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PRECONDITIONS FRAMEWORK FOR ISSUING A CENTRAL BANK DIGITAL CURRENCY: INTERNATIONAL PRACTICE AND MANAGEMENT IMPLICATIONS FOR VIETNAM

Tran Quang Hung* - Pham Duc Anh**

Abstract: ***In the era of Industry 4.0, central bank digital currency (CBDC) emerges as a novel form of fiat currency, exerting significant impact on the monetary system, market dynamics, and the whole economy. This study seeks to: (i) introduce a novel theoretical approach on preconditions for CBDC issuance, categorized into two main phases (establishment and mass adoption); (ii) examine real-world practices in various countries, encompassing both developed and developing ones, for having a comprehensive understanding of each condition outlined in the proposed framework; (iii) provide practical guidance for Vietnam's successful CBDC development. The findings are pertinent for the planning and policy administration of the State Bank of Vietnam (SBV), aiding commercial banks in implementing CBDC-related technical and infrastructure solutions, and enhancing awareness about CBDC among end-users (individuals and businesses.***

• Keywords: *CBDC, international practice, payment system, management implications, industrial revolution 4.0.*

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Tóm tắt: *Tiền kỹ thuật số của Ngân hàng Trung ương (CBDC) là một dạng thức mới của tiền pháp định trong kỷ nguyên công nghệ 4.0, đã được chứng minh có tác động nhất định tới hệ thống tiền tệ, cấu trúc thị trường cũng như tổng thể nền kinh tế. Nghiên cứu này nhằm mục tiêu: (i) Đề xuất cách tiếp cận lý thuyết mới về điều kiện thúc đẩy việc sự ra đời của CBDC phân theo hai giai đoạn (tạo lập và phổ cập); (ii) Khảo lược thực tiễn tại các quốc gia, bao gồm các nước phát triển và đang phát triển, nhằm có được những trao đổi, bình luận sâu sắc về từng lớp điều kiện đặt trong khung khổ lý thuyết; (iii) Rút ra hàm ý quản lý dành cho Việt Nam hướng tới phát triển thành công CBDC trong tương lai. Kết quả nghiên cứu khá hữu ích cho công tác hoạch định, điều hành chính sách của Ngân hàng Nhà nước Việt Nam, công tác triển khai giải pháp kỹ thuật - hạ tầng gắn với CBDC của ngân hàng thương mại (NHTM) cũng như giúp người dùng cuối (cá nhân và doanh nghiệp) nâng cao nhận thức về CBDC.*

• Từ khóa: *CBDC, thực tiễn quốc tế, hệ thống thanh toán, hàm ý quản lý, cách mạng công nghiệp 4.0.*

1. Introduction

In the pursuit of monetary and financial stability, central banks play a pivotal role by issuing legal currency and providing essential payment services to the economy. However, traditional fiat money, governed by central banks, confronts many challenges, ranging from exorbitant printing and circulation costs to the omnipresent risks of money laundering, terrorist financing, and the circulation of counterfeit money. The unfolding narrative of the Industrial Revolution 4.0 opens up a potential solution - CBDC. This innovative form of currency holds promise in overcoming the aforementioned challenges, thereby contributing to the evolution of financial systems.

The emergence of CBDC aligns seamlessly with modern imperatives, promising heightened payment efficiency, reduced cash management costs, and expanded financial access - all contributing tangibly to national economic growth. Governments and international organizations, recognizing CBDC's transformative potential, form a consortium that includes China, Canada, Japan, the European Union, and Switzerland, among others. They

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propose designs and conduct tests tailored to each country's unique conditions. The World Economic Forum (WEF) plays a pivotal role in advancing this momentum by introducing a Policymaker Toolkit System intricately associated with CBDC, guiding policy formulation comprehensively. Moreover, the Bank for International Settlements (BIS) acts as a global catalyst, investing in and establishing a network of global innovation centers exclusively dedicated to CBDC. The collaborative effort is evident in the New York Hub, a testament to the strategic cooperation between BIS and the Federal Reserve (FED) Bank of New York, signifying a robust commitment to advancing CBDC understanding and implementation on a global scale. This global trend underscores countries proactively preparing the conditions for universal digital currency payments. Amid this global CBDC development wave, Vietnam, characterized by its small yet highly open economy, stands at a crucial crossroads. Its capital market, increasingly intertwined with the global economy, prompts the SBV to engage cautiously in research and development (R&D), refraining from immediate CBDC payment integration.

