Vietnam. In the context of international economic integration, especially joining the CPTPP Agreement, the application of environmental accounting in Vietnam to contribute to the implementation of environmental commitments requires orientations and solutions in some respects:

Firstly, it is necessary to disseminate and communicate more legal provisions in the field of State environmental protection. Especially, it is also essential to concretize environmental agreements in the CPTPP Agreement relating to the enterprise's social responsibility for the environment, develop environmental goods and services towards a low emission and quickly recovering economy.

Secondly, the State environmental management agencies should supplement and update the legal regulations related to the responsibility for providing information through the environmental reports of enterprises. At the same time, the Ministry of Finance should issue norms and guidelines on environmental accounting in the enterprises, stipulating environmental information to be presented in their reports, in order to ensure the unified environmental management. On that basis, fuller and more detailed guidance on the main contents of environmental accounting will be provided, particularly the recognition and presentation of environmental costs and incomes on financial statements of enterprises.

Thirdly, it is necessary to raise the awareness of business managers about the importance of environmental protection in business activities as well as the role of environmental accounting for environmental management activities. Besides the compliance with environmental financial accounting, based on conditions, capacities and characteristics of production and business in each stage of development, enterprises can implement the main contents of environmental management

accounting such as material flow accounting in both physical and monetary terms, costs and cost savings as well as environmental income, environmental planning and estimation, evaluating activities as well as developing policies and operational strategies associated with environmental protection, presenting environmental information in management accounting reports of enterprises.

Fourthly, each enterprise should have measures of connecting and sharing information between the accounting division and the technical and environmental division. In reality, technical and environmental staff often have little knowledge of environmental issues reflected through accounting information. In contrast, accounting and control staff often have limited understanding of environmental issues in general, and the flow of material that affects the environment in the production and business process in particular. It is therefore easier and more feasible to improve the understanding and sharing of environmental information between these divisions at enterprises.

Fifthly, there should be close cooperation between State management agencies as well as professional associations in the field of environment and accounting, environmental protection organizations and enterprises in the process of research, issuing, guiding and implementing regulations on environment and environmental accounting in enterprises.

REFERENCES:

1. INTOSAI (Working group on Environmental Auditing) (2010), "Environmental Accounting: Current status and options for SAIs"
2. IFAC (2005), "International guidance document: Environmental Management Accounting"
3. United Nations (2001), "Environmental Management Accounting: Policies and Linkages"
4. Ministry of Environment (Czech Republic) (2002), "Environmental Management Accounting Implementation Guideline"
5. United Nations (2000), "Integrated Environmental and Economic Accounting: An Operational Manual"
6. Manoj Goswami (2014), "Corporate Environmental Accounting: the issue, its practices and challenges: A study on India corporate accounting practices", Journal of Business and Management, Vol 16, Ver III, PP 36-42
7. Stefan Schaltegger and Roger Burritt (2000), "Contemporary Environmental Accounting: Issues, Concepts and Practices", Greenleaf Pubns
8. Ministry of Finance, Circular No. 200/2014/TT-BTC, "Guidance on corporate accounting regime"
9. Huynh Duc Long (2016), "Environmental accounting in the countries over the world and experience lesson for Vietnam", website: www.vaa.net.vn
10. Dao Thi Loan, Nguyen Thi Hanh Duyen (2016), « \Environmental accounting : Status and orientation of application in Vietnam", Accounting and auditing magazine No.5/2016
11. Pham Duc Hieu, Nguyen Thi Kim Thai, Environmental accounting in enterprises (2012), Education Publishing House
12. Nguyen Thi Tien (2014), "Environmental management accounting at Hai Van Vicem cement Joint Stock Company", Master Thesis of Da Nang University
13. Websites: www.cptpp.moit.gov.vn, www.trungtamwto.vn, ...

ACCOUNTING AND AUDITING PROFESSION IN THE INDUSTRIAL REVOLUTION 4.0: ISSUES AND IMPLICATIONS FOR VIETNAM

Pham Tien Hung, Ha Tuan Vinh¹, Nguyen Thanh Hue²

ABSTRACT

International economic integration and Industrial Revolution 4.0 is indispensable and irresistible on a national scale, field of activity or organization. In the context that Vietnam is integrating deeply into the world's economy with participation in many free trade agreements, the initiative to prepare the necessary platforms to access new technology achievements from the Industrial Revolution 4.0 will help Vietnam's economy in general and accounting-auditing in particular to effectively participate in global value chains and financial services market; accelerate industrialization and modernization and positively contribute to the country's growth. The Industrial Revolution 4.0 has affected and changed from cognitive thinking to action on accounting and auditing in all aspects. In this context, given the advantages and disadvantages, opportunities and challenges, the field of accounting and auditing needs to be reviewed from many perspectives to adapt to the new conditions. The article deals with the impact of Industrial Revolution 4.0 on accounting and auditing in three main aspects: Accounting and auditing in terms of science; Accounting and auditing in terms of professional activities and Accounting and auditing in terms of management tools. Specifically, the article covers the following contents: Overview of Industrial Revolution 4.0 and accounting and auditing; Accounting and auditing in Industrial Revolution 4.0; Industrial Revolution 4.0 with the problems raised and need to be solved for Accounting and auditing.

Key words: Accounting, Auditing, Industrial Revolution 4.0.

1. INTRODUCTION

The Industrial Revolution 4.0 is dominating the modern world with typical features such as cybernetics and robotics; real and virtual worlds linking systems that are resulted with Big Data, Smart Cities, Crypto currency (Block chain/Bitcoin), Artificial Intelligence, Renewable Energy/Clean-tech, Fintech, E-commerce, Robotics, 3D Printing, Virtual/Augmented Reality, Sharing Economies, Internet of Things, Nanotechnology/2D Materials, Biotechnology/Genetics & Agricultural Innovation, Desalination & Enhanced Waste Management, etc. The Industry 4.0 is not limited to a revolution of machines, smart systems and connections but it is forecast to happen with much broader scope.

The Industry 4.0 is a prerequisite for advancement of production, integration and economic development. Providing that we take the full advantages of it, it is certain that we will have much

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, email: hatuanvinh@gmail.com

² State Audit Office of Viet Nam

more opportunities than ever for the benefit of social and economic development, otherwise threats and uncertainties at individual, organizational and global aspects will happen. Therefore, sectors in general and accounting & auditing profession in particular need to plan definite goals and approaches, and simultaneously grasp the opportunities to make the best of this revolution.

2. ACCOUNTING AND AUDITING PROFESSION IN THE CONTEXT OF INDUSTRY 4.0

Accounting and auditing is understood as a field of science (considering the aspect of education and training); it is a profession that provides service (on the aspect of business) and an economic management tool of state administration system (on the aspect of management).

After mostly thirty years of integration, accounting and auditing profession has made significant moves and achievements: In terms of education, accounting and auditing profession itself has been developed rapidly which is reflected in the boom of in-depth researches, number of training institutions, learning modules and curricula, etc. In terms of profession performance, it is the increasing number of profession bodies, types of services, number of professional accountants and auditors, etc. Regarding state administration, there has been an effective legal corridor for the development of accounting and auditing, adoption of international standards has been made appropriately to Vietnam. Currently, most of economic activities are involved with accounting and auditing. Beside the success of international economic integration, however, the system of Vietnam's accounting and auditing profession has also shown certain limitations and difficulties such as inadequate and inconsistent legal framework, imbalanced profession training system (quality and number are not balanced), the limited number of international accountants and auditors, weakness of professional capacity and lack of practicing instruments, accounting and auditing activities are performed manually or semi-automatically, etc. These are the most emerging inadequacies that need to be improved in near future.

The Industry 4.0 has made big changes from the perception to the conduct of accountants and auditors. Professional views and skills, as a result, need to be adapted to the new context. Industry 4.0 and the Internet help remove the geographic matters so that accountants and auditors may do their works anywhere in the world provided that they satisfy professional qualifications. Traditional papers are being gradually replaced by electronic files and the manual paper works such as invoicing, calculating, recording and making report, etc. are done by computers. With the adoption of electronic invoicing, the audits will be conducted more simply and approach closer to the international auditing system. The born of cloud computing, big data, block chain, etc. makes significant changes to the collecting, processing and communicating information especially accounting and auditing information.

In the years to come and in the context of intensive and comprehensive international integration, the global trend of accounting and auditing profession will diversify and in return force the accounting and auditing sector to adapt to it.

All the above-mentioned elements are creating a new trend for the accounting and auditing profession. According to a survey of the Association of Chartered Certified Accountants (ACCA) in 2016 on the future of professional accounting of 22 countries (including Vietnam), the major trends expected to have the most influence in the next three to ten years, there are 55% of responses

believing that the development of automated accounting is the most significant determinant of accounting sector. In addition, there are other trends such as harmonization of accounting standards (42%), the integration of cloud computing into accounting auditing profession (41%), the unexpected volatility of the economies (42%), etc.

Regarding management aspect, the Industry 4.0 is considered a challenge but also a great opportunity for Vietnam to renovate its entire accounting and auditing system. The accounting and auditing sector needs to do reform in terms of institutions, regulations, policies and prepare the best human resource for the future. Thereby, professional capacity is not capped at knowledge but management skills such as information management, networking, analyzing and assessing, forecasting, consulting, network operating, information usage and security especially economic and financial information provided by accountants.

In terms of training and capacity building aspect, the accounting and auditing sector needs to reform existing curricula, delivering contents and methodology. Simultaneously, the environment, instruments and prerequisites for training also have to be adjusted.

For the professional activities, the professional bodies of accounting and auditing have to develop their operating environment and working facilities from professional directions and approaches to the objectives, contents, scope, procedure and methods to conform with the Industry Industrial Revolution 4.0, and thus, the demand for a better qualified accountants and auditors is essential to make accounting and auditing a sustainable sector and meet the emerging requirements of integration and Industry 4.0.

3. THE EFFECTS OF INDUSTRY 4.0 ON ACCOUNTING AND AUDITING

There has been an array of questions arisen toward accounting and auditing profession for the context of Industry 4.0 such as: What are the impacts of Industrial Revolution 4.0 on accounting and auditing sector? How will training and education of professional accountants and auditors adapt to the new context? What are skills and tasks of accountants and auditors? How will accounting and auditing outputs be applied to management process? etc.

First, the Industrial Revolution 4.0 has come out and making changes to working environment and facilities of the accounting and auditing profession. With Internet of things, the virtual entities interact with each other and with human in a real-time interface, users will participate into value chains by consuming these services, and thus, their positions and scopes of work will be expanded considerably. Big data activates infinite accessibility to knowledge, helping human discover what ever we need but without information authentication. Artificial intelligence (AI) may replace human in doing variety of manual works in accounting and auditing such as collecting and processing data but other processes such as reporting, analyzing and making decisions, etc. still need the human participation. Together with the application of advanced information technology, the outputs of accounting and auditing are able to meet the diversified demands of investors, managers and society as a whole.

Second, the evolution of crypto currency, smartphones, sales channels, Internet-based distribution network, mobile banking, tablet banking, social media, digital bank, paperless transactions, etc is changing the communication and transaction practices.

Third, accounting and auditing is a sector of advanced information technology. The accounting and auditing works are formulated by computers, so the accounting and auditing procedure including recording and reporting has to conform to the new practice and result in the removing, replacing or/and adding new steps. Big data allows faster and safer processing of accounting tasks or accessing to database. Blockchain enables the use of codes and decentralized messaging platforms to formulate specific accounting information according to the demand of management accounting.

Fourth, blockchain technology also impacts greatly on the tax and customs systems to facilitate accountants perform their works with minimized risk of errors, misconducts or frauds.

Fifth, the high development of telecommunication infrastructure is creating new challenges regarding security especially the security of management accounting, transactions and investment information. Therefore, financial institutions, accounting and auditing service providers, stock trading companies, enterprises, etc. have to concern about building database backup system in addition to equipping modern facilities and applying new security measures.

In Vietnam, there have been different studies about the effects of Industrial Revolution 4.0 on the accounting and auditing profession. These impacts are reflected in the following aspects:

Data analysis: In addition to the common Excel sheets, the fast development of technology will provide more advanced software solutions.

Cloud computing: Information is archived in real time and not limited by storage capacity like before.

Automation: Accounting work is mainly recording formulated information, hence, automation may replace human in the major part of financial accounting work.

Artificial intelligence: In addition to the simple bookkeeping tasks, the AI technology may replace human in the most complicated accounting tasks such as asset appraisal and provisioning, thereby minimizing the demand for human resource.

Blockchain: Link the data and figures of the financial accounting department together.

4. THE ISSUES OF THE ACCOUNTING AND AUDITING PROFESSION

In the Industry 4.0 era, there are numberless of problems that accounting and auditing sector has to address. It is essential to take advantages of the opportunities and prevent the potential risks, it is also important to conduct activities such as communicating, making policies on digital accounting and auditing, promulgating financial regulations to facilitate technology infrastructure for the development of accounting & auditing services and outputs, implementing reform and application of advanced technology by means of planning IT strategy for the financial, accounting and auditing sectors, renovating perception and awareness of training and research in accounting and auditing, enhancing network management security, innovating procedure from collecting to processing and reporting for the effective and timely performance of accountants and auditors, improving capacity of the accountants and auditors in providing professional services, recognizing

and measuring the risk of information loss or damage when connecting to the Internet. The Industrial Revolution 4.0 may put businesses into a fierce competition but it also brings about opportunities to improve the information transparency and the service quality.

From the above-mentioned points of view, the effects of Industrial Revolution 4.0 toward accounting and auditing profession regarding training and education will be determined in the following aspects:

Measures to development accounting and auditing profession in digital age – the implications for training and education

The teaching

The digital age harmonizes real and virtual worlds with the dominant role of the Internet of Things which allows us to think about the real role of trainers and learners in training and education. Do learners need to attend classes when they are well-equipped with modern facilities, provided with full access to limitless resources and contacted with countless e-lecturers? Previously, learners only need to concern about several fields of knowledge and skills but now they have much more to care about. For the accounting and auditing learners, they only need to learn background and professional knowledge in the past, but now they have to learn even non-accounting and non-auditing knowledge that may benefit their profession. In addition, when the learning and practicing of accounting and auditing are conducted by means of digital systems, the ability and capacity of learners will be greatly expanded consequently. Therefore, the role of trainers must be adapted. They have to move their roles from traditional academic lecturers to active motivators which turn the learners into the center of training process and promote the learner's creativity in learning. As a nature of IT that provide abundance of lessons and materials, the trainers should give guidance on learning direction and selection of information in addition to the normal supports. Lecturers must be a professional trainers and educators of creativity, criticism, independent thinking and cooperation when interacting with the learners. To do this, the trainers of accounting and auditing must constantly update and expand their background knowledge and skills, they also have to find ways to inspire the learners with their study and research. It is also important to convey the perception of profession ethics, appropriate conduct and responsibility toward society.

The learning

Learning in the digital age exceeds any space and time limit if the learners know how to equip the following attributes:

Independence and activeness in learning: The training process is expected to produce independent and active learners in studying and researching, independence and activeness help learners access knowledge and information effectively, and as a result, activate their creativity. Additionally, learners also need to equip themselves with essential skills to adapt with the new learning and working environment.

Team working: Team working is a must-have for any learners and accounting and auditing learners in particular, therefore the trainers need to equip their students with the ability to study

and research in teams. To do this, the trainers must apply initiatives in lecturing in the ways that motivate learner's sense of harmony and coordination.

Problem solving: Instead of being passive with their study and research, the learners in the digital age need to actively address diversified problems. This is an essential skills of a global citizen that is needed for local labor market and international integration.

Creativity: The highest quality in studying and research is the creativity, only creativity helps the learners break their limits and do the wonderful things. Therefore, more than ever, the teaching profession plays the role as "the most creative profession among the creative professions because it creates the creative people".

Measures to development accounting and auditing profession in digital age – the implications for professionalism

In the context of Industrial Revolution 4.0 with the existence of AI, many professions are facing extinction due to the automation trend. Artificial intelligence (AI) may replay all the manual works of accountants and auditors in collecting, processing and reporting information. However, the processes of analyzing and applying measures to specific cases still require the participation of human. Although AI does not completely replace human in doing works, it is still changing substantially the working environment of accounting and auditing sector.

Accounting and auditing is a process consisting different phases and steps such as collecting, processing and providing information which can be done technologically. So accountants and auditors must be skillful with technologies and apply them to the work. Moreover, accounting and auditing work must follow the laws and regulations so it is unable for AI and technologies to do this providing the fact that they support accountants and auditors with excellent computer work and information safety.

Previous studies state that future accountants and auditors of the digital age not only need qualities such as IQ, EQ but also other essential attributes such as technology capacity, vision, etc. Therefore, professional accountants and auditors are assessed in seven aspects: professionalism, ethics, experience, IQ, digital skills, creativity, EQ and vision.

Accounting and auditing, as a management instrument, is becoming more important and accepted universally by the societies. Accounting and auditing vision, therefore, is considered one of the most important qualities of any accountant and auditor or financial executive. To achieve this quality, accounting and auditing sector need to adapt to the emerging requirements of digital age. When works can be done technologically, professional ethics emerges as a crucial quality of accountants and auditors. Only accountants and auditors who have professional ethics may create real value for the economic and management activities.

The Industry 4.0 with countless opportunities and challenges, any accountant or auditor must follow professional code of conduct to understand a behavior is proper or not before becoming a professional service provider. Financial consulting firms have to apply changes to avoid being swept away from the market if they do not take advantage of values brought about by the digital

age. They need to pay attention to qualitative and non-financial information in addition to the quantitative information, information from material sources such as invoices and files should be considered important as the information from digital sources.

To put it shortly, the accountants and auditors must adapt to the new context with innovative thinking, capacity building to meet the emerging professional requirement of the digital age.

Measures to development accounting and auditing profession in digital age – the implications for management

Before the powerful trend of the Industrial Revolution 4.0, accounting and auditing sector need to take the best advantages of the digital age to overcome challenges. Therefore, the following measures need to be applied:

First, in order to maximize the benefits and avoid the negative effects of the Industrial Revolution 4.0, it is essential to conduct reforms and establishment of new accounting and auditing procedure from collecting, analyzing and providing information. It is also important to improve the usefulness of provided accounting and auditing information by applying technologies.

Second, it is a must to build a development plan for accounting and auditing in both long-term and short-term. This plan must follow the practical conditions of the accounting and auditing sector and determine the problems arisen from the revolution. It is also important to ensure the consistent and effective performance of the accounting and auditing profession in the manner that conforms with market mechanism and adopts technology advancement.

Third, accounting and auditing sector should apply the most advanced technologies in making plans and policies and have a long run IT development strategy which concentrates resources on initiatives and technology solutions.

Fourth, state agencies need to revise laws and policies, regulations and instructions regarding accounting and auditing profession to ensure the conformity with market rules and integration commitments.

Fifth, information need to be secured online and offline. It is essential to apply security initiatives to discover and remove privacy risks, improve the security capacity of the individuals and organizations of accounting and auditing sector.

Sixth, accounting and auditing sector needs to upgrade infrastructure to meet the demand of regional and global integration, develop into a diversified sector with high density of intellectual and technology and improve the accessibility to accounting and auditing services of individuals and organizations.

Seventh, it is important to make a human resource development plan in accounting and auditing sector including reform and enhancement of hi-tech labour force, improvement of technology applicability, building an accounting and auditing community of qualification, ethics to improve competitiveness and close the gap of technology between Vietnam and regional and global countries.

5. CONCLUSION

The Industrial Revolution 4.0 has a substantial effect to all countries, industries and sectors inclusive of accounting and auditing profession. Hence, in attempt to grasp the opportunities as well as overcome the challenges arisen from the revolution, it is demanded that state agencies, enterprises, accountants, auditors and specialists have to frequently adapt to the new era in both thinking and action. To achieve this, we need to properly perceive the Industry 4.0 and its impacts on accounting and auditing sector, we also need to recognize the challenges and plan the appropriate measures for the time to come regarding three major aspects: science, profession and management policy.

REFERENCES

1. Nguyen Van Than, Ta Thu Huong, Mai Hong Loan “Improving financial report auditing process in the active environment of information technology conducted by foreign auditing firms in Vietnam”, Student Research Journal, Academy of Finance, 2014; 3rd Prize Award, Ministry of Finance;
2. Pham Tien Hung, Proceedings, National Science Research Conference “The training of accountants and auditors in higher education institutions in Vietnam: Practice and Directions”, National Economics University, 2017;
3. Nguyen Ngoc Dung, Financial report audits conducted by external auditing firms in Vietnam in the context of Industrial Revolution 4.0, Student Research Journal, Academy of Finance, 2018; 3rd Prize Research Award, Academy of Finance;
4. Pham Tien Hung, Nguyen Minh Chau, Nguyen Thi Phuong Thao, Internal auditing and organizational sustainable development in the context of Industrial Revolution 4.0, International Conference Proceedings, Academy of Finance, 2018;
5. Industrial Revolution 4.0 and its impacts on the labor force of accounting and auditing profession in Vietnam, Accounting & Auditing Research Journal, Issue March, 2019;
6. Nguyen Thi Thanh Tham, Accounting and Auditing and the Industrial Revolution 4.0;
7. Pham Thi Thu Oanh, Accounting and Auditing and the Industrial Revolution 4.0, Financial Study Journal, 2018;
8. Doan Thi Hong Thinh, Nguyen Thi Huyen, Developing accounting and auditing profession in the context of Industry 4.0, Financial Study Journal, 2018;
9. The Association of Chartered Certified Accountants (11/2017), Professional accountant – the future (Generation next): Managing talent in small and medium sized practices;
10. The Association of Chartered Certified Accountants (8/2017), Professional accountant – the future (Generation next): Ethics and trust in a digital age;
11. The Association of Chartered Certified Accountants (3/2017), Professional accountant – the future (Generation next): Managing talent in finance shared services;
12. The Association of Chartered Certified Accountants (11/2016), Professional accountant – the future: Generation next;
13. The Association of Chartered Certified Accountants (6/2016), Professional accountant – the future: Drivers of change and future skills.

ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY AND THE TRANSPARENCY OF ACCOUNTING INFORMATION AT VIETNAMESE LISTED COMPANIES

Bui Thi Hang¹

ABSTRACT

Until now, our modern society witnessed three industrial revolutions that had transformed it sharply. These revolutions had not only opened the new century of science technology but also changed every aspect of human life. In recent years, the appearance of Industry 4.0 continues to transform our society. The world took a new step forward – creating values in cyberspace (virtual world). These values have increased in proportion, and have blurred the gap between the real world with the virtual world through advanced technologies, innovation and creativity. The more the technology develops, the more the transparency of financial accounting information in businesses becomes an important topic in the economy, especially accounting information. It greatly affects the decisions of investors to listed companies on the stock market. In the era of digital technology, when the classic tricks of accountants are gradually replaced by artificial intelligence, whether investors can be assured of the transparency of information on financial reports?

In this paper, the study gives the evaluations about the influence of Artificial Intelligent to the transparency of accounting information in Vietnamese listed companies. New opportunities and challenges for Vietnamese listed companies in the future will also be set out to integrate with this digital economic trend.

Keywords: *Artificial Intelligent, the transparency, accounting information, listed companies.*

1. INTRODUCTION

Nowadays, the economy develops faster and deeper with higher level of international integration. The role of accounting is expanding which affects many different objects, especially economists. The main purpose of accounting is providing information on a continuous and regular way as well as providing the systematic of financial data, operation information and cash flow of the entity. Therefore, accounting information plays a very important role in economic management. The quality of accounting information directly and decisively determines the success or failure of business decisions. With the purpose of helping the development of national economy and protecting the rights of entity, it requires accounting information to be honest and transparent.

Currently, in the time of Industry 4.0, human is replacing the work of accountants by artificial intelligent in the way of inputting the information. Artificial Intelligent technology is transforming rapidly, its widespread application in the business and accounting is still rapidly at an early stage. To build a positive vision of the future, we need to develop an in-depth understanding of Artificial

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, email:hangbuihvtc@gmail.com

Intelligence. Research paper studies on the application of artificial intelligence and the transparency of accounting information in listed businesses to answer the question: Whether the information declared by artificial intelligence valid is explicitly or not?

2. SOME CONCEPTS

First, Artificial intelligence: (or Machine intelligence - AI) is a field in computer science. It is a human-made intelligence created with the goal of helping computers automate intelligent behaviors like humans.

Second, Listed company is a firm whose shares are listed (quoted) on stock exchange markets for public trading

Article 12 - The Law on Securities 2006 provides for conditions for public offering of stocks including 3 conditions:

The enterprise must have, at the time of registration of the offer, a minimum amount of paid-up charter capital of ten (10) billion Vietnamese dong calculated at the value recorded in the accounting books;

Business operations in the year immediately preceding the year of registration of the offer must have been profitable, and there must not be accumulated losses calculated up to the year of registration of the offer;

There must be an issue plan and a plan for utilization of the proceeds earned from the offer tranche, passed by the general meeting of shareholders.

Third, transparency - an important requirement in International Accounting Standards about accounting information in Financial Statements. The purpose of financial statements is to provide accounting information and financial information of the reporting unit to those who need to use it. The transparency of the information in the financial statements is ensured the full disclosure and clear explanation of useful, necessary information published for economic decision making of many information users.

3. REALITY OF THE ACCOUNTING INFORMATION TRANSPARENCY IN COMPANIES LISTED IN VIETNAM TODAY

Transparency is the basis of operations to listed companies in both home market and abroad. However, since the beginning of 2013 until now, the quality of accounting information from the financial statements of listed companies has been declining. The listed companies are scrambling to beautify their financial statements in order to attract investors. According to Banking Magazine No 22 issued in November 2016 - “Building transparency indexes and disclosing information for companies listed on Vietnam’s stock exchange market”, based on S&P’s criteria set, regulations on information disclosure and listed companies’ practices in Vietnam, the research team set targets on criteria to measure the level of transparency of accounting information at listed companies in Vietnam:

Table 1: Criteria for measuring transparency and disclosure of listed companies

STT	Criteria	Point
1	Transparent ownership structure and investor rights	25
1.1	Does the company provide stock classification descriptions?	1

1.2	Does the company provide descriptions of shareholders holding different types of stocks?	1
1.3	Does the company provide the amount of ordinary shares issued and in circulation? [1]	2
1.4	Does the company provide face value of ordinary shares issued and in circulation?	1
1.5	Does the company provide the amount of preferred and other types of shares issued and in circulation?	2
1.6	Does the company provide face value of preferred shares and others issued and in circulation?	1
1.7	Does the company offer other rights besides the right to vote (buyback / dividend payment)?	1
1.8	Does the company announce voting rights for each type of stock?	1
1.9	Does the company announce its shareholders in the top 1, 3, 5 or 10 of the company?	4
1.10	Does the company disclose the shareholders who own more than 3, 5 or 10% of the company?	3
1.11	Has the company announced a cross ownership rate?	1
1.12	Does the company set schedules for important shareholder meetings or before the meeting?	2
1.13	Does the company describe content in shareholder meetings? Detail?	2
1.14	Does the company provide important documents prepared for shareholder meetings (reports of directors, Board of Director, and Supervisory Board)?	3
2	Financial transparency and information disclosure	38
2.1	Does the company present details of business types?	1
2.2	Does the company present details of the products / services provided?	1
2.3	Does the company announce its operating goals?	1
2.4	Does the company announce its market share? Detail?	2
2.5	Does the company announce development plans in the coming years? Details? [2]	2
2.6	Does the company provide effective financial ratios (ROA, ROE, liquidity, debt ...)?	3
2.7	Does the company give analysis on financial information? Risk identification? Response solution?	3
2.8	Does the company publish quarterly and annual financial statements? [3]	4
2.9	Does the company publish the consolidated financial statements?	1
2.10	Is the financial information on the annual report consistent with the audit report?	1
2.11	Does the company publish accounting policies?	1
2.12	Does the company disclose the accounting standards used in accounting?	1
2.13	Does the company provide calculations according to domestic accounting standards?	1
2.14	Does the company use an international accounting standard?	1
2.15	Does the company publish asset valuation methods?	1
2.16	Does the company announce the method of depreciation of fixed assets?	1
2.17	Does the company disclose the name of an independent audit organization?	1
2.18	Does the company report its audit report?	1
2.19	Does the company disclose the cost of auditing?	1
2.20	Does the company offer multiple channels of access to information (websites, newspapers, ...)?	2
2.21	Does the company have a website to publish and update information?	1
2.22	Is there any case related to non-compliance of transactions between the two parties? Detail?	2
2.23	Is there any case involving delayed disclosure (periodic, unusual, on demand)? [4]	3
2.24	Is there a financial discrepancy before and after the audit? Explanation?	2
3	Transparency in the structure of Board of Director and process	37
3.1	Does the company announce a list of board members? Details (name, position, working history)?	3

3.2	Does the company have details about the roles of the Board of Director, the Board of Management, and the Supervisory Board in the company?	3
3.3	Does the company save the Board of Director's meetings during the year? Meeting details?	2
3.4	Does the company disclose director details (name, inside / outside)?	2
3.5	Does the company disclose the number of shares held by its director (owner, representative)?	2
3.6	Does the company present reports and assessments of the Board of Management before the Board of Director?	2
3.7	Does the company separate the titles between the Chairman of the Board of Director and the CEO?	2
3.8	Does the company disclose the number of shares held by Board of Director's members (owners, representatives)?	2
3.9	Does the company announce a list of Board of Director's members who are not involved in the management of the company? Rate? [5]	4
3.10	Does the company announce the list of Supervisory Board? Detail?	2
3.11	Does the company announce remuneration for the Board of Director, the Supervisory Board, the Executive Board?	3
3.12	Has the company established subcommittees under the Board of Director?	
3.13	Does the company disclose its governance (semi-annual, annual) according to corporate governance policies?	2
3.14	Has the BOD taken in any corporate governance training courses to get certificates? Member details?	2
3.15	Does the company publish a sustainability report? Details (introduction, safety report, health, environment, social responsibility ...)?	5

Source: Banking Magazine No 22 issued in November 2016 - "Building transparency indexes and disclosing information for listed companies on Vietnam's stock exchange market"()*

4. ARTIFICIAL INTELLIGENCE (AI) TECHNOLOGY – INFLUENCE ON TRANSPARENCY OF ACCOUNTING INFORMATION AT LISTED COMPANIES

4.1. Application of Artificial intelligence technology

AI will greatly change the role of accountants in the future. The role of the accounting expert in the age of artificial intelligence is not only to record books, but also to make accurate decisions and help businesses prosper, as well as to ensure accountability of the involved people.

Instead of eliminating the human workforce in accounting firms, people will have new colleagues. Artificial intelligence technology, will work with them to provide more efficient services to customers. Currently, there is no mechanical replacement for the emotional intelligence requirements of accounting work, but the machine can learn to perform redundant, repetitive and often time-consuming tasks. Here are some possibilities:

Delete invoice payment: Today, when customers send payment, it can be combined multiple invoices or not matched any bill in the accounting system. It will be time consuming for account receivable accountants to use the correct payment without calling customers or trying to determine the right combination of invoices. However, artificial intelligence technology can analyze bills and match the amount paid with the correct combination of invoices, delete short payments, or automatically generate invoices to reflect short payments without human intervention.

Risk assessment: Artificial intelligence can facilitate risk assessment mapping by taking data from every project that a company has ever completed to compare it with a proposed project. This very comprehensive assessment would be impossible for humans to make on this scale and follow a similar timeline.

Analytical calculations: The accounting department is constantly banned with the same questions, what was the revenue for this product in the third quarter of last year? Or has this department evolved in the last 10 years? to answer these questions very quickly

Siri-type interface for business finance: Pegg - an app that works with the messaging app, Slack - shows what it can in terms of creating invoices, answering questions about revenue forecasts and status of costing accounts. This app, as well as other chat interfaces, has great potential to break accounting and perform some simple tasks like chatting.

Automated invoice classification: Xero - an accounting software company is developing a machine automation system that can learn over time how to classify invoices, which is currently required for manual accounting.

In the field of Accounting, according to the Association of Chartered Certified Accountants (ACCA), artificial intelligence is a new field, in fact, the use of AI brings added value to the formation of assumptions about the direction for the future. Progressive cognitive chain, using self-learning machine algorithms: For example, inputting data into a company's accounting books leads to a machine's progressive cognitive chain based on existing and self-distributed data analysis of trends in costs, revenue, money. By doing this, it can process invoices, accounting vouchers into accounting books and financial statements, etc. For example, at Smacc was founded by 3 co-founders: Uli Erxleben, Janosch Novak and Stefan Korsch. Recently they have successfully raised capital with \$ 3.5 million, thanks to what they have done. It is creating an artificial intelligence system that can perform all accounting procedures, financial processes to completely replace people.

In addition, PwC published a survey with response of more than 1,300 CEOs in 91 countries, it said that up to 85% of global CEOs believe that artificial intelligence (AI) is a technology that will change businesses in the next 5 years.

Despite of a fairly positive view about AI, 23% of CEOs have no plans to implement this technology and 35% "plan to deploy" in the next three years. 33% have implemented "in a very limited way". Less than 1 in 10 CEOs has deployed AI on a large scale.

4.2. The impact on transparency of accounting information at listed companies

We can see that not only in the future but even at present, artificial intelligence will gradually replace people in accounting jobs, such as data entry and information provision outside the business. For listed companies in Vietnam, when providing transparent information on the stock market, or financial statements, it is an extremely important issue. How will they apply artificial intelligence like that? At what level and when they apply it then how it can impact? The advantages and shortcomings for businesses when applying AI. Let's take a look at some of the following positive and negative points.

a) Positive influence

- For businesses listed on the stock market in Vietnam as well as around the world, updating accounting information and data promptly and fully on the Stock Exchange is a very necessary issue. Therefore, with the participation of Artificial Intelligence - an extremely intelligent and agile brain, updating accounting information becomes extremely easy.

- Artificial intelligence offers accountants the opportunity to play a more important role in their organizations, to help listed companies update information and to get accurate assessments based on their data. That is the development direction of accounting profession in particular and that of listed businesses in general.

- For individuals and organizations wishing to learn and use accounting information at listed companies, they will be no longer to have doubts and worries when making investment decisions based on that information. When Artificial Intelligence intervenes in data analysis, in providing information for listed businesses, there will be no more tricks, accounting tricks of accountants. Everything will be verified with a clear way. The issue of information transparency in listed businesses will be partially solved.

- The public companies, once registered to list on the stock market (stock market), must commit to do information disclosure. The disclosure of information (CBTT) demonstrates the social responsibility of listed companies. It is the basis for implementing the stock market effectively and healthily. However, listed companies always want to beautify the information on the financial statements in order to attract investment, but artificial intelligence does not listen to the directors, they do what their brains deem right. Therefore, it reduces somewhat the efforts of auditors when participating in the analysis of financial statements.

- For market authorities - the State Securities Commission (SSC), the Stock Exchange (SE), information from listed enterprises helps market managers to assess the quality and performance of the market. activities of listing members, from which they can adjust their activities such as allowing listing, delisting or re-listing. That is also the basis for decisions on rewarding or handling violations in a fair and legal way. Furthermore, artificial intelligence will help them control the transparency of listing information more easily.

- Digital technologies such as artificial intelligence (AI) will gradually put an end to financial intermediaries. The accountants in the new era are no longer to focus too much on compliance. Instead of doing that, AI offers them more attention to strengthen relationships and convey information to customers.

- These new AI technologies can make in-depth reporting jobs on the Stock Market and expertized accountants will spend time on higher value tasks such as data analysis, securities, or financial statements to provide effective business solutions for companies.

- Artificial intelligence plays a role in supporting accounting in data entry, which is time-consuming and must comply with accounting principles. Thanks to artificial intelligence, accountants have shortened their input time, so they can now develop new skills to fit in accounting in the cutting-edge technological era.

b) Negative influence

- All qualitative and quantitative information of accounting and auditing is processed and provided information by humans during the practice. Therefore, whether such information is objective, transparent, honest or not? It depends very much on the professional ethics of accountants and auditors as well as on the pressure on the interests of enterprises. And artificial intelligence is only a tool to help the accounting job no longer be as strenuous and pressurized as before, and it does not affect the adjustment of accounting discrepancies.

- Transparency of accounting information in listed companies is extremely necessary for organizations and individuals who want to invest in the enterprise, as well as for inspection agencies. However, it is a trouble for the listed company itself because artificial intelligence is a quite big obstacle when applying Artificial Intelligence in the process of analyzing and providing accounting information. The supernatural brains will only follow certain standards without calculating such tricks as accountants, so the distribution of revenue costs, losses on the financial statements will be clearly transparent at the listed companies. Thus, that makes difficulty for listed companies to constantly update information on the stock exchange.

- In addition, the listed companies who want to apply Artificial Intelligence in the process of analyzing, providing information, they need to have a careful preparation of technology and science skills - technical as well as the qualified employees, otherwise the application will become extremely difficult.

- The role of accountants in the process of analyzing and providing information in listed businesses is extremely important, they must do how to both create benefits for the business and show transparency on Financial statements of the company. When AI comes in, it is possible to do all the things an accountant does. Businesses will consider reducing accounting personnel at the company, so the accounting profession will be at risk of decline, the unemployment rate of the country will increase.

5. SOLUTIONS FOR LISTED COMPANIES IN VIETNAM

Firstly, the transparency of accounting information in listed companies is extremely important on the stock market in Vietnam today, so listed companies should quickly apply Artificial Intelligence to the process of analyzing and providing financial accounting information for its businesses.

Secondly, in order to have a harmony in both information transparency for organizational individuals, as well as the benefits of businesses, listed companies must know how to combine creativity with artificial intelligence, especially know that accountant to balance the two sides.

When all jobs can be handled by technology, professional ethics become more essential than ever, so that they can build and determine the true image of the business. Only accountants who have professional ethics and respect the truth are able to create genuine value for shareholders so that shareholders continue to invest in the business.

Thirdly, accountants cannot always rely on tips in the process of analyzing and processing information on financial statements at listed companies but must increasingly gain experience and skills on digital technology, scientific and technical knowledge to work effectively with Artificial Intelligence. Stop worrying about whether Artificial Intelligence will replace you in the future. FitzGerald's words: "AI is a smart tool but it cannot replace human supervision and evaluation."

In addition, listed companies should not create too many tricks on the financial statements, create transparency and information for interested individuals and organizations. They must comply with accounting standards issued and fit international practices.

Fourth, artificial intelligence in the coming years will contribute to greatly changing the economic market, so listed companies must always update the changes, provide a transparent, enough data of his company in a fastest way. They need to equip yourself with the best technology to be able to compete in the market.

REFERENCES

1. <http://www.khoahockiemtoan.vn/224-1-ndt/mot-so-van-de-ve-cong-tac-ke-toan-tai-chinh-tai-cac-cong-ty-niem-yet-tren-ttck-viet-nam.sav>
2. <https://phatthinhrrating.com/xay-dung-chi-so-minh-bach-va-cong-bo-thong-tin-cho-cac-cong-ty-niem-yet-tren-thi-truong-chung-khoan-viet-nam/>
3. <http://www.tapchicongthuong.vn/bai-viet/tinh-minh-bach-cua-thong-tin-ke-toan-o-viet-nam-thuc-trang-va-giai-phap-47723.htm>
4. <https://hvtc.edu.vn/tabid/1545/catid/834/id/29982/Ke-toan-trong-thoi-dai-cong-nghe-40--Goc-nhin-thuc-te-cua-sinh-vien-chuyen-nganh-ke-toan--Hoc-vien-Tai-chinh/Default.aspx>
5. <https://voer.edu.vn/m/lich-su-phat-trien-cua-ke-toan-tren-the-gioi/09530616>
6. <https://voer.edu.vn/m/ban-chat-va-doi-tuong-cua-ke-toan/7cea51f1>
7. <https://voer.edu.vn/c/ke-toan-kiem-toan-ngan-hang/400a17f4>
8. <http://www.vjol.info/index.php/ssir/article/view/35875>
9. <https://techinsight.com.vn/ai-big-data-blockchain-iot-se-dong-gop-gi-cho-chinh-quyen-dien-tu/>

CORPORATE ACCOUNTING OPERATION IN THE CONTEXT OF INDUSTRIAL REVOLUTION 4.0

Dao Thi Minh Thanh¹, Dang Quynh Trinh²

ABSTRACT

The Fourth Industrial Revolution (4.0) offers a wide range of modern automation technologies, data exchange, and manufacturing along with physical systems in virtual space, the internet of things and the internet of services interacting with each other and with people in the real time"[2]. According to scientists, the Industrial Revolution 4.0 is based on digital technology platform and integrates all smart technologies to optimize processes and operation. Industrial Revolution 4.0 affects almost all areas of the socio-economic life. At the same time, it has a significant impact on the performance of businesses including the accounting operation. The paper focuses on the following contents: (1) What are the characteristics of Industrial Revolution 4.0? (2) Opportunities and challenges of Industrial Revolution 4.0 in corporate accounting operation; (3) Requirements and solutions for businesses.

Key words: Industrial revolution 4.0, accounting operation, opportunities, threats, requirements.

1. CHARACTERISTICS OF THE FORTH INDUSTRIAL REVOLUTION

According to Prof. Klaus Schwab, President of the World Economic Forum, Industrial Revolution 4.0 is a term that includes a range of modern automation technologies, data exchange and manufacturing. Industrial Revolution 4.0 is a combination of technology in the field of physics, digital technology and biology, creating entirely new possibilities and profound impact on the political, economic and social systems of the world. A world powered by robots and computers with artificial intelligence could develop to the point of replacing humans in diagnosing and managing complex systems. Industrial Revolution 4.0 has many other characteristics compared with other revolutions directly related to the operation of corporate accounting. For the purposes of this article, we will focus on the following features:

First, Industrial Revolution 4.0, with the integration of technologies, blurs the boundaries between sectors and countries.

Industrial Revolution 4.0 is the foundation for creating smart factories. In particular, virtual physics space systems will monitor physical processes and create one virtual copy of the physical world. In terms of the development of the internet of things - IoT, these virtual systems interact

¹ Academy of Finance

² Thai Nguyen university of Economics

with each other and interact with humans in real time, serving people through internet networks. So people around the world can network with each other regardless of where they are through smart mobile devices. This allows people in general and businesses in particular to process, store and access knowledge without limit. Besides, automated technologies are increasingly interacting with the biological field. With this interaction, designers and architects have combined computer design and additive manufacturing to create opportunities for application in many different fields.

Second, Industrial Revolution 4.0 has a remarkable development speed, its scope and impact level is wider than all previous industrial revolutions.

The Industrial Revolution 4.0 has transformed the industries of most countries in the world in both width and depth in the entire production and management system. Anyone can participate in this revolution, so it creates an incredible increase in both speed and scale. In the digital age, many “information businesses” were born (with storage, transportation, and other costs almost zero). Breakthrough technology companies often require less capital to develop. In other words, Industrial Revolution 4.0 has great value in improving the efficiency of most activities, especially those that apply information technology.

Third, the Industrial Revolution 4.0 changes the perception of technological and equipment innovation.

Artificial intelligence has made a breakthrough in technological and equipment innovation for business and production activities. At present, the added value of manufacturing industries is mainly based on the “processing” of materials into products with software and control systems. But in the near future, with the internet connecting everything and the breakthrough of information technology, manufacturers do not necessarily need to sell other hardware but only focus on software. Besides not only products but also devices used in production also need software updates without having to replace the hardware.

Forth, the Industrial Revolution 4.0 creates opportunities to help people to use more effectively the existing resources.

It is the breakthrough of information technology and artificial intelligence together with large databases that have helped people effectively exploit the existing resources. The replacement of people with machines along with intelligent sensor systems contributes significantly to the improvement of business efficiency.

Thus, with the aforementioned characteristics of Industrial Revolution 4.0, this revolution will create opportunities and challenges for accounting operation in enterprises.

2. OPPORTUNITIES AND CHALLENGES OF THE INDUSTRIAL REVOLUTION 4.0 IN CORPORATE ACCOUNTING OPERATION

2.1. Overview of corporate accounting operation

Corporate accounting means the organization of applying accounting methods, principles, standards and regimes to acquire, process and provide all information on assets and the mobilization of assets, arising economic activities, in order to inspect and supervise all economic and financial

activities of the enterprises. Organization of accounting work in enterprises includes: Organizing the accounting apparatus, organizing the application of the accounting voucher system, organizing the system of accounts, organizing the accounting book system, organizing the reporting system, and organization of accounting inspection.

The accounting system is a collection of accountants who perform the accounting work at the enterprise together with the means and equipment used to record, calculate, and handle all relevant information relating to inspection, handling, analysis, synthesis and provision of economic and financial information on the activities of the unit. Organizing the accounting apparatus is the construction of a system consisting of people and means and equipment that meet the requirements of accounting work in the enterprise.

Organizations applying the accounting voucher system in the enterprise include: Determining the list of necessary accounting vouchers; organization of making and receiving accounting vouchers; organization of accounting vouchers; organizing the classification, arrangement and recording of accounting vouchers; organizing the rotation of accounting vouchers; organize archiving and preservation of accounting vouchers.

Organization of the account system is the determination of the accounting accounts necessary to reflect on a regular and continuous basis, an existing system and the fluctuations and classification of economic and financial operations according to the economic content of each specific accounting object and the reflection method to suit each enterprise.

Organization of the accounting book system means the selection of specialized books used to track, record, system and store all economic transactions that arise according to economic content and according to the chronological order of time. In an accounting environment where information technology is applied, accounting books exist under files or databases attached to accounting and database processing software.

Accounting reports are a means to transmit and provide accounting information to information users. Accounting reports are prepared on the basis of aggregated accounting data and information. The objects using the information of the accounting report are divided into: internal and external ones. Therefore, the organization of the accounting reporting system consists of two reporting systems: financial statements and management accounting reports.

Conduct accounting checks to ensure that the accounting work of the business is done in accordance with the regulations, is effective and provides information that reflects the actual situation of the company. In order to improve the efficiency of accounting inspection, when organizing accounting work in enterprises, it is necessary to clearly identify the accounting inspection methods used, contents to be examined, methods and time of inspection.

From the basic perceptions of the Industrial Revolution 4.0 and corporate accounting operation, we can analyze the opportunities as well as challenges of the Industrial Revolution 4.0 in corporate accounting operation.

2.2. Opportunities of Corporate Accounting operation

As the internet of all things capable of connecting everything through different technologies and platforms, it creates a good opportunity for businesses to organize simple accounting systems

effectively. It can minimize the space and time gap in every part of accounting from the construction of the accounting voucher system to the accounting inspection. The operation of accounting can both meet the requirements of the State and CEOs with high efficiency. In other words, it is the Industrial Revolution 4.0 helped the organization of accounting to better meet the identified requirements, especially the requirements on the effectiveness of the accounting information system.

First, for organizing the system of accounting vouchers

The use of electronic accounting vouchers is no longer an “advice” but a mandatory requirement for businesses. With the development of information technology, the accounting software used will be more and more useful. It not only creates electronic documents that can flexibly change according to each economic content, but also creates a rotation process, a mechanism of self-checking between related documents, thereby, reducing less difficult for accounting work when accounting documents are often sent to the central accounting department at the end of the month, minimizing the loss of documents during the rotation. This is especially significant for economic groups on a global scale.

With artificial intelligence, the smaller, cheaper, and smarter sensors will be a great support for data entry without the need for human hands. Through the scanner system, the data will be automatically updated into the software and the software will automatically process and classify the requirements of each user. Digitization ensures the security of electronic signatures.

The rotation of documents, especially electronic documents, will be faster and more convenient thanks to the internet of things.

Second, with organizations applying accounts system

Building an account system and opening detailed accounts is no longer costly and complicated thanks to intelligent software. Accountants can open detailed accounting accounts at the request of corporate administrators at much lower costs. With the advent of smarter and more useful devices, accounting accounts will become simpler and more efficient.

Third, for the system of accounting books and accounting reports

With the development of information technology together with artificial intelligence, it has created favorable conditions for building a general accounting system as well as a detailed accounting book to serve the cost management process in particular and business administration in general. The disclosure of economic and financial information of enterprises is also made more conveniently for each subject based on compliance with financial policies as well as the requirement to monitor and supervise business activities through reporting system scientifically and logically.

Fourth, for accounting inspection

Based on the requirements of accounting inspection, along with the development of information technology, digitalization, and artificial intelligence, the company will build highly effective accounting software capable of self-checking against the in-system and reporting errors in the accounting process.

Fifth, for the accounting organization

Together with the development of information technology and artificial intelligence, each enterprise can build its own streamlined and efficient accounting system. The Internet connects the entire system and intelligent software with the modern computer system that allows economic groups to organize an efficient and scientific accounting apparatus, reducing the distance of time and space between parent accounting and subsidiary accounting even though the scope of the activity may be global.