The present paper seeks to address the pivotal question of CBDC issuance, focusing on the unique circumstances and management implications, with Vietnam serving as a compelling case study. The threefold objectives of this research are to: (i) provide a fresh theoretical perspective on the preconditions fostering the emergence of CBDC, including both its establishment and adoption; (ii) apply this theoretical foundation to clarify how nations can shape a vision and implement policies to perfect the conditions promoting the establishment of CBDC; and (iii) offer management implications for Vietnam towards the successful adoption of CBDC in the future.

2. Theoretical underpinnings

2.1. Definition of CBDC

CBDC is a digital manifestation of fiat currency, under the control and issuance authority of a country's Central Bank or multiple sovereign territories. CBDC serves as a means for both organizations and individuals to conduct transactions for goods and services (retail CBDC) or facilitate transaction payments between financial institutions. It offers solutions to the inherent challenges of traditional currency related to cost, time, and cross-border transactional space.

According to Auer et al. (2020), CBDC exhibits distinctive features. From a tool perspective, it is cost-effective, convertible, easily tradable, and widely accepted. On a systemic level, CBDC boasts robust security measures, rapid processing speed, resilience, 24/7 availability for transactions, efficient handling of substantial transaction volumes, and the capacity to establish connections with other systems. Institutionally, CBDC necessitates a robust legal framework and comprehensive, transparent operational regulations. Notably, CBDC emerges as a transformative financial instrument, offering practical solutions to the challenges associated with traditional currency, including cost-effectiveness, versatility, and resilience.

2.2. Proposed two-phase framework of preconditions for issuing a CBDC

Drawing insights from management perspectives of prominent central banks worldwide (specifically FED, ECB, BOE, BOC, PBOC) and incorporating theoretical contributions from notable studies (Alfar et al., 2023; Didenko & Buckley, 2022; Soilen & Benhayoun, 2021; Tronier et al., 2022), this research identifies five essential preconditions, categorized into two phases: the initial four prerequisites form Phase 1 (CBDC establishment), while the singular end-user acceptance constitutes Phase 2 (CBDC mass adoption) (see **Figure 1**).

(i) *Policy objectives* refer to the intentional principles guiding the design of CBDC;

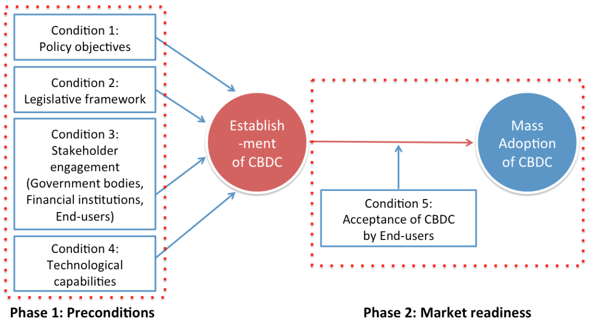
(ii) *Legislative framework* encompasses legal norms establishing specialized institutions, serving as an effective managerial tool and laying the foundation for determining the rights and interests of involved parties;

(iii) *Stakeholder engagement* involves garnering approval and cooperation from pertinent parties, including government agencies, financial institutions, and end-users (individuals and businesses);

(iv) *Technological capabilities* pertain to the effective deployment of existing technology or the development of new technology, ensuring adaptability to major technological shifts. This involves a thorough consideration of Internet coverage, digital finance, and technological investment capabilities tailored for CBDC creation and maintenance;

(v) *Acceptance of CBDC by end-users* refers to the widespread acknowledgment and use of CBDC for payment purposes by individuals and businesses acting as sellers and consumers.

Figure 1. The two-phase framework of preconditions for issuing a CBDC



Source: Authors' proposition

3. International practice

In a quest for a thorough understanding of CBDC deployment globally, we conducted a survey and analyzed the creation and implementation practices fostering CBDC emergence in several representative countries (see Table 1). Building upon this foundation, this paper engages in detailed discussions and commentary on each category of conditions, framed within the theoretical construct of the two-phase preconditions mentioned earlier.

Table 1. Selection of countries for practice study

No.	CBDC development phases	No. of implementing countries (2023)	Countries studied
1	Research	65	(3) US, Netherlands, Chile
2	Proof of concept (POC)	11	(3) Brazil, Japan, Thailand
3	Pilot	11	(7) France, Sweden, Canada, China, India, Singapore, Nigeria
4	Launch	8	(1) Bahamas
	Total	95	14

Source: CBDC Tracker (2023)

3.1. Condition 1: Clear policy objectives

Establishing CBDC requires meticulous policy goal definition, guiding research, design, and technology choices (Cheng et al., 2021; Soderberg et al., 2022). BIS highlights CBDC benefits, such as payment system resilience, diversity, financial inclusion, and cross-border facilitation (BIS, 2021). Some see CBDC as a monetary policy tool (Carapella & Flemming, 2020). Distinguishing CBDC's role as a policy instrument or cash alternative is crucial (Wong & Maniff, 2020). Globally, CBDC projects prioritize financial inclusion, accessibility enhancement, payment system efficiency, resilience, reducing illegal transactions, reinforcing state currency supremacy, and competition (Soderberg et al., 2022).

Financial inclusion is crucial for countries like the Bahamas (20% unbanked) and China, addressing remote populations (Soderberg et al., 2022). India's inclusion efforts continue, with the index rising from 53.9 (March 2021) to 56.4 (March 2022). Accessibility is key, as seen in the Bahamas addressing infrastructure, Sweden targeting cash users, and Singapore catering to non-cash brands (MAS, 2021). Resilience guides Japan (prone to disasters) and China with few dominant operators (BOJ, 2020). In India, CBDC aims to diversify payment options (RBI, 2022). Monetary sovereignty is a motivator for the Bank of Canada (BOC) and the People's Bank of China (PBOC). Reducing illegal transactions aligns with the Bahamas' goals, leveraging CBDC's traceability. Policymakers globally, including India and Sweden, align CBDC goals with unique challenges.

3.2. Condition 2: Robust legislative framework

3.2.1. Legal authority

CBDC legal authority is a global focal point, with nations emphasizing Central Banks' comprehensive management over currency issuance. The Bahamas showcases a clear legal framework for CBDC, as seen in the 2020 Central Bank of the Bahamas Act, adjusted to permit CBDC issuance, and the 2021 Bahamian Dollar Digital Currency Regulations, which detail usage regulations. China is evolving its legal framework through the PBOC Law draft, proposing digital currency inclusion. However, clarity and consistency regarding CBDC are ongoing challenges. In legal roles and responsibilities, the Bahamas set limits in 2022, categorizing wallets. China's draft law empowers the Central Bank to supervise payment system, cybersecurity, and enforce CBDC monopoly. In the US, complexity arises from the Federal Reserve Act, confining FED's powers. Policymakers navigate this, considering legal amendments to establish CBDC's credibility and standing.

CBDC legal foundations demand explicit issuance authority, role clarification, and alignment with existing laws. Each country maneuvers this complex landscape based on legal traditions, infrastructure, and CBDC goals.

3.2.2. Legal tender status

Countries such as the Netherlands and Chile face explicit limitations on the legal definition of currency within their central bank laws, confined to banknotes and coins. To legitimize CBDC issuance, these nations must introduce new rules or amend existing regulations. In the Netherlands, Section 3 Article 1(d) of the Dutch Central Bank Law mandates the Central Bank to circulate money, specifically in the form of banknotes. Similarly, the Central Bank of Chile, governed by the Basic Constitutional Act Article 28, holds exclusive rights for issuing banknotes and minting coins.