2.3. Challenges of the Industrial Revolution 4.0 in corporate accounting operation

Besides the great opportunities, we also need to recognize the challenges that the 4th Industrial Revolution brings to corporate accounting operation.

First, information security

Application and development of information technology in accounting organization requires administrators to pay special attention to security systems to ensure information security. The more advanced technology is, the more modern it is, the greater the impact, and the more the consequences and the damage caused by the incident.

Second, high demands on the quality of human resources

Building an organizational model of electronic accounting requires enterprises to regularly improve the quality of their human resources. Specifically, in addition to being good at accounting, experts in accounting are sure to understand the economic nature of each arising economic operation, understand the consulting role of accounting in corporate governance tasks. This is why it is possible with the IT team to build highly effective accounting software for businesses.

Third, the physical challenge

Enterprises with human resources meet the requirements of the Industrial Revolution 4.0, but unsuitable facilities cannot take full advantage of the opportunities. Development of transmission infrastructure, telecommunications infrastructure, application of new connection technologies with high quality and safety requires a large capital investment. This is a big challenge for businesses, especially small and medium enterprises.

Forth, management issues

Managing the business activities of the enterprise in general and managing all activities of the accounting department when applying information technology, digital technology and connecting the whole system is also a challenge for corporate executives.

3. REQUIREMENTS AND SOLUTIONS FOR BUSINESSES

In order to take advantage of the opportunities and cope with the challenges of the Industrial Revolution 4.0, the administrator needs to build and develop innovation and capacity suitable for each stage of your development. Specifically

- Need to build a common awareness throughout the enterprise, especially the team of administrators, accountants, IT about the rapid changes brought about by the Industrial Revolution 4.0. It is the initiative and availability of all departments that will be an important decisive factor.

- Attaching importance to improving the quality of accounting and IT personnel in the direction of accountants who are both good at technical knowledge and information technology in order to not only fully exploit the usefulness of accounting software but also also suggest ideas for effective software upgrades. Together with the accountant who is in charge of information technology, these specialists must understand the management requirements of each functional department to make a request to the company providing the related services in order to ensure the information system operate effectively.

- Enterprises must build a capacity-building-training program to suit employees according to each job position. Regularly training and retraining accountants to promptly meet the changing requirements of the Industrial Revolution 4.0. Ensure that all accountants understand, master, exploit and operate effectively scientific and technical advances. Combined with the University in human resource training to recruit high quality human resources and reduce training costs after recruiting.

- Need to have a roadmap for upgrading infrastructure to make the most of the benefits of the Industrial Revolution 4.0 to bring about the organization of accounting work in the unit, especially enterprises that do not have economic potential. The stronger the problem, the more serious it is.

- Finally and also the most important issue is that the head of the enterprise needs to be fully and properly aware of the opportunities and challenges of the Industrial Revolution 4.0 to the operation of the enterprise in general and to organization of accounting work in particular

4. CONCLUSION

The Industrial Revolution 4.0 is gradually going into practice with faster and larger scale and larger scale. Industry 4.0 affects every sector. Research to understand the opportunities as well as challenges of the Industrial Revolution 4.0 to corporate accounting operation is an important job for CEOs in the current context. By understanding the opportunities and challenges brought by this revolution, it will help administrators in general and chief accountants in particular to proactively improve the efficiency of the Accounting Organization. Because accounting is one of the most important tools that helps CEOs improve the performance of their businesses, organizing scientific, modern and rational accounting will, therefore, improve the efficiency of accounting in companies.

REFERENCES

1. Bộ khoa học và công nghệ, Hội thảo quốc tế: “Cuộc cách mạng công nghiệp lần thứ tư và những vấn đề đặt ra đối với phát triển kinh tế - xã hội của Việt Nam” (2016) trang 77.
2. Huỳnh Thành Đạt, “Cuộc cách mạng công nghiệp lần thứ tư và những vấn đề đặt ra đối với chính sách khoa học công nghệ và đào tạo nguồn nhân lực của Việt Nam” – Hội thảo quốc tế: “Cuộc cách mạng công nghiệp lần thứ tư và những vấn đề đặt ra đối với phát triển kinh tế - xã hội của Việt Nam” (2016) tr 05 -14.
3. Lưu Đức Tuyên, Ngô Thu Hồng – Giáo trình tổ chức công tác kế toán trong doanh nghiệp (2011) – NXB Tài Chính.

FACTORS AFFECTING AUDIT FIRM'S CHOICE AMONG ENTERPRISES IN VIETNAM

Vu Thi Phuong Lien, Duong Thi Tham¹

ABSTRACT

The purpose of research is to investigate how enterprises in Vietnam choose their audit firms in the fourth industrial revolution. This research adapts a research framework developed by McPhail and Sands (1994). Using a sample of 83 enterprises in Vietnam, this research discovers that technical competence and client orientation are the two most important criteria when choosing the audit firm. The research disclose that enterprises are more inclined to choose normal audit firms compared to Big Four. Findings are further discussed and recommendations are provided.

Keywords: Auditing, accounting, Big Four, audit firm's choice, Vietnam.

1. INTRODUCTION

All businesses doing business in Vietnam are encouraged to audit their financial reports. Some types of enterprises are required to mandatory audits by the Audit Law. At that time, enterprises need to sign contract with audit firms, which will provide audit services. The audit firm can be current audit firm or reappoint a new one. In 2018, there were 517,900 enterprises operating in Vietnam (Das, 2019). In Vietnam, the listed enterprises and foreign enterprises are required to appoint an independent audit firm to audit their financial reports (DCPA, n.d.).

Audit quality is an important issue to be addressed in audit processes and transparency of audit firms (Roger, 2013). Interesting findings are found in Knechel's research (2013). The author proposed a few auditing dos and don'ts for auditing standards.

Almer et al. (2014) discovered that enterprise management plays important role in selecting audit firms. Enterprise management can provide more information about audit firms' characteristics. Audit quality can be achieved with the collaborative efforts joining together from all audit stakeholders. Glower and Prawitt (2014) mentioned that holding a professional scepticism by auditors is an important issue because it makes sure that audit quality can be achieved.

Audit process must find a way to change in order to keep abreast with the advancement of information technology and system (Danielle et al., 2015). The authors suggested that audit profession should go for paperless environment.

¹ Academy of Finance. 58 Le Van Hien, Bac Tu Liem, Hanoi, email:vuphuonglien@hvtc.edu.vn

This research is conducted with two main objectives. The first objective is to find out the factors that influence Vietnamese enterprises in choosing audit firms. The second objective is to examine whether Vietnamese enterprises prefer to appoint Big Four or other local audit firms.

2. LITERATURE REVIEW/ THEORETICAL FRAMEWORK AND METHODS

This research was carried out in Vietnam with the unit of analysis is enterprise. Three hundred and fifty questionnaires were distributed to each enterprises and requested one member of the accounting department to participate in this research. After 3-month period, the researcher collected back questionnaires and 83 questionnaires are found valid which shows a 23.7% valid response rate. All the participations in this survey were voluntary and anonymous.

The research adapted the questionnaire developed in the research study of McPhail and Sands (1994). The questionnaire has three sections. The first section of the questionnaire consisted of nine independent variables; “reliability and courteous accessibility”, “technical competence”, “geographical proximity”, “level of audit fee”, “service offerings”, “client orientation”, “industry specialization”, “effective preparation and communication of audit submission” as well as “perceived quality of audit service”. As suggested by McPhail and Sands (1994), each item is measured with scale 1 as very important, scale 2 as fairly important, scale 3 as important, scale 4 as slightly important, scale 5 as very unimportant, and scale 6 as no influence or absolutely unimportant. The second section gains information about the respondent’s company. The third section is about respondent’s company CEO. Finally, the last section has items to request about the background of respondent.

3. RESULTS AND DISCUSSION

Table 1 shows the gender of respondents on this research. There are 71 females (85.5%) and 12 males respondents (14.4%) participated in this survey. Most of the respondents are between 31-35 years old (34.9%). Seventy-two respondents (86.7%) are accountants. Most of the respondents have been working for more than 5 years (34 respondents and 41%).

Table 1. Respondents’ gender

Gender	Frequency	Percent
Female	71	85.5
Male	12	14.4
Total	83	100
Age	Frequency	Percent
15 - 25 years old	3	3.6
26 - 30 years old	28	33.7
31 - 35 years old	29	34.9
36 - 40 years old	15	18.1
45 - 50 years old	7	8.4
> 50 years old	1	1.2
Total	83	100
Job Position	Frequency	Percent

Financial Director/Controller	8	9.6
Accountant	72	86.7
Others	3	3.6
Total	83	100
Current Job Position Period	Frequency	Percent
1 - 2 years	16	19.3
3 - 4 years	22	26.5
4 - 5 years	11	13.3
> 5 years	34	41.0
Total	83	100

Table 2 indicates the statistics of CEOs according to participants. Sixty-eight CEOs are male (81.9%) and 15 CEOs are female (18.1%). Most of CEOs are at the age of 31-45 years old (42 or 50.6%). Most of CEOs received high education and possessed graduate or postgraduate degree (72 or 86.7%).

Table 2. CEOs' Profile

Director (CEO) - Gender	Frequency	Percent
Female	15	18.1
Male	68	81.9
Total	83	100
Director (CEO) – Age	Frequency	Percent
Above 60	3	3.6
From 31 – 45	42	50.6
From 46 – 60	34	41.0
Under 30	4	4.8
Total	83	100
Director (CEO) - Highest Education	Frequency	Percent
Graduate/Postgraduate	72	86.7
High school	5	6.0
Junior College	6	7.2
Total	83	100

Table 3 shows the enterprises' statistics. Forty-five enterprises are in the commerce and service sector (45 enterprises or 54.2 percent). Forty-one (49.4%) of joint-stock enterprises participated in research. Fully local private enterprises comprise of 56 or 67.5%.

Table 3. Enterprise's Statistics

Sector of Enterprise	Frequency	Percent
Agriculture, forestry, fisheries, industry, construction	14	16.9
Commerce and Service	45	54.2

Manufacture	19	22.9
Others	5	6.0
Total	83	100
Type of Enterprise	Frequency	Percent
1. Private enterprise	7	8.4
2. Limited liability enterprise	22	26.5
3. One-member limited liability enterprise	12	14.5
4. Joint stock enterprise	41	49.4
5. Partnership enterprise	1	1.2
Total	83	100
Ownership of Enterprise	Frequency	Percent
1. State owned enterprise (no foreign capital)	13	15.7
2. Fully local private enterprise	56	67.5
3. Foreign invested enterprise	13	15.7
4. Others	1	1.2
Total	83	100

Table 4 indicates enterprise's intention on choosing current audit firm. Thirty-eight respondents (45.8%) have no comment on this matter. Twenty-seven respondents (32.5%) felt the need to reappoint current audit firm while eighteen respondents (21.7%) have the opinion to change current audit firm.

Further analysis on the enterprise's preference on auditor's choice indicates that sixty-two enterprises (74.7%) would like to engage normal audit firm while seventeen (20.5%) of enterprises would employ one of the Big Four firms (Deloitte, Ernst & Young, PwC or KPMG).

Table 4. Enterprise's Intention of Audit Firm's Choice

Firm's intention on current auditing services firm	Frequency	Percent
1. Change audit firm	18	21.7
2. Reappoint audit firm	27	32.5
3. No comment	38	45.8
Total	83	100
Type of accounting/auditing services firm preference	Frequency	Percent
1. Normal audit firm(s)	62	74.7
2. One of the Big Four (Deloitte, Ernst & Young, PwC, or KPMG)	17	20.5
3. Currently no need	4	4.8
Total	83	100

Table 5 shows the Cronbach's Alpha values for all independent and dependent variables. Since that Alpha's value for nine variables are above 0.6, all variables are considered reliable.

Table 5. Reliability Test

Variables	Alpha's Value	Items
Reliability and courteous reliability	0.929	4
Technical competence	0.965	4
Geographical proximity	0.922	4
Auditing services fee	0.843	4
Service offering	0.888	4
Client orientation	0.948	4
Industry specialisation	0.885	4
Effectiveness of operation and communication of Auditing submission	0.945	4
Perceived quality of audit services	0.924	4

Table 6 shows the mean and standard deviation for all items in every variable. Most of the items are in the scale of 2 and 3 which indicate that the items are considered between fairly important and important. All the 4 items of “Geographical Proximity” have scale more than 3.5 which indicate this variable is slightly important in audit firm's choice.

Table 6. Means and Standard Deviations for Every Item of Variables

1. Reliability and Courteous Reliability	Mean	Std. Dev.
1. The appropriate auditors of the audit firm can be easily contacted by their clients.	2.46	1.556
2. The auditors of the audit firm deal with all direct inquiries of their clients in a polite and considerate manner.	2.08	1.556
3. The auditors of the audit firm deal with client's telephone inquiries in a polite and considerate manner.	2.18	1.499
4. The auditor of the audit firm act promptly in settling appointments.	2.23	1.525
2. Technical Competence	Mean	Std. Dev.
1. The auditor of the audit firm are adequately trained to perform the necessary audit functions.	2.07	1.621
2. The auditor who were nominated to perform the audit are perceived to be of high calibre/are fully equipped with skills and capacity.	2.07	1.455
3. The audit firm employs auditor who have the knowledge and skills to perform the required functions.	1.96	1.374
4. The audit firm performs the audit correctly and in accordance with professional standards.	2.01	1.469
3. Geographical Proximity	Mean	Std. Dev.
1. The audit firm has offices in areas where our enterprise's business units are located.	3.61	1.614
2. The audit firm's offices are close to our enterprise's geographically dispersed operation.	3.75	1.545
3. The audit firm's offices are close to where our enterprise's offices are located.	3.54	1.648
4. The audit firm operates in the same region(s) as our enterprise.	3.65	1.626

4. Audit Services Fee	Mean	Std. Dev.
1. The audit firm has a lower services fee.	3.11	1.210
2. The audit firm provided the lowest fee.	3.31	1.315
3. The audit firm has a more competitive audit rate.	2.95	1.229
4. The audit firm has a lower hourly charge-out rate.	3.49	1.301
5. Service Offerings	Mean	Std. Dev.
1. The audit firm offers a range of management advisory services.	2.92	1.425
2. The audit firm offers a range of assurance services.	2.88	1.409
3. The audit firm offers a range of business advisory services.	3.08	1.433
4. The audit firm offers related services, such as management consulting and recruitment, actuarial counselling and the like.	3.19	1.485
6. Client Orientation	Mean	Std. Dev.
1. The audit firm focuses on their client's specific problems.	2.34	1.337
2. The audit firm has the ability to deal with their client's problems.	2.20	1.350
3. The audit firm provides prompt attention to their clients' needs.	2.10	1.303
4. The audit firm was proactive in approaching our enterprise with information on accounting issues.	2.24	1.393
7. Industry Specialisation	Mean	Std. Dev.
1. The audit firm is considered to be a specialist in our enterprise's industry.	2.48	1.243
2. The audit firm holds a large market share of audit services in our enterprise's industry.	2.77	1.337
3. The audit firm has a specialization in our enterprise's industry.	2.63	1.285
4. The audit firm's current client list contains listed enterprises.	3.14	1.483
8. Effectiveness and Operation and Communication of Audit Submission	Mean	Std. Dev.
1. The audit firm made an effort to understand the client's specific needs prior to submitting a tender/proposal.	2.25	1.277
2. The audit firm's written tender/submission presentation effectively explained the audit services being offered.	2.25	1.404
3. The auditor of the audit firm with whom I (we) discussed their submission/tender provided that I (we) perceived, to be honest answers to our enquiries.	2.25	1.439
4. The auditor of the audit firm is considered to be flexible with the client's inquiries.	2.25	1.333
9. Perceived Quality of Audit Service	Mean	Std. Dev.
1. The audit firm is perceived as having the ability to provide a higher quality audit service through the high calibre of the auditor.	2.14	1.398
2. The audit firm focuses on its clients' specific needs.	2.24	1.411
3. The audit firm completes the audit properly and fully comply with professional standards.	2.17	1.455

4. The audit firm is ranked at high rank in the service quality inspection that performs by the Ministry of Finance and Association of Auditors (MOF & VACPA) 2.46 1.373

Table 7 disclose the average mean and standard deviation for the nine variables.

Table 7. Means and Standard Deviations for Variables

Variables	Mean	Std. Dev.
1. Reliability and Courteous Reliability	2.24	1.3930
2. Technical Competence	2.03	1.4096
3. Geographical Proximity	3.64	1.4484
4. Level of Audit Services Fee	3.22	1.0424
5. Service Offering	3.02	1.2438
6. Client Orientation	2.22	1.2515
7. Industry Specialisation	2.76	1.1549
8. Effectiveness of Operation and Communication of Audit Submission	2.25	1.2636
9. Perceived Quality of Audit Service	2.25	1.2727

4. CONCLUSIONS AND POLICY IMPLICATIONS

As shown in Table 7, the most important criteria for choosing audit firm is the “technical competence” of auditor itself (Mean = 2.03), followed by “client orientation” (Mean = 2.22) and then “reliability and courteous reliability” (Mean = 2.24). “Effectiveness of Operation and Communication of Audit Submission” and “Perceived Quality of Audit Service” are with the values of Mean = 2.25 as well as Mean = 2.25 respectively. “Industry specialization” has Mean = 2.76. “Service offering” has Mean = 3.02 and “level of audit services fee” has Mean = 3.22. The Mean value for “Geographical proximity” is 3.64.

To answer first objective, the findings of this research agreed with McPhail and Sands (1994) who found that technical competence and client orientation are the two highest criteria when enterprises choose audit firms. Thus, although the research is carried out in a different environment, country and culture, the findings is consistent.

Findings of this research further proved that all nine variables suggested by McPhail and Sands (1994) are deemed important during audit firm’s selection. These findings are consistent with previous researchers who found that all the nine variables are important in selecting audit firms.

This research further prove that all the nine variables are reliable and valid in determining audit firm’s selection. Future researchers can consider to use these nine variables to study in different environment, country and culture to further investigate audit firm’s choice. Moreover, researchers can use these variables to test in other selection of professions like lawyer and panel doctor.

To answer second objective, this research disclose that most of Vietnam enterprises prefer to choose normal audit firms compared to Big Four firms. This finding may be due to the higher professional audit fees charged by Big Four firms.

Thus, audit firms need to focus resources to strengthen the factors including technical competence, client orientation, reliability and courteous reliability, effectiveness of operation and communication of audit submission, perceived quality of audit service, industry specialization, service offering, and geographical proximity. These are important factors that enterprises choosing audit firms. On that basis, the audit firms will also set the appropriate audit fees to increase competitiveness in the audit service market.\

REFERENCES

1. Almer, E. K., Philbrick, D. R., and Rupley, K. H. (2014), *What Drives Auditor Selection? Current Issues in Auditing* Vol. 8, No. 1, pp. A26-A42.
2. Danielle R. Lombardi, Rebecca Bloch, and Miklos A. Vasarhelyi (2015), *The Current State and Future of the Audit Profession. Current Issues in Auditing* 9(1): 10-16. <https://doi.org/10.2308/ciia-50988>
3. Das, K. (2018), *Vietnam Releases the 2017 Economic Census. Vietnam Briefing. Available at* <https://www.vietnam-briefing.com/news/vietnam-releases-2017-economic-census.html/>
4. DCPA, *Available at* <https://www.vietnam-briefing.com/news/vietnam-releases-2017-economic-census.html/>
5. Glower, S. M. and Prawitt, D. F. (2014), *Enhancing Auditor Professional Scepticism: The Professional Scepticism Continuum. Current Issues in Auditing* 8(2): 1-10.
6. Knechel, W. R. (2013), *Do Auditing Standards Matter? Current Issues in Auditing* 7(2): 1-16.
7. McPhial, J. and Sands, J. (1994), *An Exploratory Study into the Choice Criteria for Selecting an External Auditor by Listed Australian Public Companies. Asia Pacific Advances in Consumer Research*, 1: 127-134.
8. Roger D. Martin (2013), *Audit Quality Indicators: Audit Practice Meets Audit Research Current Issues in Auditing* 7(2): 17-23. Available at <https://doi.org/10.2308/ciia-50581>.

STRENGTHEN THE AUDIT OF EXTRA-BUDGETARY FUNDS AIMING FOR THE SUSTAINABILITY OF VIETNAM'S PUBLIC FINANCE

Nguyen Huu Hieu¹

ABSTRACT

Extra-budgetary funds together with state budget fund form a system of public financial funds. The operational efficiency of extra-budgetary funds directly impacts on the sustainability of public finance. Over the past years, in company with the state budget audit, the State Audit Office of Vietnam (SAV) has paid more and more attention on and spent more and more appropriate resources on implementations of the audit of extra-budgetary funds, thereby proposing many recommendations on the matters relating to finance, managerial and operating mechanism of the extra-budgetary funds, contributing to transparency and healthy operation of the extra-budgetary funds. In the future, some audit activities in the audit of extra-budgetary funds needs to be innovated and enhanced to increasingly improve the operational efficiency of the extra-budgetary funds. The concerned audit activities are: assessment of the adequacy and timeliness of the financial resources forming the funds; assessment of the achievement of the operational objectives of the funds; assessment of the operational efficiency of the funds; and assessment of the balance of the funds.

Key words: Extra-budgetary fund, public finance, state budget, state audit.

1. THE OPERATIONAL STATUS OF EXTRA-BUDGETARY FUNDS IN VIETNAM

The extra-budgetary funds are officially defined in the Law on State budget No. 83/2015/QH13. Accordingly, an extra-budgetary fund is defined as “a fund established by a competent authority and operating independently of the state budget; its revenue and obligatory expenditure are to fulfil certain tasks prescribed by law” [2]. This definition, to a certain extent, has contributed to the consistency in the understanding and the operation of the extra-budgetary funds in relation to the state budget.

In Vietnam, many extra-budgetary funds which were established a long time ago (e.g. Supporting Fund for Farmers which was established in 1995) and have been established recently (e.g. Vietnam Tourism Development Fund which was established in 2018) form an extra-budgetary funds system. The Government's report shows that there are currently about 28 centrally-managed funds and over 40 locally-managed funds. The activities of the funds are diverse and cover socio-economic fields: social security, reserves, hunger eradication and poverty reduction, environmental protection, development of small and medium-sized enterprises, price stabilization, supports for the development of infrastructure, science and technology, jobs creation, etc. The extra-budgetary

¹ Audit Training Institute, State Audit Office of Vietnam, email: nguyenhuuhieuktnn@gmail.com

funds together with the state budget fund formulate a system of public financial funds, the financial sector holds a leading position in the national financial system. The practical operations of the extra-budgetary funds in Vietnam indicates a close relationship with the state budget. The financial sources forming many extra-budgetary funds are mainly sourced from the state budget, such as: National Reserve Fund, Financial Reserve Fund, Road Maintenance Fund, National Foundation for Science and Technology Development, National Technology Innovation Fund, etc., or partially sourced from the state budget such as: Vietnam Environment Protection Fund, Cooperative Assistance Fund, Small and Medium Enterprise Development Fund, National Employment Fund, etc. However, there are also many extra-budgetary funds which are completely independent of the state budget, typically, Social Security Fund, Health Insurance Fund.

The establishment of extra-budgetary funds is inevitable and used by the State as a financial tool to supplement and support the state budget to solve economic and social tasks. Each extra-budgetary fund pursues a certain relatively long-term goal. That goal may be an economic one or a social one, but it has the same feature which is that it belongs to the function of the State. The rationale for the establishment of the extra-budgetary funds is the function of the State which governs the nature and the relationship between the extra-budgetary funds and the state budget as well as with other financial funds. The formation of extra-budgetary funds is unavoidable in the current context of Vietnam and in fact, the operation of the funds has achieved many positive results. The details are as below:

- The extra-budgetary funds help the State mobilize additional financial resources for realization of the socio-economic development goals. Although the state budget fund has a wide range of impacts, due to the limited scale of state budget revenue and expenditure in the context that the demand of the socio-economy is very large, in each period and under specific conditions, to better perform its functions, the State needs to mobilize additional financial resources from the society. The establishment of the extra-budgetary funds over the past time has enabled the Government to achieve this goal. For example, the Social Security Fund, which operates for social security purpose and is funded by the contributions of employees and employers. In 2018, 14.7 million people participated in social insurance with the total contribution amounts being VND221,717 billion.

- The extra-budgetary funds assist the State to overcome the market mechanism's defects. During the building and development of the socialist-oriented market economy, many mechanisms and policies of the State need to be adjusted and supplemented to keep pace with the new conditions of the economy. The extra-budgetary funds are created to facilitate this development such as Petrol Price Stabilization Fund, Employment Fund, Hunger Elimination and Poverty Reduction Fund, etc., thereby contributing to the reduction of the burden of the state budget in the realization of the national socio-economic programs and objectives.

- In terms of fund creation, the extra-budgetary fund is a method of mobilizing additional financial resources for the State, but in terms of fund using, the extra-budgetary fund overcomes the "inflexibility" of the state budget, supports the expenditures for economic and social development under the function of the State. A typical example is the operation of the National Reserve Fund. The fund is formed primarily from the state budget, but it is used to purchase reserve goods and used in unexpected, urgent situations such as natural disasters, catastrophes, fires, epidemics, defence and security tasks; safety and order of society which need to be addressed immediately.

However, in practice, the management of the extra-budgetary funds in Vietnam recently have also revealed some limitations and created some risks as follows:

- The formation of excessive extra-budgetary funds may disperse financial resources and reduce the effectiveness of public finance. Currently, each province has about 10-15 funds on average. Many of them have operated ineffectively and have not been regularly monitored and inspected, resulting in low operational efficiency and potential risks of loss and waste of public resources.

- Many funds have large surplus and have been deposited at commercial banks or invested for development of the funds in accordance with the regulations. As a consequence, the efficiency of using public financial resources is not high in the context that the state budget overspending amount is always high.

- The inspection and monitoring of the operating of many funds, especially local funds, have not been given adequate attention. There are many potential risks that can directly affect the effectiveness and efficiency of the management and the use of funds.

- The analysis of public finance and public finance planning is sometimes inaccurate due to inadequate, inaccurate and untimely information about the operations of the extra-budgetary funds. The main reason is that the extra-budgetary funds are separate from the state budget management process. The accountability for sources of formation and use of extra-budgetary funds is low and sometimes it is unable to determine clearly who is accountable for that.

2. THE AUDIT OF THE EXTRA-BUDGETARY FUNDS BY THE SAV OVER THE PAST TIME

Recognizing the economic, financial and political importance of the establishment and operation of the extra-budgetary funds in the public financial system and at the request of the Party, the State and social public opinion, the SAV has focused on and strengthened the audit of extra-budgetary funds. Some outstanding results are as follows:

Firstly, the number of extra-budgetary funds which are audited is increasing.

Many extra-budgetary funds with large scale and/or important for society are regularly audited by the SAV such as Social Security Fund, Health Insurance Fund, National Reserve Fund, Financial Reserve Fund (at both central and provincial level), etc. Besides, the SAV has also conducted many thematic audits related to the operation of the extra-budgetary funds for further evaluation on the operation of these funds, such as the implementation of unemployment insurance regulations of the provincial social insurance authorities, the operational efficiency of the development investment funds, the creation and use of road maintenance funds, etc. The audits of many small-sized funds (e.g. Debt Accumulation Fund, Land Development Fund, Petrol Price Stabilization Fund, National Employment Fund, Flood and Storm Prevention Fund, Crime Prevention Fund, etc.) are not conducted separately, but integrated into the audits of state budget finalization reports at ministries, central and local agencies. The increase in the number of audited extra-budgetary funds is an evidence for the importance of the extra-budgetary funds and the significance of the audits of these funds to meet the State's management requirements and people's expectations.

Secondly, the results of the audits of extra-budgetary funds are more and more positive results in both financial and managerial aspects.

The recommendations on financial treatments at the audits of the extra-budgetary funds are not significant compared with state budget audits, but the size and nature of the financial recommendations at the audits of the extra-budgetary funds are more and more considerable and getting the attention of the public. For example, through an audit of the management and use of the Health Insurance Fund in 2017 in provinces and cities under the central government, the SAV proposed to increase the state budget revenue by VND21,487 million, other financial recommendations of VND168,178 million [4]. At the audit for the implementation of unemployment insurance regulations at the social insurance authorities in provinces and cities, the SAV made other financial recommendations of VND 12,829 million [4].

In addition to the financial recommendations to rectify the financial and accounting works, the SAV also proposed many useful recommendations to the competent agencies to amend, supplement and complete the legal framework governing the operation of the extra-budgetary funds; and pointed out the gaps in management and administration that might cause potential risks of waste of public resources. Through the audit of the management and use of the Health Insurance Fund in 2017 in provinces and cities under the central government, the SAV pointed out the shortcomings in the procurement of drugs without extensive nationwide bidding [4]. Moreover, “the health sector has not updated the countrywide successful bid price of materials and chemicals to create a database for the formulation and approval of bidding plans” [4]. The SAV also pointed out inadequacies in the implementation of unemployment insurance regulations at the social insurance authorities of provinces and cities, which lead to a huge surplus of unemployment insurance fund which was VND67,325 billion as of 31 December 2017, after 9 years of implementation of the unemployment insurance policies in accordance with the Law on Social Security, wasting resources due to high fund reserve. The results of the audits for the local Development Investment Fund show that many localities used the fund inefficiently, used the fund to lend to the wrong subjects [3]. The above audit findings are very important, forming audit recommendations to improve the borrower identification, appraisal of loan documents, ensuring the compliance with the fund’s operating principle as well as the effectiveness and safety of the funds.

Thirdly, the quality of the audit information about the extra-budgetary funds is increasingly improved and valuable for audit information users.

The concerns of the Party, the State and the public on the operational efficiency of the extra-budgetary funds are increasingly high and specific, creating favourable conditions for the SAV to perform the extra-budgetary funds audits, but also creating pressure on the SAV in determining audit activities and meeting audit objectives. As an independent inspection agency who conducts external inspection, the SAV has timely met the information needs of the National Assembly, the People’s Councils at all levels, elected representatives and relevant state agencies about the operation of the extra-budgetary funds. The National Assembly, the People’s Councils at all levels, and the elected representatives have used much information provided by the SAV to challenge the Government and the People’s Committees at all levels on their accountability, thereby improving the operational efficiency and effectiveness of the extra-budgetary funds.

3. SOME RECOMMENDATIONS TO INNOVATE AND STRENGTHEN THE EXTRA-BUDGETARY FUNDS AUDITING AIMING FOR THE SUSTAINABILITY OF VIETNAM'S PUBLIC FINANCE

In terms of monetary fund criteria, public finance can be classified into state budget and extra-budgetary funds. Although each individual extra-budgetary fund has a small financial scale, their overall financial resources are large, directly affecting the effectiveness and efficiency in the management and utilization of public finance. Vietnam needs to strengthen measures of inspection and supervision of the extra-budgetary fund operations. The SAV is an agency established by the National Assembly, which performs audits on the management and use of public finances and public assets, making important contributions to the healthy public financial system. Some recommendations to continue innovating and strengthening extra-budgetary funds audit activities in the future are as follows:

Firstly, assessing the adequacy and timeliness of the financial sources forming the extra-budgetary funds.

The financial sources of each extra-budgetary fund have their own specific characteristic. The sources may come from the state budget, the contributions of the subjects as regulated, ODA or debt, etc. The timely and sufficiently mobilization of the financial resources is one of the bases for the determination on whether the extra-budgetary funds achieve operational goals or not. The reality shows that many funds failed to adequately mobilize financial resources, was dependent on certain resource(s), especially the state budget; their operational scale is small, not large enough to achieve practical effectiveness due to lack of capital. The state auditors need to analyse sources of formation of the extra-budgetary funds to assess the fund's sustainability, and to conduct in-depth analysis of funds whose actual resources are based solely on the state budget or whose mobilization manner is similar to state budget revenues. Except for the extra-budgetary funds which have nature of reserves (e.g. financial reserve funds, national reserves, etc.) and are establishment for use when special circumstances occur to support and ensure the sustainability of the state budget, primarily formed from the state budget, other extra-budgetary funds need to have diverse resources and avoid dependence on the state budget. The state auditors should formulate proposals to the authorized state agencies to dissolve or merge funds whose resources rely solely on the state budget. There is a risk that the existence and operation of these funds may overlap with the tasks of the state budget and burden the state budget. The tasks of these funds should be transformed into the tasks of state budget expenditure and managed according to the regulations of the Law on State budget.

Secondly, assessing the achievement of the operational objectives of the extra-budgetary funds.

Each extra-budgetary fund is established aiming for specific objective(s). Operational objective is the basis for the establishment of the extra-budgetary funds. When the extra-budgetary funds fail to their operational objectives, the public resources are meant to be used inefficiently and there is no basis for those funds to exist. The state auditors need to identify the objectives specified in the legal documents governing the fund's establishment or the fund's operation charter; compare the identified goals with the financial activities associated with each specific objective. The state auditors evaluate whether the fund's overall operational objectives are still in line with reality

of the country or not? If the objectives are no longer relevant, there is no basis for the fund to exist. The next step is that the state auditors analyse in-depth the causes of failure to completion of the specific objective(s). It is especially important to assess whether the fund can achieve the entire objective. If the fund is unable to meet its operational objectives, the state auditors propose to dissolve or merge the fund as the maintenance of the fund's operations will further reduce the efficiency of using public finance. If the fund can only achieve some of the set objective(s), it is necessary to propose restructuring and innovating the operation of the fund to achieve the defined objectives; or proposing abolishing certain objective(s) that the fund cannot achieve and transforming these goals to the task of the state budget or the other extra-budgetary funds.

Thirdly, assessing the operational effectiveness of the extra-budgetary funds.

The efficiency means maximizing output from given inputs or minimizing waste of resources to produce the same output. The operation of the extra-budgetary funds must always be considered the balance between limited financial resources and the defined objectives. The fund management must heighten the efficiency in using public resources. The recent practice has shown that due to many subjective and objective reasons, many extra-budgetary funds operate inefficiently. Some funds use resources for wrong subjects and wrong objectives; some funds use unutilized reserve resources in contravention of regulations, causing loss and waste; some funds spend large expenditures for management of the apparatus, affecting the fund balance; etc. The above manifestations need to be analysed, evaluated and clarified by the auditors to form recommendations to the authorities and fund's management entity for rectification in time.

Fourthly, assessing the balance of the extra-budgetary funds.

The balance of the fund means that the fund is preserved, developed and the fund surplus is kept at not high amount. The balance of the fund contributes to the stabilization of the fund's resources and ensures the fulfilment of the fund's objectives. The state auditors need to assess the size of the fund over the time to draw comments on the fund's development trend. For funds tending to reduce, its specific causes should be assessed to give advice to the fund management entities and competent authorities to ensure that the financial scale is suitable for the tasks of the fund. An important issue to consider is the handling the fund surplus. The state auditors need to assess whether the fund's balance is excessive, whether it is handled in a manner that complies with regulations and ensures fund's safety and development.

4. CONCLUSION

Together with the state budget, the extra-budgetary funds form a system of public financial funds. The operation of the extra-budgetary funds directly affects the safety and sustainability of the public finance. The SAV should further strengthen the audits of extra-budgetary funds towards incorporating in financial audits of ministries, central agencies and localities or conducting separate audits. The audit activities that the SAV should focus on for the improvements of the operational efficiency of the extra-budgetary funds: i) assessing the adequacy and timeliness of the financial sources forming the extra-budgetary funds; ii) assessing the achievement of the operational objectives of the extra-budgetary funds; iii) assessing the operational efficiency of the extra-budgetary funds; iv) assessing the balance of the extra-budgetary funds.

REFERENCES:

1. National Assembly (2015), Law No. 81/2015/QH13 on State Audit
2. National Assembly (2015), Law No. 83/2015/QH13 on State Budget
3. State Audit Office of Vietnam (2018), 2017 Summary report on audit findings
4. State Audit Office of Vietnam (2019), 2018 Summary report on audit findings

ASSET ACCOUNTING IN THE CONSTRUCTION ENTERPRISES IN THE TREND OF THE INDUSTRIAL REVOLUTION 4.0

Do Thi Thu Hang¹, Tran Tuan Anh²

ABSTRACT

Fixed assets in construction enterprise play an important role and directly affect the labour productivity and the quality of construction products. Especially in the industrial revolution 4.0, fixed assets in the construction are constantly innovating and modernizing. Therefore, fixed assets management has been increasingly enhanced.

In this article, the author group refers to a fixed assets management tool that uses fixed assets management accounting, at the same time, the author group carries out the building of content of asset management accounting with the aim that it will provide useful information for managers to use and manage fixed assets effectively in the trend of the industrial revolution 4.0.

Keywords: *fixed assets accounting; fixed assets management accounting; construction enterprises, industry 4.0.*

1. INTRODUCTION

Industry 4.0 is the current trend in automation and data exchange in manufacturing technology. It includes cyber-physical systems, the internet of things, cloud computing and cognitive computing. The industrial revolution has affected many areas including the construction sector. In this revolution, if enterprises, in general, and construction firms, in particular, do not catch up with the pace of development of the world and the region, these enterprises will face the challenges of being lagged behind, declining of production and business. Hence, it is necessary to force every enterprise, in general, and the construction firm, in particular, to build a long-term development strategy and use effective management tools to step by step firmly enter into this industrial revolution.

Along with the development of social production and the rapid advancement of science and technology, remarkably in the revolution 4.0, fixed assets, which are in the national economy and enterprises in general, in construction firm in particular, are constantly innovated, modernized and increased rapidly, contributing significantly to the management of improving labour productivity and quality of construction products. However, to ensure the appropriateness between the investment cost and the revenue from the acquisition, the replacement of fixed assets requires enterprises to have a

¹ Thainguyn University of Economics and Business Administration, Thai Nguyen, Viet Nam

² Thainguyn University of Economics and Business Administration, Thai Nguyen, Viet Nam

reasonable plans of asset procurement and the use of effective management tool which help managers to control fixed assets, improve labour productivity, enhance the quality of constructions and increase the competitiveness of construction firms in today's competitive global environment, in line with the industrial revolution 4.0, it is the use of fixed assets management accounting in fixed asset management.

Management accounting is considered one of the most effective management tools under the conditions of a competitive market economy because of the flexibility, usefulness and timeliness of accounting information serving internal management purposes.

On the other hand, management accounting in Vietnam has only been acknowledged in recent years. The Ministry of Finance has issued guidelines to help enterprises apply management accounting in units but there is no specific guideline for each sector. Therefore, in order for the construction enterprise to apply management accounting in general and fixed assets management accounting in particular, it is still a bit confused at present.

Therefore, the development of fixed asset management accounting in construction enterprises in line with the industrial revolution 4.0 is very necessary and meaningful in both theoretical and practical terms.

2. CONTENTS OF FIXED ASSETS MANAGEMENT ACCOUNTING IN CONSTRUCTION ENTERPRISES

The construction industry is a specialized material manufacturing industry, so its products also have particular characteristics varying to other material manufacturing industries in the economy. Construction products are fixed, therefore fixed assets will be transferred to construction products, so fixed assets are often outdoors, and fixed assets are easy to be lost or damaged, which reduces the value of fixed assets' utilization.

Therefore, the management of fixed assets by fixed assets management accounting tool in the industrial revolution 4.0 is extremely essential. Fixed assets management accounting in construction enterprises includes the following contents:

Classification of fixed assets

Classification of fixed assets will help enterprises see the specific characteristics of fixed assets from which managers can have plan to use, invest fixed assets to gain high efficiency. At the same time, the classification of fixed assets is the basis for managers to decentralize the management level of fixed assets, enhance the responsibility of users of them.

Issuing an internal regulation on the use of fixed assets

In order to enhance the user's responsibility for fixed assets, companies need to monitor the fixed assets for each department, each of which will attach the manager's responsibility to each department. At the same time, it is essential to issue the internal regulations on the use of fixed assets. By doing so, the manager will have a higher responsibility for managing the fixed assets of the company.

Fixed asset encoding for each type, each property group

Encoding for each type of fixed asset will create the unity among departments, sections in the enterprise to help enterprises easily monitor, check and compare fixed assets, increase binding on fixed asset users.

Encoding fixed assets varies depending on each enterprise. The encoding of fixed assets for each type of fixed asset is united during the time of using the fixed asset.

Estimate purchasing, renting fixed assets

The renewal of technology and machinery equipment in the context of the industrial revolution 4.0 for construction firms are very urgent to help enterprises improve construction quality, improve labour productivity, reduce costs and increase competition in the market. Therefore, the enterprise's innovation, investment in fixed assets is inevitable.

Fixed assets often have great value, so that the purchase of fixed assets has a significant impact on the cash flow of the construction enterprises. Therefore, it is necessary to make estimates of the purchase of fixed assets to help enterprises to be proactive in capital, at the same time it is necessary to plan to buy fixed assets in a reasonable way.

The bases for planning fixed asset procurement are: the demand of the construction market, the number of construction contracts achieved by the enterprise in the planning period, the long-term forecast of the construction investment projects in the coming time, the requirements for enhancing prestige for bidding and the status of existing fixed assets of the enterprises.

In order to invest in machinery and equipment, business managers need to calculate the economic efficiency between purchasing their fixed assets or renting fixed assets to make a rational decision. If they equip fixed assets too much but there is no any construction contract, the enterprises will suffer loss due to stagnant capital. However, if the enterprises do not have enough equipment, they will not ensure the construction progress of the contract, so they are not able to compete in bidding.

Collecting information about fixed assets

Records, accounts, books and reports: In order to reflect fixed assets according to the needs of business managers, besides the compulsory documents system prescribed by the Ministry of Finance, enterprises should make additional records relating to the fixed assets as required by the managers as follows:

Documents to use: Companies need to establish additional documents such as documents related to the purpose of using fixed assets, documents related to places of using fixed assets, documents related to the users of fixed assets, for example, the records of the inventory of fixed assets at the place of use, the minutes of inventory of fixed assets according to the purpose of use, etc.

Accounting accounts: The fixed assets accounts must be detailed into account level 2, 3, 4 etc. detailed by each type of fixed asset, according to each type of user.

Fixed assets books and reports: The company should prepare books and reports on the situation of using of fixed assets according to each division, reports on the increase or the decrease of fixed assets by each source of capital, reports on fixed assets by each fixed asset group.

Making reports on fixed assets by each department will help enterprises to attach responsibility for preservation and use of assets to each department, thereby helping businesses improve accountability and efficiency in the use of fixed assets.

At places where using fixed assets such as department, section, construction teams, etc. it is necessary to use "fixed assets book using by each unit" to monitor the situation of the increase or the decrease of fixed assets managed by each unit. Each using unit will have to have a separate

book in which writing down its fixed assets' increase or decrease according to each record of the increase or the decrease, in chronological order of those operations.

Making long-term decision

Decision-making is not only the basic function of manager, but also their most complicated and difficult task. In the process of running a business, the manager must always face decision-making in a variety of forms.

The enterprise analyzes information for decision making in the procurement of fixed assets, determining the purchase or renting fixed assets, determining the way whether to purchase or rent fixed assets.

3. CONCLUSION

Fixed assets management accounting is considered being one of the most effective tools for managers in construction enterprise to improve the quality of fixed assets' utilization, improve projects quality, lower product cost. At the same time, fixed assets management accounting provides useful information to help managers in planning and decision-making related to fixed assets in the most effective way, especially in the trend of industrial revolution 4.0.

REFERENCE LIST

1. Pham Van Duoc - Dang Kim Cuong (1995), *Management Accounting and Business Analysis*, Statistical Publishing House, Hanoi.
2. Nguyen Phu Giang (2005), *Management Accounting and Business Analysis*, Financial Publishing House, Hanoi.
3. Nguyen Dang Hac (2011), *Cost accounting in construction*, Construction Publishing House
4. Nguyen Thi Phuong Hoa (2011), *Management controlling curriculum*, Publisher of National Economics University, Hanoi.
5. Dang Thi Hoa (2006), *Management accounting curriculum*, Statistical Publishing House, Hanoi.
6. Le Cong Hoan (2010), *Construction management*, National Economics University Publishing House.
7. Dương Nhạc, Dương Thị Thu Hiền (2008), *Theory and practice of business management accounting*, Financial Publishing House, Hanoi.
8. Vo Van Nhi (2009), *Guide to making, reading and analysis*, Finance Publishing House.
9. Hertati, L., & Zarkasyi, H. W. (2015) "Effect of competence user information system, the quality of accounting systems management and implication insatisfaction user information system (State owner in Sumatera Selatan)". *European Journal of accounting, Auditing and finance Research*, Vol.3, No.2, pp.35-60.
10. Kennedy, T. and J. Affleck-Graves (2001), "The Impact of Activity-Based Costing Techniques on Firm Performance", *Journal of Management Accounting Research*, 18, pp. 19-45.
11. Ladewi, Yuhani (2014), "Influence of chance management and management commitment on implementation of ERP system & its impact on quality of accounting information - a survey of bum companies in Bandung", *International journal of Economics, Commerce and Management United Kingdom*, Vol.II (Issue 9).
12. Nasieku Tabitha¹, Oluyinka Isaiah Ogungbade^{2*} (2016), "Cost Accounting Techniques Adopted by Manufacturing and Service Industry within the Last Decade", *International Journal of Advances in Management and Economics*, Jan - Feb, pp 48-61.

DETERMINANTS OF HEALTH CARE DEMAND IN VIETNAM

Nguyen Thi Tuyet¹

ABSTRACT

Health care demand is considered to be a process from the decision to use medical services to the decision on how much to spend on health care. The study used a two-step Heckman selection model for data collecting from Vietnam household living standard survey data (VHLSS) 2016 to estimate the factors affecting health care demand. Research results showed that there is a sample selection bias and factors such as health insurance, social status of individuals and household economics, etc., affecting health care demand. The study has also given a number of policy recommendations.

Keywords: *Health care demand, health insurance, Heckman selection model.*

1. INTRODUCTION

In Vietnam, in recent years, with many reforms on health policies, the ability of access to health services has been significant increased, and people are getting better and better health care. However, health expenditure is still rising, creating a financial burden for many families, pushing many families into poverty.

There have been many studies on the factors affecting decisions to use health services and health spending in the world and in Vietnam. Most of them separately study the factors that influence decisions to use health services or health spending. Very few studies evaluate the whole process from making medical decisions to paying for medical services. Unlike previous studies, in this study, the author will consider evaluating the factors affecting health demand through a process from making medical treatment decisions to deciding on how much to spend for health care and use the Heckman selection model to consider the relationship between the decision on using health services and health spending. Therefore, this paper aims to assess the factors affecting health demand including two steps: evaluating factors that affect the use of health services and factors that affect health spending. The paper is organized into 5 sections. Part 2 is a literature review, part 3 is a research method, part 4 presents analytical results and discussion. The last part is the conclusion.

2. LITERATURE REVIEWS

There have been many previous studies that have investigated the factors that affect the use of health services and health spending. Ahmed et al. (2005) investigated Bangladesh's elderly health-care-seeking behavior, showed that education and poverty are the two most important factors affecting healthcare seeking behavior.

¹ Thang Long University, Nghiem Xuan Yem Road, Dai Kim, Hoang Mai, Hanoi, Vietnam

Awiti (2014) used household level data from Nigeria to examine the share of spending on education and health care services in rural and urban households. The results showed that the household's income, household size, and education positively impact on decisions on spend on health care and how much to spend on education and health services care. The study also found that female headed households tend to spend more on family members' education and health care services compared to male headed households.

Onwujekwe et al. (2010) studied individual health spending and strategies to cope with high health spending in three states of Nigeria indicating that those with better socioeconomic status were higher health spending.

David (1993) found that sex is the most important factor affecting health spending in Liberia. In a study of factors affecting the demand for health services in urban areas, Mocan et al. (2004) found that demand for health services is affected by income, health status and employment status. Studies by UNDP (2011), Jones and Rice (2004) have identified a number of groups of factors that influence the decision to use health services including: demographic characteristics, health care conditions, household economic status.

There are some previous studies using a two-stage model to account for bias due to health insurance - seeking and health care - seeking behavior. Jowett et al. (2003) used a two-step Heckman selection model to address the endogenous bias of health insurance. The first step is to use the Probit model for probability of participation in health insurance, the inverse Mills ratio estimated from this step will be used to estimate the function of the factors affecting health expenditure by OLS model. When estimating OLS in step 2, the author only takes into account non-zero health expenditure values, thus ignoring the selection bias of health care-seeking. Waters (1999) studying the impact of health insurance in Ecuador also examined the presence of selection bias into health care-seeking through two separate steps, first using the Probit model to predict the probability of using health services and then put these values into the OLS model to estimate health spending. The results also show the presence of selection bias of health care-seeking.