In contrast, countries like Bahrain and the US exhibit more flexibility as their laws lack restrictions tied to specific monetary forms. Bahrain's Central Bank law in Article 4(1) grants the authority to "issue money", leaving room for the adoption of CBDC without specifying the currency type. Likewise, the United States emphasizes the legal tender status of its coins and currency, ensuring their acceptance against debts, public charges, taxes, and fees. This diversity in legal frameworks illustrates countries' varied approaches to accommodate CBDC within existing monetary legislation.

3.2.3. Privacy

During the e-CNY pilot phase, the PBOC implemented regulations to govern its operation. According to BIS (2022), the e-CNY system prioritizes privacy by adopting the principle of "anonymity for small value transactions and traceability for high-value transactions." This approach safeguards personal information, collecting fewer transaction details than traditional electronic payment systems. Moreover, the e-CNY system refrains from sharing information with third parties or government agencies unless compelled by law or regulations.

In Brazil, the guidance documents for Real Digital coins, issued by the Central Bank, stipulate adherence to bank security regulations, the General Data Protection Law, and other applicable norms. Transactions involving Digital Real are treated equivalently to other payments within the system, ensuring compliance with relevant legal frameworks.

3.3. Condition 3: Broad stakeholder engagement

3.3.1. Support from government bodies

Governments globally are actively supporting CBDC development, notably seen in the Bahamas, China, India, and Singapore:

- In the Bahamas, the government's endorsement is demonstrated through the Bahamian Dollar Digital Currency Regulations (November 2021), emphasizing commitment to the Sand Dollar. This regulatory framework symbolizes a strategic alignment between the government and the Central Bank of the Bahamas.

- China, in its "14th Five-Year Economic and Social Development Plan," adopts a comprehensive approach to digital technology, with PBOC designating e-CNY as a digital fiat currency. Ongoing testing in various cities and a trial during the 2022 Winter Olympics reflect China's proactive stance.

- India, in the pilot phase with Digital Rupees, officially recognizes digital currency by amending the Reserve Bank of India Act. The Reserve Bank of India (RBI) ensures a gradual transition with minimal disruption to the financial system.

- Singapore, a frontrunner since 2016, actively pursues CBDC initiatives, demonstrated by the Monetary Authority of Singapore's (MAS) collaboration with commercial partners for currency development. Regulatory support for cryptocurrencies and approval of cryptocurrency exchange platforms in 2021 underline Singapore's commitment to facilitating a smooth CBDC adoption transition.

3.3.2. Support from financial institutions

Table 2. Roles of stakeholders in the issuance and operation of CBDC

Country	Issuer	Operational organizations
Bahamas	Central Bank	Nine financial institutions authorized by the Central Bank
Jamaica		Commercial banks, deposit-receiving organizations and authorized payment service providers
China		Commercial banks and other organizations, under the centralized management of the Central Bank
India		Token service providers
Nigeria		Financial institutions

Source: CBDC Tracker (2023)

The issuance of CBDCs represents a crucial function mirrored in the practices of Central Banks worldwide. It is evident from **Table 2** that these central banks are navigating models where CBDCs are akin to their own liabilities, akin to physical cash. However, a noteworthy trend is emerging, where central banks are considering authorizing intermediary organizations, which can range from commercial banks to financial companies and other entities like payment service providers, to facilitate CBDC issuance. This underscores the significance of fostering public-private partnerships in the CBDC issuance process.

When considering risk management strategies, the Sand Dollar from the Central Bank of the Bahamas stands out, backed entirely by reserves held by the Central Bank. This design ensures a distinct separation between the reserves of commercial banks and central banks. In China, the e-CNY, replacing M0, intentionally abstains from paying interest to mitigate competition with bank deposits. Furthermore, the PBOC adopts a tiered approach to the e-CNY wallet, imposing different transaction and balance limits for various e-wallets. Similarly, the MAS emphasizes the distinction between CBDCs and bank deposits in Singapore dollars. By allowing for a zero interest rate on CBDC balances, aligned with actual remuneration rates on banknotes and MAS reserves, the digital Singapore dollar is strategically less attractive as a store of value than traditional bank deposits under normal circumstances.