In Vietnam, there are also many studies on decisions about using health services and health spending. Nguyen Huu Dung et al. (2016) studied to determine the factors affecting household health expenditure for children using VHLSS 2010 and 2012 data. The author used the Tobit model. The study showed that there are 13 variables belonging to 4 impact groups that have a statistically significant impact on the health expenditure of children in Vietnamese households, including household economic characteristics, health care, external support and household demographic variables. In which, income has the strongest impact on health expenditure. The study also made recommendations to increase household interest in investing in children's health spending to help children get better health.

Nguyen Thi Thuy Trinh et al (2018) investigated factors influencing health spending decisions and the amount of money spent for health by farmers in Tra Vinh province, using data collected from 200 farmer households in Tra Vinh province. Using the Probit model, the authors have identified factors that influence household health spending decisions, including factors such as ethnicity, age of household head, education level. The distance from the household's residence

to the nearest health facility and the household's economic status. The results also show factors affecting household health expenditure including occupation of the household head, household's income per capita, pension policy and economic status of the household. However, the analysis of factors affecting the decision on using health services and the amount spent on health are separate.

Unlike previous studies, this study considers that health care demand is a process including two steps: the first step is whether the individual seeks medical services (go to see a doctor or not), the second step is if they decide to use medical services (see a doctor), how much they have to spend on that treatment. The study will use Heckman selection model to estimate health care demand to eliminate selection bias due to health care-seeking.

3. RESEARCH METHOD

3.1. Research models

In this study, medical expenditure of individuals includes the costs of attending inpatient and outpatient visits at health facilities including hospital fees and other expenses (training of physicians, money services on demand, refills, supplies, transportation, etc.) related to those visits.

A selection bias in health care-seeking is a form of sampling bias that occurs when health expenditures are only observed for a portion of the sample who select to use health service. Therefore, health spending is also affected by an individual's selection to use medical services, so when assessing the factors affecting health spending, the bias due to this selection should be addressed.

Model 1 is the OLS regression presented by equation (1), the dependent variable is a log of health expenditure for both individuals seeking to medical services and individuals not seeking medical services, and it equals 0 if they do not seek medical care.

$$Y_i = \beta_0 + \beta_1 X_i + \varepsilon_i \quad (1)$$

In which, Y is the Log of health expenditure of all individuals in the sample, X_i is the vector of independent variable.

In fact, the variable of health expenditure is only observed for individuals who seek health services, and not for individuals who do not. The OLS model ignores selection on unobservable (individuals who do not selection to use medical services) resulting in bias in seeking medical services (whether or not to seek medical care).

We do not address the endogenous variables of health insurance in this study because in our understanding adverse selection into health insurance in Vietnam is not significant. Because according to VHLSS 2016, compulsory health insurance and health insurance for the poor account for about 63% of the insured, student voluntary health insurance accounts for 17%, about 17% is other voluntary insurance. Although participating in voluntary health insurance may be self-selection, especially among the self-employed and dependents of CHI enrollees, it is less likely to be serious due to the predominance of students among the voluntary health insurance enrollees.

The Heckman's sample selection model (1979) is a model that allows estimating selection bias. To consider this bias due to health care-seeking behavior, this study use Heckman selection model by

combining estimates of factors affecting the decision to health care services and factors affecting health spending when individuals decide to use health services. This model includes 2 equations:

$$Y_i = \alpha X_i + u_i \quad (2)$$

$$Z_i = \beta X_i + \varepsilon_i \quad (3)$$

- Equation (3) examines the factors affecting the decision to use health services (whether or not to seek medical care). Equation (2) evaluates factors affecting health expenditures.

In which, Y_i is the binary variable that takes 2 values; it equals 1 if the individual has sought medical services, that is, has been inpatient or outpatient visits in the past 12 months before the survey, and it equals 0 if the individual does not seek medical services. The dependent variable is the individual's health expenditure measured by the natural logarithm of health expenditure, health expenditure, only observed when $Y_i = 1$. and ε_i and u_i are the errors have standard distribution two way:

$$\begin{bmatrix} \varepsilon_i \\ u_i \end{bmatrix} \sim N \begin{bmatrix} \sigma^2 & \rho\sigma \\ \rho\sigma & 1 \end{bmatrix} \quad (4)$$

The two decisions in equation (2) and (3) are related if the two-dimensional correlation coefficient of the overall ρ is different 0. Equation (2) and equation (3) have the same set of independent variables. From the literature review, independent variables in (2) and (3) including health insurance, socio-economic characteristics of individuals, characteristics of households. Definitions of these variables are presented in Table 1.

Table 1. Definition of variables

Variable	Define
1. Health insurance	Dummy variable (= 1 if having health insurance; = 0 if having no health insurance)
2. Resident	Dummy variable (=1 if urban; =0 if rural)
3. Region	Dummy variables receiving values from 1 to 6 include: 1 is the Red River Delta; 2 is the Northern Midlands and Mountains; 3 is North Central and Central Coast; 4 is the Central Highlands; 5 is the Southeast and 6 is the Mekong Delta.
4. Ethnic	Dummy variable (Kinh and Hoa = 1; other ethnic minorities = 0)
5. Expenditure per capita/ household	Average expenditure/ person /household (unit VND 1,000).
6. Education of household head	Dummy variables with 4 levels: 0 if no education; 1 if ever gone to school or an elementary degree; 2 if having a secondary or high school diploma; and 3 if have a high school diploma.
7. Education	Education of household members. Dummy variables with 4 levels: 0 if no education; 1 if ever gone to school or having an elementary degree; 2 if having a secondary or high school diploma; and 3 if have a higher school diploma.
8. Gender of household head	Dummy variable (male = 1; female = 0)

9. Age of head of household	Age of the head of household (unit: years old)
10. Household size	Number of household members
11. Age	Age of the individual (years old).
12. Age-squared	Square of the age of an individual.
13. Gender	Gender of member with Dummy variable (male = 1; female = 0)

3.2. Research data

To analyze factors affecting health care demand, we use data from the Vietnam Household Living Standards Survey (VHLSS), conducted every two years by the General Statistics Office. In this study, we use the VHLSS 2016 data. The data used for the study include health expenditures, health insurance, individual characteristics and household characteristics.

4. RESULTS AND DISCUSSION

4.1. Descriptive analysis

Table 2 presents average health expenditure of individuals in the past 12 months as of the time of the survey and the proportion of people who have used medical services means having been examined at least once in the last 12 months to date. survey.

Table 2. Using health services and average health expenditure services by demographic and social background factors

Targets	Average health expenditure	Percentage of people go to see a doctor at least once
	(thousand VND)	
Residence		
Rural	844,66	39,3
Urban	1082,95	41,44
Ethnic		
1. Kinh ethnic	1039,99	41,61
2. Other	427,60	33,33
Gender :		
1. Male	846,55	35,04
2. Female	982,54	44,64
Health insurance :		
1. Having health insurance	723,29	42,73
2. No health insurance	961,92	28,94
Age		
<6 years old	448,51	58,84
6-19 years old	286,97	27,21
20-39 years old	677,21	28,42

40-60 years old	1255,68	43,78
> 60 years old	2155,73	64,74
Expenditure per capita		
1 (The poorest group)	141,56	34,86
2	369,54	37,71
3	614,98	40,13
4	983,29	41,65
5 (The richest group)	2448,02	45,15
Education		
1	817,01	46,63
2	797,74	37,41
3	1082,28	33,83
4	1213,21	36,59
Household size		
1. There are 1 to 4 members	1183,31	44,6
2. There are 5 or more members	752,98	37,02

Source: Calculated from VHLSS 2016

The results in Table 2 show that Kinh people have a higher rate of using health services than the others. 41.61 % of the Kinh people have used health services in 12 months before the survey, while the rate for the other ethnics is lower, at 33,33 %. Similarly, Kinh people also have average health expenditure as twice as the others. In terms of gender, women have a higher rate of using health care than men but have less health care expenditure than men. This can be because women are at least one antenatal visit during pregnancy. However, women have lower average health expenditure than men, women are likely to have better health and less illness than men, so their average health spending is lower.

The rate of medical examination and treatment of insured people at health facilities is 42.73% compared to uninsured people but had lower average health spending than those without insurance. Insurance contributes to reducing the cost of medical examination and treatment for the insured when seeking medical care at health facilities, so they are more motivated to seek medical care when they are ill.

In terms of age, Table 2 also show that members under 6 and over 60 have the highest rate of using health services, respectively 58.84% and 64.74%. Because these are the age groups of children and the elderly who often have health problems than the other. The age group of 60 and older has also the largest medical expenditure of 2.156 million a year. This is because this age group is also more likely to illness than other age groups and often suffers from diseases with higher medical costs than other age groups.

The percentage of people use health services and average health spending also increased when average expenditure increased, showing that people with better economic conditions are more

concerned about health and willingness paying for medical expenses. In terms of education, the higher level of education, the more people spend on health care. Households with less 5 members also have higher health expenditure than households with 5 members or more.

4.2. Estimated results

Table 3. Estimation results

Independent variables	OLS regression Log of health expenditure (1)	Heckman 2 steps	
		Log of health expenditure (2)	Decide to use medical services (3)
Health Insurance	0.659 ***	0.107	0.370 ***
	[0.0663]	[0.210]	[0.0292]
Health insurance * Income group 1 (the poorest group)	-0.185 *	-0,414 ***	0.0694
	[0.0980]	[0.154]	[0.0434]
Health insurance * Income group 2	-0.118	-0.0608	0.0295
	[0.0744]	[0.114]	[0.0328]
Health insurance * Income group 3	-0.0617	0.0158	0.0273
	[0.0618]	[0.0924]	[0.0270]
Resident	-0.162 ***	-0.325 ***	-0.0134
	[0.0408]	[0.0616]	[0.0180]
Ethnic	0.120 **	0.467 ***	-0.00838
	[0.0595]	[0.0952]	[0.0264]
Region	.	.	.
2.	-0.266 ***	-0,613 ***	-0.0828 ***
	[0.0635]	[0.112]	[0.0284]
3	0.0366	-0.205 **	0.0802 ***
	[0.0531]	[0.0899]	[0.0234]
4	0.416 ***	0.288 *	0.212 ***
	[0.0771]	[0.155]	[0.0338]
5	0.400 ***	0.319 **	0.212 ***
	[0.0636]	[0.138]	[0.0279]
6	0.849 ***	0.610 ***	0.458 ***
	[0.0569]	[0.229]	[0.0250]
Education of the household head	.	.	.
2	0.0698	0.0406	0.0732 ***
	[0.0563]	[0.0970]	[0.0252]
3	0.186 ***	0.179	0.142 ***
	[0.0561]	[0.117]	[0.0251]
4	0.163 *	-0.00756	0.188 ***
	[0.0886]	[0.171]	[0.0389]
Gender of head of household	-0.0817 *	-0.054	-0.0398 **
	[0.0442]	[0.0677]	[0.0194]

Education			
2	-0.437 ***	-0.321 **	-0.289 ***
	[0.0561]	[0.160]	[0.0248]
3	-0,731 ***	-0,628 ***	-0.421 ***
	[0.0572]	[0.223]	[0.0254]
4	-1,058 ***	-1,131 ***	-0.516 ***
	[0.0891]	[0.290]	[0.0395]
Household size	-0.0612 ***	-0.00726	-0.0559 ***
	[0.0121]	[0.0326]	[0.00539]
Year old	0.0173 ***	0.0418 ***	0.00268
	[0.00377]	[0.00612]	[0.00167]
Log of average expenditure	0.596 ***	1,105 ***	0.152 ***
	[0.0392]	[0.0943]	[0.0174]
Age-squared	0.000243 ***	-0.0000276	0.000150 ***
	[0.0000457]	[0.0000781]	[0.0000203]
Gender	-0,490 ***	-0,533 ***	-0,220 ***
	[0.0347]	[0.115]	[0.0153]
Coefficient of blocking	-4.086 ***	-8,488 ***	-1,931 ***
	[0.381]	[1,660]	[0.170]
Adj. R-squared	0,12		
Rho ()		0,83458	
Mills			
Lambda		2,719 ***	
		[0,731]	
Number of observations	30.594	30.594	

Note: The symbol *** / ** / * indicates that the estimated parameters are statistically significant at 1%, 5% and 10%, respectively,

The values in parentheses are standard errors

Source: authors' estimates from VHLSS data in 2016

In the OLS regression model, the dependent variable takes a value of 0 for individuals who are not seeking medical services. Thus, the dependent variables in this model takes a value of 0 and non-zero values. This model does not clarify the factors affecting the decision on whether using health services or not. In this study, health expenditure only includes expenses related to medical examination and treatment at health facilities but not including health expenditure that individuals buy drugs and medical instruments for self-treatment. Therefore, health expenditure takes non-zero values when individuals have go to see a doctor at facilities. The results of the OLS model showed the adjusted R² is 0.12, which means that the independent variables explain 12 % of the variation in health expenditure variables. Estimated coefficients of most variables are statistically significant. Regression results also showed that the socioeconomic status of an individual is related to their observed healthcare expenditure. However, the OLS model does not correct for potential care-seeking selection bias.

The coefficients in the two-step Heckman model are different from the estimated coefficient in the model OLS, suggesting that should not be ignore the correlation between the error terms

of the two equations (2) and (3). The estimated results from the Heckman selection model shows that the estimated correlation coefficient (ρ) between the error terms of two equations (2) and (3) equations is equal to 0,83458. This value is different from zero, showing that the two equations are related and use Heckman model to address selection bias is appropriate. Mills ratio is positive and statistically significant at the 1% level, indicating that the sample selection bias problem actually occurs and the adjustment of bias estimates due to sample selection is necessary.

The estimation results in Heckman model also show that most of the coefficients of the Probit model evaluating that the factors that influence people's decision on using health services are statistically significant. The coefficient of health insurance is positive and statistically significant at the 1% level in column (3) and not statistically significant in column (2). This means that health insurance contributes to increase in the probability of using health services but the results do not show that health insurance affects their health spending significant. However, the coefficient of the interaction variable between health insurance and the income of the poorest group is -0.414, which is statistically significant at the 1% level. This shows that in the poorest group, health insurance positively impacted health expenditures of individuals in this group.

The coefficients of residence variables in columns (1) and (2) are both negative and statistically significant at the 1% level, most of the estimated coefficient in column (2) is higher than in column (1). This shows the difference about health spending between rural and urban areas. Specifically, urban areas have less health expenditure than rural areas. This is because most people living in rural areas have low living conditions, hence they are disadvantaged groups. Moreover, due to the fact that most rural people live far away from facilities, the costs incurred when they are inpatient and outpatient visits are also higher than in urban areas.

The results also show that health expenditure Kinh people is higher than that of ethnic minorities. Ethnic minorities often live in mountainous areas and lack of knowledge about health care so they often treat themselves when they get sick. Therefore, the medical costs through examination at facilities are smaller. In addition, according the health insurance policy in Vietnam, ethnic minorities now are provided free health insurance, so their health care costs are reduced.

The results in Heckman model are quite similar to Awiti (2014) that household size, household head education, and household economic conditions have a positive impact on the use of health services. The coefficient of household size is negative in both columns (2) and (3) but only the estimation equation affecting the decision to use health services is significant at the 1% level. This indicates that the greater household size is, the smaller the probability of using health care services is.

The coefficients of education of household head variable in column (3) are statistically significant at the 1% level and increase when the levels of education increase. This suggests that an individual having a household head with higher education is more likely to have medical treatment is larger than others. This shows that with the higher education level, the head of household has a better awareness of health care as well as the meaning of medical examination and treatment so individuals in these households also have health examination when needed. In contrast, the estimated coefficients of education variables are negative. The results show that members with a higher level of education have a lower probability of being examined and that the amount spent

on health care is less. This indicates that the higher the level of education the individual has more awareness of health care results in less sickness and less medical spending.

The coefficient of household expenditure variable is positive and statistically significant at the 1% level in both equations. Individuals with higher average expenditure mean having better economic conditions. They are more likely to access to health services and they are willing to pay more for health care services than others.

The coefficient of age-squared in column (3) is positive and statistically significant at the 1% level, indicating that the probability of a person going to a doctor decreases when age increases, but when age increases to some extent then the probability of going to the doctor increases with age. This is because as a child, children often have more health care demand, but when they get older, they will be less likely to go for medical treatment. However, with the elderly people, they are more likely to seek medical than others. The estimation results also show that men have the lower probability of using health services than women, this is because women self-care better, in addition to women being fertility subjects, so in the stage of bearing their pregnancy also examined more.

5. CONCLUSION

Over the past decades, Vietnam has many reform in health care sector so the quality of health services been greatly improved, but using health services and health expenditure are influenced by various factors. In this study, we provide empirical assessments of the factors affecting health care demand by using Heckman sample selection model.

First, health insurance increases the probability of using health services of the insured people. This means that health insurance helps the insured people get better health care. According to VHLSS 2016, the rate of people having health insurance is 78.52%, so the State needs to continue implementing the policy of universal health insurance to increase the number of people having health insurance. This contributes to increase in people's ability to get medical care.

Second, health insurance has the effect of reducing the health expenditure of the poorest groups in society. Therefore, there should be more policies to encourage low-income people to having health insurance.

Third, education of household head also increases the ability of household members to use health services. Therefore, the State should continue to have policies on education to improve people's literacy, and people themselves need to constantly study to improve their education. Therefore, policies to encourage the improvement of educational attainment will also contribute to increasing people's ability to use health care. Especially, the education level of a part of the population is still low. According to calculations by the author from VHLSS 2016, up to 22% of household heads have never go to school or have not completed primary school, 30% of household heads have only primary school degrees. This will significantly affect the health care of household members.

Fourth, economic conditions also have a positive impact on people's use of health services. Members of households with high per capita expenditures have better access to health care and are willing to spend more on health care. Therefore, the Government should have policies

to promote economic development for the people and at the same time, it is necessary to have policies to support members of low-income households to help them get better health care.

Fifth, the research results also show that children and the elderly have higher health care demand than other age groups. Therefore, the State should continue to have health care policies for children and the elderly. Especially, Vietnam is in a state of aging, the proportion of people aged 60 and older is quite high, accounting for 12.97 % of the total population (according to VHLSS 2016), so it is necessary to pay attention to this group of people to give appropriate policies to contribute to health care for this group in the future.

REFERENCES

1. Ahmed, Syed Masud et all (2005), "Socio-economic status overrides age and gender in determining health-seeking behavior in rural Bangladesh", *Bulletin of the World Health Organization*, 83, pp. 109-17.
2. Awiti, Japheth Osotsi (2014), "Poverty and health care demand in Kenya", *BMC Health Services Research*, 14(1), pp. 560.
3. David, S. (1993), "Health Expenditure and Household Budgets in Rural Liberia", *Health Transition Review* 3(1), pp. 57-76.
4. Heckman, James J. (1979), "Sample Selection Bias as a Specification Error", *Econometrica*, 47(1), pp. 153-161.
5. Jones, Andrew, Rice, Nigel (2004), "Using longitudinal data to investigate socioeconomic inequality in health", in (Ed.), I. e. a. P. C. S., chief author, *Health policy and economics: opportunities and challenges*, Open University Press.
6. Mocan, H. Naci, Erdal, Tekin, S., Zax Jeffrey (2004), "The Demand for Medical Care in Urban China", *World Development, Elsevier*, 32(2), pp. 289-304.
7. Nguyễn Hữu Dũng, Nguyễn Minh Trí, Nguyễn Trọng Hoài (2016), " Factors affecting children's health spending: Applying the Tobit model for Vietnam's data ", *Journal of Science, Ho Chi Minh City University of Education*, 2, pp. 19-27.
8. Nguyễn Thị Thùy Trinh, Nguyễn Thị Kim Xuyên, Nguyễn Văn Vũ An (2018), " Factors affecting household health spending in Tra Vinh province ", *Journal of Science, Tra Vinh University*, 9, pp. 9-19.
9. Onwujekwe, Obinna et all (2010), "Investigating determinants of out-of-pocket spending and strategies for coping with payments for healthcare in southeast Nigeria", *BMC health services research*, 10, pp. 67.
10. UNDP (2011), *Social Services for Human Development. Hanoi, Vietnam.*, Viet Nam Human Development Report 2011, Hanoi, VietNam.

LAND CONSOLIDATION FOR AGRICULTURAL GROWTH IN VIETNAM

Nguyen Thi Thu Huong¹, Pham Nguyen My Linh²

ABSTRACT

In order to reengineer agriculture efficiently and effectively, we need to implement comprehensive and complete solutions. Agricultural land accumulation needs to get along with strong land reformation conditions of all agricultural production such as organizing good input and output marketplace, creating and maintaining the brand, increasing product quality management, improve capacity of competition in agriculture field, respect marketplace rules so that the marketplace can accommodate production scale and technology applied with the help and orientation from the Government... the farmers, at the same time, can be businessmen on their farms. Therefore, Vietnamese agriculture can develop and step to a new stage of development.

Keywords: Accumulation, land, develop, agriculture, Vietnam.

1. PROBLEM

Ever since the “Renovation” in 1986, especially after Resolution 10 from the Central Executive Committee of Communist Party of Vietnam article VI in 1988, Vietnamese agriculture had a significant breakthrough. Farmers had been confirmed as an independent economic unit, they have equal rights with other economics parts according to the Law, lands in Vietnam have reached a lot of significant accomplishments, from a country that had a lack of food, now has become the 2nd biggest country in rice exports.

However, Vietnam agriculture participated in global value chain at low value increase, simple labor, lack of help from the industry, service, process, lack of reputation brand, producing not following the market, not following the plans, using personal and low-quality ingredients that leads to low-quality foods, capacity of competition in the food marketplace is still weak, Government management in agriculture field still has a limit/ restriction that leads to the destruction and depletion of natural resources and environment pollution, etc.

Starting from this practice, the authors desire to share all of the points of view and provide scientific recommendations for the current problem.

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam

² Student at University of Manitoba, Canada

2. DISCUSSION ABOUT LAND CONSOLIDATION FOR AGRICULTURAL DEVELOPMENT

2.1. Theory about land consolidation for agricultural development

2.1.1. Theory about land accumulation

Land consolidation is increasing and promoting economies of scale of each production unit (households, farms, agribusiness...) from time to time because of colonization, inheritance, bought, rent, or pawned, etc, in order to proceed with agricultural production.

Consolidation, which is the process of accumulating land in a capitalistic way, is also the production materials in order to expand the production and enhance the economic advantages along with the scale. The activity of land consolidating is performed on land markets. In order to have lands that meet production and business requirements, investors can buy the property/ownership or rent the land use rights following the rule of "Amicable sale" or they can rent the land or pay the landholders/ host the ground rents.

Although there are many ways to approach and different points of views related to land consolidation, all have some common grounds:

1. Consolidating land increases the size of lands of 1 owner;
2. Land consolidation will overcome the situation of land fragmentation when the size of area of cultivation expand;
3. The consolidation activity cannot only be separated with land markets, but also it has to include the TRANSFER OF LAND USE RIGHTS and land leasing markets;
4. Consolidating and gathering lands both have purpose which is decreasing fragmentation, but consolidation attaches directly to stratification of land areas and living standards in rural areas.

2.1.2. The concept of land consolidation

Land consolidation can be understood in a way of gathering many current small plots of lands and turning them into a big ground, a field with large dimensions in order to promote agricultural production, service industry by leasing or production linkages, investing in a business, etc.

On the other hand, land consolidation is an adjustment and a re-arrangement for all the plots of land, it is usually used to form some larger and more reasonable fields. Centralizing the nearby land does not only bring benefits for changing agricultural production methods, but also can be used to improve infrastructure in rural areas and perform guarantee policy for environment and agriculture sustainability.

Based on above concepts, we can lead to several comments:

1. Land consolidation is the expansion of economies of scale as there are many consolidated plots of lands, the owners of the land do not change;
2. Land consolidation needs credit support and credits guarantee;

3. Land consolidation is not simply distributing plots of land in order to eliminate the bad influences of fragmentation, but also connects with economic reforms and the larger society.

Therefore, consolidating and centralizing land are different from the procedures, property rights (Land Use Rights) to some social impacts such as income maintenance, farmers' jobs after land consolidation. However, economically, the last target is creating a large size of land in order to apply technology improvements in agricultural production for high-performing results.

2.2. The impacts of land consolidation on agriculture improvements

First, consolidating and centralizing land affect the efficiency of agriculture production.

Land is one of the first four important elements in developing agriculture. The pressure of population growth, service industry development along with urbanization that lead to the decrease in land fund. Especially in developing countries, the reduction of area of cultivation becomes an impediment of stable growth in agriculture fields.

Today, there appears a lot of arguments in relationships between land centralization and productivity. Land centralization will create big farms that can take advantages of big scale of economy such as performing mechanization to increase productivity. A lot of research has shown that the more the wages in non-agricultural areas increase, the more labors move from agricultural areas to non-agricultural areas. This proves that all of the developing countries should not worry about the inequalities in land distribution if the real estate market is stable and under control. According to World Bank report (2008), land centralizing for products depends on the capacity of moving labor out of agricultural areas, the real estate market and the the land legislation.

Second, consolidating and centralizing land affect the social differences in rural area.

Many countries currently have to deal with land consolidation and centralization challenges, especially with the countries that lose the balance for income. The risks in economic market have made the people suffer from a giant debt and they have to accept mortgages or sell their land and become hired laborers. Besides, the process of urbanization, industrialization and the restriction in land use rights will easily change the purpose of land usage. The lands are taken away from the farmers and the chances to participate in other areas are little, therefore, the difference between rural and urban areas becomes bigger.

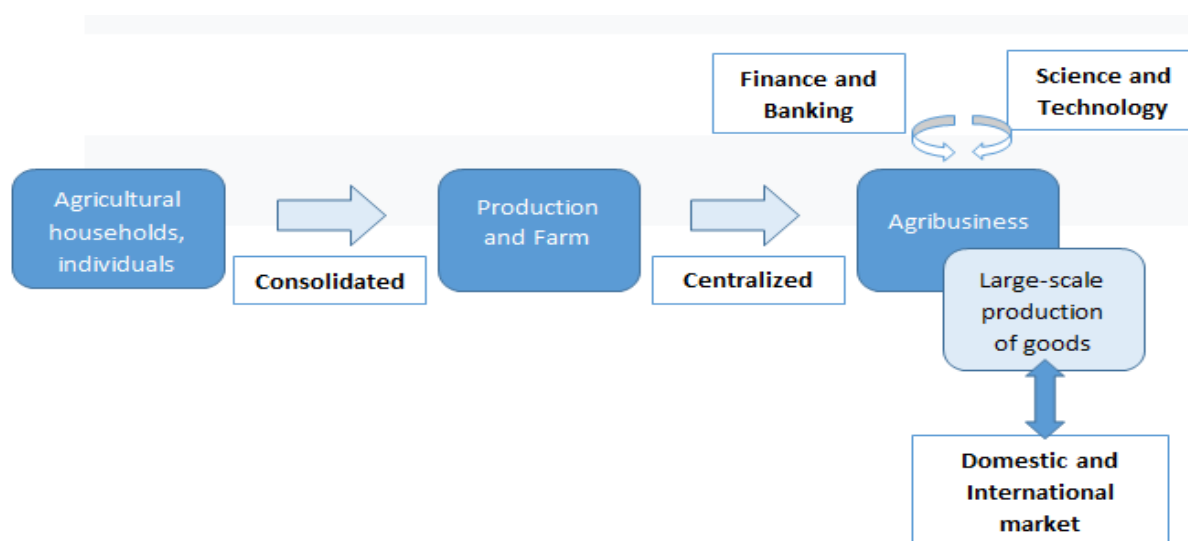
One of the elements that decreases the effects of land consolidation and centralization on social differences is the income from non-agricultural area. As reported by The World Bank (2008), the income from non-agricultural area is higher than agricultural area.

Migration plays a significant role in promoting centralizing lands and reducing the inequalities in Hanson's rural area (2005). The research has shown that the process of urbanization which creates a better income, has eliminated hunger and reduced poverty. There are young, educated and talented people who have abilities migrate that create a difference from the farmers who lost their lands and do not have chances to participate in non-agricultural activities. Therefore, the role of education in enhancing land consolidation is creating chances for farmers to change their professions and improve their incomes.

2.3. Land consolidation and centralization trend

Land centralization is always considered as a tool or a beginning for rural development. The first concept of developing rural areas is almost the same as agriculture development because of the key role in agriculture in rural area in the early development period. Large-scale production of goods requires a significant concentration and scientific and technological investment (new crops breeding, fertilizer, refuge for the flora and fauna, cultivation techniques, animals breeding, machines, equipment, farm products processing and preserving and consumers' goods). Households produce individually, if there is anyone who cannot adapt to this request and have the needs for business cooperation, they can start their businesses under these appropriate forms: economic cooperation (from the production process to products consumption), funding agribusiness. (*Exhibit 1.1*).

Exhibit 1.1: Development trend of land centralization and consolidation in agriculture



Source translated: National Institute for Finance (Institute of Financial Strategy and Policy)

Land consolidation is land expansion by integrating fragmented land parcels and form larger and more rational land holdings. This is considered as a premise for economic development in households that are in the process of changing from small-scale production of goods to large-scale. This process is performed by market which needs to go through the performance of the civil transactions (transfer the land use rights by using inheritance, gifts). One agricultural household has experiences in producing, using land effectively, earning profits, has equity to be able to transfer Land Use Rights, consolidating lands. However, most agricultural household in rural areas are lack of money for land consolidation. As a result, in order to make the best use of the land, they have to choose a different methods (by leasing or contributing capital with Land Use Rights).

2.4. The content of land consolidation for agriculture development

1. To developing countries, agriculture plays a key role with in agriculture development such as:

- The period of using lands, the labor rate per unit area, land size have a big influence on the growth rate.

- The geographical elements related to soil and weather elements can all provide the answers to why this country is better-developed than others; and why there are many countries still live in disruption and lack of development.

2. The reason for maintaining stable land equity is to sustain the agricultural growth and food security

With the population growth issue, the development of industry and services along with urbanization have made land equity reduce day by day. The reduction in the area of cultivation, especially in developing countries, has become an interfering factor in agriculture growth in these countries. This is the start for land research, a piece of David Ricardo - “Principles of Political Economy and Taxation” in 1817, indicated that the law of diminishing returns in agriculture by land is the fixed element in production. According to Ricardo, in order to expand the economy of scale, we need to use worse and worse land, leading to increasing production costs. The forecast of the restriction of agriculture growth by Ricardo and the way of solving redundant labors in rural area by other classical economists did not succeed in showing the important role of science and technology that creates a revolution in agriculture productivity. However, they still show the significance in maintaining stable land equity for agricultural production if they continue to keep the goal for agricultural growth and food security.

3. Solutions to relationships between land consolidation and agricultural development

- Big scale will create a chance to apply mechanization into agriculture and help increase the effectiveness. Many researches have proved that when salaries in non-agricultural area increase, the labors will move from agricultural area to non-agricultural area. This process can also help increase income in agricultural area, create motivation and chances for farms expand areas of cultivation.

- The gap between productivity of big farms and small farms can become bigger due to insurance industry and incomplete credit.

Overall, one of the biggest challenges in solving this agricultural growth’s puzzle for developing countries is to speed up the land consolidation process. This issue currently meets the agriculture which is not produced by mass production. If the agriculture wants to catch up with the growth of other industries, it will have to put impacts on the other parts of economy. If people want to have large-scale production, they need to work and get out of agricultural area. Politically, this is a difficult and unsolved puzzle.

3. REALITY OF LAND CONSOLIDATION IN AGRICULTURAL DEVELOPMENT IN VIETNAM

3.1. Some forms of land consolidation in agricultural development in Vietnam

(1) “*Don dien, doi thua*”- “*restructuring and changing agricultural land*”. Previously, each household unit has 5 to 7 parcels, even up to 10 to 12 parcels. This situation has a negative impact on production. With the help and support from cooperatives, provincial authorities, each unit has voluntarily exchange the plots of lands to each other so as to reduce the numbers of fields and at the same time increase the size for the plots. Today, each unit has an average of 2 to 3 plots of lands.

“Don dien, doi thua”- “restructuring and changing agricultural land” occurred mostly in two periods of time 2008 – 2010 and 2012 – 2014, and the majority is rice area at Red River Delta, North Central and South Central Coast. The survey indicated that the average number of fields for each household decreased from 4.72 in 2004 to 2.38 in 2014. However, this method seemed to reach its limit.

(2) *Land contribution in agricultural co-operatives.* In some provinces, households voluntarily connect to build farming cooperatives. Although involving in farming cooperatives, many households still do their own farming. Cooperatives provide services for each household with watering and fertilizing the ground, plowing, insecticide sprays, harvesting; providing seedlings, fertilizer, high-quality pesticides but lower prices.

However, the numbers of cooperatives connecting with business for production, processing and food consumption investing are still restrictive. Through the end of 2015, our country had in total of 10,902 farming cooperatives, mainly focused on Red River Delta area (33.5%), North Central area (19.7%), Northeast (16.9%), Mekong River Delta (11.2%). Even though this way is supported by many policies and Vietnam Cooperative Alliance enacted in 2012, the growth abilities of cooperatives are still restrictive, especially in capacity management and credit loans approach.

(3) *Households that buy and receive the transfer of land use rights from other households for production expansion all become farms and larger-scale households.* This method of use happens a lot in Southern area, the majority occurs in Mekong River Delta. By buying the Land use rights, many households could feel secured in long-term investment.

Nevertheless, this might experience some barriers. The number of households selling Land Use Rights is small (Especially in Northern area). People sell their lands only under circumstances as they are scared of unstable jobs might not ensure their lives. Land is a property that every household want to give to their children in the future. Therefore, selling and buying Land Use Rights are sometimes certified only through writing letters and uncertain legal basis. Another problem is that some households have properties over the limit for receiving the transfer of land use rights. As a result, each has to have a piece of property in other people's names.

(4) *Using land leasing to expand production process.* This method has become so much more common recently. The benefits are gaining larger scale, bringing the land to the user in the most effective way and at the same time helps with productivity, quality growth and efficiency in agricultural production. The farmers who rent their lands out still keep their Land Use Rights and save the land from turning into fallow land. The method brings effectiveness in both economic and social sides.

(5) *Production linkages between households and agribusiness.* Recently, this method appears and grows a lot. Many households still do farming on their land following the instructions and technical guides from agribusiness; agribusiness invest on providing seedlings, fertilizer, pesticide and buying the final products from the households. People follow advanced technology and produce in the most effective and efficient way without worrying about product consumption.

However, this method sometimes has a difficulty which is the land belongs to the households involved in affiliates with agribusiness located between other lands that are not involved. As a result, this problem affects traffic system, irrigation, field improvement, product quality guarantee. Besides, there are cases such as households selling products on market when there occurs higher prices compared to the price given by agribusiness.

(6) How an agribusiness buy and receive the Land Use Rights from households for production expanding. The method is not widely implemented as many agribusinesses still do not buy the agricultural land directly from the households for large-scale production. The reason for it is that the purchased price is relatively high which is hard to make profits for only agricultural production. Not only the price that needs to be negotiated, but also about how to negotiate the price with every individual to form large-scale production that are complicated and time-consuming.

(7) How an agribusiness rent the households' lands. The agribusiness has demands in doing business and producing agricultural goods. Agribusinesses without stable inputs, will be signing the rental contract with the households that do not have intentions of producing agricultural goods. With potentials, the agribusiness can apply science and technology, mechanization and be active in inputs source into developing the quality of the products without any concerns. The procedures of land rentals are simple, the farmers keep their Land Use Rights and get to earn profits. Today, there are a lot of agribusinesses which rent a thousand of hectares of land for production such as Vincom, TH* True Milk, etc.

However, the percent of an agribusiness rent agricultural lands is lower than the percent of a household rent land from another household. That is partly because the rate of agribusinesses investing in Vietnam's agriculture is relatively low (a small percentage of 1% compared to the total agribusinesses in the country).

(8) How households contribute their lands and transfer the value into agribusinesses' shares/stocks. According to this method, farmers can keep their Land Use Rights and at the same time increase income by earning dividends annually. If the farmer is in need for a job, the company will make that farmer a priority to come and work for them as a worker. On the other side, the agribusiness will have a big enough land scale for proper investment in science and technology, and advancement in mechanization to improve the outcomes and reduce the fees. In Vietnam, there are only a few of models and experiments of farmers that investing by Land Use Rights. For instance, the model of land contribution to rubber plantation in Son La, Lai Chau or Van Son, Trieu Son (Thanh Hoa).

Nevertheless, this method has not been effective because of the unclear concept of capital contribution between using Land Use Rights or the value of Land Use Rights. The farmers worry about losing the Land Use Rights when the agribusinesses fail. Nowadays, some rubber companies with the support of capital contribution from a lot of households have not succeeded yet, which affects badly on those households contributing as stakeholders.

3.2. The changing reality of agricultural land in Vietnam

(1) The amount of agricultural land decreases.

Vietnam is stepping into the period of industrialization – modernization and the period of international integration. However, the faster the industrialization and urbanization process occur, the more narrow the agricultural land become. This problem leads to the loss of lands, jobs and poverty in these areas. And significantly, all the lost agriculture lands are all high-potential and fertile plots of lands, are taken away to build industrial area, manufacturing area, golf course or business buildings.

Even though the rate of agricultural land retrieving in many provinces is not high, but the numbers gathering at some provinces with high density, a province lost almost 80% area of cultivation. Most of the lost lands are fertile lands and there are some are left fallow for years.

(2) The scale of using lands of each household.

Land consolidation process is currently happening with small scale: Using agricultural fragmentation land following self-sustaining scale makes land usage less stable and ineffective.

The business efficiency of land consolidation is clear, but there is a difference in many areas (Mekong River Delta – where commodity business grow more strongly than midland and northern areas – where most small-scale households business grow).

Land consolidation does not make the best use of labor in agriculture. Farms that have scale under 3 hectares mostly use family labors, combined with renting machines for plowing. Some farms with bigger scales of more than dozens of hectares with the help of multiple machines and employ full-time laborers (about 10 people) and seasonal laborers.

(3) The scale of using lands of farms.

The numbers of farms increase rapidly and there is a significant change in forms:

The economics of farming develop rapidly in every area in the country, until January 7, 2016, the country has 33,488 farms, which is 13,460 more in total (increased by 67.2%) compared to 2011. From 2011 to 2016, the average number of farms per year increases over 13%. While in the Red River Delta which is the most populated with the growth of 6,435 farms, take up to half number of farms in the whole country in the next 5 years.

The number of farms increases mostly in ranching form to 14,521 farms compared to 2011. In the past 5 years, the average of ranches per year increases over 45%. The number of aquaculture farms decreases rapidly to 2,172 farms (with 48% reduction) compared to 2011, the average reduction is approximately 10% per year.

Farms that make use of lands to create jobs for workers:

Until January 7 in 2016, farms had used up to 187,000 hectares of land for agriculture, forestry and aquaculture which increased over 35,900 of hectares of land from 2011. While there

was 60,000 hectares of land for cultivation of perennial trees; 17,600 hectares of land for forestry and 29,800 hectares for aquaculture. one farm could use up average of 5.6 hectares of land for agriculture, forestry and aquaculture.

Many farms had 134,700 full-time laborers, the number increased over 40,000 laborers (42.4%) compared to 2011. One farm had an average of 4.0 numbers of laborers. The average number decreased over 2011 which was 4.7 because many farms brought in scientific technology and advanced machines in order to support production, develop ranching farms (a form that uses the least labors than others).

Farms that create value in products made from agriculture, forestry and aquaculture:

The total income of products came from agriculture, forestry and aquaculture in 2016 got to 93,098 billion VND, which increased 54,007 billion VND over 2011 (by 138.2%). One farm had an average of 2,780 million VND, which increased by 828 million VND (by 42.4%).

(4) Small-scale of land consolidation in Vietnam.

In agricultural co-operatives, according to General Statistics Office of Vietnam, until 2015, in agriculture field, there were 19 agricultural unions of co-operatives (with 3 unions of co-operatives of cultivation, 1 union in ranching, 1 union in irrigation, 3 unions in aquaculture and 11 unions in general services); there were 10,902 agricultural unions of co-operatives which took up to 55.5% unions of co-operatives in Vietnam.

With agribusinesses, according to Ministry of Natural Resources and Environment, if there were 3,844 agribusinesses in 2014, the number of agribusinesses would decrease to 3,640 agribusinesses in 2015. The average number took only 1% in the total of agribusinesses in the country.

In general, Vietnam has a small-scale of land consolidation, there are a lot of co-operatives and agribusinesses but the land usage is relatively low.

(5) The fragmentation in land expansion.

We cannot deny the positive impact that Article 10 brought back for agriculture; however, Article 10 divided the land and gave it to the households was a step back to small-scale economics (compared to commodity economics). Currently, there are almost 16 million of households with approximately 78 million plots of lands, each household has an average of three to eight plots of lands. With the small-scale production and the fragmentation, the farmers can only ensure everyday meals and perform simple re-production; the abilities to apply scientific technology, intensive farming and productivity growth in commodity economics are limited.

(6) The loss of lands affected by climate change.

- The loss of lands: If the global warming causes the sea level to rise, many Vietnamese people can lose their lands. A significant part of agricultural lands will be flooded under the sea level. As an agricultural country, farmers in Vietnam do not have a lot of areas of cultivation, especially for farmers nearby the sea. As a result, losing a part of agricultural land will put Vietnam in serious challenges.

- The erosion: Climate change causes the disorders between rain and sunlight, the chance for the disorders can increase significantly and the loss of nutrition in soils which lead to the reduction in productivity. Vietnam has a total of 33,121,159 hectares of natural lands, with over 25 million hectares of steep ground, therefore, the chances for land degradation because of erosion are huge.

(7) Agricultural Land Use Rights develop on market.

With the survey investigated on the standard of living of each household in 2014, the agricultural land source in rural area came from the Government, 34% came from inheritance, only 12% came from direct trade or auction, the others are fallow land or came from other sources. To be more specific, in 12% trade land, there is 29% that was bought before 1994, 41% bought in the period of 1994 – 2003, 30% came from 2004 until now.

In the meanwhile, land rental markets cannot be compared to farmland transfer markets. In 2014, the rate of households had their farmland rented was only at 10.5% and the rate of farmland rentals was under 5%. For forestry lands, the rate of rentals was low due to the restriction in land disputes.

(8) The abilities of attracting laborers to get out of agribusiness increase.

Even though the labor structure has a positive change, but agricultural labor still occur a lot. The year 2010 was the first year that witnessed the change in the complete numbers and comparative numbers in agricultural labor. This is the result of a striving process in changing the structure in professions and attract the labors to get out of agribusinesses. However, because of the big number in laborers, while the other sources of labors are restricted in agricultural production (farmland, equity, scientific technology, etc.) and they are mobilized to different economic fields to support the objectives of industrialization, modernization and urban development, the majority of the laborers in agriculture became a disadvantage for productivity growth.

Besides, the quality of agricultural labor still has some restrictions. According to the labor survey report in 2013, the rate of laborers currently working and trained in 2013 in rural area only approached 11.2% comparing to 33.7% in urban area. Most rural laborers did not have technical expertise (88.5%) compared with 66.1% in urban area.

(9) Mobilizing society to invest in agriculture development and the growth rural area.

Investments in agriculture, forestry and aquaculture increase steadily every year (in the period from 2004 to 2008 was 17% per year, the period of 2009 to 2013 was 5.8% per year). Although the quantity of investments in agriculture, forestry and aquaculture in the period of 2009 to 2013 increased with 67% compared to five years from 2004 to 2008, but with the decreased in density.

Especially in recent years, while performing a policy of increasing funding from Government budget to invest in agriculture and rural area development, along with the private funding from the Government budget, the Government bonds are always prioritized by National Assembly and Government. Thanks to these investment, the density of funding from the Government budget for rural area increased rapidly in the previous years. According to the Ministry of Planning and

Investment, in the period from 2009 to 2013, the funding for agriculture and rural area received was 520,491 billion VND, equal to 51.67% of the total funding in the Government budget and bonds.

4. GENERAL REVIEW ABOUT LAND CONSOLIDATION FOR AGRICULTURAL DEVELOPMENT IN VIETNAM

4.1. The results

With the support of all levels of Government, from central and local leaders, land consolidation process has achieved these positive results:

First, land consolidation helps enhance the result in using agricultural land

In these few years, the policies and the laws about agricultural land has slowly been completed and become more appropriate for markets. Therefore, they help contribute improve productivity growth, efficiency in land usage and increase competitiveness in agricultural products, etc.

Second, land consolidation is to modernize the agriculture

A lot of local provinces in Vietnam were and currently performing effectively “Don Dien, Doi Thua”. This is a premise for conducting land consolidation to support agricultural production.

Third, through land consolidation, the rights of the farmers are put on top

Land consolidation under any forms all have the same goal which is increasing labor productivity, enhance the efficiency in land use. Therefore, they help increase income for agricultural producers and support society.

Final, the policies and the laws from the Government about land consolidation help secure investors in agricultural land usage

Land Law in 2013 has helped overcome some restrictions in using agricultural land, such as increase the expiration date to 50 years for every farmland, expand the land transfer period for households, allow the changes in production structure, etc. These have created advantages for agricultural land users in expanding production and feel secured in long-term investments.

4.2. Some restrictions

First, consolidation causes the loss of livelihoods in some households.

Consolidation can be considered as a process which land concentrated from one person to another. Therefore, land consolidation is the cause for the loss of lands under any circumstances for some households, which means that they lose the traditional livelihood. Livelihoods include the abilities, properties and other activities involved making money: the Land Use Rights is an important property in rural area, especially to farmers whose income mostly comes from lands. Losing livelihood does not only affect their incomes, but also their mental and might cause other social issues, etc.

Second, the inequality in rural area in incomes and lands.

Land consolidation causes the discrimination in rural area because the lands focus on some few people which leads to the inequality in income. People with populated lands can do business

more efficiently and receive higher income than others. This creates negative thoughts in people's minds in rural area.

Third, many social problems occur in the process of consolidation.

When the scale of land expands, a part of laborers will be taken out of agricultural area. The reality questions are: Where will they go, what will they do? This is a problem that needs to be solved along with land consolidation for larger production.

Fourth, land consolidation has not been given proper tasks in rural area: many farms with area of under three hectares mostly use family labors, plowing machines rentals and hiring part-time workers; a few large-scale farms with over a dozen of hectares, with the help of machines and full-time workers.

Fifth, there are many plots of fragmentation lands.

There are conditions in some areas which are not easy to plan and reform into a large-scale production with big investment.

Sixth, the issue of farmers leaving their farms has been occurred since 2005, nowadays, it has become a bigger problem and appeared in many provinces, especially in Red River Delta area and North Central area. There are both advantages and disadvantages of this problem, therefore, it needs to be reviewed and solved based on the reasonable and effective solutions.

Seventh, "Food Security" strategy in our country still have some downsides, inefficiencies in economic, social sides and land usage. Despite the fact that Vietnam exports over seven million tons of rice each year, some provinces are currently lack of food. The land for cultivation of annual crops including paddy land is small, therefore, it creates the low productivity. The farmers are "tied" to the purpose of growing crops because of two reasons: growing crops is a must so as to ensure food source for families, or the local government do not allow using the land with other purposes beside growing crops, even with a small-scale land.

Eighth, land circulation in agriculture commodity development still face some difficulties, not only because of the differences in the costs of inputs and outputs in production, but also the consequences of economic-social and natural elements that cause the harm. Therefore, this creates a bottleneck in circulating and land consolidating processes.

4.3. The reasons behind the restrictions of land consolidation in agricultural development in Vietnam

4.3.1. The reasons coming from creating motivations to enhance the land consolidation process

First, The country is small with crowded populations, agricultural populations increase rapidly, the abilities of attracting laborers in urban industrial are still weak.

Second, Opportunity cost in land is relatively low. Small households do not have enough financial requirements, technical and managing skills, information and social relationships for consolidating lands. Thus, agricultural area is not appealing enough for investors due to the low and unstable interest rate.

Third, The planning is not serious enough to change the purpose of the agricultural land use.

Fourth, Co-operative economics has not been developing. Although this method is widely supported by many policies and the Law of Co-operatives in 2012, the possibilities to grow of co-operatives are still restricted, especially in administrative abilities and financial approaches.