3.3.3. Support from end-users

CBDCs hinge on robust end-user support for widespread adoption. User motivations involve secure payment for goods and services, privacy protection, and potential interest on deposits with the Central Bank. The MAS approach exemplifies a user-centric design, prioritizing user control, privacy, and cost-free transactions. Security considerations play a pivotal role, with China and India implementing measures to safeguard user information, emphasizing the reputation of issuers, intermediaries, and technological robustness.

The challenge arises for individual users expecting returns on CBDC holdings, given the limited interest payment feature of most CBDCs globally. The Bahamas and Jamaica's initiatives demonstrate CBDCs' potential to expand customer bases and mitigate losses during outages. Sand Dollar's offline functionality and Jamaica's incentive programs exemplify strategies to enhance accessibility and usability. In conclusion, the success of CBDCs pivots on meeting diverse user needs, encompassing security, interest rates, and adaptability, fostering widespread adoption and functionality.

3.4. Condition 4: Sound technological capabilities

3.4.1. Technological infrastructure

The chosen countries for investigating CBDC implementation commonly exhibit well-established infrastructure. This correlation is substantiated by various studies; for instance, Auer et al. (2020) identified a robust connection between the CBDC Project Index and individuals' access to mobile and Internet services (BIS, 2021). Furthermore, a positive influence of technical infrastructure on user acceptance and utilization has been established (DiGiammara et al., 2023). In instances with less developed infrastructure, exemplified by China, Thailand, Brazil, and the Bahamas, notably in terms of bandwidth and Internet coverage/stability, the impetus for CBDC research and development stems from the goal of enhancing financial inclusion, extending access to financial solutions for a broader demographic.

3.4.2. Innovation capability

Annually, the World Intellectual Property Organization (WIPO) releases a Global Innovation Index (GII), assessing countries based on their innovation capabilities and achievements. Nations scoring high on the Overall Innovation Index typically possess the necessary capacity and research and development potential to aid central banks in formulating a novel CBDC ecosystem, thereby increasing the probability of CBDC implementation and issuance (see Table 3).

Table 3. Comparison of GII between countries (2013-2022)

Countries studied			2013		2017		2022	
No.	Country	Phase	Rank	Index	Rank	Index	Rank	Index
1	Brazil	POC	64	36.3	69	33.1	54	32.5
2	Canada	Pilot	11	57.6	18	53.7	15	50.8
3	Chile	Reseach	46	40.6	46	38.7	50	34
4	China	Pilot	35	44.7	22	52.5	11	55.3
5	France	Pilot	20	52.8	15	54.2	12	55
6	India	Pilot	66	36.2	60	35.5	40	36.6
7	Japan	POC	22	52.2	14	54.7	13	53.6
8	Nigeria	Pilot	120	26.6	119	21.9	114	16.9

Countries studied			2013		2017		2022	
No.	Country	Phase	Rank	Index	Rank	Index	Rank	Index
9	Netherlands	Reseach	49	40.1	38	42	38	37.5
10	Singapore	Pilot	8	59.4	7	58.7	7	57.3
11	Sweden	Pilot	2	61.4	2	63.8	3	61.6
12	Thailand	POC	57	37.6	51	37.6	43	34.9
13	US	Reseach	5	60.3	4	61.4	2	61.8

Source: Authors' compilations from the WIPO database

3.4.3. End-user access to financial technology

The issuance and acceptance of CBDC are premised on comprehensive financial development, similar to infrastructure. Developed countries such as Australia, Canada, Singapore, Japan, and Sweden have a relatively complete consumer financial ecosystem, reflected in accessibility, basic financial services, and financial technology infrastructure. Meanwhile, developing countries like China have a high level of user adoption of fintech solutions, mainly from the private sector, partly related to the mainstream financial system's current inability to satisfy market needs. These factors may impact research and development, user acceptance, and the design of a CBDC. For example, countries with high rates of bank account ownership tend to choose a direct architectural model and account-based design (DiGiammara et al., 2023).

3.4.4. Technology choices of CBDC issuers/ distributors

Countries exhibit commonalities in four technological aspects of CBDC implementation:

- Architectural Model: The hybrid model prevails, with the Central Bank managing CBDC issuance and intermediaries handling distribution.

- Platform Technology: Predominantly, countries opt for Distributed Ledger Technology (DLT) or a DLT combination, aiming for decentralization while maintaining Central Bank control. Challenges like resource allocation and scalability persist.

- Access to CBDC: Account or hybrid forms are favored over the token form. As of January 2023, 65% of retail CBDC projects have not finalized the form, 17% chose a mixed form, and only 4.6% opted for the token form.

- Scope of Use: Many countries are yet to define CBDC's scope. Retail projects focus on domestic demand, while wholesale projects like Jasper (BOC), Ubin (MAS), Stella (ECB and BOJ), and Lion Rock-Inthanon (HKMA and BOT) explore cross-border payments through collaborations and research.

3.5. Condition 5: The acceptance of CBDC by end-users

3.5.1. Effort expectancy

Countries such as the Bahamas and China commit to issuing CBDCs based on practical needs for both individuals and businesses. In the Bahamas, with scattered islands and residents, accessing financial services is challenging, prompting the development of Sand Dollar to enhance financial inclusion. The digital currency facilitates distribution, particularly for those without bank accounts. The Covid-19 pandemic has influenced countries like Canada to explore digital currencies, as observed in the increased use of cryptocurrencies for high-value transactions (BOC, 2020). Canada's conditions for digital currency issuance include low cash usage or viable digital alternatives. Similarly, in Cambodia, the surge in cryptocurrency use results from reduced in-person transactions. The evolving payment landscape and response to actual usage need to drive the adoption of CBDCs globally.

3.5.2. Performance expectancy

Performance expectancy, a pivotal factor in shaping users' acceptance of CBDC technology, spans various dimensions:

- Safety of Funds: CBDC, secured by the Central Bank, is perceived as a low-risk payment method, akin to centrally issued cash, instilling user confidence.

- Cost Considerations: Minimizing end-user costs is a global central bank priority to promote CBDC adoption. Singapore's public-private partnership for distribution aims to reduce holding costs and credit risks, enhancing CBDC attractiveness.

- Direct Payment Experience: CBDC provides a cash-like experience without the need for a bank account, further enriched by offline payments. While the BOC explores offline CBDC with considerations for duration, the Bahamas fosters seamless spending across platforms through collaboration with multiple payment service providers.

- Security Factors: Users' security perceptions hinge on the issuer and intermediary reputation, underlying technology, regulatory status, fraud protection, and user responsibility - interconnected with technology, distribution methods, and operational conditions.

- Privacy Concerns: Addressed diversely, China ensures transaction anonymity with three information management centers. India's UPI real-time consumer payments system emphasizes secure transfers without revealing account details, contrasting the challenge of user reluctance to adopt e-rupee due to privacy concerns.

Comprehending these facets of performance expectancy is vital for introducing and promoting CBDC effectively, ensuring users appreciate the value and security offered by this innovative digital currency.

3.5.3. Facilitating conditions

Transitioning inhabitants from other payment methods to digital currency poses a significant challenge for governments globally. John Rolles, Governor of the Central Bank of the Bahamas, identifies crucial factors influencing digital currency adoption, including establishing a business network embracing CBDC, enhanced collaboration with traditional banks, leveraging traditional banking sector and credit unions, and prioritizing awareness education to build trust among users (Hall, 2022). Despite a robust digital payment infrastructure in China, e-CNY struggles to gain widespread acceptance due to challenges in encouraging people to adopt it. With over 261 million CNY e-wallets, the lack of active usage suggests limited interest among ordinary users. Concerns about awareness, confidentiality, and state infrastructure quality contribute to this reluctance, with analysts speculating that e-CNY may require significant government intervention for widespread adoption (Benzmiller, 2022). Liu et al. (2022) emphasize the impact of government policies on CBDC acceptance. The Nigerian government, for instance, restricts cash withdrawals to promote eNaira usage, while the Bank of Jamaica plans to focus on government payments for social protection programs to enhance financial inclusion (Edyme, 2022).