4.3.2. *The reasons related to law on land*

First, The restrictions in land and the period of time of land usage. To some households, each individual might have questions about restrictions to 10 times usage in Land Use Rights for cultivation, breeding and aquaculture (Article 130 from Land on Law). In Southeast area and Mekong River Delta, the restrictions for one household or individual approximately equal to and below 30 hectares and 200 hectares for each type of land. Households and individuals cannot accept the transfer of Land Use Rights if they do not participate in agricultural production or to agricultural land in the protection forest, the people are required to live there in order to earn the transfer (Article 3, 4 – 191, Law on Land in 2013). The transfer can only happen in the same wards, districts and cities.

Second, The way of changing from land for crop-raising to land for aquaculture and breeding is currently facing some challenges. Solutions to fallow land reduction are not effective, as a result, the trend of keeping land for assurance occurs and the use of land is less efficient.

Third, The value of transferring the Land Use Rights in agriculture is relatively high, the interest rate in agricultural production is low and has some risks and the support policies for the transfer and Land Use Rights rentals are not strong enough. Therefore, the agricultural land market does not bring back effective results.

4.3.3. *The reasons related to perceptions and ideas*

First, With the thought of agriculture is the only subsistence of farmers, many people still keep in their minds of keeping agricultural land for themselves. In reality, rural laborers, who get out of agriculture field, mostly will choose unofficial labor market with high and hidden risks. It is reasonable for those ones to keep their farmlands.

Second, The worried mentality about the differences in society with land consolidation,

Third, Many people believe land dispersion could help reduce the risks (food security in crisis), diversification in production, make the best use of labors and increase the liquidity of land.

5. RECOMMENDATIONS FOR ENHANCING LAND CONSOLIDATION FOR AGRICULTURAL DEVELOPMENT IN VIETNAM

5.1. The resolution team is in charge of completing Government policies and laws on land consolidation for agricultural growth in Vietnam

5.1.1. *Law on Land adjustments*

The official Law on Land in 2013 was put into practice from January 7 in 2014, there are some new articles that help enhancing land consolidation, especially are the time period of transferring the land and the limit of receiving the Land Use Rights. The time period of transferring land

extends to 50 years and the limit raises to 10 times for agricultural land. However, the area of farmland is still restricted to three hectares which is a barrier for land consolidation process.

5.1.2. Completing the system, financial policies and credits in agriculture

The tax on agricultural land needs to be adjusted in order to stimulate land consolidation. Law on Tax about using farmland in 1993 decided that if using land over the restricted limit would not only pay tax for the land within the limit but extra taxes for the over limit land are required. Until 2010, according to Resolution 55/2010/QH12 about tax reduction in agricultural land: Tax-free for using agricultural land within the limit of 3 hectares per household and 50% reduction in tax for using land over the limit, but not over the limit of transferring Land Use Rights days.

Economically, with these enacted rules, the people will not be encouraged to consolidate agricultural land. The low profits along with the tax on the over-limit in transferring will have a direct impact on profits and investment decisions.

Diversifying the forms and creating financial organizations in rural area help with expanding the scale of calling in equity through social communities, co-operatives, banks. Introducing new form of credit insurance to overcome the situations of lacking equity to do business in commodity agriculture.

5.1.3. Developing land transfer and rental markets

In order to enhance the consolidation process, the transfer and rental markets should be flexible in procedures. Nowadays, land rentals trade among individuals are completely hand-written, while according to the law, it should be clarified and notarized. In Law on Income Tax number 04/2007/QH11 and the updated version, there are some points that need to be changed and added. In number 71/2014/QH13, the tax rate of land use right transfer is 2%. The price of agricultural land is relatively high, therefore, the tax will be enormous.

5.1.4. Completing policies for the hosts of the land

Policies for households and farms: Besides changing some policies in Law on Land, Law on Agricultural Tax or policies of transfer market supports, land rentals; households will be in need of support in equity in land consolidation. First, with the households that have a capacity of consolidating land (financial potentials, labors, management and techniques), the Government needs some programs for loans with supports for interest rate through agricultural banks and agriculture development.

Policies for agribusinesses that do land consolidation: Agribusiness can also take part in land consolidating through the methods of land contribution, Government land rentals or households land rentals, etc. However, there are some difficulties in lack of support from the Government. The solution for inefficient agriculture and forestry business is to rent out the land or sell them to other agribusinesses that have demands and possibilities to turn agriculture into business industry. Thus, there needs to have the system and planning when an agribusiness buy land from the farmers as there will be a change in the purpose of using land. The Government could also support agribusinesses by supporting in loans.

5.1.5. Renovating and completing policies in enhancing research and applications for scientific technology in agriculture

Developing high-quality technology in agriculture is considered as a key role in changing growth model to developing in depth, enhancing quality, result and competitiveness. The most important thing is the renovation and completion of the system in enhancing research and applications of scientific technology, especially the high-end technology in agriculture. In the production chain, from farmers' households to the market all come to responsibilities, benefits, risks sharing among participants; ensure the desired benefits of all. In this requirement, we need to concentrate on developing technology in growing high-quality plants, processing and storing at the best condition; improving cultivation process; ensuring food security; all production forms and improving business.

5.2. Resolution in advancing the efficiency in land management system

5.2.1. Cultivation and planning in using land more effectively and efficiently

Cultivating and planning in using land are a job that always appear in every conversation discussing about the purposes of cultivation and planning. They create beneficial conditions for effective land using in the future.

A group of new policies include experimenting and applying new methods in land consolidation with land division in river area where occurs a complicated cut of economic and social problems, environment. Especially, applying cultivation helps with uniting space helps identify areas are easily affected by climate change and needs appropriate resolutions.

5.2.2. Transparency in land and corruption prevention in land management

The process is always making sure that the people involving in the case have access to the information about land management that helps create the best system and allow users performing their rights in participating in the process more effectively. Besides, this method helps adjust the support of managing services and natural land resources. Thus, not only the information about natural resources in Vietnam but also the infrastructure, from the data, strategies, management tools, information standards, technologies and partners need to be improved.

5.2.3. Improving the division in land management and building supervising and monitoring system

Needing improvements for the division in land management under these rules: (a) Central is concentrating on developing policies, laws and supervising; (b) division in areas for rights to perform the Government laws in land management.

6. CONCLUSION

Land consolidation has been currently a problem that needs to be discussed even though receive a lot of supports in policies and positive impacts. However, for agriculture development in Vietnam, especially in the period of international integration, land consolidation is a must.

REFERENCES

1. Vu Tuan Anh (2013), *Collective Report Ministry Level "Land problem and land ownership in Vietnam in the period of 2011 to 2020"*, sponsor company Vietnam Academy of Social Sciences.
2. David Beg (2005), *Macroeconomics*, Statistics Publisher, 2010 (translated version).
3. Chu Van Cap – Tran Binh Trong (2004), *Political Economy Marxism – Leninism*, Political nation publisher.
4. Bui The Cuong & Le Thanh Sang (2010), "Some problems about social structure and social level division in Southwest: Results from the survey annually in 2008", *Social Science Magazine* (Number 3-2010).
5. Ta Doan Cuong (2015), "Land consolidation in Mekong River Delta and some problems", *Seminar 40 years established Social Science Institute in Southern on September 19, 2015*.
6. DFID (1999), *sustainable livelihoods framework*, www.ifad.org/

PROMOTING PAYMENTS USING ELECTRONIC WALLETS IN VIETNAM IN THE FOURTH INDUSTRIAL REVOLUTION

Tran Thi Hien^{1*}, Ho Thi Hoa¹

ABSTRACT

With the current development of e-commerce, e-wallet appears as a new form of payment bringing many benefits and convenience for users. However, Vietnamese consumers and businesses are not really interested in this service, although there are now 26 businesses providing e-wallet services in large numbers, diverse forms on both websites and mobile applications.

This paper will analyse the e-wallet market in Vietnam, discuss several outstanding advantages of this form of payment, and also consider some barriers that limit the growth of the electronic wallet market. Based on analyses, several solutions will be proposed to promote e-wallet payment in Vietnam in the coming future.

Key words: E-payment, e-commerce, e-wallets, financial technology.

1. INTRODUCTION

Non-cash payment is a worldwide trend and being widely chosen by Vietnamese people instead of regular cash payments. Electronic payment facilities have supported people to gain a higher level of flexibility in transactions and safety in payment. According to Appota (a Vietnam Entertainment Technology Company) in 2018, 72% of Vietnamese own a smartphone, 68% of Vietnamese people use their smartphones to access the Internet (more than computers), 25% ones use daily mobile Internet, many Vietnamese own more than two mobile devices connected to the network, with an average of 1.7 devices per person. On the other hand, PwC's global consumption survey in 2019 for 27 countries/territories shows that Vietnam is expected to be the fastest growing market for mobile payment in 2019. The percentage of consumers paying by mobile in Vietnam was 37% in 2018. This figure was 61% in 2019, increased by 24%. This was the highest increase among 6 Southeast Asia countries participating in the survey. In particular, Thailand's figures were 19% and 67% respectively, as for Malaysia, they were 17% in 2018 and 40% in 2019, and the Philippines' numbers increased from 14% to 47%. In 2018, Vietnam's Internet payment had a growth rate of 33.6% in items and 19.5% in amount compared to 2017. Mobile payment also achieved an impressive growth, with 41.4% of the items and 169.5% of the amount compared to 2017.

E-wallet is a newly developed service in the world, a relatively smart cashless payment solution today. Payment using e-wallet has been applied in many large companies such as Apple, Samsung, Google and so on, and had showed many benefits. In Vietnam, payment using e-wallet is currently

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Hanoi, Vietnam, Email address: tranhien@hvtc.edu.vn

not familiar to many people and businesses. However, this type of payment with a lot of development potential as well as many utilities that are suitable to the booming of e-commerce today.

The objective of this paper is to find solutions to promote payments using e-wallets in Vietnam in the coming time by analyzing the current situation of the e-wallet market, pointing out the challenges to the growth of e-wallets.

2. THE PROCESS OF FORMING AND DEVELOPING E-WALLET IN VIETNAM

Currently, with the explosion of modern technology, we tend to choose online payment instead of cash payment during transaction processes. It can be said that electronic payment is increasingly popular in Vietnam because of its convenience, quickness and suitability with the general development of the world. Electronic payment bases on the Internet, which can perform the transfer, deposit, withdrawal money and so on. Instead of cash transactions, they can transfer through online accounts. One of the most commonly used forms of online payment today is e-wallet payment.

E-wallets make payment online quickly and conveniently, while helping control the money account in the wallet through account queries and fluctuations in the customer's money account. *E-wallet or digital wallet is an electronic account that is often integrated in smartphone applications or used on websites to serve as a wallet to help you store money from bank accounts and have a payment function and online transactions with electronic websites or fees on the Internet that have links and allow payment by e-wallet.*

These service providers will work with bank to manage your money and through this connection, the bank will reduce the management of customer card payments because these transactions will be managed by the electronic wallet provider. Payment by e-wallet will reduce the amount of cash in circulation, contributing to reduce inflation.

Advantages of electronic wallets

Individual bank accounts are often connected to e-wallets to help customers make payment or transactions flexibly and conveniently with the following benefits:

Online payment: Pay for online shopping transactions, entertainment and food services, or pay bills for electricity, water, telephone, air tickets, internet charges, etc.

Receiving and transferring money: e-wallets have the ability to hold money as well as participate in transfers between bank accounts like a normal bank account quickly.

Deposit and withdraw money from electronic accounts to maintain and use without worrying about the safety and security of the wallet.

Therefore, using e-wallets gives customers the convenience and safety, saving travel time by making it easy to make payment and transfer payments, and control money accounts with account queries and fluctuations in your account.

Disadvantages of electronic wallets

However, using an e-wallet could cause some disadvantages, for example, customers may lose their account if they disclose their information, especially when accessing regularly to unreliable websites. So, please note the following:

First, Keep information about e-wallet account confidential and do not share information about bank accounts, e-wallets to others.

Second, Do not use the same account to pay for different services.

Third, Should install anti-virus software on phones and computers to prevent your account from being stolen.

E-wallet was launched in 2008 when Vietnam's e-commerce market was in need of suitable payment tools. E-wallets were expected to help buyers and sellers connect quickly with each other. Since 2009, the State Bank of Vietnam (SBV) has licensed a pilot e-wallet service for six companies: VietUnion (Payoo), MobiVi, Smartlink, VNPAY, VinaPay and M-Service. After one year of operation, about 70,000 e-wallets were opened, of which Payoo (of VietUnion) had the highest number with more than 32,000 wallets, followed by VNPAY with more than 30,000 wallets and MobiVi over 7,000 ones. By the end of 2009, there were 9 commercial banks signing and implementing e-wallet services, 110 units accepted to pay by e-wallets. However, electronic wallets at this time just allowed recharging to account to buy some products and services online (mainly phone cards, online games ...), transferring money between accounts in the same network, but not allowing wallet holders to withdraw money.

During the period from 2009 to 2013, e-wallets developed very slowly, because Vietnamese people was unfamiliar with e-wallet services, and businesses are also afraid of participating in this payment form. According to SBV data, by the end of 2013, there were only over 1.84 million e-wallets in Vietnam, the total amount of transactions of the year were about 23,350 billion VND (about US \$ 1.1 billion). Compared to scale of the cashless payment market in Vietnam, this number seems modest. In the card market only, by 2013, there are more than 66 million cards, the total domestic sales were about 1.1 million VND (52 billion USD).

By 2014, many e-wallets have been launched in Vietnam market. At the end of May 2014, FPT Corporation officially launched the FPT Wallet payment intermediary service, derived from the previous online payment service Senpay of the commercial website Sendo.vn. This is the 16th unit licensed by the SBV to provide intermediary payment services. Earlier, Mobifone also introduced Vimo e-wallet; VTC with e-wallet VTC Pay; Vietnam Electronic Sports Development Joint Stock Company (Vietnam Esports) also launched TopPay e-wallet in March 2016, etc. The electronic wallet application was licensed by the State Bank under Circular No. 39/2014/TT-NHNN, clearly stipulating the preparation, using, preservation and storage of electronic documents in accordance with the law.

In conclusion, e-wallets have been developed for around 5 years, however, compared to other payment methods, especially cash payment, the role and position of the e-wallet in Vietnam is modest.

3. CURRENT SITUATION OF E-WALLET MARKET IN VIETNAM

3.1. Overview of the electronic wallet market in Vietnam

By the end of 2018, the Payment Department (State Bank) has licensed 26 payment intermediaries, including more than 20 e-wallet products to the market. Several e-wallet service providers should be mentioned are Ngan Luong, Payoo, Bao Kim, and Momo E-wallet of M-service.

NganLuong.vn

NganLuong.vn operates under an e-wallet model, in which users register individual or business accounts with 3 main functions: recharge, withdraw and pay money; All of them are fully online via domestic or international cards and bank accounts. Investment capital from the world's leading corporations in finance and technology, including IDG (USA), SoftBank (Japan) and strategic joint venture with eBay (USA), allows NganLuong.vn to ensure finance for all electronic payment transactions in Vietnam. After 8 months of testing, Nganluong.vn was voted as the most favorite e-wallet by the Vietnam E-Commerce Association (VECOM) and Ho Chi Minh City Department of Industry and Trade in early 2010. Up to now, NganLuong.vn has hundreds of thousands of wallet accounts created and more than 2,000 websites using this provider's services.

Payoo e-wallet

On January 14, 2008, Viet Community Online Services Joint Stock Company (VietUnion) was established with the goal of becoming a leading company in the field of electronic payment in Vietnam. VietUnion's Payoo Payment Service was licensed by the Governor of the State Bank to operate in the field of payment intermediaries on February 18, 2009. Also in this year, VietUnion was awarded the Sao Khue Award by the Vietnam Software Association and recognized as a member by the Vietnam E-Commerce Association VECOM. In 2013, VietUnion led the market in payment points and POS network. In November 2013, VietUnion signed a strategic cooperation with MasterCard Global Finance Company. At the same time, VietUnion payment solution won the runner-up position at the eAsia Prize organized by the Asia-Pacific Council on Trade Facilitation and Electronic Business. In 2014, VietUnion achieved International Security Certificate PCI-DSS. The company expanded its payment network across the country and maintains its fast monthly growth rate. By the end of 2014, the nationwide network of payment points had expanded to more than 1500 points, paying for various types of invoices such as electricity, water, telephone, television, internet, finance and so on.

In 2015, VietUnion Officially licensed by the State Bank for 4 intermediary payment services, VietUnion expanded the payment network to more than 2,500 points around the country, meeting the demand for payment of nearly 70 different types of invoices for customers. Up to now, VietUnion has also connected with more than 20 domestic banks. With the completion of technology infrastructure, Payoo has been trusted by many partners as a payment gateway. All transactions are encrypted with SSL, connections with partners are authenticated by digital signatures and comply with ISO 27001-2005 procedures for information security. Some typical partners have integrated Payoo Payment Gateway such as Nhom Mua, Loi Dich, Vinabook, Hoa Sai Gon, Megabuy, Vien Thong A, Muaban.net and so on.

Baokim.vn payment portal

Baokim.vn is an online payment gateway built according to the model of Paypal system, Moneybookers and supporting Mobile Payment for online payment in Vietnam. The advantage of baokim.vn is that consumers can be completely assured when using the “Safe payment” mode. With the “Safe payment” mode, if the transaction is at risk or there is a conflict between the seller and the buyer, baokim.vn will support buyer to complain and be refunded 100% of the amount in the transaction.

Momo e-wallet

In 2010, VinaPhone mobile network officially launched Momo e-wallet service. This is the first service in Vietnam to support consumers to conduct electronic payment transactions on their mobile phones quickly and conveniently. Momo e-wallet service is linked between VinaPhone and the largest online service provider in Vietnam M-Service and the system of major banks such as Vietcombank, Vietinbank, ABbank ... Until now, the application has been available more than 1 million users on 3 basic operating systems (Android, iOS, Windows Phone). In particular, it is also the only unit that has applications for its agents/points of sale, helping agents/points of sale to well manage business activities and provide a wider range of products - services for customers (Momo Transaction points). The Momo points system covers 45 provinces/cities nationwide, focusing on rural areas (almost every district/commune has 1 transaction point; in the city, a Momo store could be found every 500 meters). This system helps customers to deposit/ withdraw money, pay bills/services conveniently, even in rural areas, remote areas. Momo has been providing service: Transfer money between Momo accounts; Deposit/withdraw money; Payment of invoices/services; Ecommerce; Personal finance ... with two main channels: more than 3,500 transaction points and Momo application on smartphones for users and agents/points of sale.

According to the State Bank of Vietnam, top 5 companies in terms of number and value of transactions via e-wallet services to the end of the first quarter of 2019 are: Payoo Wallet, Momo Wallet, JSC Development e-sports Vietnam, Moca Wallet and FPT Wallet.

The dynamic and vibrant market of e-wallets in Vietnam also creates an attraction for foreign investors. Several foreign businesses chose to corporate with domestic businesses in the race to win market share of e-wallets, including Standard Chartered Investment Fund Equity and Global Investment Bank Goldman Sachs in cooperation with M-Services JSC (Momo e-wallet). VNPT Epay has 65% owned capital of Korean investment fund; 90% of Onepay Joint Stock Company belongs to True Money Group from Thailand. Meanwhile, a number of businesses with strong financial resources have chosen to create their own products to penetrate the Vietnamese market. EVENS E-CASH, a technology enterprise from South Korea, issued a notice that is expected to officially be available in Vietnam market by the end of 2019. The EVEN E-CASH product is about to be marketed to customers who have not used bank cards, is a peer-to-peer payment platform based on block chain platform, so the security is much higher.

3.2. Outstanding advantages attract users of electronic wallets

Thanks to the fact that e-wallet products have captured the general psychology of consumers, they have grown rapidly in the past few years. One feature that makes e-wallets attractive now is that it is free of

all payment transactions, transfers and bonus points for regular non-cash payment customers. Moreover, when shopping on e-commerce sites, users can keep their card and bank account information confidential without having to provide websites via e-wallets, helping to limit leaked information.

In addition, in the race to win the market, e-wallet applications often launch many attractive incentives and promotions to stimulate the payment through programs such as gifts giving, vouchers or direct cash deductions for consumers. E-wallets also show outstanding advantages in conveniently paying small-value products without having to wait for the seller to return the excess money during the transaction and saving time. This is also one of the advantages favored by young people to choose electronic wallets as a regular payment method.

Besides, the utility of new electronic wallets is one of the most important things that makes users change their payment behavior because electronic wallets are like “super applications”. When owning an e-wallet, users can easily pay for services such as car hire, food, movies, electricity, water, tuition without travelling a lot. Especially with the coverage of wifi networks, 3G/4G and upcoming 5G networks, the Internet is always available, convenient for electronic payment, especially in urban areas and big cities.

3.3. Challenges to the growth of electronic wallets in Vietnam

Out of more than 20 e-wallet service providers licensed by the State Bank, only about 6 e-wallets are interested and regularly used by consumers. The reason is that the investment in intermediary payment services currently requires a huge amount of capital, but the likelihood of being backward is very high because the technology trend changes day by day.

Besides, the habit of buying and selling and the fear of fraud and problems when not having a bank account linked to a wallet have made most Vietnamese consumers still choose to pay in cash.

On the other hand, what consumers are expecting now is not how many banks to which e-wallets have been linked, but how many retail chains of goods and services in the market have to link to so they can pay for lots of small items in everyday life. The existence of many types of e-wallets with separate segments makes users have to install too many different e-wallet applications which will take time to operate and recharge from bank accounts to wallet accounts. Even users who install e-wallets in full of phones still do not meet the essential payment needs. What users expect is the prospect of a comprehensive merger of payment services, loans and investment in a single mobile application.

Another barrier is the recharge of an e-wallet account must be through a bank account currently, it means that the users must have at least one bank account linked to the e-wallet, resulting in restriction on the use of e-wallets because many people do not have internet bank accounts.

In addition, Vietnam has not yet built a full and formal legal corridor for e-wallet payment. In other words, there are no sanctions or laws that regulate the legitimacy of e-wallets and the risks as well as ensuring the safety of users' assets whenever there is a dispute. Therefore, online consumer protection laws need to be more stringent and enforced, in order to encourage consumers to make their payments via e-wallets.

4. SEVERAL SOLUTIONS TO PROMOTE PAYMENTS USING ELECTRONIC WALLET IN VIETNAM

4.1. Solutions from the Government and the State Bank

Recently, the State Bank has actively promoted solutions to develop non-cash payments. Beginning in 2019, June 16 every year is selected as a cashless day. Accordingly, credit institutions, payment intermediaries, e-commerce levels, service providers, retailers ... will have special promotions for customers when shopping without cash. This is also one of the efforts to reduce the amount of transaction cash, contributing to promoting new forms of payment such as electronic wallets.

Notably, the State Bank of Vietnam is drafting a circular amending and supplementing a number of articles of Circular No. 39/2014/TT-NHNN dated December 11, 2014 on Intermediary Payment Service Instructions. Accordingly, the State Bank stipulates the total transaction limit of an individual's e-wallet (including money transfer from e-wallet to other electronic wallets and payment transactions for legal goods and services) maximum of 20 million VND per day and 100 million VND in a month. This limit is set to minimize the risk of using e-wallets to launder money, perform illegal activities and, most importantly, minimize risks and damages to users in case of phone loss or hacked account.

On February 23, 2018, the Prime Minister's Decision No. 241/QĐ-TTĐ issued the Approval of the Scheme on promoting payment via banks for public services: Taxes, electricity, water, tuition, hospital fees, and payment of social security programs. The overall goal is to contribute to building an e-government, improving access to banking services of the economy and developing cashless payment. This decision also brings new development opportunities for e-wallets through monthly transactions.

At the same time, the providers of e-wallet services have also been quickly caught the opportunity to attract customers to open accounts with incentives and reduce invoices for those who pay via e-wallets. Resolution No. 01 and 02/NQ-CP of the Prime Minister, issued on January 1, 2019, issued a number of important contents, including: Promoting non-cash payments; implementing pilot new payment models; The State Bank has the duty to report to the Government on the plan to recharge e-wallets without using bank accounts and apply new technologies and innovative solutions to the banking sector. According to experts, the decision to allow directly deposit into the government's e-wallet account when implemented will open up huge opportunities for comprehensive financial policy in general and the growth of e-wallets in particular. With high flexibility, low operating costs, the establishment of recharge points followed chains of groceries, implements, fertilizers, rural markets ... e-wallets can expand to rural areas, where nearly 70% of Vietnam's population currently lives.

In the coming time, to support the expansion of the electronic wallet market, the Government also needs to complete, apply investment incentive policies, income tax incentives, and support development investment credit for commercial enterprises; establish organizational models and apply modern e-commerce business methods, advanced management technologies to stimulate investment in the market of electronic payment services.

On the side of the State Bank, there should proactively follow and update the situation of domestic and international cybersecurity to warn as well as direct the units in the whole department to promptly prevent and handle risks and information technology security gaps. Formulate a cooperation program, exchange information and coordinate with the Ministry of Public Security and the Ministry of Information and Communications in preventing and combating hi-tech crimes as well as deploying solutions for network safety and security in electronic payment.

4.2. Solutions from financial technology companies

Firstly, it is necessary to have symbiosis between e-wallet providers and banks: E-wallet service providers need to cooperate with banks in order for cash flow to transfer into the e-wallet account conveniently and fast. Currently, some e-wallets allow consumers to top up their accounts through phone cards.

Secondly, expand features to meet the maximum needs of customers: With the fin-tech trend, e-wallets today are required to diversify services. Users can recharge their wallet in many ways: top up from phone cards, top up via payment accounts, transfer via banks, Internet Banking, Mobile Banking and so on.

Thirdly, strengthening the propaganda and promotion to encourage the access and use of e-wallet services of the people. The propaganda needs to provide many attractive contents and encourage businesses to register to use e-wallet services such as: free for merchants to accept wallets, free wallet registration, donate money to the account for wallet registration customers.

In the face of the high demand for utility in the current fast-growing and strong society, technology and financial enterprises need to build an electronic wallet payment ecosystem. By linking diversity, widest integration, maximum solvency of the field into the least number of e-wallets; this way meets the needs of users about the convenience of electronic wallets.

5. CONCLUSION

Vietnam is one of the potential mobile payment application markets in the world. Besides the important factors contributing to this impressive development are economic growth, the fulfillment of payment infrastructure, the convenience of electronic payments or cheaper electronic payment costs.... it is the correctness and effectiveness of the policies, solutions that the Government and the State Bank of Vietnam have implemented in recent years to promote non-cash payments in general and electronic wallet payments in particular. Therefore, in order for e-wallet to develop in the coming time, there should be a harmonious coordination between solutions from the State and e-wallet service providers.

REFERENCES

1. Ministry of Industry and Trade (2017), *2017 E-Commerce Report*, Hanoi.
2. Ministry of Information and Communications (2016), *2015 Summary Report and 2016 Mission Directions*, Hanoi.
3. Nguyen Thuy Dung, Nguyen Ba Huan, *Payment by e-wallet in Vietnam Situation & Solutions*, Journal of Forestry Science and Technology No. 3 (2018).
4. VEPF (2017), Vietnam Electronic Payment Forum, Hanoi.
5. *The growth of e-wallets in consumption in Vietnam* [online], Available from: <http://consosukien.vn/>

PROMOTING THE ROLES OF THE INTELLECTUALS IN VIETNAM

Luong Quang Hien¹

ABSTRACT

The intellectuals are an important intelligence source for socio-economic development nationally as well as internationally. They play a great role in creating spiritual and cultural values, bringing about important achievements in science and technology, social sciences and humanities, contributing to promoting social progress. Especially, in the context of industrial revolution 4.0, stormy-like science and technology, the digital age and the connection of the universe by the Internet, together with artificial intelligence, the role of the intellectuals is becoming increasingly important more than ever.

Keywords: The intellectuals, knowledge, intelligence resources, science and technology, science and technology

1. INTRODUCTION

Entering the 21st century, a new production revolution is taking place on an international scale, having a strong impact and leading to qualitative leaps in the development of production forces, transforming the economy internationally, opening many prospects for the great progress of human civilization. In such context, the intellectuals have increasingly shown their important roles.

2. RESULTS AND DISCUSSION

Firstly, the intellectuals build scientific arguments that make an important contribution to the planning, criticism and consolidation of the Party's directions and guidelines, the State's policies and laws.

The 6th Congress of the Party officially adopted the comprehensive renovation guidelines of the country. Such guidelines have been constantly improved and supplemented in the Party's resolutions and documents for over 30 years. It is truly the crystallization of the intelligence and creativity of our entire Party and people, including the significant contribution of intellectuals in all areas of economic, political, cultural and social life

The comprehensive renovation of the country is really a revolution, an indispensable requirement, requiring the Party to gather and promote all resources, of which intellectual resources have an extremely important role, especially in context of the current industrial revolution 4.0.

In formulating directions and strategies for national development in the renovation period, the Party has correctly assessed the roles of scientific knowledge, which is a scientific basis for

¹ Academy of Finance

properly evaluating the roles and position of national intellectuals in the new era. The 6th National Congress of the Communist Party of Vietnam affirmed that: “For the intellectuals, the most important thing is to guarantee creative freedom, the right assessment on the capacity and the facilitation for competency to be used properly and grow...”¹. The affirmation and appreciation of intellectuals’ roles in the renovation period have been agreed throughout the Central Congresses, Conferences on intellectuals, education and training, science and technology of the Party. The 12th National Congress of the Communist Party of Vietnam (January 2016), affirmed that: “Formulating and implementing policies of training, retraining, appreciating, treating and honoring science and technology force, especially the talented specialists that have made many contributions. Creating favorable environment and preferentially material conditions for science and technology force to improve talents and enjoy worthy benefits of their creative working values. Practicing democracy, respect and uphold the freedom of thoughts in scientists’ research, creation, consultancy and critic activities”².

During the renovation period, many intellectuals have directly joined in the preparation of decisions of the Party and State. Many useful comments have helped to make strategic and policy-making more accurate. In the atmosphere of democratic activities of the country, the activities of the intellectuals have had many renovations. The Party and the State encourage discussion, comment collection...to reach the most feasible, effective and suitable theoretical explanations and practical transformation measures. Therefore, the formation and finalization of the platform, guidelines, policies, laws, and planning of socio-economic development strategies of the Party and the State always have the active contributions from the scientists, the intellectuals.

Secondly, the intellectuals are a highly intelligent labor force that make a significant contribution to the process of accelerating industrialization and modernization of the country.

Our country is entering a period of continuing to promote industrialization and modernization, which is the great significance to the country’s development and the central task of the renovation period. The 12th Conference of the Party Central Committee, 7th season (May 2018) identified that: “... to turn our country into an industrialized country in the direction of modernization by 2030, with a vision to 2045 becoming a modern industrialized nation, orienting to the socialism, for the objectives of rich civilians, strong country, democracy, justice, civilization, increasingly prosperity and happiness”³. Facing huge demands, in order to meet the objectives that the Party has determined as mentioned above, the intellectuals and the scientists, technologists play a motivating and leading role in researching, applying and transferring scientific and technological advances in many different fields. In production management, the intellectuals are the ones who implement

¹ Communist Party of Vietnam: Documents of the 6th National Congress of the Communist Party of Vietnam, The Truth Publishing House, Hanoi, 1986, p. 115.

² Communist Party of Vietnam: Documents of the 12th National Congress of the Communist Party of Vietnam, National Politics Publishing House, Hanoi, 2016, p. 122.

³ Government web portal: Resolution of the 7th Plenum of the 12th Central Party Committee *on focusing on building a contingent of cadres at all levels, especially at the strategic level, who are qualified in both nature and competency, mission peer level*, 19:59 hours May 21, 2018.

renovation of management mechanisms, contribute to reorganizing and guiding other labor forces to bring scientific advances into production to improve labor productivity and economic efficiency. Science workers have become direct production forces in the fields of research, application, deployment of advanced technology and other scientific and technological services. Moreover, they must have the responsibilities in constantly improving their professional competency and qualifications to acquire and creatively apply advanced scientific and technological advances in the world, knowing how to combine the nation strength with the strength of the times to accelerate the process of industrialization and modernization of the country.

In the direction of the 10th National Congress of the Communist Party of Vietnam, to accelerate the industrialization and modernization of the country, our country needs to “take advantage of favorable opportunities created by the international context and the country’s potential and advantages to shorten the process of industrialization and modernization of the country in the direction the socialism, associated with the development of the knowledge-based economy. Knowledge-based economy must be considered as an important element of the economy, industrialization and modernization to strongly develop highly added value economic sectors and economic products basing much on knowledge”¹.

Thus, along with the path of combining industrialization and modernization basing on the knowledge-based economy, strongly developing science, technology and enhancing the development of education, training, the intellectualization of labor resources will take place strongly in the whole society as well as in all forces involved in the production process, regardless of social classes. More than ever, the intellectuals must promote their great roles in the process of accelerating industrialization and modernization of the country, in which, the fundamental political tasks are to promote the motive role of science, technology in the process of industrialization and modernization, leading in the studying and applying advanced techniques and new technologies. At the same time, renovating production and business management mechanisms, contributing to guiding and organizing the labor mass movement to advance into science and technology, promoting creativity, improving techniques, rationalizing production to raise working productivity and economic efficiency. Expanding and strengthening the creative working competency of the labors in the production process, to both increase employment opportunities, contribute to solving unemployment, and to create the fast and sustainable development for the society; thereby creating practical capacities for people to develop comprehensively.

Thirdly, the intellectuals are a force with an important and decisive role in the cause of education and training, science and technology, raising the intellectual level, training human resources and fostering talents.

Practically proven, the development of modern economy, successful implementation of industrialization and modernization of the country needs modern people. The intellectuals have great roles and responsibilities in accelerating the renovation of education and training cause, science and technology, to improve the intellectual level, train human resources, foster talents

¹ Communist Party of Vietnam: Documents of the 10th National Congress of the Communist Party of Vietnam, National Politics Publishing House, Hanoi, 2006, p. 28-29

and training people to have high qualifications and good moral qualities that meet the current labor needs.

At the same time, in order to have the intellectuals and highly intelligence human resources to meet the requirements of the cause of the nation renovation acceleration, in the short hand, it is essential to build up an education towards the goals of “raising the intellectual level, train human resources and foster talents”. In current age, there will be no sustainable development without the intellectual resources. Intellectual resources reside right in every person and especially in the treasure of knowledge of the mankind. The race among countries in the 21st century is right in the educational circle, improving people’s knowledge, enriching intellectual resources and forming the talented. The intellectual potential exists in the people, in every laborer, in which the intellectuals are a part crystallizing the typical intellectual values of the entire nation. Therefore, in order to make the intellectuals of the people become numerous in quantity and high in quality, the basic foundation is to have a highly intellectual level and adequately strong human resources to implement the strategies of development. Only the ground of high intellectuals, can we construct an intellectual building, the top of which are brilliant talents. The talented symbolize the intelligence peak of the human being. The emergence of the talented is the process of striving for the rise of the whole nation in the development process. That process depends not only on the subjective efforts of each person, but also on social policies for education, training, science and technology, for the intellectuals and the use and promotion of roles of the talented intellectuals.

Fourthly, the intellectuals are force directly contributing to maintaining and upholding the beautifully cultural traditions of the nation, acquiring the cultural quintessence and civilization of the mankind.

The roles of the intellectuals are, of course, expressed not only in the field of creation of material wealth, but also in the field of creation of values of spiritual life. The renovation of the country has led all intellectuals to promote creative labor in all areas of social life, to strive to overcome poverty in intelligence, culture, information, science, technology, education, culture, art...in the working people across the country, to knowledge, cultural exchange, acquiring the quintessence of human culture, contributing to make spiritual life of people become richer and richer.

Art-culture is an integral part of the cause of renovation. Its central task is to contribute to building a Vietnamese culture characterized by nationalism, humanity, democracy and science; to build and foster Vietnamese people in terms of intellect, morality, soul, and personality at peer level with the new requirements, with the following characteristics: Patriotic, compassionate, loving, honest, solid, hardworking, creative. To accomplish such tasks, the intellectuals on the cultural front must be truly pioneering soldiers, through their works, contributing to consolidating the beautiful and noble values of the Vietnamese people, the country, the nation. At the same time, actively criticizing negative cultural factors that hinder the country’s development path. As representatives of the nation’s intellect, the intellectuals have contributed to maintaining and promoting the nation’s beautifully cultural traditions, actively participating in building new lifestyles and cultural families; combating against old and harmful cultural remnants; eliminating depraved custom, backward lifestyle, social evils that badly affect the traditions and customs of

Vietnamese people, directing people to values of truth, goodness and beauty. The intellectuals in the fields of culture and arts are those who directly create, participate in cultural development and dissemination, preserving the cultural identity of the nation and also acquire the quintessence of human culture. Preserving historical values, tangible and intangible cultural values to educate the people about patriotism and national pride, the historical and cultural traditions. At the same time, continuing to create new cultural values that reflect the height of the age and depth of traditions and cultural identity of the nation; fighting against the trend of conservatism and the trend of root loosing, dissolution, nihilism.

3. CONCLUSIONS AND POLICY IMPLICATIONS

Currently, in the context of the new industrial revolution - industrial revolution 4.0, the transformation of science and technology fields is taking place strongly, creating a breakthrough development in all areas of social life. Under these conditions, the intellectuals, the nation's elite team has played an increasingly important role in promoting the cause of renovation and further accelerating the industrialization and modernization of the country. In the new context, the Party and the State are required to continue to promptly set forth guidelines, policies and measures that are both long-term and concrete in order to further promote the roles of the intellectuals. It is also an urgent demand of the times as well as the practical requirements of the country-the nation. It is also a core measure for our nation to soon actualize the objectives of "rich civilians, strong country, democracy, equality, civilization, increasing prosperity, happiness".

REFERENCES

1. Communist Party of Vietnam: Documents of the 6th National Congress of the Communist Party of Vietnam, The Truth Publishing House, Hanoi, 1986, p. 115.
2. Communist Party of Vietnam: Documents of the 12th National Congress of the Communist Party of Vietnam, National Politics Publishing House, Hanoi, 2016, p. 122.
3. Government web portal: Resolution of the 7th Plenum of the 12th Central Party Committee *on focusing on building a contingent of cadres at all levels, especially at the strategic level, who are qualified in both nature and competency, mission peer level*, 19:59 hours May 21, 2018.
4. Communist Party of Vietnam: Documents of the 10th National Congress of the Communist Party of Vietnam, National Politics Publishing House, Hanoi, 2006, p. 28-29

THE ROLE OF TRAINING IN BUILDING JOB SATISFACTION AND EMPLOYEE COMMITMENT AT COMMERCIAL BANKS IN HO CHI MINH CITY

Ha Van Dung¹

ABSTRACT

This study focuses on determining the impact of employee training on job satisfaction and employee commitment at commercial banks in Ho Chi Minh City. Based on a sample of 232 employees at commercial banks in Ho Chi Minh City, the paper employs Frequencies, Cronbach's Alpha test, Exploratory Factor Analysis (EFA), Affirmative Factor Analysis (CFA) and Structural Equation Model (SEM) for analysis. The results showed that employee training positively affects job satisfaction and employee commitment; and job satisfaction positively affects employee commitment.

Keywords: *Training, Satisfaction, Commitment, Commercial Bank.*

1. INTRODUCTION

Employee Commitment is the foundation for all organizations to promote its strengths of human resources for all organizational developments (Ocen et al., 2017). Most of the previous studies are focused on improving the employee commitment through a variety of manners, but the issues of employee training had not been addressed as much as the importance of employee training for the employee commitment did (Ocen et al., 2017).

However, the issues of employee training in all organizations have some direct or indirect impacts on the employee commitment (Ocen et al., 2017). According to Kulkarni (2013), the employee training plays an important role in all organizations. Some scholars like Humphrey et al. (2013) argued that the current expansion of the global economy and technology changes rapidly and innovatively, which requires the organizations to continually train their employees. Moreover, the training is also the basis for improving the job satisfaction of the employees (Ocen et al., 2017).

Therefore, the objective of this study is to identify and measure the levels of impacts of employee training on the job satisfaction and employee commitment at the commercial banks in Ho Chi Minh City. On that basis, the study has proposed some of administrative implications to improve the Job Satisfaction and Employee Commitment at the commercial banks in Ho Chi Minh City.

¹ Banking University of Ho Chi Minh city (BUH), 56 Hoang Dieu 2, Linh Chieu, Thu Duc, Ho Chi Minh city; Email: dunghv@buh.edu.vn

2. LITERATURE REVIEW

Employee Training

Training has been recognized for a long time and it has been paid great attention from the academic researchers (Claydon, 2004). It has brought a wide range of definitions of training. Forgacs (2009) defined training as a planned activity in order to improve the employee performance by the transmission of skills. Armstrong (2006) stated that training means as the processes of behavioral adjustments through experience, transferring the knowledge and skills from the available employees to those who lack the knowledge and skills. Jun et al. (2006) argued that the training has provided a lot of opportunities for the employees to enhance their knowledge and skills for their effective developments so that when the training programs of the organizations are available, they might become confident and have positive mindsets for their organizations.

Some studies have used different methods to measure the training; however, the motivation to develop the training activities is now considered as the most common way to measure the training-related problems because it means simply as the motivations of the employees to attend the training sessions (Dias & Silva, 2016). Beier and Kanfer (2010) noticed that the training motivation was an important prerequisite for starting some training activities. Newman et al. (2011) showed that the well-motivated employees seemed to be more likely to have more positive awareness of the training environment, which leads to more and more participations and efforts in training activities (Brum, 2007).

Job Satisfaction

Skaalvik and Skaalvik (2011) defined the job satisfaction as the feelings of an employee with his job when his job expectations are in conformity with his actual performance. Togia et al. (2004) defined the job satisfaction as the employees' feelings and mindsets about their jobs and workplaces. According to Armstrong (2006), the job satisfaction is defined as the attitudes and emotions of the employees about their jobs. Kim et al. (2005) defined the job satisfaction as the common feelings or attitudes of the employees related to their jobs and job components, such as their working environment, working conditions, fair rewards and communications with their colleagues.

Employee Commitment

According to Muthuveloo and Rose (2005), the employee commitment means as the abilities of the employees to be loyal and consistent with the organizations in relation to their duties and responsibilities at the organizations.

According to Aghdasi et al. (2011), the individuals who have a strong attachment to the organization shall feel more connected to the organization and gain their pleasures from becoming a member of the organization. According to Awais et al. (2015), some researchers have set up with three issues related to the employee commitment as follows:

Firstly, the employee commitment is considered as the issues of emotional commitment, which means as the extent to which the employee feels his emotional and identifiable connection,

as well as his current involvement in the organization so that he desires to stay and grow with the organizational development (Mouhamadou, 2015).

Secondly, the employee commitment is considered as the issues of ongoing commitment, which means as the employee experience when he feels that he cannot leave his current job because he does not have any other choices, so that the employees strive to maintain their current job continuously (Chung, 2013).

Finally, the employee commitment is considered as the issues of regulatory commitment, which involves in the personal feelings of the employee of the needs to respond to what he gained from the organization where he was employed. Therefore, he desires to contribute to his organization (Mouhamadou, 2015).

Relationship between the Employee Training and Employee Commitment

According to Ocen et al. (2017), it is shown that the employee training has significantly and positively influenced to the employee commitment. As can be seen in the study conducted by Cropanzano and Mitchell (2005), the employee training has led that the employees shall become more dedicated to work with the organization. Regarding to the various types of aforementioned commitments (Emotional Commitment, Ongoing Commitment and Regulatory Commitment), the employee training make positively influences to emotional commitment because the employees want to create their job experience and capacities, while the regulatory commitment is positively affected by the training because the training emphasizes the sense of the benefits that they receive. In contrast, the training positively affects to ongoing commitment because the training helps the employees have better skills (Ocen et al., 2017). When Bulut and Culha (2010) studied the impacts of the training on the employee commitment, it is shown that all aspects of the training make some positively influences to employee commitment. Based on the above reasons, the study has proposed the following hypothesis:

Hypothesis H1: Employee training has a positive impact on Employee commitment.

Relationship between Employee Training and Job Satisfaction

It is necessary that the organizations must acknowledge that the employee training enhances the job satisfaction of the individuals within the employees (Sajuyigbe & Amusat, 2012). Ocen et al. (2017) found that there was a temporary positive correlation between the employee training and job satisfaction, especially the trained employees were more satisfied than those who did not attend the training courses. Chen et al. (2004) argued that the training helped the employees reduce their anxiety or frustration due to the job demands that they are not familiar with. The study conducted by Siebern (2005) showed that the higher the levels of job satisfaction is got by the employees, the more closely it is related to the training. In a study conducted by Adesola et al. (2013) on the relationship between the employee training and job satisfaction among Nigerian Banks, it is shown that the training had a positive relationship with job satisfaction. Rowden and Conine (2005) argued that the highly-trained employees became more satisfied with their jobs. Meanwhile, Terera and Ngirande (2014) studied about the impacts of training on job satisfaction and job retention

among the employees, the study results showed that the training helped the employees to be more satisfied with their jobs than the untrained employees. Some scholars like Rowden and Conine (2005) suggested that the job satisfaction can be enhanced through training. The training results are shown through the facts that the employees have becoming more satisfied and dedicated to the organization, they shall be involved in their jobs, stay with an organization, arrive at the workplace on time, perform well, and engage in the useful behaviors for the organization (Ocen et al., 2017). Based on the above reasons, the study has proposed the following hypothesis:

Hypothesis H2: Employee Training has a positive impact on Job Satisfaction.

Relationship between Job Satisfaction and Employee Commitment

According to Aydogdu and Asikgil (2011), the job satisfaction affects the decisions to stay or leave an organization. Eleswed and Mohammed (2013) found that when the employees were satisfied with their jobs, they become more committed to the organization. However, those who found that their needs were not well met shall become dissatisfied and then, they become more and more increasingly eager to leave the organization (Tziner, 2006). It is argued that the employees with their high level of job satisfaction tended to show a higher level of employee commitment, while those with lower level of job satisfaction tended to demonstrate the harmful behaviors to the organization (Eleswed & Mohammed, 2013). According to Gunlu et al. (2010), the job satisfaction will help to predict the employee commitment to the organization. Some studies conducted by Okpara (2004), Samad and Hassan (2007) have concluded that if the workforce is satisfied with their jobs, they become more committed to their organization than those who are not satisfied with their jobs. Indeed, there has a relationship between the job satisfaction and employee commitment (Ocen et al., 2017). Based on the above reasons, the study has proposed the following hypothesis:

Hypothesis H3: Job Satisfaction has a positive impact on Employee Commitment.

3. RESEARCH METHODOLOGY

The research methods are used as follows:

Qualitative method: It is conducted in a sequence based on the literature review and overview of the previous relevant studies to propose the preliminary research hypotheses and models. Then, the author conducted a group discussion with 10 experts to supplement and adjust the observed variables of the factors of Employee Training, Job Satisfaction and Employee Commitment in the preliminary research model in conformity with the context of research at the commercial banks in Ho Chi Minh City. The research results will be formed as the basis for developing a measurement scale and questionnaire to collect the data for quantitative research.

Quantitative method: The research samples in the quantitative research were conducted by a convenient sampling method with a sample size of 232 employees working at the commercial banks in Ho Chi Minh City. The data collected by the survey through the questionnaire is available designed to send directly to the employees for interviewing and getting their results immediately. The collected data is processed by SPSS 20 and AMOS 20 software, including the statistics, assessments of the reliability of the scales of measurement with Cronbach's Alpha test, exploratory

factor analysis (EFA) with Bartlett and KMO tests, confirmatory factor analysis (CFA) and linear structural equation model (SEM) to analyze the role of training in creating the job satisfaction and employee commitment at the commercial banks in Ho Chi Minh City.

Table 1: Scales of measurement contained the factors of the research model

No.	Factor	Decode	Scale of measurement	Source
1	Employee Training	ET1	My bank helps me develop my skills through training programs	Bulut and Culha (2010)
2		ET2	My bank helps me enhance my knowledge through training programs	
3		ET3	The training programs at the Bank are very suitable for my job position	
4		ET4	I am very excited to attend the training courses organized by my Bank	
5		ET5	The training programs at the Bank help me improve my job performance	
6		ET6	The training programs gave me the opportunity to get job promotion	
7	Job Satisfaction	JS1	My Bank respects the employees very much	Fara-gher et al. (2005)
8		JS2	I am satisfied with my Bank because the income level is commensurate with my job	
9		JS3	My work at the Bank is very interesting and not boring	
10		JS4	I am satisfied with my job at the Bank because I have the opportunity to learn new skills	
11	Employee Commitment	EC1	I will be very happy to spend the rest of my career with the Bank where I am working	Allen and Meyer (1990)
12		EC2	I would find that it is difficult to leave the bank I am working at right now because I love it so much	
13		EC3	I feel that I need to be obligated to my Bank at work	
14		EC4	I am willing to make great efforts to help my Bank succeed	

Source: Summarized by the Author.

According to Trong Hoang and Nguyen Mong Ngoc Chu (2008), the sample size must be at least four or five times the number of observed variables. Thus, in this study, the author uses a minimum number of research votes corresponding to 14 observed variables: $5 \times 14 = 70$ observations. However, to ensure the persuasion and quality of the model results, the author conducted a survey of 250 votes, including 232 valid questionnaires with all the information on the questionnaire.

Table 2: Descriptive statistics results

Variable	Content	Frequency (n)	Percent (%)
Gender	Male	118	50.9
	Female	114	49.1
Education	Intermediate and college	23	9.9
	University	148	63.8
	Postgraduate	61	26.3

Age	< 30	53	22.8
	25 – 40	84	36.2
	41 – 50	56	24.1
	> 50	39	16.8
Working seniority	< 5 year	61	26.3
	5 – 10 year	96	41.4
	> 10 year	75	32.3

Source: SPSS Analysis Results.

Among 232 employees, there are 114 female employees, accounting for 49.1% and 118 male employees, accounting for 50.9%, this percentage is showed that the difference between male and female employees is not too much. Educational qualifications are mainly university level, accounting for 63.8%. Age groups mainly ranges from 30 to 50 years old, accounting for 60.3%. Working seniority from 5 to 10 years is accounted for the highest proportion with 41.4%.

4. RESEARCH RESULTS

The results of the reliability test of the scale of factors show that, Cronbach’s Alpha coefficient reaches the maximum value of 0.937 belongs to the Employee Training factor; the lowest Cronbach’s Alpha coefficient is 0.818, which belongs to the Job Satisfaction factor. All Cronbach’s Alpha coefficients of the factors are relatively high from 0.8 upwards. The correlation coefficient of the total variables is greater than 0.3, showing that the variables are closely correlated, ensuring all variables (14 variables of 3 factor groups) meet the requirements of Structural Equation Model SEM analysis.

Table 3: Cronbach’s Alpha analysis results

Factor	Cronbach’s alpha	Variable
Employee Training	0.937	6
Job Satisfaction	0.818	4
Employee Commitment	0.858	4

Source: SPSS Analysis Results.

All 14 variables belonging to factors that satisfy the conditions of analysis and reliability of Cronbach’s Alpha are included in the Exploratory Factor Analysis (EFA). EFA’s mission is to explore the structure of a scale of factors: ET (Employee Training), JS (Job Satisfaction), EC (Employee Commitment). After ensuring proper implementation of the EFA process, the factors will be tested to clean the data.

Conducting EFA analysis for a total of 14 variables of the scales belonging to factors, the study obtained the results presented in Table 4.

Table 4: EFA analysis results

Bartlett's test of sphericity	KMO	0.724
	Approx. Chi-Square	3,863.174
	df	91
	Sig.	0.000

Source: SPSS Analysis Results.

With the results of factor analysis of variables belonging to factors, obtained coefficient KMO = 0.724, Sig. = 0.000. This confirms the KMO value ensuring the appropriateness of exploratory factor analysis and the significance level of the data put into performing factor analysis. The Chi-Square statistic of Bartlett’s test is valued 3,863.174 with significance level Sig. = 0,000 << 0.05.

Table 5: Rotated Component Matrix

	Component		
	1	2	3
ET3	0.908		
ET6	0.902		
ET1	0.890		
ET4	0.856		
ET2	0.843		
ET5	0.839		
EC3		0.977	
EC1		0.976	
EC4		0.750	
EC2		0.526	
JS3			0.860
JS2			0.820
JS4			0.793
JS1			0.735
Eigenvalue = 1.906			
Cumulaive	40.486%	58.862%	72.473%

Source: SPSS Analysis Results.

At the same time, analysis of extracted variance shows that extract variance reaches 72.473%. This value is quite high with 72.473% of data variability explained by three factors. The scales are drawn and accepted, the stopping point when extracting factors at the **third** factor with a specific value of 1.906 is greater than 1 (this confirms that the included variables are arranged into three factor groups).

The results of factor rotation show that all factors are satisfactory (factor load factor values are greater than 0.5) and arranged in three separate groups of factors, these are groups of factors ET (Employee Training), JS (Job Satisfaction), EC (Employee Commitment).

Next, perform Confirmatory Factor Analysis CFA using AMOS software with the purpose of checking the influence of factors together.

Table 6: CFA analysis results according to standardized coefficients

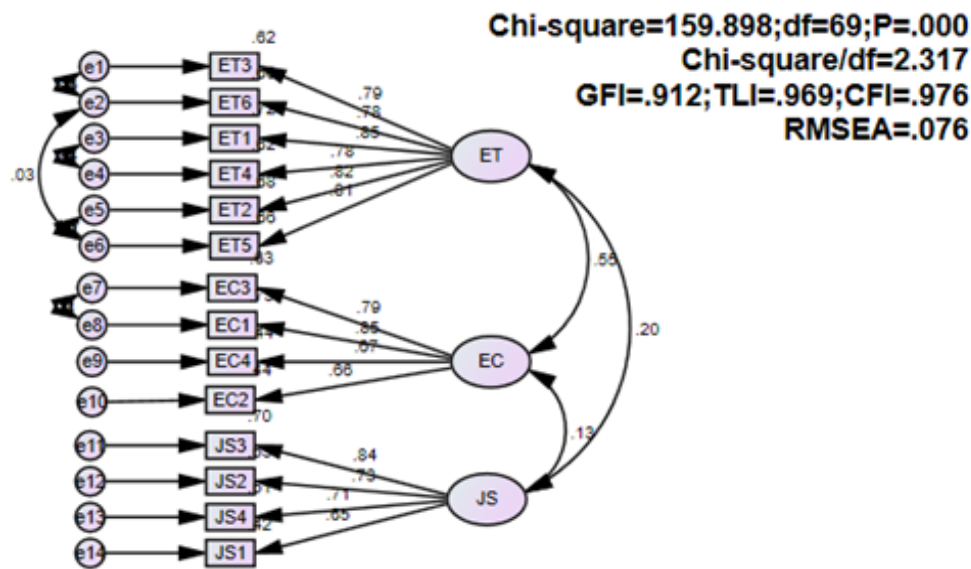
No.	Content	Value
1	Chi-square/df	2.317
2	P-value của Chi-square	0.000
3	GFI	0.912
4	TLI	0.969
5	CFI	0.976
6	RMSEA	0.076

Source: AMOS Analysis Results.

The results show that the value of Chi-square/df = 2.317 is less than 3, GFI = 0.912 is greater than 0.9, TLI = 0.969 is greater than 0.95, CFI = 0.976 is greater than 0.95 and RMSEA = 0.076 is less than 0.1; Therefore, it can be said that the model is suitable for market data. At the same time, the standardized weights are greater than 0.5. That is statistically significant, so the concepts achieve convergent value.

Thus, with CFA analysis results, the main factors are included in the analysis, which are: ET (Employee Training), JS (Job Satisfaction), EC (Employee Commitment).

Graph 1: CFA analysis results according to standardized coefficients



Source: AMOS Analysis Results.

Table 7: Composite reliability and Variance extracted

No.	Factor	Composite reliability	Variance extracted
1	Employee Training	0.811	0.713
2	Job Satisfaction	0.844	0.705
3	Employee Commitment	0.897	0.729

Source: Authors' calculation results.

Along with that, the research paper calculates the total reliability value and the total variance extracted to assess the reliability of the scales. The results showed that the combined reliability values and total variance extracted of all factors were greater than 0.5. This shows the factors that ensure reliability when included in the analysis. And the P-value of the correlation coefficients in each pair is less than 0.05 (i.e. less than 5%), so the correlation coefficient of each pair of concepts is different from 1 at 95% confidence. Therefore, the concepts gain discriminatory value.

To perform the analysis of the Structural Equation Model SEM, showing the role of training in building job satisfaction and employee commitment at commercial banks in Ho Chi Minh City, the author transforms model obtained from CFA analysis results to Structural Equation Model SEM.

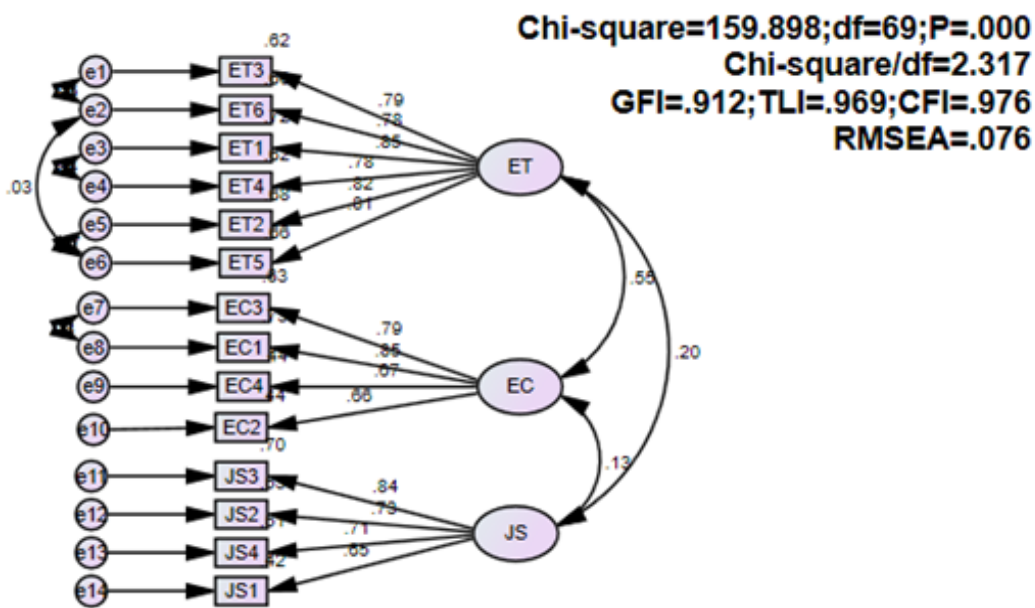
Table 8: SEM analysis results according to standardized coefficients

No.	Content	Value
1	Chi-square/df	2.317
2	P-value của Chi-square	0.000
3	GFI	0.912
4	TLI	0.969
5	CFI	0.976
6	RMSEA	0.076

Source: AMOS Analysis Results.

Inheriting from the CFA analysis results can be easily seen, the results of the Structural Equation Model SEM are consistent with market data. This is reflected in such indicators as: Chi-square/df value = 2.317 less than 3, GFI = 0.912 greater than 0.9, TLI = 0.969 greater than 0.95, CFI = 0.976 greater than 0.95 and RMSEA = 0.076 is less than 0.1.

Graph 2: Results of the structural model analysis show the role of training in building job satisfaction and employee commitment at commercial banks in Ho Chi Minh City



Source: AMOS Analysis Results.

Table 9: Results of the structural model analysis

Relationship			Estimate	S.E.	C.R.	P-Value
HL	<---	DT	0.194	0.075	2.579	0.010
CK	<---	HL	0.020	0.066	0.298	0.005
CK	<---	DT	0.481	0.072	6.660	***

***: 0,000 (0,0%)

Source: AMOS Analysis Results.

At the same time, based on the analysis results, the P-Value of the influence relationships between the factors, we see, the P-Value is less than 5%. Therefore, the relationships among the factors ET (Employee Training), JS (Job Satisfaction), EC (Employee Commitment) are statistically significant in Structural Equation Model SEM.

Table 10: Results of the structural model analysis according to standardized coefficients

Relationship			Standardized estimate	Standardized estimate according to the diagram
HL	<---	DT	0.199	0.20
CK	<---	HL	0.022	0.02
CK	<---	DT	0.545	0.54

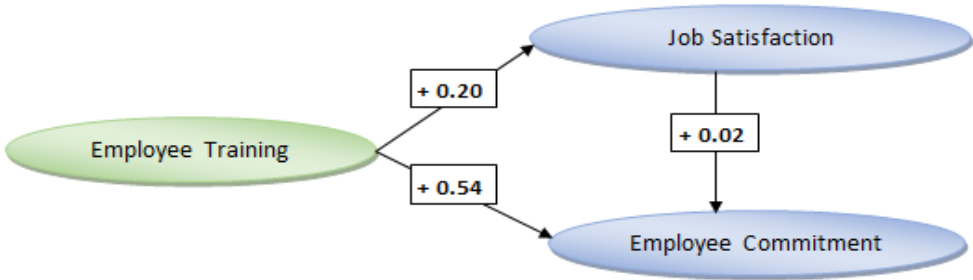
Source: AMOS Analysis Results.

Considering the regression coefficient values among the factors, it is shown that the regression coefficient values are all greater than zero, which means that there is a positive influence between the factors, in details as follows:

The factor of Employee Training has positively affected to the Job Satisfaction and Employee Commitment with the regression coefficients of 0.20 and 0.54, respectively, which means that when the factor of Employee Training becomes positive, the Job Satisfaction and Employee Commitment will be increased (with the corresponding one-time increase in the Employee Training, the Job Satisfaction and Employee Commitment will be increased by 0.20 times and 0.54 times, respectively).

In addition, the factor of Job Satisfaction makes a positive influence to the Employee Commitment with a regression coefficient of 0.02, which means that when the factor of Job Satisfaction become positive, the Employee Commitment will be increased (with the corresponding one-time increase in the Job Satisfaction, the Employee Commitment will be increased by 0.02 times).

Graph 3: Results of the structural model analysis show the role of training in building job satisfaction and employee commitment at commercial banks in Ho Chi Minh City



Source: Author’s analytical results.

Thus, after conducting the analysis of linear structural equation model (SEM), the study showed that the relationship between the Employee Training, Job Satisfaction and Employee Commitment, in which the factors of Employee Training have positively affected to the Job Satisfaction and Employee Commitment; while the factors of Job Satisfaction have positively affected to Employee Commitment.

5. CONCLUSION AND MANAGEMENT IMPLICATIONS

Based on the theories related to Employee Training, Job Satisfaction and Employee Commitment, previous studies related to the topic of the research, the author has built a scale and proposed research model with 3 main factors including: (1) Employee Training, (2) Job Satisfaction and (3) Employee Commitment. Next, the author conducted qualitative research to correct and supplement errors if any, then conducted a survey and conducted a formal survey to collect the opinions of employee at Commercial banks in Ho Chi Minh City. With the collected database, the author conducted SPSS 20, AMOS 20 software for analysis; the study has achieved certain results as follows:

- Show the most basic concepts and scales to measure Employee Training, Job Satisfaction and Employee Commitment factors; the previous research results showed the role of training in building job satisfaction and employee commitment as the scientific basis for subsequent studies.

- Perform preliminary statistics on the objects of the survey such as: gender, education level, age and working seniority.

- Assessing the reliability of the scale through Cronbach's alpha analysis technique showed that with 14 variables (including variables of the factors) all meet the evaluation requirements, Cronbach's alpha coefficients are from 0.8 or more and The correlation coefficient of the total variables is greater than 0.3.

- The results of the exploratory factor analysis EFA show that all variables belonging to the factors meet the analytical requirements (factor load factor values are greater than 0.5); with a total of 14 variables and sorted by 3 groups of factors, which: ET (Employee Training), JS (Job Satisfaction), EC (Employee Commitment).

- Confirmatory Factor Analysis CFA shows that the model is suitable for market data, the scales ensure reliability and concepts to achieve discriminatory value.

- Structural Equation Model SEM shows that: (1) Employee Training have positively affected to the Job Satisfaction and Employee Commitment; (2) Job Satisfaction have positively affected to Employee Commitment.

Based on the results from the model, in order to increase the Job Satisfaction and Employee Commitment of the employees at the commercial banks in the locality of Ho Chi Minh City, the study has proposed some administrative implications as follows:

- Diversifying the forms of training, excluding the traditional forms of training (direct training in the classrooms and meeting rooms) at present, it is necessary to apply the forms of online training.

- In addition to professional knowledge training, the commercial banks must also train some soft skills for its employees for serving the needs of regular contact with its customers.

- Conducting to collect and receive the recommendations from the employees on the training contents to closely supervise and meet the knowledge needs of the employees.

- Publicizing the training plans and contents for the employees to acknowledge and register for participation.

- The Banks not only carry out its joint training and development programs for all officials and employees, but also need to study the specialized and professional training programs to become more suitable and appropriate with each working position of its officials and employees.

- Enhancing the spirits of self-training through regular organizations of meetings and exchanges to share career experience among the individuals and departments in the Banks.

REFERENCES

1. Adesola, M. A., Oyeniyi, K.O., & Adeyemi, M. A. (2103). Empirical Study of the Relationship between Staff Training and Job Satisfaction among Nigerian Banks Employees, *International Journal of Academic Research in Economics and Management Sciences*, Vol. 2 No. 6, pp. 108-115.
2. Aghdasi, S., Kiamanesh, A. R., & Ebrahim, A. N. (2011). Emotional Intelligence and organizational commitment: testing the mediatory role of occupational stress and job satisfaction. *Procedia-Social and Behavioral Sciences*, Vol. 29, pp. 1965-1976.
3. Allen, N., & Meyer, J. (1990). The measurement and antecedents of affective, continuance and normative commitment to the organization. *Journal of occupational psychology*, Vol. 36 No. 1, pp. 1-18.
4. Armstrong, M. (2006). *A Handbook of Human resource Management Practice*, Tenth Edition, Kogan Page Publishing, London, pg. 264.
5. Aydogdu, S., & Asikgil, B. (2011). An empirical study of the relationship among job satisfaction, employee commitment and turnover intention. *International Review of Management and Marketing*, Vol. 1 No. 3, pp. 43-53.
6. Awais, M., Malik, M. S., & Qaisar, A. (2015). A Review: The Job Satisfaction Act as Mediator between Spiritual Intelligence and Organizational Commitment, *International Review of Management and Marketing*, Vol. 5 No.4, pp. 203-210.
7. Beier, M. E., & Kanfer, R. (2010). Motivation in training and development: A phase perspective". In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, training and development in organizations*. Mahwah: NJ: Erlbaum, pp. 65-97.
8. Benson, G.S. (2006). Employee Development, Commitment and Intention to Turnover: a Test of 'Employability' policies in action. *Human Resource Management Journal*, Vol. 16 No. 2, pp.173-192.
9. Brum, S. (2007). What impact does training have on employee commitment and employee turnover. *In Schmidt Labour Research Centre Seminar Research Series*, University of Rhode Island, pp. 1-13.
10. Bulut, C., & Culha, O. (2010). The effects of employee training on employee commitment. *International Journal of Training and Development*, Vol. 14, No. 4, pp. 309- 322.
11. Chen, T.Y., Chang, P.L. and Yeh, C.W. (2004), "A study of career needs, career development programs, job satisfaction and the turnover intensity of R & D personnel", *Career. Journal of Development International*, Vol. 9 No. 4, pp. 424-37.

12. Chung, E. (2013). The Relationship of Training and Organizational Commitment in One Korean Organization. *Published Dissertation*. The University Of Minnesota.
13. Claydon, T. (2004). *Human Resource Management a Contemporary Approach*. 4th Ed. Harlow. Prentice Hall.
14. Cropanzano, R. & Mitchell, M.S. (2005). Social Exchange Theory: An Interdisciplinary Review. *Journal of Management*, Vol. 31 No. 6, pp. 874-900.
15. Dias, A. & Silva, R. (2016). Organizational Training and Organizational Commitment: A Literature Review and Conceptual Development. *International Journal of Innovative Science, Engineering & Technology*, Vol. 3 No. 1, pp. 387-399.
16. Edward Ocen, Kasekende Francis, Gladies Angundaru (2017). The role of training in building employee commitment: the mediating effect of job satisfaction. *European Journal of Training and Development*, <https://doi.org/10.1108/EJTD-11-2016-0084>.
17. Eleswed, M., & Mohammed, F. (2013). The impact of gender, age, years of experience, education level, and position type on job satisfaction and organizational commitment: An exploratory study in the kingdom of Bahrain. *International Journal of Business and Social Science*, Vol. 4 No. 11, pp. 108-119.
18. Faragher, E. B., Cass, M., & Cooper, C. L. (2005). The relationship between job satisfaction and health: a meta-analysis. *Occupational and environmental medicine*, Vol. 62 No. 2, pp. 105-112.
19. Forgacs, L (2009). Recruitment and Retention across Continents. *Journal of Training and Development*, Vol. 63 No. 6, pp. 40-44.
20. Gunlu, E., Aksarayli, M., and Percin, N., (2010). Job Satisfaction and Employee Commitment of Hotel managers in Turkey. *International Journal of Contemporary Hospitality Management*, Vol. 22 No. 5, pp. 693-717.
21. Humphrey, A. O., Chege, K. G and Douglas, M. (2013). Effect of Training Dimensions on Employee's Work Performance: A Case of Mumias Sugar Company in Kakamega County, *International Journal of Business and Management Invention*, Volume. 2 No. 9, pp. 138-149.
22. Jun, M., Cai, S., & Shin, H. (2006). TQM practice in maquiladora: Antecedents of employee satisfaction and loyalty. *Journal of operations management*, Vol. 24 No. 6, pp. 791-812.
23. Kim, W. G., Leong, J. K., & Lee, Y. K. (2005). Effect of service orientation on job satisfaction, organizational commitment, and intention of leaving in a casual dining chain restaurant. *International Journal of Hospitality Management*, Vol. 24 No. 2, pp. 171-193.
24. Kulkarni, P. P. (2013). Literature review on training and development and Quality of Work Life, *Journal of Arts, Science & Commerce*, Vol. 4 No. 2, pp136 -143.
25. Mouhamadou, T. S. (2015). Relationship between Organizational Commitment and Turnover Intentions among Healthcare Internal Auditors. *Published Dissertation*. Walden University.
26. Muthuveloo, R. & Rose, R. C (2005). Typology of Organisational Commitment. *American Journal of Applied Science*, Vol. 2 No. 6, pp. 1078-1081.
27. Newman, A., Thanacoody, R., & Hui, W. (2011). The impact of employee perceptions of training on employee commitment and turnover intentions: a study of multinationals in the Chinese service sector. *The International Journal of Human Resource Management*, Vol. 22 No. 8, pp. 1765-1787.
28. Okpara, J. O. (2004). Job satisfaction and organizational commitment: Are there differences between American and Nigerian managers employed in the US MNCs in Nigeria. *Academy of Business & Administrative Sciences*, Briarcliffe College, Switzerland.

29. Rowden, R. W., & Conine Jr, C. T. (2005). The impact of workplace learning on job satisfaction in small US commercial banks. *Journal of workplace Learning*, Vol. 17 No. 4, pp. 215-230.
30. Sajuyigbe, A.S and Amusat, (2012). Staff training and development as managerial tools for organizational effectiveness: An appraisal of First bank. *JABU International Journal of Social and Management Sciences*, Vol. 4 No. 1, pp. 100-109.
31. Samad, S., & Hassan, Z. (2007). Assessing the effects of job satisfaction and psychological contract on organizational commitment among employees in Malaysian SMEs. *In The 4th SMEs IN A Global Economy Conference 2007*.
32. Siebern, T, F. (2005) Job quality in European labour markets, in Bazen S., Lucifora C. and Salverda W. (Eds.), *Job Quality and Employer Behaviour*, Palgrave Macmillan, Basingstoke, Hants, pp. 31-66.
33. Skaalvik, E. M., & Skaalvik, S. (2011). Teacher job satisfaction and motivation to leave the teaching profession: Relations with school context, feeling of belonging, and emotional exhaustion. *Teaching and teacher education*, Vol. 27 No. 6, pp. 1029-1038.
34. Terera, S, R., and Ngirande, H. (2014). The Impact of Training on Employee Job Satisfaction and Retention among Administrative Staff Members: A Case of a Selected Tertiary Institution, *Journal of Social Science*, Vol. 39 No. 1, pp. 43-50.
35. Tho Nguyen Dinh (2011). *Methods of scientific research in business*. Social Labor Publishing.
36. Tho Nguyen Dinh and Trang Nguyen Thi Mai (2011). *Market research syllabus*. Labor Publishing.
37. Trong Hoang, Nguyen Mong Ngoc Chu (2008). *Textbook of Data Analysis with SPSS Episodes 1 & 2*. Hong Duc Publishing, TP.HCM
38. Togia, A., Koustelios, A., & Tsigilis, N. (2004). Job satisfaction among Greek academic librarians. *Library & Information Science Research*, Vol. 26 No. 3, pp. 373-383.
39. Tziner, A. (2006). A revised model of work adjustment, work attitudes, and work behavior. *Review of Business Research*, Vol. 6 No. 1, pp. 34-40.

EXPERIENCES IN GREEN ECONOMIC DEVELOPMENT OF SOME COUNTRIES IN THE WORLD AND LESSONS FOR VIETNAM

Nguyen Van Nghia^{1,*}, Dong Thi Ha^{2*}, Vu Thi Thanh Huyen³

ABSTRACT

The development of green economy is now becoming a trend in the world, which can be applied to all economies in general and Vietnam's economy in particular. The current development model of Vietnam is mainly based on the use of natural resources, affecting the environment and increasing the impact of climate change, therefore, green economic development is an urgent need and the orientation of Vietnam to follow the green economic development is the most suitable way for sustainable development. According to a report at the United Nations Conference on Climate Change (COP 23), held in Bonn (Germany) in 2016, Vietnam was the fifth country among the most severely affected countries by climate change. In the green economy, environmental resources are considered as a decisive factor for economic growth, value chain improvement, bringing the long-term stability and prosperity. The model of green economic development has proven to be effective in the long term and is being targeted by many countries. This article summarizes the experiences of green economic development in some countries in the world, thus drawing lessons for Vietnam - an important premise in promoting and developing green economy in Vietnam.

Key words: *green economy, climate change, sustainable development, environment, natural resources.*

1. INTRODUCTION

After the UN Summit, the United Nations Conference on Environment and Development at Rio de Janeiro, Brazil 1992, and the World Summit on Sustainable Development in South Africa in 2002, sustainable development has become a common trend that all humanity is striving for and it is also an important strategic goal that Vietnam is determined to implement. Through 20 years of sustainable development, the world's development model has been still known as "brown" economy, heavily depending on natural resources, fossil fuels, causing environmental pollution, resource degradation and ecological imbalance. The model of green economic development was born to replace the previous "brown" economic model. In the "brown" economy, economic development means the exploitation and depletion of resources leading to overexploited resources, polluted environment, and threatening human life. If the "brown" economy focuses on GDP growth and per capita income which are based on available resources, the green economy will place the environment as a top target. In the green economy, environmental resources are being considered as a decisive factor for economic growth, value chain improvement, providing long-term stability

¹ Academy of Journalist and Communication, 36 Xuan Thuy, Cau Giay, Ha Noi

^{2,3} Faculty of Economics - National Economics University, Ha Noi, Vietnam, 207 Giai Phong, Hai Ba Trung, Ha Noi,

* Email: phamnghia2008@gmail.com

and prosperity. The model of green economic development is much more effective in the long term than the “brown” economy and it is targeted by many countries such as South Korea, Japan and Australia.... They have pioneered the development of green economy with many important contents reflecting the strong connection among nations with the goal of sustainable development.

2. RESEARCH METHODS

This paper uses the methodology of dialectical and historical materialism; Using the main research methods in economics including methods of statistics, analysis, synthesis, expert, data analysis and processing...

The paper also collects data related to it from secondary documents such as textbooks, books, reports on socio-economic development, green economic development in general, and Vietnam in particular, etc.

3. EXPERIENCES IN DEVELOPING GREEN ECONOMY OF SOME COUNTRIES IN THE WORLD

3.1. Republic of Korea

Among the countries with starting points and conditions similar to Vietnam, Korea is one of the countries that well implement on green economic development. Korea’s energy demand is heavily dependent on imported fossil fuels, so Korea is one of the countries that have early access to research and implementation of the policy system on green economic development to solve difficulties of the economy. Korea’s “Low Carbon, Green Growth” strategy is considered to be the foundation for this country’s economic development in the next 60 years with the goal of transforming from a fossil-fueled dependent economic model, growing in width to development model based on renewable energy, growing in depth and sustainability, which are more friendly to environment. Under this strategy, Korea will promote economy with three principles:

Firstly, maintaining economic efficiency while minimizing the use of energy and resource.

Secondly, minimizing the pressure on environment with the use of each source of energy and resources.

Thirdly, investing in the environment as a tool for economic development. This strategy aims to maintain the scale of economic production activities in order to optimize natural resources, minimize the environmental impact on energy and resource, at the same time, convert investment into environmental activities and economic growth.

When the global financial crisis broke out, Korea was one of the leading countries in tackling the economic crisis with a green stimulus package. The stimulus package “new green growth plan” includes 36 projects worth USD 37.8 billion, creating 1 million jobs in 4 years in order to renovate technology, enhance competitiveness and improve the quality of life in Korea. Initial achievements show that Korea’s green economic development policy is feasible. Since 2010, only in the new renewable energy industry, the number of businesses has increased by 2.2 times, the number of jobs has increased by 3.6 times, and export turnover has increased by 5.9 times ...

Green public purchasing in 2009 only reached 2000 billion won, by 2017, it reached 5000 billion won. Despite the impact of the global crisis, the value of the green economy in general and clean energy in particular will be boosted in the future. In the next 20-25 years, G20 countries are expected to achieve high growth rates and significantly increase the proportion of green industry, especially in the field of clean energy. By 2025, the world market and green equipment will reach about 6000 billion USD, the green economy will achieve an average annual growth rate of over 30%, increasing the contribution to the world GDP by 6 - 7%.

In December 2007, Korea established an organization specializing in climate change research. The target of this organization is to study the impact of climate change on Korea and propose solutions to limit this impact.

In September 2008, the green strategy was officially adopted by the Korean government, focusing on: adaptation to climate change; the effective reduction of greenhouse gas emissions; development of green technology; reduction of dependence on fossil fuels; greening of existing industries; development of advanced industries, construction of the foundation for green economy, green space and green transportation; international support for green growth.

To concretize, Korea has conducted a series of strategic activities. Since 2011, the country has spent about \$ 60 billion in five years for green development, creating more than 1.8 million jobs. Also, in this period, Korea has built a "green payment card" system to stimulate green goods consumption.

With a series of regulations relating to institutions and orientation of action, Korea's green economic development process has shifted from agricultural structure to industry, from heavy industry using much capital to high technology industry. At the same time, Korea has encouraged the private sector to conduct research and development activities, effort to capture and quickly master the techniques to catch up with developing countries ... With these policies, Korea has set a medium-term goal to reduce greenhouse gas emissions to below 30% by 2020, which is expected to become one of the 7 green economic powers in 2020.

3.2. Japan

Japan's green economic development strategy was first adopted in December 2008 and revised in June 2010. This strategy aims to promote Japanese economic development in relation to the environment and energy sectors towards a low-carbon economy. In order to implement the green economic model, the Japanese Government has issued many synchronous policies, focusing on green tax policy and green technology investment.

Japan's green tax policy includes:

Energy tax policy: Japan's energy tariff is still quite low compared to other countries in the Organization for Economic Cooperation and Development (OECD) in which, petroleum tax accounts for nearly 83% of revenue from energy taxes. Japan is also one of the few OECD countries that applies fuel taxes on domestic flights. However, the price of fuel in Japan compared to OECD countries is relatively high, especially the price of natural gas and oil is much higher than that of industrial countries.

Transportation tax: New types of vehicles, including hybrid, electric, clean diesel and natural gas vehicles, are all entitled to tax reductions. Technological improvements and tax incentives have created favorable conditions to improve the energy use efficiency of road vehicles, develop smaller and more fuel-efficient vehicles. Besides, some localities also apply industrial waste tax for unused cars. This tax revenue is used for waste management, recycling and other remedies.

Carbon tax policy: To drastically reduce greenhouse gas emissions, Japan focuses on controlling CO2 emissions in the medium and long term. This is why the Government introduced carbon tax into the chapter in the reform of the tax system in 2012. In keeping with the real situation of the economy, Japan’s carbon tax policy has been continuously adjusted. To meet the target of a low carbon society, Japan must cut 80% of greenhouse gases from now until 2050. About 90% of greenhouse gases in Japan are CO2 emitted from energy consumption. It is anticipated that CO2 will be reduced from 0.5% to 2.2% due to the impact of tax policy and emission control measures. The Government has issued an action plan to implement the objectives which were set out in the Kyoto Protocol based on the law of promoting solutions to cope with global warming, in which: (1) Forcing businesses to calculate and report the amount of greenhouse gases emitted by these businesses; (2) Applying the first voluntary emissions trading test scheme in Japan; (3) Requiring localities to develop action plans to cut greenhouse gas emissions; (4) Establishing the mechanism for gas emission credits.

Table 1: Carbon tax tariff applied in Japan

	Tax tariff (yen / ton CO2)
1. Carbon taxes are used to cope with global warming	289
2. Petroleum and coal tax	
- Crude oil and petrochemical products	779
- Liquefied hydrocarbon gas	400
- Coal	301

Source: MOE – Detail on the Carbon tax,p.2

Table 2: Execution stage

	Tax rate before 2012	From 1-10-2012	From 1-4-2014	From 1-3-2016
Crude oil and petrochemical products (yen/kl)	2.040	2.290	2.540	2.800
Hydrocarbon gas (yen/ton)	1.080	1.340	1.600	1.860
Coal	700	920	1.140	1.370

Source: MOE – Detail on the Carbon tax,p.2

Besides, Japan uses many tax preferential policies for both households and businesses. Households are entitled to credit tax incentives to purchase energy-efficient homes and install energy-saving appliances. Similarly, enterprises can enjoy incentives from credit taxes or apply a special depreciation rate for investment costs to improve energy efficiency and control pollution. Japan is also a major investor for green technology research and development. In recent times,

although the Japanese government's spending has been tightened, the budget for green technology science has been still maintained.

3.3. Australia

Australia issued a carbon tax policy: on 1/7/2012, Australia officially adopted a carbon tax law which had been controversial since its proposal until it became effective because Australia was dependent on mineral exports and the coal mining industry. Under Australia's carbon tax policy, businesses emitting more than 25,000 tons of carbon per year will be taxed. It is estimated that about 500 most CO₂ emission enterprises in Australia have to pay 23 AUD / ton of CO₂ emissions into the space in the first 3 years, the tax rate they must pay in the following years will increase from 25,94 to 27,2 USD / ton of CO₂. These 500 businesses include coal-fired thermal power plants, mining companies and metal manufacturing factories such as aluminum, steel ... The carbon tax in Australia is said to be the highest in the world - much higher than that of European countries ranging from 8.70 to 12.60 USD.

Australia has a policy to support citizens and businesses in access to clean energy. The government has issued options to support indirectly affected people when carbon tax laws are applied, especially those with low income sources. About 97% of low-income families will receive support from the Government, which is deducted from carbon tax revenue. Government also supports 40% of revenue for businesses when changing to cleaner energy if they face competition from other countries. In addition, to encourage businesses investing in clean energy in order to reduce 80% emissions by 2050, Australian Government has set a policy: Enterprises will be supported with 10 billion AUD in five years when investing in wind, solar and other renewable energy sectors.

Australia promulgates strict rules for environmental destructive behaviors. In order to prevent any behavior that could harm the environment, the government has set strict and systematic laws. Accordingly, several planning projects and production projects require approval or permits from the public authority to regulate environmental issues. Most Australian states and territories have specialized agencies that performs the approval of conditions for implementation, at the same time, they will conduct investigation of alleged behaviors which harm to the environment. Besides, Australia promulgates many laws regulating the impacts of the development process on ecological development, heritage, water resources, marine environment ...

4. LESSONS FOR VIET NAM

By analyzing the experience of green economy development of the above countries, some lessons can be drawn for Vietnam in the process of green economic development as follows:

Firstly, It is essential that Vietnam finalizes the green tax policy

With the goal of greening the economy, Vietnam has issued a tax policy system to protect the environment. However, in the context of environmental pollution is increasing, climate change is increasingly affecting the lives of the people of Vietnam (Vietnam is the fifth among the most seriously affected countries according to the report at the United Nations Conference on Climate

Change, held in Germany in 2016), the tax policies need to be developed more comprehensively and overall. The content of tax policy improvement to develop green economy was referred in the Prime Minister's Decision 732 / QD-TTg May 17th 2011, approving the strategy of tax system reform in the period 2011-2020.

- For special consumption tax: Research to adjust and supplement special consumption tax so as to guide and regulate consumption in conformity with the socio-economic development situation; formulate a tax adjustment roadmap for tobacco, beer, liquor and motorbike products to regulate consumption and implement international commitments. In fact, when adjusting taxable objects or special consumption tax rates, the consumption level of taxable products changes, contributing to limiting the consumption of products and commodities which negatively affects the environment. This helps Vietnam build a greener economy.

- For export and import tax: Amending and supplementing export tariffs to encourage export production of high value-added products and to limit the export of unprocessed mineral resources and reduce low value-added processed goods; amending and supplementing import tax to ensure reasonable and timely protection in accordance with international practices for a number of domestically produced goods; reducing the number of tax rates, simplifying tariffs and commodity codes step by step. Limiting the export of unprocessed natural resources will contribute to limiting over-exploitation of natural resources - one of the important foundations for the development of Vietnam's green economy.

- For corporate income tax: Adjusting to reduce the common tax rate according to the appropriate roadmap to attract investment, creating conditions for enterprises to have more financial resources, increasing the accumulation to boost development investment, improving competitive capacity; simplifying the tax incentive policy in the narrow direction of the fields, continuing to encourage investment in industries producing high value-added products, supporting industries using high technology, biotechnology, quality service, socialization, difficult socio-economic circumstances... The adjustment of tax rates and preferential corporate income tax policies will focus on projects that invest in modern, environmentally-friendly, oriented and moderate science - technology; encouraging important and essential production and business activities in necessary areas and restricting unnecessary ones which damage the social and cultural life, and environment.

- For resource tax: Amending and supplementing research towards natural resource tax is an effective tool to contribute to managing, protecting and promoting the effective use of national resources, especially for non-renewable resources; promoting resource exploitation associated with deep processing and contributing to minimizing the export of unprocessed resources; amending and supplementing regulations on tax calculation prices, tax rates and implementing collection management method to suit the practical activities of exploiting natural resources in each period. The exploitation of natural resources must be carried out in a reasonable manner, ensuring the needs of the economy while maintaining a healthy living environment for people.

- For environmental protection tax: Organizing the effective implementation of Law on Environmental Protection Tax, enforced on January 1st, 2012 in order to encourage enterprises and people to change their usage and consumption behavior, contributing to protecting the environment, thereby encouraging revenue for the State budget; continuing to research and

supplement the collection objects, adjusting the level of regulation to contribute to limiting the use of goods causing adverse impacts on the ecological environment.

Taxable objects for environment protection are polluting products such as: Gasoline, oil, grease, coal, HCFC solution, plastic bags, herbicides, pesticides, forest preservatives and warehouse disinfectants under the usage limitation. The environmental protection tax reform strategy clearly shows the viewpoint of using regulatory tax on polluting goods in order to protect the ecological environment, contributing to changing people's awareness of the environment, promoting sustainable economic development according to the development trend of the world.

In addition, in order to develop the green economy, Vietnam should learn more about the experiences of other countries in promulgating tax laws on businesses that have harmful wastes to the environment. In Vietnam, the collection of fees for wastewater, solid waste and emissions ... has existed for a long time but has not been specified, and without clear fine, and punishment regulations. In addition, the irregular inspection and supervision of the concerned management agencies lead to low efficiency. The implementation of a tax law on waste with detailed regulations on taxpayers, types of waste taxed, tax calculation ... will limit the discharge of harmful waste to the environment and at the same time, it will increase revenues for the State budget, creating material resources to overcome environmental problems. Besides, the implementation of a few tax preferential policies to encourage energy saving is also a good lesson for Vietnam.

Secondly, Vietnam needs to invest more in green technology

In Vietnam, most of the investment in science and technology takes place in large enterprises, while many small and medium enterprises do not pay much attention to the investment in technology development. Therefore, the total social investment for science and technology in Vietnam is less than 1% of GDP.

Table 3: Spending on science and technology from the State budget

Year	Total expenditure for science and technology from the State budget (billion VND)	Percentage of spending on science and technology compared to total state budget expenditure (%)	Percentage of science and technology spending compared to total GDP (%)
2012	11.499	1,58	0,41
2013	13.168	1,46	0,41
2014	13.869	1,44	0,39
2015	13.666	1,36	0,35
2016	17.390	1,52	0,41
2017	17.730	1,37	0,39

Source: Data of the General Department of Statistics and by the author

In particular, the most important cause of Vietnam's investment in science and technology is low due to the fact that the initial investment budget for environmentally friendly technologies costs too much, while most enterprises in Vietnam are small and medium. So, they do not have enough

resources to invest. The next reason is that enterprises do not have information on environmentally friendly technology in the field of manufacturing their products; complex technology, difficult to apply; lack of equipment suppliers for environmentally friendly technology; scarcity of highly qualified human resources to apply environmentally friendly technology into production, large operating costs ... Therefore, in the upcoming time, Vietnam needs to build a mechanism for investment activities in research and development projects on science and technology, especially in the field of renewable energy and saving resources production technology, consuming less energy, reducing greenhouse gas emissions ...

Thirdly, Completing the State management of environmental protection activities to create a foundation for green economy development

- Vietnam should learn from other countries in issuing and amending regulations on reasonable costs in waste treatment, responsibility for environmental pollution, technical standards, administrative and criminal penalties for violations such as revocation of business licenses, confiscation of proceeds from crimes, strict fines for individuals, organizations that violate and even imprisonment. Besides, Vietnam needs to issue specific guidelines on the functions and tasks of related agencies and departments to create the linkage in the process of implementing environmental protection tasks. Moreover, Viet Nam should also create conditions in terms of policies and mechanisms to encourage communities to participate in local environmental management. And the country must build management teams, inspection and examination forces with high sense of responsibility and mobility, regularly inspecting and monitoring industrial parks, industrial clusters, craft villages and residential areas to promptly detect strictly handling violations.

- Vietnam needs to set up a favorable legal basis to encourage domestic and foreign investment sources for environmental protection. Currently, the total investment in the environment in Vietnam is very low, the revenue from the State Budget is still limited, so the mobilization of external support resources to implement green economic development is extremely important.

+ Revenues from cooperation activities with regional and international: Vietnam needs to maximize and effectively use development assistance sources from international organizations, governments and non-governmental organizations such as the Global Environment Fund, World Bank, Asian Development Bank, UN development program ..., focus on cooperation in the areas of education, training and in-depth research. Continuing cooperation, research, technology transfer and capital attraction to protect the environment with countries in the region.

+ Socializing investment capital for environmental protection: Vietnam needs to mobilize investment capital for environmental protection from organizations, individuals and communities in the form of the state and people working together with partial support from the state budget. At the same time, the State should have a plan to replicate models of sustainable development in agriculture, forestry, fisheries, and industry sectors. Moreover, researching mechanisms to ensure environmental protection requirements are integrated into development plans of sectors and localities.

Besides the aforementioned lessons, Vietnam also needs to improve capacity to monitor and warn environmental pollution - pillars for green economic development; using communication

tools such as radio and television to propagate and warn people of environmental incidents and provide telephone numbers for people to inform environmental issues arising in their localities; training management staff, inspection forces with high sense of responsibility and mobility. Regularly inspecting and supervising production facilities to detect and promptly handle violations, thereby gradually reducing harmful behaviors to the environment and human health, step by step developing economics in Vietnam according to greening trend.

5. CONCLUSION

In the context of the current global economic crisis, developing green economy is becoming an advanced development model that many countries around the world look forward to and consider this as a solution to help the country escape from the recession and prevent the risk of future crises. In order to develop green economy, countries should base on their economic characteristics, natural resources, culture, society and development level to determine specific targets for direction, scale and approach. As for as the developed counties with abundant finance, human resources and technology, most of them turn to green economies through investment and development of new fields. Meanwhile, developing economies have to spend more time and money to switch to a green economy by gradually adjusting the traditional economy to become more environmentally - friendly. Vietnam is a developing country and according to the general trend of the world, we are trying to direct activities in the economy towards an environmentally - friendly way: using renewable energy, reducing CO₂ emissions, protecting natural resources ... For the promotion of advantages and the reduction of disadvantages of Viet Nam in the process of green economic development, the learning of the experiences from green economic models of the countries in the world and the applying of these experiences in a scientific way and in line with the Vietnamese economic context and characteristics, are extremely important. We hope that in the future with the experiences we have learned, with the efforts of the government, the people and all economic sectors, we will soon build a successful green economy - the path to bring Vietnam to sustainable development.

REFERENCES:

1. Report of the Ministry of Planning and Investment, Consultation Workshop on green growth strategy of Vietnam, VCCI, Ministry of Planning and Investment and UNDP in Vietnam, Hanoi, March 19th, 2012.
2. Tran Ngoc Ngoan, Promoting green growth policy of international experience and reality in Vietnam, National Political Publishing House.
3. Ministry of Natural Resources and Environment (2012), Carbon tax policy of countries in the Asia-Pacific region: Key to reducing CO₂ emissions, 2012.
4. Nguyen Thi Thu Ha (2017), Building and developing green economy in Korea and lessons for Vietnam, 2017 Financial Magazine.
5. Kim Ngoc, Tran Minh Nghia (2016), Green economic development in Japan and policy implications for Vietnam, Vietnam Journal of Social Sciences, No. 3 (100) - 2016.
6. Nguyen Thi Hoang Yen, Tran Thi Hong Minh, Phan Tuan Vu (2017), Situation of investment activities of environmentally - friendly technology innovation of Vietnamese enterprises from the results, Ministry of Planning and Investment, 2017.

SOLUTIONS TO DEVELOP THE SYSTEM OF MICROFINANCE INSTITUTIONS TOWARDS COMPREHENSIVE AND SUSTAINABLE FINANCIAL DEVELOPMENT

Vu Duy Vinh, Tran Thi Thu Nga¹

ABSTRACT

In order to effectively and sustainably develop the financial sector, the central content is the development of the system of microfinance institutions (MFIs). In Vietnam, there are 4 formal MFIs and 46 semi-formal MFIs. Although microfinance institutions only occupy a small market share, they operate under the market mechanism, and are effectively better than some financial institutions that also provide microfinance services. In recent years, MFIs have made a certain progress, contributing a part to hunger eradication and poverty alleviation, increasing access to financial services of the poor and the disadvantaged, especially in the rural and mountainous region. However, MFIs still have some limitations, the level of sustainability in operation and the level of financial sustainability are not really good. This paper proposes a number of solutions to develop the MFIs system towards comprehensive and efficient financial development.

Keywords: Comprehensive finance; efficient and sustainable development; microfinance.

1. INTRODUCTION

Comprehensive finance, also known as financial inclusion, means that people and businesses have access to and use financial products and services conveniently, in accordance with their needs and reasonable costs provided responsibly by financial institutions, with a focus on the poor, the low-income, the weak, small and medium-sized enterprises, and microenterprises.

Subjects providing products and services of comprehensive finance include: (i) Commercial banks, non-bank credit institutions; (ii) Formal and semi-formal Microfinance Institutions; (iii) Bank for social policy; (iv) Cooperative banks and People's Credit Funds; (v) Social insurance and Business insurance.

Promoting effective and sustainable inclusive finance is the main factor to participate in comprehensive finance so that people and businesses can access and use financial products and services in a favorable and convenient way, which is affordable provided by financial institutions in a responsible and sustainable manner.

The subjects of comprehensive financial service are all businesses, people, especially the poor and microenterprises. The central issue of comprehensive finance is the provision of financial services to the poor, microenterprises, especially in rural and mountainous areas.

¹ Academy of Finance

Microfinance is the provision of very small loans (called microcredit) and other financial services to poor households, microenterprises, which is aimed at helping them engage in manufacturing activities or initiating small businesses. Thus, developing the microfinance system well will contribute decisively to effective and sustainable comprehensive financial development.

There are many organizations that provide microfinance services as mentioned above, including pawn shops, wards, etc, in which the article focuses on MFIs. These may be officially licensed MFIs operating under the Law on Credit Institutions or semi-official MFIs implementing projects and programs.

In recent years, the system of MFIs in Vietnam has seen significant progress, but still has many limitations and has not contributed much to comprehensive financial development. Therefore, it is necessary to develop the microfinance system in general and the MFIs in particular in order to promote the role of MFIs in promoting effective and sustainable comprehensive financial development in Vietnam.

2. ACTUAL SITUATION OF VIETNAMESE MICROFINANCE INSTITUTION SYSTEM

Microfinance institutions act as financial products and services suppliers

Currently, Vietnam has 4 official MFIs and 46 semi-formal MFIs. The total outstanding loans of official MFIs in 2014 reached VND 2,797.62 billion, and was VND 4,705.14 billion in 2017. Although the scale of credit outstanding was modest due to the characteristics of organizations which specialize in providing credit to the poorest customers of all types of credit institutions with a low average loan value, the number of customers is relatively high. The average credit growth of Vietnamese microfinance organizations reached nearly 9.4%. The total outstanding loans of MFIs officially increased significantly in the period of 2014 - 2017, an average increase of 25.6% / year. For semi-formal MFIs: Total outstanding loans always increased, reaching VND 2,500 billion in 2014, rising to VND 3,853 billion in 2016. In 2017, outstanding loans decreased to only VND 1,025 billion due to the fact that since 2017, CEP became an official MFI, so the outstanding loan of CEP is no longer counted for semi-formal MFIs. The total savings balance from VND 925 billion in 2014 increased to VND 1,300 billion in 2016 and decreased to VND 286 billion in 2017 due to the transformation of CEP.

The development process of MFIs in Vietnam in recent years can see: The number of MFIs is still very small with limited coverage, but the growth rate of outstanding loans and deposits is relatively good.

Promote access to users of financial products and services

Microfinance customers are poor. In Vietnam 94.7% of the poor live in rural and mountainous areas, 72.9% of the poor are ethnic minorities and more than 30% of poor farmers live in the poorest regions of the country. The majority of the poor in Vietnam is characterized by relying on agriculture with low labor productivity due to limited access to financial resources, land and knowledge.

In the 2014-2017 period, the number of borrowers of semi-formal MFIs was 450,000, higher than the number of formal MFI customers (130,000). MFI's customers are mainly women, accounting for nearly 100%. Most of them have little education, low educational level and professional qualifications, low skills so they lack of knowledge in business production or knowledge for life. Although they are not knowledgeable, customers consciously strive to do business to improve their lives. They borrowed capital mainly for business and production purposes: loans for business purposes accounted for the highest rate, up to 41.88% of total loan value, for production purposes ranked second, accounting for about 40, 43% of the total loan value. Group loans (up to 70.7%) should be supervised by each other so most customers use loans for right purposes and the repayment rates are very high.

Accession to financial services by MFIs is limited due to the fact that the MFI network has not yet covered all rural and mountainous areas; Lending interest rate is much higher than that of commercial banks. Both MFIs and customers lack information about each other, leading to an increase in costs and decrease in operational efficiency.

Actual situation of promoting financial products and services

MFI's products include financial and non-financial products. Financial products include micro-loans, micro-savings and micro insurance. Due to the characteristics of serving poor people in rural and mountainous areas, other services such as money transfer, payment, etc. are almost negligible.

Micro-lending is still the most important product of MFIs. MFIs are currently providing microfinance products in two forms: individual or group lending with short or medium term loan. In particular, group lending currently dominates. The group lending method will enhance mutual supervision. The method of gradual instalment (periodically by week, month, day) has been proved to be very suitable with the conditions and capabilities of microfinance clients, helping customers to plan and have a more reasonable repayment source than other organizations providing microfinance services together. This feature of the product makes MFIs spend more money and resources to collect debts than other credit institutions, but in terms of poor customers, low-income people, the debt repayment burden is "spread" into small amounts and do not put pressure on the method of repaying debt at the end of the term, thereby leading to good repayment ability. The bad debt ratio of MFIs is always maintained at a low level.

Fund mobilization of MFIs is mainly through micro insurance. MFIs are officially allowed to mobilize compulsory and voluntary savings. According to regulations, semi-formal MFIs are allowed to mobilize compulsory savings only. This has resulted in an inevitable consequence that semi-formal MFIs are heavily dependent on other external sources of capital and do not have the initiative in balancing capital sources to sustainably operate financially.

In Vietnam, according to the law, semi-formal MFIs are not allowed to provide insurance by themselves. They act only as agents for formal insurance organizations. Official MFIs are also less interested in micro insurance. Insurance companies also have micro insurance products, but they are not yet considered. In fact, professional insurance companies are not very keen on the micro

insurance market because this is a unprofitable and risky market, in addition to large operating costs of providing services to this market.

For non-financial services: MFIs focus on services such as livelihood support, capacity building, gender and environment training. However, due to lack of resources, MFIs do not have the conditions to strongly deploy these services.

Promote supporting facilities and application of information technology

With the great achievements of the Industrial Revolution 4.0, especially smartphone and Internet technology has changed the nature of providing financial products.

New technology, especially financial technology (Fintech), has contributed to financial institutions' expansion of their network to reach customers, allowing service delivery to places where the banking network is not covered especially in rural areas and mountainous areas where there are no banking transaction offices and those who do not have access to or have limited access to traditional financial services.

In rural and mountainous areas, although there is internet and a number of people have used smartphones, technical infrastructure is weak and awareness and technology level of people are limited. Therefore, the provision of financial services of MFIs is still largely in the traditional way.

Current situation of microfinance operation's environment

The legal environment for microfinance activities in Vietnam has been increasingly improved to better serve the development of the MFIs system in particular and the microfinance sector in general. From the Law on Credit Institutions; Decrees on the organization and operation of MFIs, Decrees on development strategy for microfinance areas, to Circulars of the State Bank, Ministry of Finance. All create a clear legal framework facilitating the operation of MFIs. In recent years, MFIs, together with many other organizations, have enhanced financial education through many ways such as opening training courses, extra-curricular activities, game show, seminars, etc. These activities has contributed to improving the level of people's financial knowledge. However, compared with other countries, the level of financial knowledge of the Vietnamese people is quite low, especially the poor in rural and mountainous areas. Up to 2017, Vietnam's financial universalization index reached only 21.28 points, ranked 112/176 countries / territories in the world and ranked 22/37 in Asia.

Actual situation of using capital effectively

MFIs officially operate in a more professional and professional manner, thus the efficiency of using capital is higher, their sustainability in operation and finance is better than semi-formal MFIs' ones. Compared to semi-formal MFIs, the capital structure of formal MFIs is more reasonable, loan capital accounts for a high proportion; hence, it is less dependent on equity, serving more customers. Return on total assets (ROA) and return on equity (ROE), Operational Sustainability (OSS) are higher than international standards (standards of World Bank). Besides few well-operated semi-formal MFIs, there are still a lot of semi-formal MFIs operating with difficulties

and inefficiencies, namely that the ROA, ROE, OSS criteria are lower than the required level of international standard

3. SOME SOLUTIONS TO DEVELOP THE SYSTEM OF MICROFINANCE INSTITUTIONS TOWARDS SUSTAINABLE AND EFFICIENT FINANCIAL DEVELOPMENT IN VIETNAM

3.1. Solutions for developing microfinance institutions

Develop a variety of distribution channels to support access to basic financial services at a convenient and affordable cost for all citizens and businesses

+ To develop a model of banking agents to expand the coverage of banking service offices to people in areas where there is little or no banking service: rural and mountainous areas.

+ Developing modern distribution channels based on the application of digital technology to expand the scope of providing products and services at reasonable costs, especially via the Internet and mobile phones.

Increase sustainability through reducing costs and increasing revenue sources:

MFIs can reduce operational costs through (i) applying a good operational management system, especially MIS, (ii) using technology to reduce costs; (iii) reduce unnecessary operating expenses to the maximum, save operating costs.

In addition, the increase in revenue should be conducted in parallel through (i) diversifying revenue sources, increasing cross-selling of products to encourage existing customers to use more services; (ii) developing a wider range of microfinance products, such as agency services (telephone transfer, insurance, collection); (iii) applying various forms of debt collection to have a continuous cash flow.

Diversify services, increase the quality of microfinance services provided to customers, balance between financial and social goals.

MFIs need to strengthen market research, improve and apply new products and services associated with Fintech applications such as: savings mobilization methods to meet many different needs; piloting some agent services such as micro insurance agency services, collection and payment agents, etc., to meet the diverse financial needs of poor low-income households.

In addition to the number of services, more attention should be paid to the quality of the service, the variety of services provided and the availability and accessibility of the services.

Improve the quality of human resources

This is one of the key and long-term solutions to the sustainable development of Vietnamese MFIs. Therefore, the development of human resources through professional training and management plays a very important role. In fact, most officials of MFIs are sent by mass organizations, thus their professional qualifications and understanding of banking operations are still limited. Therefore, MFIs need to strengthen internal training, at the same time have policies to attract and encourage appropriate quality human resources.

3.2. Solutions to promote access to users of financial products and services

- Microfinance organizations promote the propaganda to customers who are aware of the benefits of using digital finance in dealing with MFIs. The propagation should use through word of mouth and explanation.

- The implementation of digital finance must go through each step to form customer habits. Customers need to take steps to form a habit. The first is to use a smartphone to know the news, the weather and receive messages to check the debt, interest, savings, etc. Then they will use the software connected to the bank account to check the balance and can receive or transfer a few small remittance items such as buying phone cards. Through each step, customers will gradually increase the frequency of use and when forming habits and knowledge, they will use many other services such as savings, insurance, money transfer, or payment.

3.3. Solutions to promote financial products and services

The clients of MFIs are the poor and the low-income people in rural areas or mountainous areas, most of whom are women. Their needs are different from those of well-off customers in cities and developed regions. Therefore, MFIs' products should be designed in a diversified and flexible manner, especially microfinance services suitable for the poor, low-income people, producers and consumers in rural areas, villages, mountainous areas and micro enterprises as follows:

- *Micro credit services:*

It is necessary to develop appropriate products, small loans such as installment loans, interest-based loans with accumulated interest rates; Lending interest by week, month.

- Micro insurance services:

- + Improve the legal framework for micro insurance.

- + Integrating with State policies (such as preferential loans, vocational training ...), in coordination with activities of political and social organizations.

- + Promote cooperation of related parties; it is necessary to coordinate with the Insurance Association and insurance enterprises in order for MFIs to receive active professional assistance and management technology in insurance activities for low-income people;

- *Micro-saving service:*

- + Reviewing and assessing the size of deposits appropriately and safely.

- + Designing diverse and high quality capital mobilization products.

- + Reviewing restructuring of capital model and ownership of MFIs.

- + Developing capital mobilization strategies suitable to the capacity and development strategy of MFIs;

- Payment service:

+ Amending regulations on prevention of money laundering to allow opening of accounts that are not required to meet in person, but still ensure the accurate identification and authentication of customers (e-KYC);

+ Focus on developing platform payment infrastructures such as automatic clearing center, scheme conversion from flash cards to chip cards.

- Financial education and other social services:

+ Integrating education of household financial management skills with various development programs; through savings groups, loans and local mass organizations to educate and improve financial skills, train the poor and low-income people on risk management tools, and security insurance services, financial leasing, technology financial services, etc.

+ Promote communication and dissemination of financial knowledge on the mass media;

+ On the one hand, MFIs provide financial services, financial education, and on the other hand, MFIs are not to be overlooked in providing social services such as health care, providing knowledge about life, knowledge of production and business as this is a separate function of MFIs different from normal credit and financial institutions.

3.4. Solutions to promote support facilities and application of information technology

- Regarding the Government:

+ Accelerating the completion of the national database system on population, connecting and sharing data with other specialized databases;

+ Building a legal framework for clearing activities and clearing centers, allowing eligible organizations to build and operate clearing centers for value-clearing transactions as small as electronic wallets, payment via mobile phones to increase competitiveness, increase processing efficiency, reduce payment transaction fees, transfer small value money to people and businesses;

- On the side of investors: Promote the innovation for the poor, ensure the protection of customer interests associated with the application of Fintech.

- On the Fintech side

+ Proactively looking for partners such as MFIs to cooperate in developing services and products suitable for people in remote areas.

+ Research, develop and provide modern and innovative solutions to help the management at microfinance institutions more efficiently and affordably.

+ Fintech companies need to: (i) use appropriate technology, thereby expanding the network to increase the level of better access to potential customers in providing electronic financial services; (ii) ensure high and safe service quality at reasonable cost to satisfy demand and build trust with

customers; (iii) understand the orientation, strategy, risk appetite, position and market share of partner MFIs to develop products in accordance with MFI's mission and core values and (iv) compete, but at the same time, cooperate with the microfinance industry to take advantage of their potential customer base and market under the mutual benefit mechanism.

- *On the credit institution's side*

- On the credit institution's side

Compared to current MFIs, formal credit institutions have clear advantages in some aspects. Official credit institutions with brand names have been formed and recognized, have facilities and technical systems available, capable of raising capital from various market segments of the economy. If MFIs are able to link with credit institutions, both parties will gain benefits. For example: In the form of providing services using technical infrastructure and systems, credit institutions sign contracts to allow MFIs or their customers to use services of branches, ATM networks, public information technology infrastructure in return for service charge or rent to credit institutions.

3.5. Solutions to improve the operating environment

Firstly, completing the legal environment for microfinance activities: the government, ministries, branches and management agencies need to continue to improve the system of legal documents to create an open and convenient operating environment for MFIs to be market-oriented, expanding access to quality microfinance services for micro-enterprises, poor households and low-income people to enhance economic development opportunities for the citizen.

Implementing synchronously the solutions proposed in the Project "Building and developing the microfinance system in Vietnam until 2020"

Soon complete the National Comprehensive Financial Strategy to 2025, with orientations to 2030 as microfinance is an important part of comprehensive finance. Having a national comprehensive financial strategy is the basis for the development of comprehensive finance in general and microfinance in particular.

- Second, perfect the financial education environment:

+ The government should develop a mechanism to encourage microfinance institutions to participate in promoting financial education. Strengthening the role of socio-political organizations in propagating and mobilizing union members, members and family members in financial education. The improvement of the financial education environment should focus on a number of contents:

i) Develop and implement the National Financial Education Strategy to improve people's access to financial services

ii) Promote communication programs to disseminate financial knowledge to all target groups

iii) In particular, financial education is seen as an urgent requirement and needs to be designed and built to a national level. More specifically, it is necessary to clarify the financial

education strategy for the entire population with projects targeting different audiences, focusing on rural, mountainous and poor laborers; integrating financial literacy programs with social security programs.

3.6. Solutions to improve capital efficiency

- Increasing capital sources for MFIs: Compared with banks and other financial institutions, the funding source of MFIs is often quite small, while the demand for loans from the poor is still very large. Therefore, MFIs do not meet the loan needs of the poor well. This is also one of the reasons why people still look for unofficial credit, even black credit. At present, the capital sources of MFIs are mainly from funding sources, especially semi-formal MFIs. While Vietnam is already a low middle-income country, funding sources, especially from international organizations, are no longer available. The semi-official MFIs are not allowed to mobilize voluntary savings, making it more difficult to raise capital. Therefore, the proposed solution of the topic group is the State Bank (SBV) and management agencies create mechanisms to mobilize capital for microfinance activities through borrowing from individuals and economic organizations, from capital markets, commercial banks and foreign loans. Especially, the research team proposed the solution of the State Bank to transfer a part of capital from banks for social policy to MFIs because banks for social policy are using a large amount of capital but its effectiveness is not high, sustainability is not high despite being subsidized. Market share accounts for 55% of the microfinance sector. Specifically, the operational criteria of banks for social policy are as follows: risk level of PAR30 = 4.77% is nearly over the threshold (5%), much higher than MFIs; ROA = 0.2%, much lower than the required level (2%); ROE = 0.9% very low (satisfactory level of 15%); the level of sustainability OSS = 102% has just met the requirements (100%) (Microfinance Directory 2018). In general, indicators of economic efficiency, operational sustainability of banks for social policy are worse than ones of MFIs. Therefore, transferring capital from banks for social policy to MFIs will improve the efficiency of capital use; MFIs will serve for a lot of poor people with more opportunities to borrow capital to invest in production and improve their lives.

- *Adjusting capital structure*: In the capital structure of MFIs, equity (formed from funding) accounts for a high proportion, especially semi-formal MFIs, which account for a very high proportion of 40% to 90%, on average more than 50%. This makes the ROE of semi-official MFIs quite low, mostly lower than 15%, which is satisfactory by international standards (of the World Bank). When the ROE is lower than 15%, the MFIs are not financially sustainable. So the solution for MFIs to develop sustainably financially is how to raise ROE by 15%. In order to do so, it is necessary to adjust the capital structure of MFIs towards reducing the proportion of equity, increasing the proportion of loans. Adjusting the capital structure in such way will increase ROE, thus increases the financial sustainability of MFIs.

4. CONCLUSIONS

Developing a system of MFIs will have a decisive impact on promoting effective and sustainable comprehensive financial development. The good implementation of the solutions proposed in the article will contribute to the development of the MFI system in accordance with the goals of the Party and the State in the new period.

REFERENCES

1. Assoc. Nguyen Kim Anh (2010), *Microfinance Development in Rural Rural Vietnam*, Statistical Publishing House, Hanoi
2. Assoc. Prof. Nguyen Kinh Anh, PhD. Le Thanh Tam (2013), *Sustainability of Vietnamese microfinance institutions: Current situation and some recommendations*, Transport Publishing House, Hanoi.
3. Update report: *A new step in reducing poverty and common prosperity in Vietnam 2018*, World Bank announced on April 5, 2018
4. Assoc. Prof. Dr. Le Van Luyen, Dr. Nguyen Duc Hai (2019), “*Analysis of activities of Vietnamese microfinance institutions*”, Ministry of Science & Technology - Financial Academy, Workshop Second National Science in Da Nang with the theme: The role of financial institutions and IT applications in promoting comprehensive financial development in Vietnam
5. MSc. Nguyen Bich Ngoc et al. (2018), *The impact of capital structure on the sustainability of MFIs in Vietnam*, grassroots research project at Banking Academy
6. Vietnam Microfinance Working Group (2019), 2018 Microfinance Directory, Transport Publishing House, Hanoi
7. Decree No. 28/2005 / ND-CP on the organization and operation of small-sized financial institutions in Vietnam, the Government issued on March 9, 2005
8. Decision No. 572 / QD - NHNN approving the Plan to deploy the development plan of microfinance industry in Vietnam to 2020, Governor of the State Bank of Vietnam issued March 30, 2012.
9. Bank Times (2018), *Promote financial education in Vietnam*, March 23, 2018 at: <http://thoibaonganhang.vn/thuc-day-giao-duc-tai-chinh-tai-viet-nam-74090.html>.

ATTRACTING FDI INTO THE SUPPORTING INDUSTRIES IN VIETNAM IN THE CONTEXT OF INDUSTRY 4.0

Phi Thi Thu Huong¹

ABSTRACT

For developing countries like Vietnam, the supporting industries play an extremely important role, contributing to attract FDI capital, at the same time, it is a premise for the sustainable development of national industries and economy. In the opposite direction, FDI also plays an important role in the development of supporting industries in the developing countries, including Vietnam, especially in the context of Industry 4.0. FDI can help develop the supporting industries through two ways: firstly, FDI into key industries and thereby developing the supporting industries; secondly, FDI directly into the domestic supporting industries. In this article, the author would like to mention the role of developing Vietnam's supporting industries of FDI in the second way, based on evaluating some of the achieved and limited points of FDI into the supporting industries in Vietnam. Since then, some solutions are proposed to improve the effectiveness of FDI into the supporting industries in Vietnam, contributing to promote the sustainable development of national industries.

Key words: FDI, industry 4.0, supporting industries.

1. INTRODUCTION

1.1. The urgency of research

In Vietnam, when production of main industries is still processing and assembling mainly with very low added value, the research and development (R&D) activities are very limited, then the supporting industrial development is the optimal solution to create many added values for the industry and the sustainable development of the industry. The supporting industrial development has increased the value of exports and has also contributed significantly to limit the trade deficit for decades in Vietnam.

To develop the supporting industries, it is necessary to have large capital and modern technology. However, Vietnam is still a country with shortage of capital and outdated technology. Therefore, in addition to domestic investment, FDI is an extremely important source of capital for the supporting industrial development in Vietnam, especially in the context of Industry 4.0.

FDI has been in Vietnam for many years and there have been specific achievements in investing in the supporting industries, but this capital is still limited. The evaluation of these limitations is essential to find out the solutions in order to improve the effectiveness of FDI when investing in the supporting industries in Vietnam.

¹ Academy of Finance

1.2. Object and scope of the research

- Object: FDI attraction activities to develop the supporting industries in Vietnam.
- Scope: FDI into the supporting industries of mechanics, electricity - electronics, textile, footwear mainly in the period of 2006 – 2016.

1.3. Objectives of the research

The article directed to:

- Evaluate the actual situation of FDI in Vietnam's supporting industries: some results and limitations.
- Propose some solutions to improve the effectiveness of FDI for investing in Vietnam's supporting industries.

2. THEORETICAL FRAMEWORK AND RESEARCH METHOD

2.1. Theoretical framework

- VDF (2006), *Industrial Policy Formulation in Thailand, Malaysia and Japan*, Labor & Social Affairs Publishing House.
- Ichi Junichi Mori (April 2006), *Development of Supporting Industries for Vietnam's Industrialization*, Vietnam Development Forum, Hanoi.
- Ichi Kenichi Ohno (2007), *Building supporting industries in Vietnam*, Vol.1, Vietnam Development Forum, Hanoi.
- Phan Dang Tuat (2008), *Development of Supporting Industries - the decisive way for quality development*, Forum for Integration and Development, VCCI.

2.2. Research method

The research method is mainly qualitative based on secondary data of reliable information sources such as General Statistics Office, General Department of Vietnam Customs, UNIDO, etc. In addition, the author uses analytical and integrated methods of theory and practice combined with expert method to collect information, data, reports related to FDI into a number of supporting industries in Vietnam.

3. RESEARCH RESULTS AND DISCUSSION

3.1. Some results of FDI into the supporting industries in Vietnam

FDI into the supporting industries in Vietnam has achieved some results, such as increased investment capital in the supporting industries, improved domestic technology level, improved skills and incomes of worker, significantly increased import-export turnover, etc.

Table 1. FDI into the supporting industries in Vietnam in period of 2006 – 2016

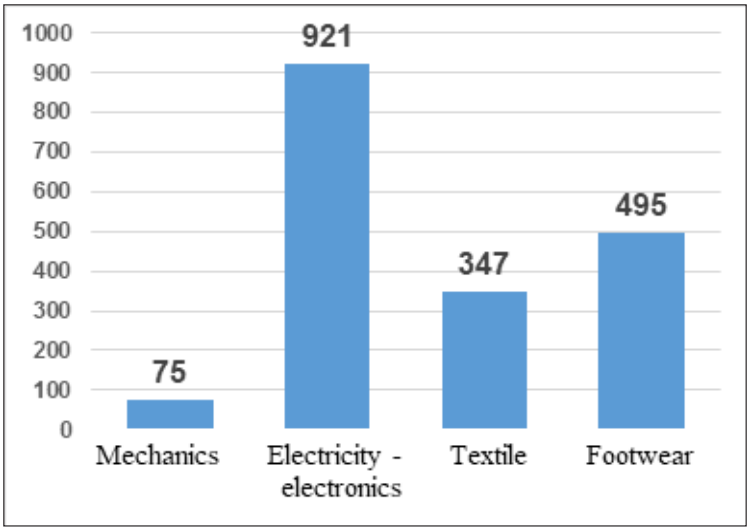
Unit: million USD

Sector	No. of projects	Authorized Capital	Proportion	
			Project	Authorized capital
1 Mechanics	75	1.807	4,08%	4%
2 Electricity - electronics	921	32.311	50,11%	67%
3 Textile	298	9.092	16,21%	19%
4 Footwear	495	4.955	26,93%	10%
Total	1.838	48.360	100%	100%

Source: data calculated from data of General Statistics Office

In the period of 2006-2016, FDI into the supporting industries of electricity - electronics up to 921 projects, the most in 4 fields of the supporting industries. In particular, the mechanics is the supporting industry with the least attraction of projects: within 10 years, there are only 75 projects (see Figure 1).

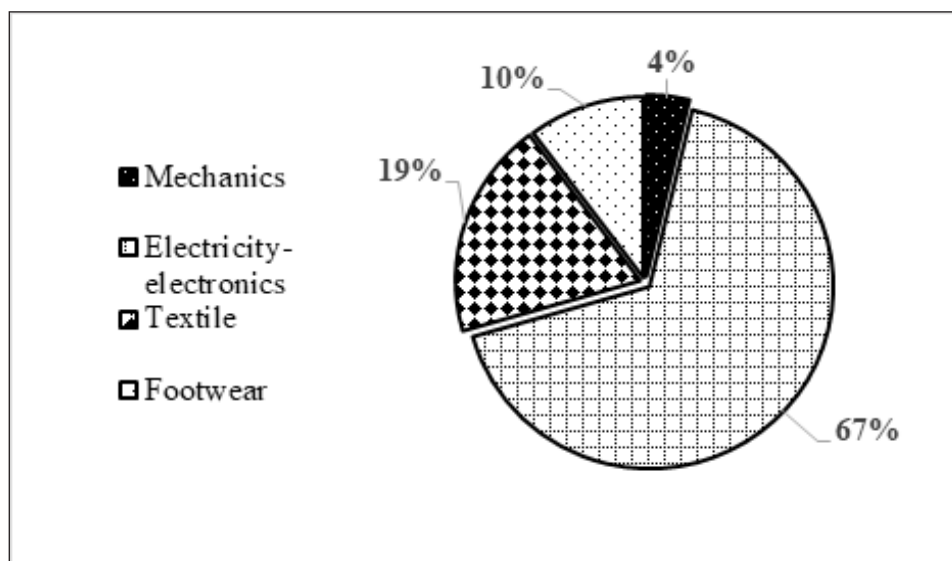
Figure 1: Number of projects invested by FDI into the supporting industries in Vietnam in period of 2006 – 2016



Source: data calculated from data of General Statistics Office

FDI capital into the mechanics also accounted for the lowest proportion with 4% of the total FDI capital into these four fields. Meanwhile, the amount of investment capital in the electricity - electronics for many years has always led and accounted for 67% of the total authorized capital investing in the supporting industries in the period of 2006-2016, truly creating a breakthrough for the development of this sector in Vietnam.

Figure 2: Proportion of FDI capital into the supporting industries in Vietnam in period of 2006-2016



Source: data calculated from data of General Statistics Office

The supporting industries of mechanics

FDI enterprises mainly invest in manufacturing the mechanical components, in which, most are enterprises investing in manufacturing components for the automobile and motorbike sector; a few enterprises invest in manufacturing mold and mechanical equipment and machinery.

The supporting industries of electricity – electronics

FDI enterprises investing in manufacturing electrical and electronic components are mainly large enterprises (accounting for more than 1/3 of the total number of enterprises investing in the supporting industries), the medium and small enterprises account a modest rate. FDI into the supporting industries of this sector is leading in both number of projects and investment capital.

Enterprises investing in this field only manufacture the components and assemblies for assembly from basic components and imported electronic materials because these types of components and materials are not manufactured in Vietnam.

In the past, FDI enterprises mainly invested in assembling the electronic components and assemblies with large quantities such as circuit boards of all kinds, electronic circuit board, electronic chips, air coil, refrigerators, components for mobile phones, etc. A small part of these components were supplied to domestic enterprises, the rest was mostly exported.

In recent years, the large assembling manufacturers such as Canon, Samsung, Intel, Nokia, etc. have invested in manufacturing all kinds of electronic products in Vietnam, attracting a large number of supporting industry enterprises of electricity - electronics to invest in manufacturing and supplying necessary components for these assemblers. Typically, the project of manufacturing touch screens for mobile phones, with a total authorized capital of 250 million USD, of Taiwanese

investor (Wintek) operating since the end of 2011. Wintek has expanded plant investment in Bac Giang. Increasing investment capital to 112 million USD, the plant's products also include liquid crystal display (LCD) screens, touch panels (TP), liquid crystal display modules (LCM), etc.; Kyocera's (Japan) high-tech mobile phone and electronic component plant in Thang Long II Industrial Park (Hung Yen), with a total investment capital of USD 55 million in phase I; Chipset production project with investment capital of 300 million USD in phase I and total investment capital of 1 billion USD from Intel; Samsung's project of 670 million USD; projects of Compal, Foxconn; project of manufacturing integrated circuits and electronic components for Samsung mobile phones (scale of 1.2 billion USD) in Thai Nguyen was officially put into operation in March 2014... The electricity – electronics have had the most exports in recent years.

The supporting industries of textile

The textile is a fairly developed manufacturing sector in Vietnam with rapidly growing export turnover (a two-digit average), one of the leading export sectors. However, the supporting industries of this sector have not developed adequately. FDI into the supporting industries of textile is quite limited with 298 investment projects and over 9 billion USD of investment capital.

The supporting industries of textile, which is concerned by foreign investors, is the field of fabric production. The stages of weaving, dyeing, finishing as well as underdevelopment of textile accessories and limited attraction of FDI capital make the development of Vietnam's textile sector lack the necessary connections. The auxiliary products cannot be supplied directly to the domestic textile sector due to the lack of fabric dyeing and finishing stages. Therefore, although Vietnam is able to export fiber products to other countries, it has to import dyed and finished fabrics to serve the domestic textile sector.

The supporting industries of footwear

Along with textile, the footwear is one of the fairly developed manufacturing sectors in Vietnam with a large export turnover, making an important contribution to the economic development. The supporting industries of footwear mainly are production of leather and leather items, auxiliary materials production as well as raw materials and tools production.

FDI into this sector attracts 495 projects but only with authorized capital of nearly 5 billion USD. While FDI into the supporting industries of textile has less than 400 projects, it has nearly 2 times the capital. FDI into the supporting industries of footwear is mainly leather production and leather items projects for exported footwear and bag production; auxiliary materials and tools production for footwear has attracted very few investment projects.

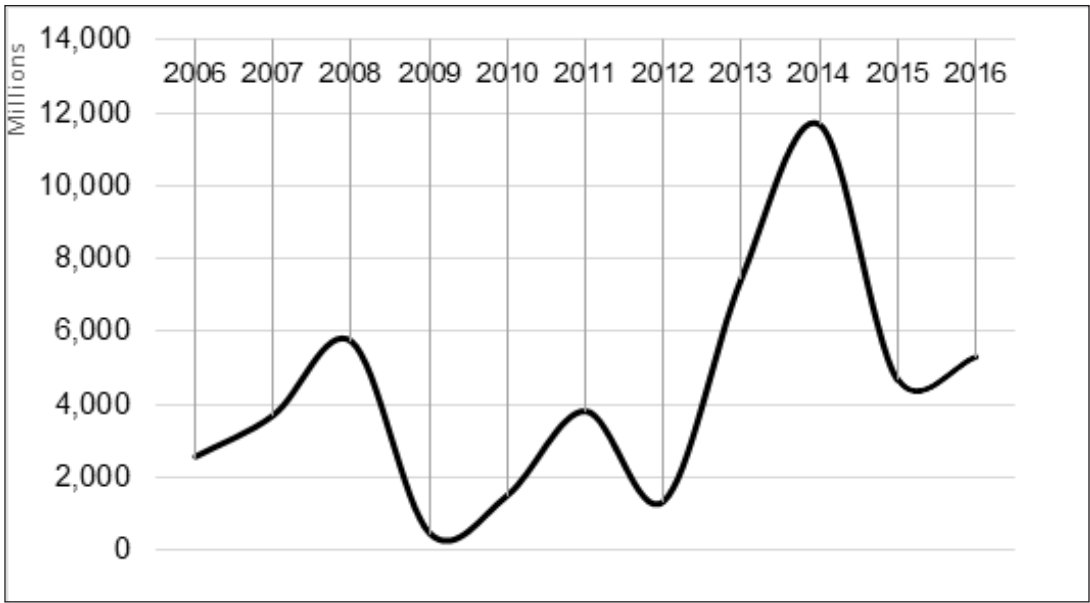
Due to the limited domestic production, the footwear sector must import almost all auxiliary products from leather to auxiliary materials and production tools from foreign countries, making the added value of the sector not high and strongly dependent into foreign suppliers.

3.2. Limitations of FDI into supporting industries in Vietnam

In addition to the advantages supporting the domestic industrial development, FDI into the supporting industries in Vietnam has appeared a number of limitations as follows:

Firstly, FDI capital into the supporting industries in Vietnam has been fluctuating and unstable over the years (see Figure 3), largely depending on the global and regional economic situation. FDI fell to a very low level in 2009, after the global economic crisis, reaching only 482 million USD, not equal to the odd of the previous year to reach 5,737 million USD. In 2010 and 2011, FDI capital into the supporting industries in Vietnam showed signs of recovery, but in 2012, it fell again. In the following years of 2013 and 2014, this capital flow increased sharply again, and then decreased sharply in 2015 and 2016.

Figure 3: FDI capital registered into the supporting industries over the years



Source: data calculated by General Statistics Office

Secondly, the structure of FDI capital is still very disproportionate. Except for the electricity - electronics, which has attracted a lot of FDI capital, other sectors in which Vietnam’s supporting industries are weak have not attracted much FDI capital. Mechanics is one of the supporting industries that changes the development of many domestic industrial sectors but receives only 4% of the total FDI capital into the supporting industries in Vietnam in the period of 2006-2016. Combined with investors mainly from Korea, Taiwan, and China, FDI capital into the supporting industries of Vietnam have not had a significant impact on improving the technology science and machinery platform in Viet Nam.

The proportion of FDI capital into the supporting industries compared to FDI in manufacturing and processing sector is still small, only around 30%.

Thirdly, the technological level of FDI projects is not high, the science and technology transfer activities between FDI enterprises and domestic enterprises are very limited, not pervasive the technology from FDI enterprises to other domestic enterprises.

In fact, very few FDI projects are invested in the field of science and technology. R&D activities in FDI enterprises are only in small and simple technologies, etc. or research to improve

adaptation to Vietnamese conditions. In general, technology exploitation and learning through FDI has not achieved the expected results.

Among projects investing in the supporting industries, many projects have outdated technology and are not interested in technology transfer activities. Most enterprises carry out normal assembly and processing, focusing on exploiting the advantages of crowded, cheap labor, available resources, easy-to-consume market. There are almost no FDI enterprises located their R&D centers in Vietnam.

According to the *Vietnam Industrial Investment Report 2011*, conducted by UNIDO¹ and the Ministry of Planning and Investment (MPI), the experts have evaluated the trend of FDI in Vietnam that use of low technology (in the sectors of textile and footwear) are predominant, and the pervasive capacity of technology transfer and knowledge in FDI projects to the Vietnamese economy is low. Most recently, the Firm - Level Competitiveness and Technology In Vietnam² (the 2013 survey results) published in November 2014 indicated that Vietnamese domestic enterprises mostly received the technology transfer from other domestic enterprises at a rate of 66%, only received the technology transfer from FDI enterprises in the same sector at a rate of 16% and from other FDI enterprises at a rate of nearly 18%. In the context of the industrial revolution 4.0 has become motivation as well as a tool to support the production activities, the lack of technology from companies with FDI capital will be one of the major limitations which attract attention to overcome.

Along with the low level of science and technology, the labor level of Vietnam also does not meet the requirements. As of July 1, 2014, Vietnam had 53.58 million workers³, including: up to 43.53 million workers without technical and professional qualifications (accounting for 81.2%); 2.68 million workers trained at vocational schools (accounting for 5%); 2 million workers graduated from professional secondary schools (accounting for 3.73%); 1.21 million workers graduated from college (accounting for 2.26%); 4.04 million workers with university degrees or higher (accounting for 7.54%); the rest is unknown. After 5 years, by the end of the first quarter of 2019, Vietnam's labor structure has changed in a positive way, however, it is still slow: the trained labor force (from vocational level upwards) is estimated to be 12.1 million workers; workers in agriculture accounts for more than 35%, in industry and construction accounts for nearly 29% and in service is 36%⁴.

Vietnamese workers working in FDI enterprises lack professional skills. The most lacking skills is shown to be skill in understanding the quality, reliability and working style on time. Other underappreciated shortage is teamwork, understanding and information receipt, applicability and creativity. In particular, the ability to use foreign languages is also a weakness of Vietnamese workers.

¹ UNIDO – United Nation Industrial Development Organization

² Conducted by Central Institute for Economic Management (CIEM), General Statistics Office and Development Economics Research Group under Department of Economics, Copenhagen University, Denmark

³ General Statistics Office (2014), Report on Labor Force Survey Quarter 2, 2014.

⁴ <https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19136>

The direct consequence of human resources with low quality is the low value-added creative capacity. Compared with other countries in the region, processed products in general, and especially processed products for export of Vietnam are not technologically complex. The proportion of medium and high technology products in the total added value of processed goods for export is just over 20% and has not changed much in recent years. Low-tech, labor-intensive fields are mainly fashion apparel, accounting for more than 70% of the value added of the processing industrial sector. In the automotive sector, Vietnam's the supporting industries mainly produce low value-added products such as wires, seat frames, accelerator pedals, brake pedals, etc. Products made from canvas, leather and foam to make chairs, even nuts, screws, etc. all have to be imported. The supporting industries of motorbike and electronics are considered to be developed, but it also mainly performs simple types of manufacturing and assembling with most imported components.

Fourthly, the connection between enterprises, especially between FDI enterprises and domestic supporting industry enterprises, is very loose.

FDI enterprises in Vietnam want to find component suppliers but cannot find suppliers that meet the requirements, so they are forced to import or produce or attract other satellites (looking for suppliers that are other FDI enterprises).

Specifically, according to statistics of the Central Institute for Economic Management (under MPI), there are 60% of FDI enterprises using imported products and only 20% using domestic products. Others can supply themselves by manufacturing or buying from other domestic FDI enterprises.

Typically, such as phones and other components, 100% of export value is made by FDI enterprises; Conversely, on the import side for these same items, 85% of the import value is made by FDI enterprises. Similar to computers, electronic products and components: the FDI content in exported products is 98% and in imported products is 90%.

FDI enterprises in Vietnam, because of not finding the supply source of components and accessories from domestic suppliers, are forced to import, so attracting other FDI enterprises with sufficient capacity to be satellite is the most effective for them. This will lead to a further limitation...

Fifthly, the localization rate is low.

Toyota Vietnam - one of the enterprises that is very active in raising the localization rate, "is proud to be the leading automobile manufacturer in the localization rate from 19% to 37%"¹ but that localization is due to their own investment in building assembly lines, self-production, manufacturing many components and spare parts at the plants such as chassis, oil pipe, exhaust pipe, etc. Besides, Toyota Vietnam also "endeavors to successfully invite spare parts companies of Toyota Group to invest in Vietnam such as Denso, Toyota Boshoku Hai Phong, Toyota Gosei Hai Phong"², etc. to manufacture the spare parts, and also to export automotive parts globally. It can be seen that, in the field of supplying high-tech automotive and motorbike spare parts, FDI enterprises often choose foreign enterprises.

¹ <http://www.toyotavn.com.vn/vi/toyota-viet-nam/noi-dia-hoa-xuat-khau/noi-dia-hoa>

² <http://www.toyotavn.com.vn/vi/toyota-viet-nam/noi-dia-hoa-xuat-khau/noi-dia-hoa>

The number of Vietnam's supporting industry enterprises in manufacturing is small, with a small number of Vietnamese spare part and component manufacturers able to meet high quality standards of FDI enterprises, contract production with MNC, TNC. Manufacturing machines are mainly imported with high prices and heavily dependent on foreign spare parts and technology; some are cheap but obsolete, outdated or acquired by some bankrupt enterprises. Domestic enterprises do not meet international quality standards, so FDI enterprises do not choose them.

Therefore, domestic supporting industry enterprises are in shortage of capital, weak in human resources and technology, mainly carrying out simple production under the guidance of foreigners. This leads to the situation where domestic supporting industry enterprises cannot learn or take advantage of technology from FDI enterprises and cannot find outputs for products or products do not meet the requirements of assemblers. Another fact that leads to loose connection between FDI enterprises and domestic enterprises is due to the popularity of the form of 100% foreign capital investment. This prevents Vietnam from benefiting from technology transfer and management skills. Therefore, the operating model of many FDI enterprises seems to be just import - assembly - export.

When FDI approaches but does not create a connection with the domestic economy, there is no pervasive effect to stimulate enterprises and sectors as well as Vietnam's economy for development. The loose connection of FDI enterprises and domestic enterprises is the cause of limitations in the transfer of science and technology, improvement of management skills, labor skills, etc. The loose connection between enterprises is also one of the reasons for the low localization rate in products made in Vietnam. FDI activities have not really supported domestic enterprises to participate in the global production network.

Supporting industrial production projects have been favored and encouraged to invest by the Government of Vietnam in recent years, such as Intel, Foxconn, etc., mostly manufacturing the components for 100% export. Input materials and components of these projects are almost 100% imported. Manufacturers of supporting industries exporting this type have little localization motivation, often choose to invest in Vietnam to take advantage of cheap labor market, government incentives on land rent, enterprise income tax, etc. Although these are projects with great investment, creating many jobs, but the added value of the product is almost none, does not decrease the trade deficit, does not create the pervasive effect to the domestic enterprises. These are great shortcomings in the FDI attracting projects into the supporting industries in the current context.

4. CONCLUSIONS AND POLICY IMPLICATIONS

With the actual situation of FDI into some of the supporting industries in Vietnam above, it is necessary to implement the following solutions:

Policy solutions: It is necessary to clearly identify the focus of attracting FDI into the supporting industries to focus on design policy to improve the effectiveness of FDI attraction activities. At the same time, it is necessary to complete the legal institutions fully, openly, in accordance with international practices, especially in a transparent, stable, predictable manner in order not to cause risks on law, making the foreign enterprises feel secure when investing in Vietnam.

With the policy of attracting FDI from large corporations, especially those from countries with source technology (such as the United States, EU countries), it is necessary to have policies and design

the specific and particular incentives to attract strategic investors, TNCs, MNCs who have potential in technology and market, the partners who are really able to contribute to Vietnam to achieve the goals and requirements of the development policy of supporting industries. In addition, there should be clear legal provisions to avoid Vietnam becoming a technological dump when receiving FDI.

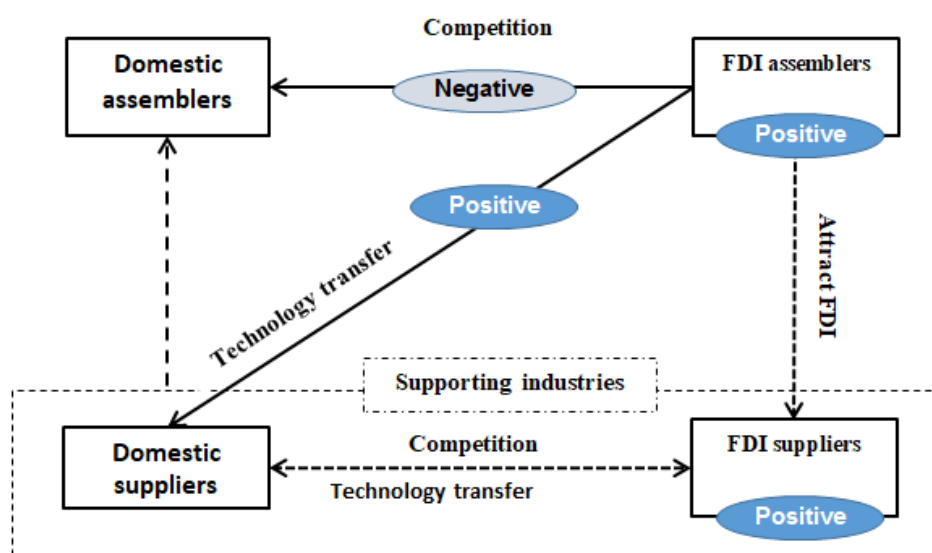
Industry 4.0 offers clear opportunities for development, so FDI should be attracted to develop the supporting industries - a field requesting the high science and technology - it is clear that priority should be given to attracting key projects, apply the achievements of Industry 4.0 such as big data, AI - artificial intelligence, etc. through incentives showing the State's incentives: incentives on enterprise income tax, value added tax, incentives on use of ground, credit, etc.

Development of domestic small and medium-sized supporting industry enterprises: In the beginning, FDI enterprises will play a key role in the development of Vietnam's supporting industries but allow the country's supporting industries to develop sustainably, requesting the domestic enterprises to gradually grow up and be qualified to receive production technology transfer from FDI enterprises. Therefore, to promote domestic SMEs, it is necessary to have very positive supportive policies for this group. In particular, the incentives on taxes, human resource training, credit support, technical support, administrative procedures, etc. are considered prerequisite solutions to motivate the enterprises to boldly invest. The incentives for FDI enterprises investing in the supporting industries related to Industry 4.0 also should be applied to domestic enterprises when investing in this field.

Strengthen the connection between the FDI enterprises and domestic enterprises:

The connection between the domestic enterprises and the FDI enterprises include the connections between the supporting industry enterprises (the suppliers) and main industrial enterprises (the assemblers): the domestic suppliers and the FDI assemblers, the FDI suppliers with the domestic assemblers, between the domestic suppliers and the FDI suppliers.

Figure 4: Relation between the domestic and FDI suppliers and assemblers



Source: VDF (2006)

In addition, it is also necessary to focus on the connection between the domestic suppliers and the suppliers with FDI capital because it also stimulates the development of domestic supporting industries through the competition between these two groups, and at the same time, the domestic enterprises also have conditions to develop technology and management experience of FDI enterprises in the same supporting industry sector.

One of the ways to help the FDI enterprises and the domestic enterprises know each other easier, which is to build a complete database of the enterprises. This measure has been proposed and initially implemented without effectiveness. Therefore, this activity needs to be reviewed and implemented quickly, so as to complete the data, ensure the updates, as well as to provide timely information to the enterprises in need.

In order to strengthen the connection between the enterprises and development of the supporting industries, one of the measures that have been successfully applied by the countries, which is to form the concentrated industrial zones and complexes for the supporting industries.

Form the concentrated industrial parks and complexes for the supporting industries to attract FDI

Industrial parks and industrial complexes (IP, IC) have been built quite a lot in Vietnam. However, these industrial parks have not attracted investment projects with industries, high technology concentration, the suitability for development. Many provinces and cities compete to attract each FDI project. In addition, the infrastructure of economic zones, industrial parks as well as the worker skills are still low; the industry connection of enterprises and supporting industries in the industrial zones and the export processing zones are still weak.

In order to attract FDI into the supporting industries in the IPs, ICs or industry clusters, Vietnam is required to pay attention to the planning of industrial parks and complexes in relation to residential areas; to overcome the infrastructure limitations inside and outside the area (especially the construction of a centralized waste treatment plant); to create specialization and production connects between the enterprises.

Enhance the quality of human resources to provide for the supporting industry projects

First of all, it is necessary to review the needs in each supporting industry sector associated with each stage of development, from which an appropriate training program shall be formed. The training program not only provides the learners with necessary “hard” knowledge for the job, but also helps them to develop soft skills, which are the weaknesses of Vietnamese labor such as discipline, creativity, independent thinking ability, so on, and especially the foreign language level. In the long term, Vietnam is required to continue to change the quality of education and training at all levels, in order to provide the quality human resources for the economy in general and for the supporting industries in particular. One of the important points is that, the training orientation should be focused and made better for high school students, avoiding the situation of only focusing on the university level, ignoring or disregarding the college level, vocational training, leading to the situation of “Too many chiefs, not enough Indians”, which has existed for a long time.

The training and provision of high quality human resources for the supporting industry enterprises also must pay more attention to the relation between the enterprises and the training institutions. The State, together with training institutions, support and encourage the enterprises to proactively “order” and create conditions for the learners to have opportunities to practice, as well as, have jobs after completing the training program.

REFERENCES:

1. <https://www.customs.gov.vn/Lists/ThongKeHaiQuan/Default.aspx>
2. <http://www.toyotavn.com.vn/vi/toyota-viet-nam/noi-dia-hoa-xuat-khau/noi-dia-hoa>
3. <https://www.gso.gov.vn/default.aspx?tabid=382&idmid=2&ItemID=19136>
4. CIEM, DoE and GSO (2014), *Competitiveness and technology report at enterprise level in Vietnam*.
5. General Statistics Office of Vietnam (2014), *Report on Labor force survey*, Quarter 2, 2014.
6. General Statistics Office of Vietnam (2019), *Press release on labor and employment situation in the first quarter of 2019*.
7. Ichi Junichi Mori (April 2006), *Development of Supporting Industries for Vietnam's Industrialization*, Vietnam Development Forum, Hanoi.
8. Ichi Kenichi Ohno (2007), *Building supporting industries in Vietnam*, Vol.1, Vietnam Development Forum, Hanoi.
9. Phan Dang Tuat (2008), *Development of Supporting Industries - the decisive way for quality development*, Forum for Integration and Development, VCCI.
10. UNIDO & Ministry of Planning and Investment (2012), *Viet Nam Industrial Investment Report 2011*.
11. VDF (2006), *Industrial Policy Formulation in Thailand, Malaysia and Japan*, the Labor and Social Publishing House.

THE FOURTH INDUSTRIAL REVOLUTION CHALLENGES FOR VIETNAM REAL ESTATE ENTERPRISES

Nguyen Ho Phi Ha, Vu Quynh Nga¹

ABSTRACT

There is no denying the strong impact of the Fourth Industrial Revolution (Industrial Revolution 4.0) on all aspects of social life. The revolution facilitates and compels businesses and industries to change their business methods if they refuse to be left behind. For real estate businesses, the Industrial Revolution 4.0 will help businesses have the opportunity to expand the development market, and to apply scientific and technological achievements in production, which will contribute partly to reducing costs and increasing labor productivity, etc. Industrial Revolution 4.0 has also put real estate businesses in the face of challenges. So what are the opportunities and challenges for Vietnam real estate businesses before the 4th industrial revolution? And what are the solutions?

Keywords: Industrial Revolution 4.0, real estate business, opportunity, challenge.

1. INTRODUCTION

Industrial Revolution 4.0

When the 1st Industrial Revolution witnessed the introduction of water and steam energy, the 2nd Industrial Revolution came with the use of electrical energy in mass production, the 3rd Industrial Revolution used electronic devices and information technology is used to automate production, the Industrial Revolution 4.0 is a harmonious combination of all these factors, blurring the boundaries between physical, technical and biological fields. The era of the Industrial Revolution 4.0 is considered as the era of digital technology, inheriting S&T achievements from the 3rd Industrial Revolution. The characteristics of the Industrial Revolution 4.0 are the continuous development of the Internet and the increasing mobility, the smaller and more powerful sensors, while the price is cheaper than before, with the introduction of artificial intelligence. Digital technology with hardware, software and network systems is becoming more complex, more integrated and therefore is transforming society as well as the global economy.

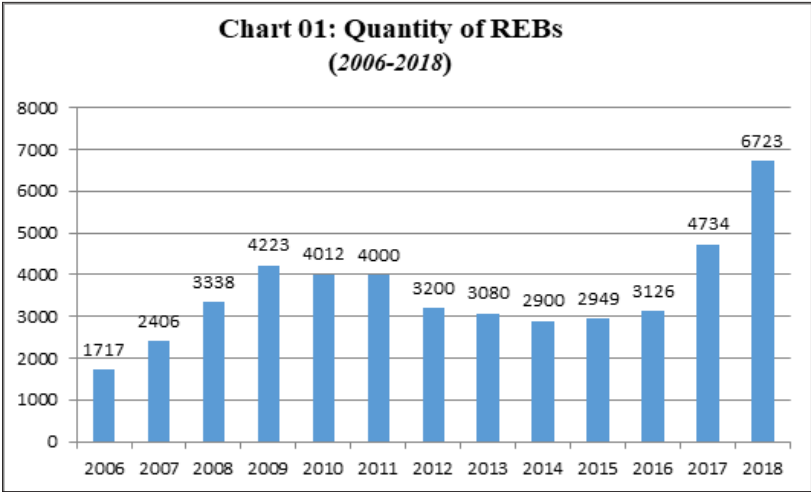
With the Industrial Revolution 4.0, all production processes are fully automated. The era of mass production has been replaced by the production of single products according to specific needs from customers at lower prices by reducing production costs. For real estate businesses, the Industrial Revolution 4.0 will help them have the opportunity to expand the development market, to apply scientific and technological achievements in production of products, which will contribute

¹ Academy of Finance, 58 Le Van Hien, Duc Thang, Bac Tu Liem, Ha noi, Viet nam, email:p.nguyenho@yahoo.com.vn

partly to reducing costs and increasing labor productivity, etc. On the other hand, the Industrial Revolution 4.0 has also put real estate businesses in the face of challenges

Characteristics of Vietnamese real estate businesses

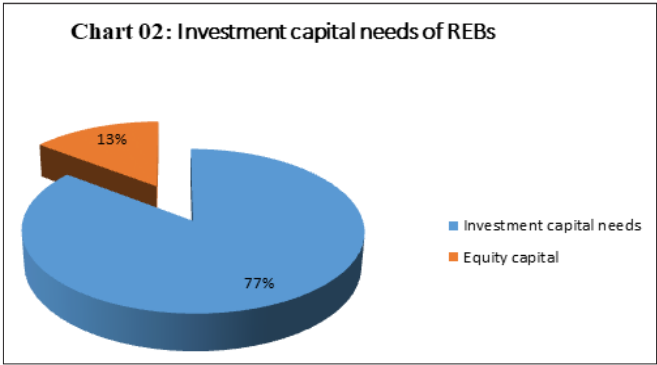
Real estate businesses (REBs) are not only indispensable subjects for the real estate market, but also play an important role in the success of this market. The number of domestic real estate businesses always tends to increase (however, it depends on the status of the real estate market in each period).



Source: General Statistics Office 2018

From 2006 to 2009, the number of businesses in real estate every year increased by 20-50%. By 2009, the number of real estate businesses had been 4,223, nearly three times higher than that of 2006. In 2010, due to difficulties in the real estate market, the number of real estate businesses did not increase and by the end of 2011 there were a number of real estate enterprises forced to deactivate, or even facing the risk of bankruptcy, dissolution and the number of real estate businesses was estimated at about 4,000. Currently, with the prosperity of the real estate market, the number of real estate businesses has shown signs of increasing (by 2018, there were 6,723 real estate businesses).

In order to conduct their investment and business activities, enterprises need to conduct the capital raising process - the first step in every business cycle. Moreover, because the characteristics of real estate investment always requires a large amount of capital and long investment time, the actual capital that real estate businesses need is noticeably large.



Source: CBRE

In fact, the equity capital of real estate businesses only meets less than 13%, while the investment needs are increasing, real estate businesses are not only waiting for initial capital contribution but also continue to mobilize other capital channels such as banks, or issuing stocks, etc.

Currently, real estate businesses are “thirsty” for capital, while their management experience and market analysis experience are limited; the skill level of workers is still low, while the demand for real estate types is constantly increasing, in details as follows:

❖ *Urban and housing development needs*

* Urban population forecast:

According to forecasts, by 2025, the total population of the whole country will be over 103 million, of which the urban population will be about 52 million, the urbanization rate will reach 50% of the total population¹.

* Forecast of urban area:

The urban area in 2025 is forecasted to reach 450 thousand hectares, and by 2030 the urban land area will reach 500 thousand hectares².

* Forecast of urban housing demand:

Forecast for 2025 is 1,300 million m² (average of 25m²/person). It is forecasted that an average of 37.5 million m² of urban housing will need to be added each year³.

Thereby, it is not difficult to notice the amount of capital needed to invest in urban housing each year is very large, not to mention the capital needs for technical and social infrastructure.

❖ *Industrial development needs*

With the strategy of industrialization and modernization of the country, the demand for development of industrial parks and industrial clusters is increasing. It is forecast that by 2025, 180,500 hectares of land will be needed to build industrial parks and industrial clusters⁴.

Table 01: Summary of industrial land demand in 2025

Unit: ha		
Industrial parks	Industrial clusters	Sum
94.500	86.000	180.500

Source: Ministry of Construction

* Demand of investment capital for industrial real estate:

If the value of real estate is expected to account for 20% of the industry’s total investment, the period 2017-2020 will need over VND 500,000 billion and the period from 2020 to 2025 requires over VND 800,000 billion.

¹ Source: General Statistics Office
² Source: Ministry of Natural Resources and Environment
³ Source: Housing and Real Estate Market Management Department
⁴ Source: Ministry of Construction

❖ *Real estate demand for commerce*

Commercial real estate includes wholesale markets and retail wholesale markets. The demand for land for wholesale markets is expected to be 81 hectares by 2025; and the land demand for wholesale and retail markets in the period of 2017-2025 is 130.4 ha¹.

❖ *Demand for hotel real estate*

With the tourism development strategy, the tourism industry is one of the key economic sectors. It is forecasted that by 2025, to meet the number of tourists, the total number of hotel rooms needed is 412,118 rooms (with the corresponding area of 610,000 m² of construction)⁶. Therefore, the amount of capital needed to invest in this field is not small.

What is the impact of The Industrial Revolution 4.0 on real estate businesses in particular?

In fact, in the context of the industrial revolution 4.0 is having a strong impact on all aspects of social life, all fields and all industries; It is both an opportunity and a challenge for all businesses, including real estate businesses.

2. OPPORTUNITIES

- For real estate businesses, it is now easier to manage their business operation with real estate management software. For example, they can apply informatics technology to operating and managing real estate; apply electronic technology to management and administration of administrative activities for inspection, survey and job management, etc.

-Data management on land use planning as well as changes in land is updated, stored and managed through information systems and digital data will help businesses in their search, backup, and extract more convenient, and faster to meet the requirements of customers and managers.

- Managing real estate information on real estate trading floors is also easier and more convenient.

For real estate, managing the business model is now easier with the application of real estate management software. Exchanges with the total number of organic and staffed employees have grown exponentially. Therefore, the management is always a great challenge for management. The urgent need for a system of scientific planning to help reduce the management burden, help businesses focus on developing business on real estate trading floors is a necessary and applicable job. When Big Data technology achievements are applied, this real estate software allows them to store and exploit unlimited customer data, help find potential customers quickly, combined with various methods of real estate advertising and marketing⁷. Therefore, by this way, they bring products to customers more conveniently.

Moreover, the schedule and workflow with customers will also be installed, which reminds each employee with absolute confidentiality. Their jobs are supervised, checked periodically and cases are checked with information reviews, cross-checking elements that can be found quickly, promptly and accurately when applying data search technology on smartphones, mini computers, etc. At the same

¹ Source: Ministry of Construction

time, the modules are set up to manage details of each item, which will be linked consistently on the system, helping managers and customers to optimize search operation. Besides, the system is also integrated on mobile devices to help members work more conveniently without paperwork as before.

- Managing real estate products on the real estate trading floor is also easier when applying information technology.

The Industrial Industry 4.0 is spreading in all areas and it offers many opportunities to change the economy, without excluding the real estate sector. Therefore, real estate management software was designed and introduced to help enterprises optimize business operation management mechanisms, ensure maximum cost reduction, close contracts quickly, thereby lead to increased profits and sustainable development. In recent years, when the capital market trend is no longer consistent with the traditional operating and business mechanism, the application of software has become more important than ever. The software goes into the real estate business, helping them to operate automatically, accurately, limiting and avoiding any errors. Moreover, the software also manages all business activities from customer management to employees, affiliate real estate exchanges, product management, shopping carts, real estate policies, operations, revenue, debts, salaries, rewards, achievements.

- The quality of real estate products has been increasingly improved, the form has been improved more and more beautifully because construction enterprises have applied scientific and technological advances and achievements in construction. Real estate products are more varied, such as Mi-ni apartment; Office apartment, Officetel, Condotel, Hometel, Shophouse, Service apartment, Townhouse, Villa in Resort, etc.

In general, the Industrial Revolution 4.0 step by step helps real estate enterprises to apply the achievements of science and technology anytime and anywhere, thereby improve the efficiency of business activities of enterprises, such as Controlling cash flow, Monitoring debts; Controlling forms strictly, Accessing data flexibly and continuously; Managing sales policies and calculating real estate prices; Managing real estate charts; Managing real estate floors; Managing and taking care of real estate customers; Managing all stages of the project (for example, Managing real estate transactions in place deposits; Managing the handover and red book process; Managing the system of documents and images; Tracking debts, etc.)

3. CHALLENGES

In addition to the above opportunities, the Industrial Revolution 4.0 also poses many challenges to Vietnamese real estate businesses.

Firstly, to improve the efficiency and quality of services, real estate businesses must apply information technology to their real estate management. In fact, a lot of risks have occurred and the consequences are from human resources management to customer care, while real estate products are often of great value, leading to the loss of control over products, overlapping with customers, uncontrolled customer information, misleading transactions, poor control of liabilities. The emergence of real estate types such as Mi-ni apartment buildings; Office apartments, Officetel, Condotel, Hometel, Shophouse, Service apartments, townhouses, villas in the Resort, etc. need legal provisions for the operation of business investment but currently legal documents are not really effective.

Secondly, the qualifications of the staff and employees in the enterprise could not meet and adapt to the rapid development and progress of information technology. In the Industrial Revolution 4.0, the requirements for the quality of human resources are getting higher and more stringent.

Thirdly, there are delays in legal documents. In fact, policies and laws have not kept pace with the development of technology. If the legal framework is incomplete and cannot follow the rapid development of digital technology and the Industrial Revolution 4.0, it will affect the development of business in general and real estate businesses in particular.

Fourthly, the labor force will be redundant. The Industrial Revolution 4.0 will create a huge shift in labor resources. According to a research by the Organization for Economic Co-operation and Development (OECD), in the future, an average of 9% of current jobs will be at risk of being completely replaced by automation; When the era of robotization and automation takes the throne, millions of people will fall into unemployment, especially those working in real estate brokerage or real estate construction.

Fifthly, many businesses do not understand the nature of the Industrial Revolution 4.0, do not see the relevance of technology trends to their industries and fields, are not ready to have the capacity to access technologies, infrastructure system, processes are not ready, do not change their business organization to meet the technology trend. That is why they are still on the sidelines and they have not done anything to catch the wave of The Industrial Revolution 4.0.

Finally, there is a lack of funding to apply the advances and achievements of science and technology in all stages of business activities of real estate businesses. In fact, most real estate businesses in Vietnam are “thirsty” for capital and business owners are suffering from the issues of capital.

4. RECOMMENDATIONS

4.1. For the State:

The real estate market in general and the operation of real estate businesses in particular are heavily influenced by the State’s policies and laws, the application and enforcement of state agencies. Therefore, to take advantage of opportunities and limit challenges for real estate businesses in the period of the Industrial Revolution 4.0, it is necessary to find comprehensive solutions from the system of policies, laws and implementation in reality, to the training, propaganda, etc. to create a favorable environment for improving the management capacity of the State in this field. Specific conditions from the State include:

Firstly, it is necessary to quickly complete and review overlapping and inconsistent regulations in the legal system related to the real estate market and real estate business activities.

The State should continue to improve the system of legal documents providing for forms of capital mobilization for real estate enterprises to create a more open legal corridor to promote the process of approaching technical advances.

The overlap of legal provisions among laws, among laws, decrees and circulars issued by the Government, between central-issued documents and local-issued documents is a fairly common

situation. Similarly, the gaps where there is no regulation to regulate often come in a law or in a whole legal system. Up to now, the “gaps” and “piles” have been greatly reduced but it is still an existence that has a significant negative impact on the law enforcement process.

Secondly, the State needs to put businesses at the center of the national innovation system; build a Government to create development and serve people and businesses; guarantee the right to business freedom and endeavor to create an equal and favorable business environment for enterprises. These are the greatest aspirations of the current business team when changing themselves to integrate into the flow of the Industrial Revolution 4.0. At the same time, there should be policies to support technological capacity building for enterprises to develop new products, advanced technologies, high technologies, key products and key products; support development, protect intellectual property. They should build and support the integration capacity to apply the Industrial Revolution 4.0 for businesses, especially small and medium-sized real estate businesses. Then, new businesses can participate more effectively in global value chains and play a leading role in domestic value chains.

Thirdly, the State needs to promote the publicity and transparency of information to stabilize the market.

They should establish an information system with a database which is always fully updated and guaranteed to be always publicized on the State’s guidelines and policies; on planning strategies, plans for development of branches, domains and economic regions; on all State plans, programs and projects (except for national secret programs and projects); business instruction information; on credit, the domestic market and exports, technology products; information on activities, exchange research, and reference of agencies and organizations on all aspects related to the life of the business, as well as international experience.

Fourthly, the State should enhance information dissemination and awareness raising for the business community in general and real estate businesses in particular, especially on the inevitable trend of the Industrial Revolution 4.0.

Finally, they should develop policies to support businesses. Real estate businesses always need a large amount of medium and long-term investment capital. The reduction in capital mobilization cost has an impact on reducing real estate prices. Real estate investment enterprises cannot do this by themselves but need support policies from the State.

4.2. For the Real Estate Businesses:

Firstly, REBs themselves constantly improve their capacity and business efficiency so that they can easily access to the advances of science and technology. Because in order to improve the competitiveness of their business, besides the support, creating the environment and favorable conditions from the State, the enterprises themselves need to create a certain internal force to stand firmly in the market.

Secondly, enterprises should take the initiative in training and fostering to raise the qualifications of their personnel and develop a database system, as follows:

+ Recruit and train highly qualified, experienced human resources. Enterprises need to recruit personnel in a strict process, focusing on training and advanced training for their employees.

+ Develop a reasonable regime of reward and punishment reasonably. This is one of the measures to stimulate the promotion of the ability to contribute of leaders of departments as well as employees of the enterprises.

+ Allocate capital and human resources to create sources of information gathering for business, creating information strengths for their businesses, because real estate information system of trading service enterprises plays a very important role in business operations.

Thirdly, proactively enhance mobilizing capital from other channels in accordance with the provisions of law. In addition to the common channels of raising capital from businesses, from banks and other credit institutions, real estate businesses need to be proactive in exploiting mobilization channels. Other capital is allowed by the law to help their businesses operate better and contribute to promoting the real estate market development.

In summary, the Industrial Revolution 4.0 has facilitated as well as urged businesses and industries to change their business methods if they do not choose to be left behind. For real estate businesses, the Industrial Revolution 4.0 will help businesses have more opportunities to develop but also make them face challenges. We believe that in the coming time with the synchronous coordination of a system of different solutions, Vietnamese real estate businesses will be capable of integration and development.

REFERENCES

1. CIEM (2013), Characteristics of business environment in Vietnam: Results of a survey of small and medium-sized enterprises.
2. National Department of Science and Technology Information - Ministry of Science and Technology, General Science - Technology - Economic Review: The 4th Industrial Revolution, 2016
3. Klaus Schwab (2016), The Fourth Industrial Revolution, the translation of Đông Bích Ngọc and Trần Thị Mỹ Anh.
4. Nghemoigioi.vn, "Real estate market in the Industrial Revolution 4.0" <https://nghemoigioi.vn/blog-post/thi-truong-bat-dong-san-thoi-4-0/>
5. Landsoft.com, "The technological revolution 4.0, real estate is not out of this trend", <http://landsoft.com.vn/cach-mang-cong-nghe-4-0-bat-dong-san-khong-nam-ngoai-xu-nay/>
6. Đinh Trọng Thang (2008), Real estate investment capital channels; Rationale, international experience and suggestions for Vietnam. Central Institute for Economic Management
7. Nguyễn Hồ Phi Hà (2012), Mobilizing financial resources to develop the real estate market in Vietnam, Economics PhD thesis, Academy of Finance, Hanoi.

ASSESSING THE SUSTAINABILITY PERFORMANCE OF THE PHARMACY SECTOR

Nguyen Phu Hung, Bui Duy Toan¹

ABSTRACT

Despite of recent phenomenal growth in pharmacy industry, due to better national economy, rising income per capita, and improved education have driven up the demands for pharmaceutical products, there is a mutual concern among investors that the expansion is over heated, and thus lead to a doubt about unstable market. This paper seeks to answer the question by applying various techniques combined with a well-structured framework, include three critical factors: (i) economic, (ii) environment and (iii) social. Qualitative research method was adopted to gauge the overall situation of environment and social aspect, while economic aspect is approach in quantitative ways. Drawing from well-recognized model of Altman, financial health of pharmaceutical firms is measured by a specific Z score, built on a comprehensive analysis of data of pharmaceutical firms. The incorporated results suggest a promising future of sustainability with 14 firms has high chance of maintaining its growth, other 10 firms are on neutral stage and only 4 firms are considered as potential distress. Further, the Z' score model also shows a potential application in credit scoring and predicting future financial health, which potentially fit for objectives credit institutions.

Keywords: Financial sustainability, Pharmacy industry, Z score. 1. Introduction.

1. INTRODUCTION OF RESEARCH

Pharmaceutical industry is an industry constantly in the focus of Vietnam. The better national economy, rising income per capita, and improved education have driven up the demands for pharmaceutical products. Consequently, Vietnam was the second largest medicine market in the South East Asia healthcare and is expected to see the highest growing markets in Asia for the next 20 years. However, due to their low competency, most domestic pharmaceutical companies are not able to explore the local market, losing market share to more capable foreign ones. For example, as of 2018, it was estimated that 70%-90% of national medicine expenditure were for imported sources. In addition, because of their high impacts to the life of people, public opinion looking increasingly critically at the way pharmaceutical companies are doing their business, companies' sustainability has turned out to be a substantial contribution to ensure their so called "legitimacy to operate", or "license to operate". Therefore, it necessitates a research to study and assess the sustainability and sustainability performance of domestic pharmaceutical companies in such challenging context from the sustainability framework which covers 3 aspects: (i) economic, (ii) environmental, and (iii) social aspects, and this is the objective of this research. The research addresses 2 questions (RQ) below:

RQ 1. What is the context of pharmaceutical companies in Vietnam? (such as in terms of politic, economic, social, and environmental dimensions?)

RQ. 2 What do the financial ratios reveal about the future sustainability?

¹ VNU International School, Vietnam National University, 144 Xuan Thuy, Mai Dich, Cau Giay, Ha Noi, Topica Native

2. LITERATURE REVIEW AND ANALYTICAL FRAMEWORK

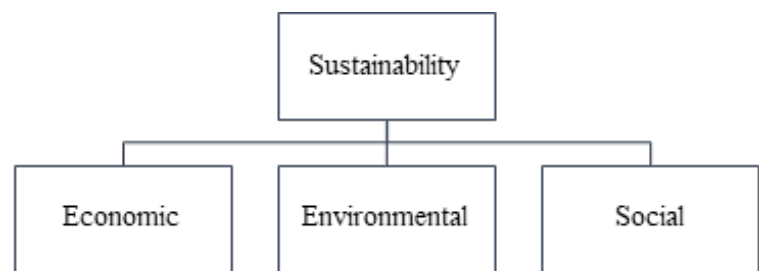
Corporate sustainability is considered to be a business and investment strategy that seeks to use the business practices that best to make the business perform to meet the needs of the enterprise and its stakeholders today and to and balance them with those of future stakeholders (Artiacha, Leea, Nelsonb, & Walker, 2010; Labuschagne, C.Brent, & Erck, 2005). Conceptually corporate sustainability mainly focuses on 3 fundamental aspects emphasizing consideration of (i) social, (ii) environmental, (iii) economical (Goyal, Rahman, & Kazm, 2013; Waddock, 1997). That involves sustainable development “*that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (WCED, 1987, p. 43).

Scholars of this research stream seek to develop successful corporate sustainability strategy, focusing on (i) the corporate sustainability performance impact assessment on firm performance, and (ii) the performance measurement (Atkinson G. , 2000).

2.1. Factors affecting corporate sustainability

A corporate sustainability performance measurement is necessary for a corporate manager to monitor the progress of its corporate. Various literature addressing corporate sustainability assessment have been developed (Artiacha, Leea, Nelsonb, & Walker, 2010; Goyal, Rahman, & Kazm, 2013). A literature review of Goyal, Rahman, & Kazm (2013) indicates that social and environmental thresholds could play a critical role in the overall sustainability performance of companies, therefore a framework to measure corporate sustainability performance should include a composite sustainability index which simultaneously combines the economic, environmental and social components of sustainability. Atkinson (2000) and Ilinitch et al. (1998) suggests an incorporated framework that evaluates the contribution of companies to sustainable development expressed in both financial terms and non-financial units. These methodologies examine corporate sustainability within the context of the business case where sustainability strategies are considered win–win solutions for companies on both the financial and environmental performance (Atkinson G. , 2000; Ilinitch, Soderstrom, & Thomas, 1998). In terms of economic aspect, while Lebas (1995) supports the use of financial ratios such as ROA, ROE or cash return on equity, Artiacha, et al. (2010) argue that profit is a better indicator to measure economic sustainability given that it offers information regarding the returns on companies’ investments, though it is not sure whether an increase in profits is the outcome of a successful capital investment securing the long-term viability of companies.

Fig. 2.1: Components of Sustainability



2.2. Relation between Finance Ratios and Corporate Sustainability Performance

Assessing earnings persistence is a form of earnings forecasting that takes current earnings as a starting point and asks whether future earnings are expected to continue at the same level. Research on earnings forecasting in the modern era began with this perspective; such as Lintner and Glauber (1967) and Ball and Watts (1972) saw current earnings as the basis for predicting subsequent earnings, and depicted earnings as following a martingale process - with earnings changes unpredictable, beyond a drift -- and thus sustainable. Subsequent research modified this view by showing that future earnings changes are readily predictable and that line-item financial statement information aids in that prediction. According to Penman and Donissim, (2001), financial statement analysis is presented as a matter of pro forma analysis of the future, with forecasted ratios viewed as building blocks of forecasts of payoffs. The analysis of current financial statements is then seen as a matter of identifying current ratios as predictors of the future ratios that determine earning powers.

Papers such as Lipe (1986), Ou and Penman (1989), Lev and Thiagarajan (1993) and Fairfield, Sweeney and Yohn (2003), to name just a few, have shared a mutual idea to assert the role of financial ratios in forecasting purpose. Despite of those efforts in collecting mass amount of data and applying various research techniques, but it is fair to say that the researches still contain shortcomings in the structure, as well as logical sense. Lev and Thiagarajan (1993) study simply assess the effect of every single ratios to final business results without building any logical approach, While Ou and Penman (1989) claim that there is strong correlation between financial ratios and equity value, however, aforementioned argument states that the only factor drive equity value is earning power of firm, thus this link is indirect and likely to contain errors in giving decisions.

Previous papers also identify a variety of financial statement predictors, many of which are likely to be correlated, and thus contain similar information. The structured approach contrasts to the specification of predictors based on what works in the data, as in Ou and Penman (1989). Some of the relationships we incorporate have been recognized in previous research and utilized in practical “quality of earnings” analysis so, to that extent, the modelling here unifies previous endeavours. However, there are extensions. For example, Sloan (1996) recognizes the inter-period feature of accounting implies that extreme accruals must reverse. Fairfield, Whisenant and Yohn (2003) recognize that accruals are correlated with changes in net operating assets which also bear on the persistence of earnings. In another example, Fairfield and Yohn (2003) identify the turnover ratios payoff due to unsustainable in earnings.

The previous studies have shown a number of proxies for measuring firm’s *Financial Performance* like valuation ratios, profitability ratios, efficiency ratios, leverage ratios. The basis of the relationships between *Financial Performance* and factors (independent variables) include in the table below.

Table 21: Factors affecting Firm’s Financial Performance

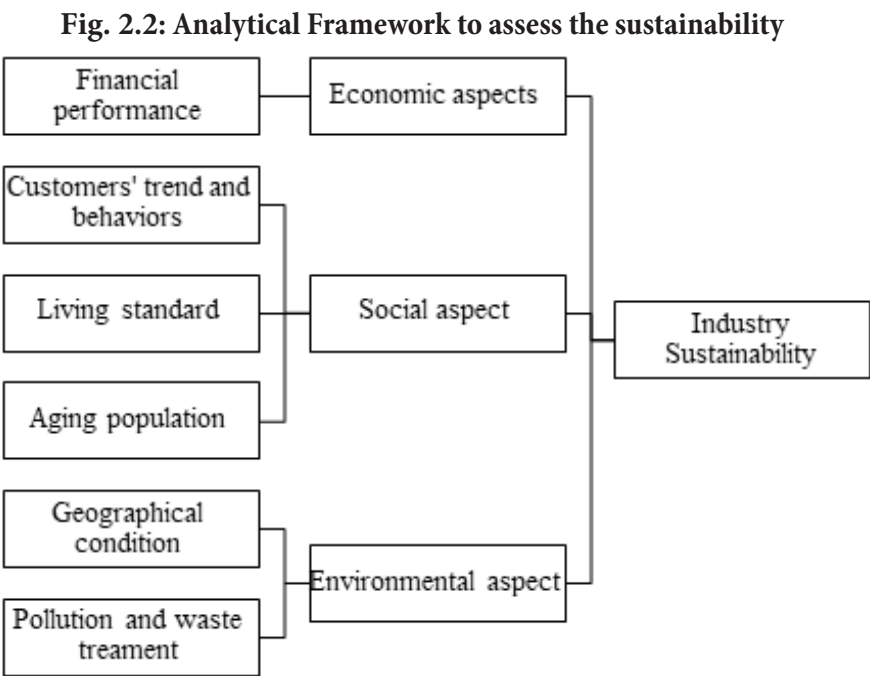
Factors (independent variables)	Description
Valuation ratios	Basic parameters in the financial statements of a company and used to estimate the value of a company.
Profitability ratios	Financial metrics that are used to asses business’ activities relative other categories
Growth	Represent the compounded annualized rate of growth of a company’s financial figures.
Liquidity ratios	The ability of an organization to pay off its short-term obligations
Efficiency ratios	Measure a company’s ability to use its assets and manage its liabilities effectively in the current period or in the short-term
Leverage ratios	Measure the ability to meet its financial obligations
Cash Ratios	The ratios of actual cash collected

2.3. Research gaps

For theoretical and empirical research on sustainability, despite an ever-increasing number of approaches and publications, a major research-practice gap is that between stakeholder satisfaction in practice, and the reason of that gap might be the insufficient integration of stakeholder expectations (Searcy, 2012). In case of Vietnam, despite recognizing the importance to measure and assess sustainability performance, a search in the scholar.google.com shows that there are almost no research papers of Vietnamese scholars or governmental and academic institutions on the implementation of and the trend for developing and implementing sustainability performance methods in Vietnamese companies. Our research would be one of the first papers on this topic.

2.4. Analytical framework to guide the analysis

The framework to analyse sustainability of pharmaceutical companies is presented in the following figure.



2.5. Methodologies and Data

2.5.1. Research Approach

Three components of sustainability were identified previously are environment, social, and eco-efficiency. Note that the third component, 'eco-efficiency,' indicates the status of efficient financial resource usage. Due to the complex of sustainability factors, therefore, the research approach is designed to form various glances of sustainability factors associate to this project. In general, the research is divided into two paths. At the first step, we had been established to supply a qualitative type of information integrated into social and environmental context. The second step is to apply statistics method into economic sustainability model to derive appropriate Z'score model or economic sustainability index and give conclusion about sustainable development in Vietnamese pharmaceutical industry.

2.5.2. Economics sustainability model and Multi discriminant analysis

Ever since the first publication, Z score model has always considered as the most effective tool for evaluate financial sustainability of corporate. Joseph Calandro (Joseph, 2007) proposes considering the utility of Altman's Z-score as a strategic assessment and performance management. The Z-Score Model of Altman (1968) has the form below:

$$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$$

Note: X_1 = working capital/total assets (WK/TA); X_2 = retained earnings/total assets (RE/TA); X_3 = earnings before interest and taxes/total assets (EBIT/TA); X_4 = market value equity/book value of total liabilities (ME/TL); X_5 = sales/total assets (SA/TA).

The critical task of this technique is to identify the contribution of various ratios on profit sustainability. Further, instead of imitating servilely Altman method, we develop a new formula, using the similar technique to Altman, which is particularly build for Vietnamese Pharmacy industry. This framework refers to a reconciliation of primitive version and industry specific metrics.

Compare to Altman primitive model, our model seeks to assess potential financial distress, a less extreme definition than bankruptcy. In this model, we refer to the financial distress happens when firm experience an unexpected fall on EBITDA margin and examine whether these companies could be able to fulfill its financial obligations. It could be noted that when EBITDA margin is less than lending interest rate, it puts the firm under distress situation. The EBITDA was chosen because it covers the interest expenses. Some scholars prefer to use EBIT ratio, however, as the depreciation and amortization expenses was actually paid on the first purchase of assets, the recorded amount appears on income statement is for accounting purpose only. On the other hand, Interest expense is actually cash outflows in accounting period, thus, EBITDA is a more reasonable ratio compare to its subsequent EBIT number.

The model has been evaluated a comprehensive dataset of 28 firms in pharmacy industry, based on the real-time application, to measure a company financial performance. In order to arrive at a final result of variables the following procedures are utilized: (1) Evaluation of inter-correlations

between the relevant variables (2) Observation of the statistical significance of each independent variable used by OLS regression, (3) Classification into one of several a priori groupings dependent upon the observation’s individual characteristics used by multiple discriminant analysis (MDA). We define group classification into non-distress and distress companies as 0 and 1 respectively. MDA then attempts to derive a linear combination of these characteristics which “best” discriminates between the groups, with a set of coefficients in accordance with independent financial ratios. The function of this linear can be refer as Vietnamese Pharmacy Z score model. We base on this results to interpret the sustainability of pharmaceutical industry.

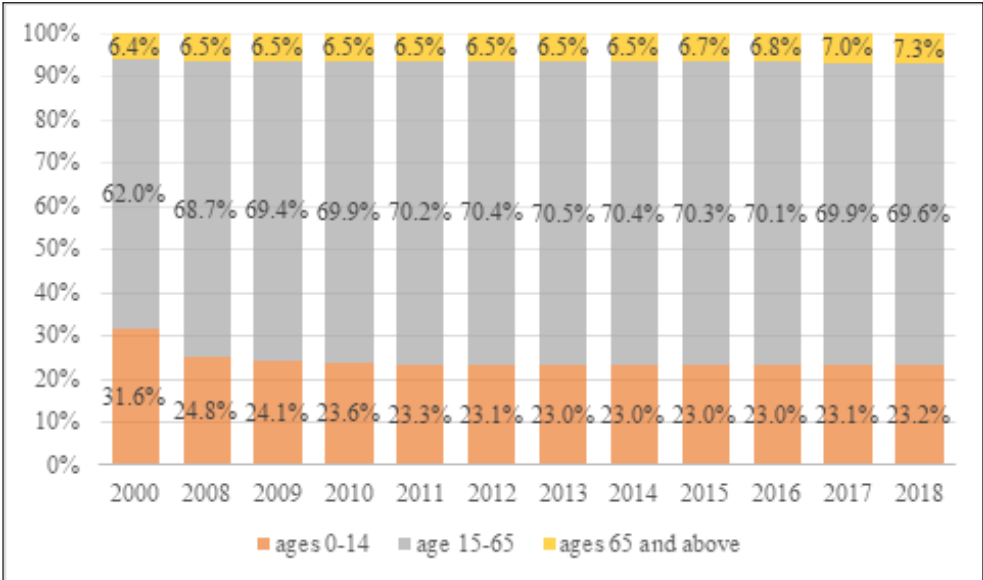
3. RESULTS AND DISCUSSION

3.1. Social aspects

3.1.1. Social context and customers’ trend

Vietnam has gradually experienced the initial stage of “ageing process”. As Fig. 3.1: The aging population structure shows, the number of people above the age of 65 reached 7.3% in 2018 in comparison to 6.4% in 2000. During the same time, the number of people under the age of 15 quickly decreased from 31.6% to 23.2%. The improvement in life expectancy makes Vietnamese people more likely to suffer from chronic diseases related to old age.

Fig. 3.1: The aging population structure



Source: World Bank

As a result of the increase in life expectancy as well as the improvement in living standard, the spending of Vietnamese people on medical drugs is increasing rapidly in both absolute and relative numbers. At a per capita level, spending is expected to increase twofold from USD58 in 2008 to USD130 in 2018 (World Bank). The average growth rate of spending on drugs was 14.6% during 2010-2015 and is expected to maintain a rate of at least 14% until 2025 (Antonio Angelino, 2017). Meanwhile, according to Business Monitor International (BMI), the country’s pharmaceutical market is expected to reach a revenue of USD 6.5 billion in 2019, and it is set for double digit

growth within the next five years, which makes Vietnam the second largest medicine market in the South East Asia. Similarly, to rapid population aging, the improvement in living standard push up demand for pharmaceutical products and, on the other way, represents a chance for the sustainable development of the Vietnamese pharmacy industry.

Considering customer trend, around 80% of Vietnamese people buy their drugs from private pharmacies and self-medicate. They are often able to obtain drugs without a prescription, the most common sources of information for decision-making when buying drugs are relatives and buyers. Non-original and fake drugs can often find their way into pharmacies and clinics, because some buyers value brands known to them and take advantage customers' trust of gaining profit. Trend in self-medication culture will continue to drive OTC drugs sector at least in the near future. In remote areas, this pharmaceutical product line is almost the only choice for local dwellers. Moreover, when buying, Vietnamese people often consider the origin of the drug and often prefer imported drugs to their domestic counterparts. Thus, it takes more time to change the trend of increasing healthcare spending of people shifting from foreign medicine to domestic medicine.

3.1.2. Political and legal context

Regarding political aspects, Vietnam's pharmaceutical market has gradually opened its doors with series of free trade agreements such as WTO, EVFTA (Vietnam-EU agreement) and so on. This may allow foreign-invested companies to expand their business operations with a greater involvement in pharmaceuticals in Vietnam and also put under greater pressure on domestic pharmaceutical companies. Under competitive pressure, some biggest domestic drug makers have to pour investment into upgrading factories to GMP-EU standards and expanding the source of domestic material meeting international standards to increase revenue from ethical drugs and meaning tenders of prescription drugs. Vietnamese authorities also take action to reduce the country's dependence on imports through some measures such as tendering preferences and developing research facilities. Public procurement of drugs is done through tendering in which any company is free to submit proposal. According to the new policy of Law on Pharmacy (2017), foreign drug makers are able to import and sell products to local wholesalers, but they don't entitle to have any activities in relation to drug distribution. This could lead to promising business opportunities not only for local drug sellers, but also for exporters because it encourages foreign companies to set up domestic manufacturing operations in the medium to long term. This regulation will provide more positive effect for the sustainability of pharmacy industry.

Regarding legal aspects, the latest decree No.155 of Law of Pharmacy (2018) has been amended toward cutting a number of procedures in pharmaceutical imports. In terms of licensing the import of drugs without a circulation registration paper, the new decree requires label models and drug descriptions in the country of manufacturing, except for cases with a certificate of pharmaceutical product. However new drugs to go through registration and clinical trials in Vietnam before they can be sold to the public. Some pharmaceutical firms claim that these trials have very little ability to actually judge the effectiveness of a drug, but creates a waiting period.

The Table 3-1 below summarizes the social issues and indicators surrounding the domestic pharmaceutical companies:

Table 3-1: Social opportunities and impediments in the Vietnam pharmaceutical market - indicators

Social indicators	Description
Large growing population	over 95 millions and growing ¹
Aging population	Life expectancy: 76+ (in 2018), 73 (in 2000)
Higher longevity	Opportunities for higher demands for more diversified categories of products
Living standard growth	Income per capita growth: 5.3%, 5.7%, 6% in 2016, 2017, and 2018 respectively better economy makes per capita income higher people ready to pay more for better products and higher volume of products
Hard-working population	increasing chronic diseases (like respiratory illnesses, cancer, diabetes, obesity), insufficient food safety or unsafe living and working conditions all stimulate the aggregate consumption of pharmaceutical products.
Strong preference of foreign pharmaceutical products and materials	Up to 90% products and materials were imported Vietnamese have more trust in foreign products in terms of quality and effectiveness. most medicines were imported ones even they were far more expensive than domestic ones.
Buying behaviour	Only 20 % to 30 % of Vietnamese consumers buy medicines with prescription Easy sales of medicines every where
Price is less important factor determining the buying behaviour	Patients often take any medicines prescribed by doctors without bargaining prices

Source: recapitulate from many open sources, including the Worldbank¹, the Ministry of Health

3.2. Environmental aspects

As mentioned, most of raw pharmaceutical materials need to be imported from abroad given that not only Vietnam's pharmacy-chemistry is not yet fully developed, also climate constraints such as water, land, and temperature have caused a levelling off of pharmaceutical material production. Up to 90% of herbal raw materials in Vietnam are imported from China and India given the fact that they are in short supply due to our climate restraints making herb planting impossible in Vietnam. The remaining 10% are popular herbs known as artichoke, Polyscias fruticosa, Licorice and Phyllanthus urinaria, to name just a few. Therefore, geographical conditions is crucial for the resource supply of pharmaceutical manufacturers

¹ <https://data.worldbank.org/indicator/NY.GDP.PCAP.KD.ZG?locations=VN>

Environmental problem may occur due to medical waste residues. These, raise the question whether this represents for hazardous human health impacts and the pollution of surrounding environment. In recent time, the pollution of the various parts of the environment (water, soil and air) with pharmaceutical residues reaches an alarming level. Currently, there are more than 500 health facilities in Vietnam, and each health facility discharge medical waste about 22 tons per day on average. 88% hospitals own waste treatment systems, however, the majority often use low-scale incinerators, or even direct unsecured landfilling. Inappropriate treatment might be at the origin of unnecessary diseases. Medicinal products are transformed and transferred between the different compartments of the environment (surface and ground water, soil, air). Some degradation medical residues can be persistent even after wastewater treatment, and be of concern. To date no legal limit exists for medical products potentially presented in compartments of the environment (soil, water, and air). Thus, the authorities will continue implementing to complete legal document on medical environment management and pilot contracting out medical waste water treatment services. Major improvements in waste management could be focused on the more effective collection schemes for unused human and veterinary medicines, as well as on tracking their efficiency.

3.3. Economic aspects

3.3.1. Testing the significance of the model parameters

Estimating the parameters through the method of least squares (OLS) for the proposed model, the relationship between the dependent variable - EBITDA margin and the independent variables – working capital/total assets (WK/TA), retained earnings/total assets (RE/TA), market to equity/total liabilities (ME/TL), earning before interest and tax/total assets (EBIT/TA), sales/total assets (SA/TA) we obtain the following form for the regression equation:

$$\text{EBITDA margin} = \alpha + \beta_1 \text{WK/TA} + \beta_2 \text{RE/TA} + \beta_3 \text{ME/TL} + \beta_4 \text{EBIT/TA} + \beta_5 \text{SA/T} + \varepsilon$$

In order to test the presence of the multi-colinearity phenomenon, we will apply the variance inflation factor test by Hair et al. (1995). In the coefficient matrix for the variables of the regression model (Table 3-3), we note that the VIF value of six response variables are less than 10. We conclude that the multi-colinearity phenomenon is not present, so six response variables are measured independently.

We then use OLS regression model to test the significance of parameters between EBITDA margin and five independent variables of Z score model. As Table 3-2 shown, the model explains 45% of the variability of the response data around its mean (R-square=0.449). It means that these response variables are not sufficient to explain the precise model, and other financial factors might also impact on the model. Regardless of the R-squared, the significant coefficients still represent the mean change in the response for one unit of change in the predictor while holding other predictors in the model constant due to each p-value are less than 0.05 (Table 3-3). Obviously, this type of information can be extremely valuable. The following equation form would be shown below:

$$\text{EBITDA} = 0.22 + 0.24\text{WK/TA} - 0.28\text{RE/TA} - 0.016\text{ME/TL} + 1.103\text{EBIT/TA} - 0.106\text{SA/TA} + \varepsilon$$

In our replication, the result yields a quite different numbers compare to original version. We are impressed, however by one of the most robust results in empirical evidence, namely the Market ME/TL ratio and ratio have negative effect on regression function. These two ratios are in contrast to original version of Altman, however, as he admitted that there is high flexibility in his model, thus we should look for a reasonable explain, rather clung tenaciously on the fixed version.

Company profitability is sustained by investment in assets, and income is expected to increase with additional assets. So, in assessing the sustainability of income, one must adjust for changes in income arising from changes in assets. Given the obvious statement that today asset will trigger tomorrow sales. Accumulating a high level of retain earnings means to not only lacking of investment on operating assets, but it matters for future sales as well. When assets are not replaced in a timely manner, future sales will decrease respectively, assume the return on assets stay the same. On the other side, negative coefficient of ME/TL ratio give us a short statement that the overall level of ME/TL has not yet reach an optimum level. The fact that, Vietnamese firms rely mainly in internal source of capital, very few of company take the risk of financing by debt to boost future income, to name just a few, such as DHG, DCM, but they are also backup by government. Second, as there is always a distance between required rate of equity and debts, especially in a sustainable and promising industry such as pharmacy, this yield spread is even higher. Therefore, over relying on chartered capital will bring a temporary low financial expense in short term, but if we account for opportunity cost, these temporary benefit normally cannot cover the long-termed losses.

Furthermore, turnover ratios shows a contrary influence against Altman's model. Empirical evidences provided by Yohn (2003) suggest that unsustainable profit margins by recognizing that, holding all else constant (including sales), an increase in operating profit must be accompanied by a decrease in asset turnover (sales-to-net operating assets) as expenses that might have been charged to the income statement remain on the balance sheet. In other words, given ROA unchanged, an increase in EBITDA margin must be sacrificed by a decrease in asset turnover. Other studies which built on this Dupont Decomposition formula, for instance: Stephen H. Penman Xiao-Jun Zhang (2006) found that an increase in net operating assets and/or a decrease in asset turnover can be interpreted only in conjunction with an assessment of the sustainability of sales.

As a result of statistical technique, the Z score formula depends largely on the sample size and its nature, therefore, it is widely accepted that there is not an optimum version of this formula. Indeed, through its history of development, various styles of Z score have been discovered and accepted widely in accordant with different business, industries, and even countries. Thus, build on our discussion above, combine with inheritance of previous literature, we believe that our model can cover significantly the metrics of sample size, as well as the nature of Vietnamese pharmaceutical industry.

Table 3-2: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.670 ^a	.449	.423	.08853	.449	17.286	5	106	.000	2.660

a. Predictors: (Constant), SA/TA, RE/TA, ME/TL, EBIT/TA, WK/TA

Source: Author

Table 3-3: OLS regression

Model B	Unstandardized Coefficients		Standardized Coefficients	t	Sig. Tolerance	Collinearity Statistics	
	Std. Error	Beta				VIF	
1 (Constant)	.220	.024		9.267	.000		
WK/TA	.237	.059	.405	4.028	.000	.513	1.949
RE/TA	-.279	.132	-.170	-2.109	.037	.798	1.253
EBIT/TA	1.103	.175	.625	6.290	.000	.526	1.899
ME/TL	-.016	.004	-.383	-4.217	.000	.630	1.588
SA/TA	-.106	.019	-.532	-5.529	.000	.561	1.784

a. Dependent Variable: EBITDA_margin

Source: Author

3.3.2. Economics sustainability model and index

To test the individual discriminating significance of the variables, an multivariate test_ Wilks' lambda is performed. This test is a measure of how well each function separates cases into groups. P-value less than 0.05 explains five variables display significant differences between groups.

Table 3-4: Wilks' Lambda

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	.590	56.749	5	.000

The standardized canonical discriminant coefficients can be used to rank the importance of each variables. A high standardized discriminant function coefficient might mean that the groups differ a lot on that variable

$$Z' \text{ score} = -0.458WK/TA + 0.015RE/TA - 0.586EBIT/TA + 1.304ME/TL + 0.826SA/TA + \varepsilon$$

Z'score is the discriminant score. ME/TL is the strongest predictor for predicting sustainability performance with a value of 1.304. It is not surprisingly if we consider that the incidence of sustainability in a firm that is financial strength and show market's reaction to company's financial position. RE/TA have the lowest absolute coefficient and it means that to contribute the discriminant scores at least among five variables. Recall that these two ratio impact negatively on

EBITDA margin and reflect the short-term opportunity cost not covered long-term losses. While these occurrences are not evident in this study it is conceivable that a bias would be created by a substantial reorganization or stock dividend.

Table 3-5: Standardized Canonical Discriminant Function Coefficients

	Function
	1
WK/TA	-.458
RE/TA	.015
EBIT/TA	-.586
ME/TL	1.304
SA/TA	.826

Source: Author

Table 3-6: Functions at Group Centroids

Firm ID	Function
	1
0	-.137
1	4.981

Source: Author

The group centroids **Table 3-6** are the mean discriminant scores for each groups. In practical terms, we figured out the optimal cutting point which is the weight average of the two values (cut-off point = $(-0.137+4.981) / 2 = 2.422$). We divide into three groups: distress, neutral, and sustainability zone based on cut-off point or optimum Z'-score. If an individual company's score on the model (calculated by plugging in their scores on five predictors to the equation we wrote out above) is below 1.57, then it is probably the distress zone. If its score belongs to range from 1.57 to 3.28, then the company has a moderate chance of sustainability. If its score runs from 3.28 to above 4.98, it has higher probability of reaching the stage of sustainability.

Table 3-7: Z'score range

Cut-off point	2.422
# interval	3
interval width	1.71
Distress	1.57
Safe	3.28
Sustainability	4.98

Source: Author

To judge the comparative sustainability of pharmaceutical companies, we apply Z' model to calculate the economic sustainability score. The pharmaceutical companies are classified into three groups according Z'score range above in the Table 3-8:

Table 3-8: Sustainability index

Firm	2015		2016		2017		2018	
	Z'score		Z'score		Z'score		Z'score	
BCP	0.81	distress	0.82	distress	0.87	distress	7.56	sustainability
BFC	1.85	neutral	1.92	neutral	1.82	neutral	1.90	neutral
CSV	3.05	neutral	3.91	sustainability	4.60	sustainability	4.58	sustainability
DBD	2.08	neutral	2.12	neutral	2.06	neutral	2.69	neutral
DCL	3.89	sustainability	4.93	sustainability	2.69	neutral	1.26	distress
DCM	1.20	distress	1.29	distress	1.53	distress	2.12	neutral
DHG	4.47	sustainability	4.07	sustainability	3.24	neutral	4.29	sustainability
DMC	5.99	sustainability	6.35	sustainability	4.00	sustainability	4.78	sustainability
DPM	5.08	sustainability	8.39	sustainability	5.16	sustainability	4.23	sustainability
DPR	4.88	sustainability	4.41	sustainability	4.07	sustainability	2.74	neutral
DVN	2.16	neutral	2.05	neutral	1.75	neutral	1.92	neutral
HII	2.02	neutral	0.84	distress	1.47	distress	2.20	neutral
HRC	3.50	sustainability	3.21	neutral	2.78	neutral	2.48	neutral
IMP	6.78	sustainability	6.00	sustainability	5.14	sustainability	7.62	sustainability
LIX	3.27	neutral	3.63	sustainability	4.04	sustainability	4.21	sustainability
MED	1.68	neutral	1.63	neutral	1.76	neutral	1.57	distress
MKP	5.24	sustainability	7.98	sustainability	5.87	sustainability	8.35	sustainability
OPC	5.07	sustainability	3.67	sustainability	2.15	neutral	2.03	neutral
PHR	2.82	neutral	2.10	neutral	1.93	neutral	1.57	distress
PLP	1.22	distress	1.33	distress	1.71	neutral	1.51	distress
PME	5.37	sustainability	6.24	sustainability	6.34	sustainability	6.94	sustainability
SFG	2.22	neutral	2.67	neutral	2.57	neutral	2.46	neutral
SPM	2.31	neutral	2.13	neutral	5.14	sustainability	4.46	sustainability
TNC	21.10	sustainability	22.58	sustainability	17.42	sustainability	14.95	sustainability
TRA	4.75	sustainability	4.57	sustainability	4.52	sustainability	3.68	sustainability
TRC	7.84	sustainability	6.50	sustainability	7.09	sustainability	5.12	sustainability
VAF	3.27	neutral	3.39	sustainability	4.51	sustainability	4.86	sustainability
VDP	4.41	sustainability	3.94	sustainability	4.00	sustainability	3.15	neutral
Count of sustainability firms	14		16		14		14	

Source: Author

The results in Table 3-8 identifies a general tendency that, under the method used in this study, there are 14 pharmaceutical companies which are in “sustainability zone” in 2018 while only 4 companies are likely be in “red” zone. We stress that the examination of individual scores of variables and components are simultaneously needed to fully elucidate the financial sustainability status, while the aggregate index score is very useful in grasping overall pictures of the relative sustainability. Most of which are considered as huge companies and, therefore, relatively affluent, are ranked high in top 10 of sustainability index such as DMC, DPM, TRA. As it was the case with the Z-scores of the “dangerous” firms, it was evidently confirmed here too that the highest was the liquidity ratio

(with negative value at the same time) due to over-exceed of the current liabilities to current assets, the smallest became the estimate of the Z-score. TNC keep the highest financial sustainability score 4 years in a row although EBIT/TA was quite low even negative in 2015 because the company have abundant owner's equity which still could cover the short-term debt. TNC could be considered as sustainability firms but not efficiency. By applying the specialized Z-score formula on the large firm, the specific formula has not a proper and accurate performance and respectively predictability in cases of firms having high leverage (debt) or high owner's equity.

4. CONCLUSION AND POLICY IMPLICATIONS

This paper gives some findings on the sustainability of Pharmacy industry in Vietnam. We develop a framework contain of three critical factors, (i) social factor, (ii) environment factor and last but not least (iii) economic factor.

The perceived alignment of aging process and improvement of living standard leads to the increase in expenditure on healthcare and pharmaceutical industry rapidly. Further, given the buying behaviour that around 80% of Vietnamese prefer to self-medicate and buy their drugs from private pharmacies without prescription, this trend gives rise to a question of quality and official sources of drugs, thus indirectly, but still severely affect traditional pharmacy companies which appreciate morality. Environment aspect also affects pharmacy business perspective. Recent economic changes cause an increase in demand of people related to health issues. Additionally, the short of raw materials supply also is partially due to the natural geography. Furthermore, lack of control in medical waste puts a question on the management of authorities. These combined effects impact pharmacy companies in multi-dimensions.

Political context also contributes to the sustainability of pharmacy industry. By signing into various free trade mutual agreement, the final boundary that protects domestic market against foreign competitors has been removed. Factual issue is even though manufacturing capability can account for 50% of market demand, however, domestic suppliers can provide only 10% of ingredient, and other 90% is imported mainly from India and China. Thus, in the worst case, only slightly increase in price of material will cause a burden on manufacturer, especially under competition of foreign corporations.

Additional government policies aim to enhance internal capability of local firms should be adopted to limit the business activities of foreign dealers and create favourable business conditions for local firms. Under the combined effect of these regulation, the domestic market will be expected to experience a sustainable growth. Further, under competitive pressure, domestic firms have to pour investment into upgrading factories to GMP-EU standards and expanding the source of domestic material meeting international standards to increase revenue from ethical drugs, meaning tenders of prescription drugs. Government should increase the ability to approach credit sources, along with higher incentives in new investment in both tangible asset, such as increase the portion of tax reduction in initial stage of investment, and intangible asset, for instance: lengthen the patent life.

In terms of Economic factors, OLS regression signals possible effects financial ratios on EBITDA margin. The results suggest to maintain a sustainable growth rate, firms should invest

more on assets, using external source of capital and seek to an optimum level of leverage. Moreover, Discriminant function establish an industry particular formula of Z score to measure sustainability of pharmacy companies. This score predicts and ranks the firms by its sustainable growth of EBITDA in an ascending manner. Crucial to sustainability of firms, this model venture to build a framework to measure the financial health of industry, the lower the score, the more likelihood that company tends to fall in distress. Adopting this method into Vietnamese pharmaceutical firms, we find that the overall current financial health is in good shape, and the data is highly correlate to scores calculated using original model, thus affirming the validity and reasonability of our model. Of 28 firms are observed, 14 of them have high chance to sustain, 10 in neutral stage, and just 4 firms are under dangerous stage, signal that this industry is likely to experience a long term sustainable growth. This method addresses and enriches previous research papers which studying financial health and will be particularly benefit for banks and credit institutions, and other stakeholders, who always express attentions on corporate's financial health.

REFERENCES

1. Altman, E. I. (1968). Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy. *Journal of Finance*, 589-609.
2. Antonio Angelino, D. T. (2017). Pharmaceutical Industry in Vietnam: Sluggish Sector in a Growing Market. *International Journal of Environmental Research and Public Health*.
3. Artiacha, T., Leea, D., Nelsonb, D., & Walker, J. (2010). The determinants of corporate sustainability performance. *Accounting & Finance*, 50(1), 31-51.
4. Atkinson, G. (2000). Measuring corporate sustainability. *Journal of Environment and Planning Management*, 235-252.
5. Atkinson, M. (2012). Developing and using a performance management framework. *Measuring business excellence*, 16(3).
6. Dessler, G. (2005). *Human Resource Management*. New Jersey: Pearson.
7. DORON NISSIM; STEPHEN H. PENMAN. (2001). *Ratio Analysis and Equity Valuation: From Research to Practice*. Review of Accounting Studies, 6, 109-154, 2001.
8. Fairfield, P; J. Whisenant; T. Yohn. (2003). *Accrued Earnings and Growth: Implications for Future Profitability and Market Mispricing*. The Accounting Review, vol 78, pp353-371.
9. Goyal, P., Rahman, Z., & Kazm, A. (2013). Corporate sustainability performance and firm performance research: Literature review and future research agenda. *Management Decision*., 361-379.
10. Hair J. F. Jr., A. R. (1995). *Multivariate Data Analysis (3rd ed)*. New York: Macmillan.
11. Health, M. o. (2017). *Law on Pharmacy Article 91.12 of Decree 54/2017/ND-CP*. Hanoi: Vietnamese Government.
12. Health, M. o. (2018). *Law of Pharmacy Decree No.155/2018/ND-CP*. Hanoi: Vietnamese Government.
13. Ilinitich, A., Soderstrom, N., & Thomas, T. (1998). Measuring corporate environmental performance. *Journal of Accounting and Public Policy*, 383-408.
14. Jane, O., & Penman, S. (1989). *Financial statements analysis and the prediction of stok returns*. Journal of Accounting and Economics.
15. Joseph, C. (2007). Considering the utility of Altman's Z-score as a strategic assessment and performance management tool. *Strategy & Leadership*, 35(5), 37 - 43.

16. Labuschagne, C., C.Brent, A., & Erck, R. P. (2005). Assessing the sustainability performances of industries. *Journal of Cleaner Production*, 373-385.
17. Lebas, M. (1995). Performance measurement and performance management. *International Journal of Production Economics*, 41, 1-3.
18. Lev, B., & Thiagarajan, S. (1993). Fundamenta information analysis. *Journal of Accounting Research Vol 31*, pp 190-125.
19. Lintner, J., and R. Glauber. (1967). *Higgledy Piggledy Growth in America*. Chicago: Paper presented at the Seminar on the Analysis of Security Prices, University of Chicago, May 11 – 12, 1967.
20. Lipe, R. C. (1986). *The Information Contained in the Components of Earnings*. Journal of Accounting Research; vol 24; pp 37-64.
21. Ray Ball; Ross Watts. (1972). *SOME TIME SERIES PROPERTIES OF ACCOUNTING INCOME*. Journal of Finance 23, pp 663-682.
22. Sloan, R. G. (1996). *Do Stock Prices Fully Reflect Information in Accruals and Cash Flows About Future Earnings*. The Accounting Review, vol 71, pp 289-315.
23. Stephen H. Penman; Xiao-Jun Zhang. (2006). *Modeling Sustainable Earnings and P/E Ratios with Financial Statement Analysis*.
24. Stephen H.Penman; Jane A.Ou. (1989). *Financial statement analysis and the prediction of stock returns*. Journal of Accounting and Economics, vol 11, pp 295-329.
25. Striteska, M., & Jelinkova, L. (2015). Strategic Performance Management with Focus on the Customer. *Procedia - Social and Behavioral Sciences* , 210, 66-76.
26. Waddock, S. A. (1997). The corporate social performance – financial performance link. *Strategic Management Journal*, 18(4), 303–319.
27. World Bank. (2019). *World Development Indicators*. USA: Washington, DC. Retrieved from World Development Indicators: <https://data.worldbank.org/country/vietnam>

PUBLIC EXPENDITURE ON SOCIAL PROTECTION IN VIETNAM: A REVIEW

Nguyen Ngoc Toan¹

ABSTRACT

Social protection is considered as important issue in Vietnam, it is constantly mentioned in several resolutions of the Communist Party and in laws and social policies in Vietnam. This paper reviews evolution of public expenditure on social protection and gives suggestion on how public expenditure can contribute to achieving such a social protection system. To do so, we employ descriptive method to provide a brief picture of public expenditure on social protection with information collected from secondary sources. Figures are used for illustration purpose.

Keywords: *Public expenditure, social protection, Vietnam, JEL: H53, H55.*

1. INTRODUCTION

Social protection is considered very important in Vietnam as is constantly stated in several resolutions of the Communist Party and in laws and social policies in Vietnam. Therefore, along with economic growth, enormous efforts and funds from Vietnamese government have been put into social protection system throughout the years. The lives of millions of Vietnamese people have remarkably improved in the past decades with better income and access to basic social services. Public finance has played important role in social protection, especially through poverty reduction programs and social assistance. However, social protection delivery in Vietnam still has limited coverage and a large proportion of population is, to date, not officially covered by any types of social protection. Moreover, the efficiency of public expenditure on poverty reduction is also questioned. As Vietnam has become a mid-income nation, it has to deal with these challenges to provide more accessible and better-performed social protection system.

This paper reviews evolution of public expenditure on social protection and gives suggestion on how public expenditure can contribute to achieving such a social protection system. To do so, we employ descriptive method to provide a brief picture of public expenditure on social protection with information collected from secondary sources. Figures are used for illustration purpose.

The rest of the paper is organized as follow. The second section gives an overview of public expenditure on social protection in the past decade. The third section discusses current issues in social protection in Vietnam and suggests changes in the system, in which, public expenditure can play a role.

¹ Institute of Economics, Hochiminh Academy of Politics, Vietnam, email: toankyoto@gmail.com

2. OVERVIEW OF PUBLIC EXPENDITURE FOR SOCIAL PROTECTION

It is, difficult to figure out the exact amount of public expenditure on social protection. The social protection system in Vietnam is built around four pillars: 1) Employment and poverty reduction; 2) Social insurance; 3) Social assistance; and 4) Basic social services. Currently, all of the pillars receive financial support from the government. In recent years, government fiscal reports showed that about 9-10% of total public expenditure went to social protection (Figure 1). In 2017, the government spent 131,104 billion VND on social protection, which accounted for 2.6% GDP. Note that in the reports, social protection expenditure comprises of mainly pension for pre-1995 retirees and regular social assistance (including Merits payments, education and electricity cash transfer) while expenditures on poverty reduction and other social protection activities are not included. The illustrative structure of public expenditure on social protection is shown in Figure 2, using data as of 2013.

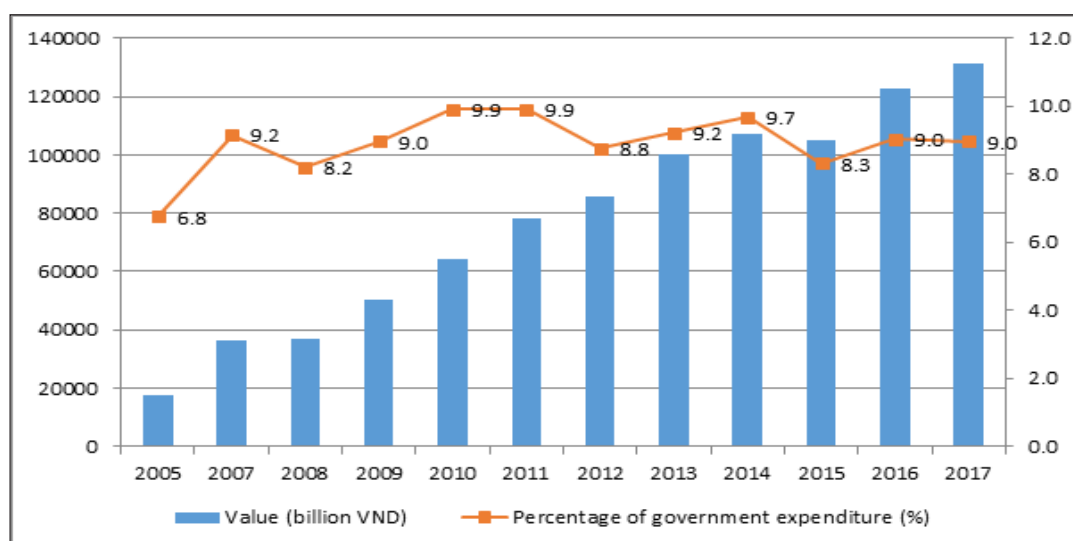


Figure 1: Public expenditure on social protection (2005-2017)

Source: Data from website of GSO

Obviously, public expenditure on employment, poverty reduction and basic social services is not included. It is not to mention that there are expenditures by public institutions on social protection elements embedded in various policies and programs.

It is clear from Figure 2 that public expenditure focuses mainly on pension and merits payments. Pension payment is given to those retired before 1995, prior to the formation of Vietnam Social Security Fund. In 2017, pension payment amounted to 43,709 billion VND for 1,238 million retirees. Government budget also supports to balance unemployment insurance fund, if needed. In the last two years, no public expenditure was given to social insurance and this will probably continue in the future.

Merits payment is made to those people and family who have contributed to the Vietnamese revolution and liberalization wars. Up to December 2017, there were about 1.341 million of people entitled to monthly Merits payment. Both pension and Merits payment account for more than 1 percent of total public expenditure.

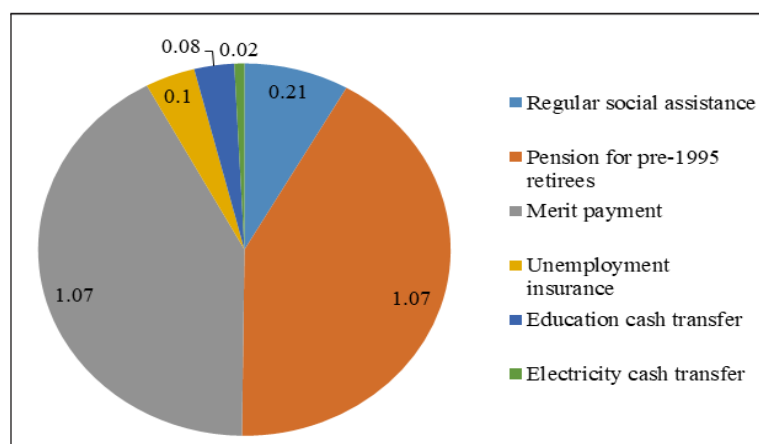


Figure 2: Structure of public expenditure on social protection

Source: Kidds et al (2016)

Regular social assistance is delivered to disadvantaged groups such as disabled people, elderly people over 80 years old as defined in Decree 136/2013/ND-CP. In 2017, social assistance transfers to these groups were 16,265 billion VND (including healthcare insurance payment for the poor). Other social assistance transfers such as education cash transfer and electricity cash transfer for the poor are rather low.

For poverty reduction, the Government launched national target programs on poverty reduction for period 2011-2015 and 2016-2020. The focus of the programs is to help poor households to exit poverty and reduce poverty rate in poor villages and districts. In 2011-2015, the government spent about 38,000 billion VND, of which about 5,000 billion was from provincial budgets. Public funds budgeted for period of 2016-2020 is about 46,297 billion VND. Public funds also support employment programs including vocational training, employment service provision and labor export (GoV, 2017).

Public expenditure has contributed to achievements in social protection over the years. Vietnam has attained remarkable poverty reduction and other sustainable development goals. Healthcare insurance has been given to about 90 percent of population. A number of disadvantaged people have been given social assistance. Access to basic social services has been improved constantly (GoV, 2017).

3. CURRENT ISSUES AND POLICY RECOMMENDATIONS

Despite government efforts and funding, the coverage of social protection system is still limited and a large proportion of Vietnamese population is in vulnerable and insecure status (Figure 3). Social protection is mainly delivered to the poor and to those working or having retired from formal sector. However, until recently, merely about 25% of the labor force has participated in social insurance. The majority of labor force working in informal sector is not covered by social insurance since it is not mandatory. Meanwhile, participation in voluntary social insurance is extremely low (Figure 4). Households, that are merely a little above poverty line and are likely to enter poverty again when facing with income shocks, are also not covered by most social

protection programs. Old people under 80 without pension often rely on family support rather than any social protection schemes. For those above 80 years old, regular assistance from public fund is considered to be too low to make end meet.

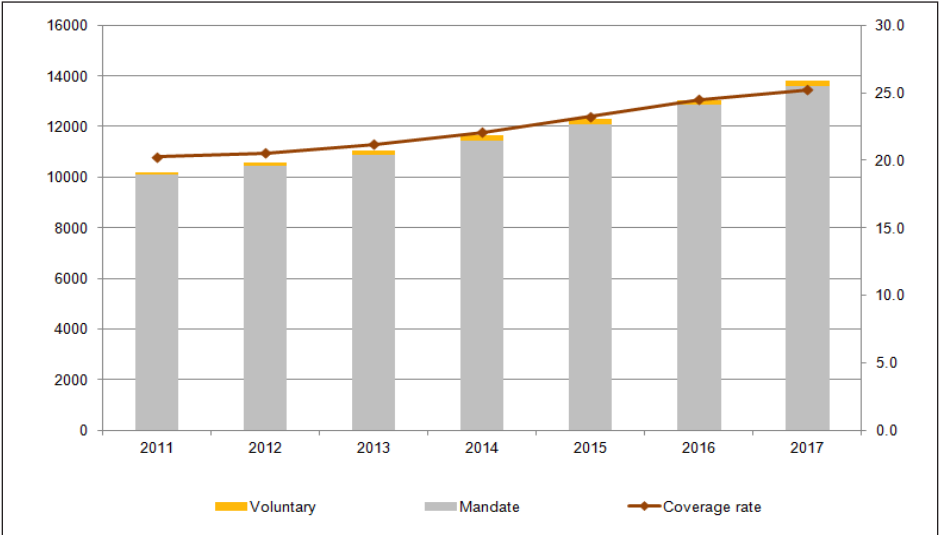


Figure 2: Coverage of social insurance in Vietnam

Source: Data from GSO website

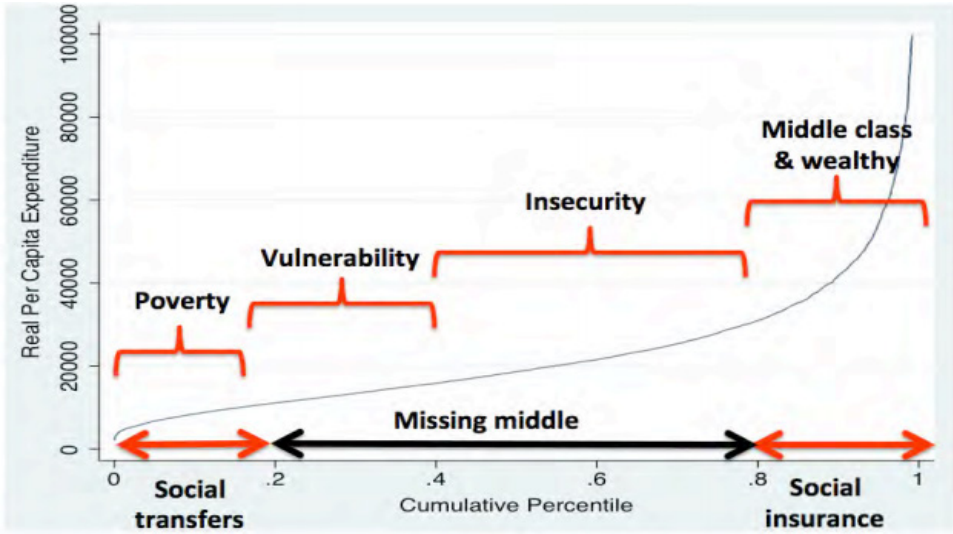


Figure 3: Social protection gaps in Vietnam

Source: Kidds et al (2016)

In order to expand social protection coverage, one has to boost social insurance participation and to increase social assistance.

Social insurance participation can be achieved by expanding mandatory social insurance and promoting voluntary insurance. To expand mandatory insurance, we have to increase the formal sector by continuously improving doing business environment and encouraging smallholder businesses to upgrade to companies. Also, legal framework should be amended to formalize and apply mandatory social insurance on parts of currently informal sector, such as smallholder

businesses. It takes time, however. The second measure is to promote voluntary insurance participation. The current low level of voluntary participation is due to the lack of incentive. International experience suggests that incentive in the form of insurance premium support is necessary to attract employees in informal sector. Therefore, effective from 2018, premium support has been given to voluntary insurance holders. However, the support seems not sufficiently high to make a boost in participation as it is just of 10% of insurance premium level of the poor. Chinese experience shows that a sufficiently high support (for instant, employees contribute 70% and the government pays 30% of insurance premium) can make a boost in participation level as employees see the benefit from joining voluntary insurance. Also, there should be no differences in benefits between mandatory and voluntary social insurance holders as it is now.

Meanwhile, regular social assistance must be expanded to cover those not protected by social insurance. Social pension should be given to elderly above 65 years old following a carefully designed roadmap. The same assistance must be also given to disabled people. The provision of social pension to old-age people without pension was mentioned in a recent resolution of the Communist Party.

Both giving incentive to voluntary insurance holders and increasing social assistance of various forms require huge public financial support. However, it is no infeasible if public expenditure is properly restructured. Khondker (2015) proves that the government can redirect pension fund for pre - 1995 retirees to social pension fund. The beneficiaries of pre - 1995 pension are decreasing and thus the amount of their pension. In his paper, Khondker (2015) shows that the amount left by decreasing number of beneficiaries is higher than that needed for social pension for over - 65 old people. Also, it is a common belief that public expenditure is not well - structured and managed and thus applying fiscal discipline and fiscal reallocation can make increasing public expenditure on social protection possible. Kidds *et al* (2016) proves that public expenditure on social protection in Vietnam, as share of GDP, is not on par with many other low and mid-income countries.

The performance of public expenditure on poverty reduction and employment support is not as good as expected. Many poverty reduction policies and programs are overlapping with scattered funds. Several poverty reduction policies are designed with elements of social assistance to the poor, that is, to give them money rather than a sustainable livelihood, by which the poor can manage to exit poverty. Thus, it is necessary to redesign poverty reduction policy to focus on livelihood development. Poor households due to disability should be assigned to social assistance rather than poverty reduction policies. Moreover, poverty reduction policies should be redesigned as a single program. While public expenditure is still the main source, mobilizing private sources is a must. Public work is also a mean to help poor people, which are proved effective in South Africa and other countries.

In short, there is a coverage gap in social protection whose solution requires public expenditure. Also, the performance of public expenditure on poverty reduction and social protection other activities can be improved. Restructuring public finance to increase social protection expenditure and enhancing its management is the key to improving social protection in Vietnam.

REFERENCE

1. Kidd, S., T. Abu-el-Haj., B Khondker., C. Watson., S. Ramkissoon (2016), “Social Assistance in Vietnam: A Review and Proposals for Reform”, *Joint report by UNDP and the Ministry of Labour, Invalids and Social Affairs of Vietnam*.
2. Khondker (2015) “Vietnam MPSAR costing implication and financing option”, Background paper for UNDB and MOLISA.
3. GoV (2017) “Báo cáo kết quả thực hiện Nghị quyết số 70/NQ-CP về Chương trình hành động của Chính phủ thực hiện Nghị quyết số 15-NQ/TW ngày 01 tháng 6 năm 2012 của Ban chấp hành Trung ương Đảng khóa XI một số vấn đề về chính sách xã hội giai đoạn 2012-2020, Báo cáo của Ban chỉ đạo Trung ương thực hiện Nghị quyết số 70/NQ-CP.

DISTRIBUTION OF THE STATE BUDGET TO THE MILITARY HOSPITALS IN VIETNAM IN THE CURRENT CONDITIONS OF FINANCIAL AUTONOMY

Do Manh Hung¹

ABSTRACT

Conversion of financial management mechanism towards autonomy for public service delivery units and implementation of universal health insurance requires medical examination and treatment facilities in the army, especially military hospitals toward financial autonomy. However, with the specific characteristics of military hospitals, their budget must be affordable in the new situation to complete all assigned tasks. The paper proposes a mechanism for allocating funds to military hospitals to ensure resources and maintain effective operations under conditions of financial autonomy.

Keywords: *Financial management mechanism, military hospital, health insurance.*

1. INTRODUCTION

Following the Government's Decree No.16/2015/ND-CP dated February 14, 2015, medical examination and treatment facilities will operate under the model of financially autonomous public non-business units. Financial management in health facilities in the economy has similarities with financial management in enterprises. However, military hospitals have their own particularities, making the financial management mechanism of military hospitals different from the public hospitals'. The characteristics of a military hospital are:

In addition to medical examination and treatment tasks like public hospitals, military hospitals also perform military, national defense and specialized duties such as: directing the military medical route and tasks, readiness for combat, A2 combat missions (prevention and fighting against riot, terrorism, ...); epidemic prevention work; rehearsals in search and rescue; ensuring military medical care for events of the Party, the State, the Army ... To ensure regular activities as well as the performance of military and defense tasks, in the organization of Military hospitals with specialized agencies different from civilian hospitals such as the General Staff, the Political Agency, etc. Their operations require the state budget to be enable.

The hospitals provide essential medical examination and treatment services to the soldiers and policy beneficiaries. However, military personnel are special subjects performing special military tasks such as maneuverability, orders, secrets, surprises, and willingness to sacrifice their blood and life, even in peacetime. In addition, there are many different troops and races with mission requirements, training environment, harsh, arduous, heavy and dangerous duties (such as engineers, chemical soldiers study, sapper, air force, border guard, navy ...) in the Army. Therefore,

¹ Department of Finance/The Ministry of National Defense.

there is a difference in the need to take care of the soldiers' health to ensure their military service. Many medical examination and treatment services in military hospitals are uncovered by insurance namely pre-appointment health examination, health care for military personnel, high-ranking military personnel, pre-recruitment examination screening, mobilization to perform tasks... This makes the difference between military hospitals and public hospitals. Therefore, it requires financial resources provided from the national budget to be maintained. However, the mode of state budget allocation for military hospitals needs to be changed to suit the current situation

2. RESULTS AND DISCUSSION

2.1. The system of military hospitals

After establishing the United Government, on March 25, 1946, President Ho Chi Minh signed the Decree No. 34/SL on reorganizing the Ministry of National Defense and since then, the military hospitals were established gradually. The history of formation and development of military hospitals is closely linked to the process of formation and development of Vietnamese national history. During the war for national defense, military hospitals performed the task of curing and treating wounded and diseased soldiers. At present, military hospitals have basic functions and tasks: to perform medical examination, treatment, especially health care for military personnel; to fulfill combat readiness missions; to perform line direction duties; to organize medical examination and treatment for people with partial hospital fee collection. The system of military hospitals is divided into scope: large, small sizes, specialized and general types, in different levels: the central level is directly under the Ministry of National Defense, the local levels under the military Region, the armed forces; provincial divisions, military headquarters and regiments by infirmaries. The Ministry of National Defense, under the leadership, strict guidance and investment attention of the Central Military Commission, the investment in equipment, facilities and staffing of the Military hospitals has been strengthened for years. The size and organization of a number of military hospitals are performed in the following table:

Table 1. Size and organization of a number of military hospitals

No.	Hospital	Grade	Covered sickbeds	Performed sickbeds	Total (<i>people</i>)	
					Covered	Existing
1	108 Military Central Hospital	Special	1,400	2,000	1,446	1,296
2	175 Military Hospital	Grade I	1,000	1,200	829	782
3	103 Military Hospital	Grade I	530	1,200	380	973
4	105 Military Hospital	Grade I	250	500	250	515
5	110 Military Hospital	Grade II	200	400	227	319
6	6 Military Hospital	Grade II	80	80	96	85
7	268 Military Hospital	Grade II	80	200	70	86
8	7A Military Hospital	Grade II	200	200	170	152
9	Eastern Military Hospital	Grade II	200	200	9	196
10	4 Military Hospital	Grade II	60	400	49	155
11	Air-Defense Medicine Institute	Grade II	100	200	123	219
12	The Navy Medical Institute	Grade II	140	200	161	224

(Source: Annual reports of hospitals)

2.2. Actual state budget allocation to military hospitals

Annually, based on the directions, guidelines and tasks of building and developing the Army of the Party and the State; directives and orders of the Ministry of National Defense and commanders of their immediate superior units; tasks and work plans for the year of the hospital; organize payroll, standards and spending norms according to hospital beds and the number of planned hospital beds assigned; policies, regimes, standards, norms and prices; military hospitals make estimates of their units to send to superior estimation units. From the budget estimates sent by hospitals, the superior financial agencies shall conduct the evaluation and balancing of the assigned budgets of their respective levels and the budget estimates of units elaborating and allocating the budget allocations to hospitals. The state budget allocations for a number of military hospitals are studied in Table 1 as follows:

Table 2. The State budget allocations to military hospitals in the period of 2014-2018

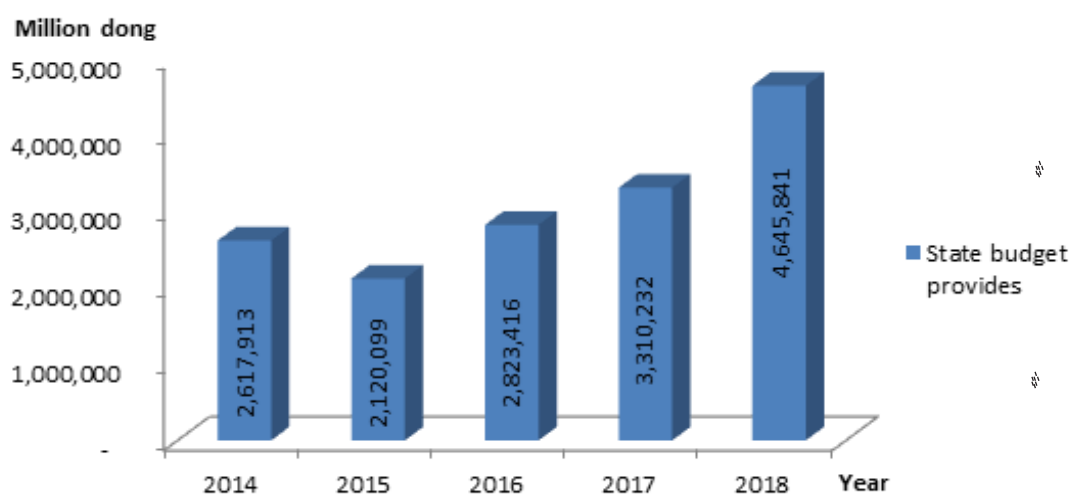
Unit: million dong

Year	Contents	Regular expense	Professional expense	Required budget	Allocated state budget	Basic construction	Others	Total
2014	Carrying contents of previous year	-	-	-	-	-	-	-
	Cost estimate prepared by the hospital	704,068	532,008	19,876	295,595	470,531	362,858	2,384,936
	Target	686,896	521,576	860	242,566	484,108	364,721	2,300,727
	Allocated amount	687,652	524,786	21,952	311,661	465,493	606,369	2,617,913
2015	Carrying contents of previous year	-	-	-	-	-	-	-
	Cost estimate prepared by the hospital	770,005	543,532	15,869	109,545	311,659	498,321	2,248,931
	Target	754,167	522,627	995	108,860	312,327	507,074	2,206,050
	Allocated amount	767,115	473,091	16,502	108,853	298,154	456,384	2,120,099
2016	Carrying contents of previous year	-	-	-	-	-	-	-
	Cost estimate prepared by the hospital	772,476	721,938	1,530	87,945	2,875,397	499,864	4,959,150
	Target	761,025	717,566	1,419	89,295	2,934,922	504,528	5,008,755
	Allocated amount	773,495	720,429	1,619	54,209	773,708	499,956	2,823,416

Year	Contents	Regular expense	Professional expense	Required budget	Allocated state budget	Basic construction	Others	Total
2017	Carrying contents of previous year	-	-	-	-	-	-	-
	Cost estimate prepared by the hospital	805,988	559,654	37,950	313,976	1,986,690	620,034	4,324,292
	Target	778,732	538,129	2,480	312,766	2,351,377	619,237	4,602,721
	Allocated amount	776,443	551,027	39,495	275,153	1,059,090	609,024	3,310,232
2018	Carrying contents of previous year	-	-	-	-	-	-	-
	Cost estimate prepared by the hospital	858,563	482,686	1,569	600,698	2,900,765	665,890	5,510,170
	Target	840,081	466,363	1,345	595,498	2,852,922	666,527	5,422,736
	Allocated amount	829,606	468,838	2,305	595,195	2,411,730	338,167	4,645,841

Source: Estimation and settlement reports of military hospitals

Chart 1. The State budget allocations to military hospitals in the period of 2014-2018



The State budget allocations to military hospitals are cost estimate by straight line method on basis of payroll organization, standards, cost norms according to hospital beds and planned number of assigned hospital beds. This allocation bears the hallmark of the central planning management period, based on planned, administrative criteria (number of beds, number of regular staff), hospital rating without taking hospital bed occupancy and performance reflection results

into account. There are well-performing hospitals, attracting a large number of patients, but the allocation of funding is equivalent to that of poorly operated hospitals in the same rank and size of hospital beds. The distribution of the state budget under the current mechanism is spread, making the military hospitals psychologically expect and rely on the state budget, fail to create incentives to improve competitiveness and quality of medical examination and treatment services to improve the efficiency of hospital operations. The current status of this allocation does not take military hospitals' performance into account, so the effectiveness of financial resources cannot be assessed. The allocation of state budget for regular expenditures (salaries, wage, meal allowances...) based on payroll organization, has created pressure to pay salary on basis of the state budget. On the other hand, the regular allocation of budget in the following year is higher than that of the previous year according to the socio-economic growth rate, which is not suitable for hospitals who fail to fulfill the assigned tasks but still increase their budget.

3. SOLUTIONS TO REFORM THE MODE OF STATE BUDGET ALLOCATION TO MILITARY HOSPITALS

Financial autonomy in hospitals in general and military hospitals in particular is a vital and compulsory requirement to comply with the rules of the market economy, which is concretized by the revised Law on Health Insurance, the Decree No. 16/2015/ND-CP. When implementing universal health insurance, to improve the quality of medical examination and treatment and attract patients on the basis of all hospitals with financial autonomy to reduce the burden on the budget, the state requires local-level military hospitals, especially hospitals of the military regions, the corps to be supported by the budget to support the investment in upgrading facilities and appropriate medical equipment. However, in the course of implementation, especially with the characteristics of military and defense tasks of military hospitals, the state budget still needs to ensure the operation funding in the direction of:

Firstly, focus on prioritizing the allocation of investment budget to grassroots hospitals, hospitals in remote areas, disadvantaged areas, preventive medicine centers, testing centers, medicine research institutes.

Secondly, prioritize in the allocation of state budget regular allocation on preventive medicine, targeted programs, and hospitals in difficult and extremely difficult socio-economic areas.

Thirdly, step by step reform the method of state budget allocation based on inputs (bed-based allocation for hospitals; payroll allocation for preventive medicine areas) to state budget allocations and payment subject to performance.

The mode of state budget allocation to military hospitals should also be renewed from the perspective of budget allocation in accordance with the characteristics of each hospital group, ensuring the goal of developing military hospitals in particular and medical examination and treatment facilities in the Army generally in new conditions. In addition, derived from the specific elements of military hospitals, it is still required to perform the tasks assigned by the State and the Ministry of National Defense every year. Therefore, it is necessary to consider the ways of state budget allocation to these tasks. In order to implement the mode of state budget allocation in the direction of renovation, the following measures must be taken:

3.1. Assessment of the investment level in medical equipment and facilities for military hospitals to have a plan for state budget allocation according to the roadmap

The plan of state budget allocation to military hospitals should be carried out as follows:

In the period of 2019 - 2021: still ensure the allocation of state budget to military hospitals to fulfill the requirements of basic tasks and specific tasks of the Army as well as other unexpected tasks. Concentrate on allocating state budget to invest in lower-level hospitals with limited and inconvenient facilities and medical equipment, especially modern medical equipment, medical services for subclinical examination and treatment such as CT scanner, magnetic resonance imaging machine, ultrasound machine, blood test ... On the basis of measurement, the local level hospitals have enough conditions and capacity for medical examination and treatment to attract patients, satisfy the psychology of patients when going for medical examination and treatment, reducing change in the patients' medical examination and treatment facilities

After 2021: gradually reduce the proportion of the state budget allocated to military hospitals; implement a roadmap to change the financial management model of military hospitals to financial autonomy, develop a mechanism for mobilizing development investment capital for appropriate military hospitals.

3.2. Change in the mode of state budget allocation to tasks other than medical examination and treatment tasks performed by military hospitals

In addition to performing medical examination and treatment, military hospitals, it is required to perform military-specific tasks such as directing military medical service, participating in epidemics, recovering from disasters, natural disasters; ensure military medical services for Spratly Islands; periodic health examinations, military service examination... Along with that, to ensure regular activities as well as perform military, defense and payroll tasks of military hospitals with specific characteristics different from civilian hospitals such as the General Staff, the Political Bureau... The maintenance of the operation of these agencies still requires the state budget.

The classification of the duties of military hospitals is of utmost importance. From that, the way of allocating and ensuring the state budget for military hospitals will be determined in accordance with each specific task based on specific factors. Gradually implement the form of ordering, assigning tasks and bidding to replace the previous state budget allocation method as follows:

Ensuring the allocation of state budget to military hospitals to maintain the operation of professional agencies (counsels, politics ...) in the organization of payroll but in the direction of reducing the proportion of people laborers not directly engaged in medical examination and treatment; fully issue norms and bases to ensure budgets, reduce the centralized procurement budget of various industries, but aim to monetize the guarantee needs and self-spending under the assigned directions.

Adding to the list of estimates of military hospitals specific task requirements to be performed, classifying that task system. Military-specific tasks such as directing military medical service, participating in military supplies for rehearsal, searching, rescue, etc. will ensure the budget in the form of assign tasks and be included in the state budget estimates of the hospitals with a system of adequate norms and criteria, specifically on the basis of the provisions of the existing Circulars and Decrees of the State and Ministry of National Defense. The new cost factors will be built and added.

Other task requirements will be guaranteed by the State and the Ministry of National Defense in the form of an order for military hospitals. Health insurance does cover these tasks, so the budget continues to do it in the Military on the basis of the rules for determining the cost of a particular item. The tasks are encouraged to be performed by bidding. Place orders for public non-business services that are not eligible for bidding or only a single supplier cannot do it. Scientific research projects and projects funded with state budget will be ordered by competent agencies. If it is not eligible for bidding, it will be carried out in the form of order or task assignment as follows:

For the mode of task assignment: applied to specific tasks, military and defense tasks based on the assigned revenue and expenditure estimates. Decision on the list of tasks funded by the State shall be carried out by the tasks assigned to military hospitals prepared and studied by the Military Medical Department and relevant functional agencies and submitted to the Ministry of National Defense for approval. The content of task assignment must be specific and complete, including the number, task volume or task details, quality requirements upon task completion, start time and completion time. The detailed cost estimate must be concrete the originally assigned source and adjusted according to the actual situation when implementing the task according to the current standard regime of economic and technical norms.

For ordering method: it is applied to the remaining tasks and services in addition to the tasks in the list implemented by the above-mentioned task-assignment method. If it is not eligible or not suitable for bidding, the order-based method shall be applied, but it must be based on economic and technical norms to determine unit prices or service prices according to regulations of State, Ministry of Health and Ministry of National Defense.

Regarding the order price of the task or service requirements, follow the price roadmap with full cost or without full cost according to market mechanism. In case of public non-business services are included in the list of fees and charges, they are governed by the provisions of law on charges and fees. On the basis of the assigned estimates, unit prices, prices and service charges decided by competent agencies, the Ministry of National Defense and superior agencies determine the number, volume of tasks and specific services to place orders for military hospitals. If the price of service charge is insufficient, the state budget shall support the unstructured part of the price or service charge of each specific task or service request. Military hospitals are now defined as a non-business unit that self-guarantee a part of regular operating funding, so when performing the order form, the superior agency will not execute the order contract but make the decision to place an order for the hospitals.

Regarding the ordering contents similar to when task assignment, the order estimate should clarify the source of funding from the state budget at full cost calculation and support budget due to insufficient cost structure in the service price issued by the competent authority. In addition, when following the order-ordering method, the guaranteed funding sources may include the state budget or the retained fees and charges, and the State-set revenue and service charges need specific details of each source.

For bidding method: applied to services or requirements for military hospitals that do not follow the mode of task assignment, priority shall be given to bidding. If not eligible or not able to bid, then

the order-based method will be applied as if there is only one hospital that is qualified and capable or specialized, scientific research projects, topics funded by the state budget. When performing the bidding mode, the provisions of the Bidding Law and current legal documents shall be observed.

When the method of ordering, assigning tasks or bidding as a basis for budget allocation, military hospitals still have to make budget estimates. The budget is for the regular spending. However, the factors serving as a basis for making a budget estimate must be based on each specific method and towards the results of the performance of tasks and the quality of hospital services. The budget estimates are prepared in line with the provisions of the State Budget Law. The process of estimating must be based on the list of products, services and tasks detailed by quantity, volume, unit price, service price, the preceding year estimate (if the task is assigned), tendering the preceding year (in case of bidding) under the guidance of the Ministry of National Defense. The military hospitals prepares a state budget estimate to provide products, services and tasks at the same time to prepare the state budget estimate, sends it to the superior management agency for summarizing and sending to the Department of Finance/Ministry of National Defense. Based on the assigned estimates, the hospital's superior management unit shall allocate and assign estimates to military hospitals, in which specific details of the estimates are assigned to tasks, orders or bidding by the State budget, including direct guaranteed budget and support budget for unstructured costs in service prices.

4. CONCLUSIONS

In the long term, military hospitals should be supported and guaranteed by the state budget in the direction of increasing the proportion of state budget spending on health and reducing personal payments for health according to the National Assembly's Resolution No. 18. However, in order to ensure effective, targeted and key budget allocation, criteria for evaluating the quality and effectiveness of health services of military hospitals should be developed, taking the patients' satisfaction into account or with the patient centered direction to make criteria for allocating and supporting the state budget according to the roadmap for military hospitals to ensure compliance with the national health system and people's health care goals of the Party and the State, at the same time, well performing the specific military and defense tasks assigned.

5. REFERENCES

1. The Government of the Socialist Republic of Vietnam (2015), the Decree No. 16/2015/ND-CP dated February 14, 2018 of the Government on stipulating the autonomy mechanism of public non-business units.
2. The Government of the Socialist Republic of Vietnam (2015), the Decree No. 70/2015/ND-CP dated September 1, 2015, on detailing and guiding the implementation of a number of articles of the Law on Health Insurance on the People's Army and the public security of people and people working in key departments.
3. The Joint Circular No. 37/2015/TTLT-BYT-BTC dated February 29, 2015 of the Ministry of Health - Ministry of Finance on regulating uniform price of medical examination and treatment services for health insurance among hospitals of the same class nationwide.
4. The National Assembly of the Socialist Republic of Vietnam (2014), the Law amending and supplementing a number of articles of the Law on Health Insurance dated June 13, 2014.

5. The Ministry of National Defense (2018). The Directive No. 85/CT-BQP dated February 13, 2018, on financial autonomy for hospitals and medical examination and treatment facilities in the army
6. By Mr. Do Manh Hung, Mr. Nguyen Anh Tuan (2017). *Transformation of financial management model of military hospitals in the current period*, a ministerial-level Project
7. By Mr. Nguyen Anh Tuan (2018). Accelerating the process of converting military hospitals into public non-business units operating under the autonomy mechanism, Journal of Economics and Forecasting, Issue No. 29, in October 2018
8. Department of Planning - Finance (Ministry of Health) (2017). *Implement financial autonomy in public health units*, please visit <http://tapchitaichinh.vn/nghien-cuu-trao-doi/trao-doi-binh-luan/thuc-hien-tu-chu-tai-chinh-tai-cac-don-vi-su-nghiep-cong-lap-nganh-y-te-133328.html>

INTERNATIONAL FINANCE AND ACCOUNTING RESEARCH CONFERENCE

FINANCE AND ACCOUNTING IN THE FOURTH INDUSTRIAL REVOLUTION

Chịu trách nhiệm xuất bản:
GIÁM ĐỐC - TỔNG BIÊN TẬP
Phan Ngọc Chính

Chịu trách nhiệm nội dung:
Học viện Tài chính

Biên tập:
Đào Thị Hiên

Trình bày bìa:
Ban quản lý Khoa học

Biên tập kỹ thuật:
Hồ Hoa

Đơn vị liên kết:
Học viện Tài chính, số 58 phố Lê Văn Hiến, Phường Đức Thắng,
Quận Bắc Từ Liêm, Hà Nội

In 200 cuốn, 20,5x29,5 cm. In tại Công ty Cổ Phần sách và Phát triển giáo dục Việt Nam
Số nhà 73 Tổ 34, Phương Hoàng Văn Thụ, Quận Hoàng Mai, Hà Nội
Số xác nhận ĐKXB: 5176-2019/CXBIPH/01-115/TC.
Số QĐXB: 260/QĐ-NXBTC. Mã ISBN: 978-604-79-2279-6.
In xong và nộp lưu chiểu năm 2019.