4. Management implications for Vietnam

4.1. Regarding policy objectives

The SBV can leverage CBDC to enhance financial inclusion by providing essential financial services like money storage, transfers, and payments. This approach caters to the unbanked, offering convenience and extending support to remote areas, especially offline functionality for transactional continuity in areas with limited internet coverage. Focusing on monetary policy is crucial, with CBDC serving as a tool for precise transaction control, providing real-time insights into the economy. Widespread CBDC adoption is essential for effective monetary policies, requiring awareness campaigns and public opinions to refine features and gain user acceptance.

Furthermore, CBDC acts as a potent instrument to combat illegal transactions by eliminating cash anonymity. Tracking every transaction becomes feasible, enabling the Central Bank to prioritize reducing illegal activities such as tax evasion, money laundering, and terrorist financing. The Bahamas' success in addressing illegal transactions led to its removal from the Financial Action Task Force (FATF) gray list in December 2020 after addressing regulatory shortcomings.

4.2. Regarding legislative framework

Vietnam's lack of legal recognition for digital currencies, including CBDCs, necessitates the SBV's pivotal role in crafting a comprehensive legislative framework. This framework should define and classify CBDCs, establishing technical standards for practical implementation. Proposing a controlled testing framework, akin to the regulatory sandbox for mobile money, can expedite CBDC development.

Regarding legal authority, the SBV should exclusively manage and issue CBDC, requiring uniform policies and laws. Wallet ownership and hierarchy should align with trust levels, drawing from Basel's credit score levels for risk mitigation. Limits on holding and trading electronic currencies must be set to avert potential losses.

Legal tender status mandates the Central Bank to specify liability limits, ensuring consistency and public understanding. Adjusting policies based on developmental stages is crucial, allowing increased anonymity for small transactions initially, with mechanisms for identifying larger transactions. Striking a balance requires clear definitions, drawing insights from China's policies.

4.3. Regarding stakeholder engagement

First, with Vietnam lacking a legal framework for digital currency, regulatory support becomes vital for CBDC. Defining digital currency concepts and classifications creates an operational environment, following the e-CNY testing model. Prioritizing digital infrastructure upgrades and skilled professionals during CBDC issuance is essential.

Second, financial institutions face liquidity risks, necessitating a delicate balance to prevent large-scale withdrawals. Successful issuance depends on currency characteristics and organizational abilities, fostering public-private cooperation.

Third, end-user support must address security, privacy, and interest payment concerns, striking a balance between cost and performance to align with cash popularity. Network effects linking individual users and businesses can drive CBDC adoption, emphasizing crucial features like offline payments for widespread acceptance.

4.4. Regarding technological capabilities

Enhancing a nation's technical infrastructure is crucial for effective CBDC implementation, impacting issuance, design, and distribution. Governments and Central Banks must assess and enhance network infrastructure, innovation readiness, and data infrastructure. Successful CBDC implementations are associated with robust financial technology ecosystems, fostering user acceptance through comprehensive payment systems. National innovation capacity, driven by advancements in technology and finance, positively influences CBDC research. Collaboration across the ecosystem, involving research organizations and technology partners, is crucial. Tailoring technological design is essential, prioritizing safety and accessibility for financial inclusion and compatibility for international trade. To bridge the technology gap, Vietnam should explore international cooperation, learning from successful CBDC deployments. Supporting technological innovation, investing in human resources, and encouraging digital transformation will expedite CBDC adoption. A strategic approach considering infrastructure, innovation, and specific goals positions Vietnam for successful CBDC implementation, meeting the evolving needs of the digital era.

4.5. Regarding broadened acceptance of CBDC by end-users

Ensuring broad acceptance of the CBDC in Vietnam requires crucial considerations. First, technological preparation, as highlighted by Maniff (2020), is vital for financial inclusion, emphasizing the need for comprehensive readiness before CBDC issuance. Second, efficiency expectancy draws lessons from India and the Bahamas, suggesting additional platforms or interconnection features to enhance CBDC integration rather than standalone positioning. Balancing security and privacy concerns is crucial, considering data retrieval capabilities and trade-off decisions for performance and operational costs. Lastly, social dimensions stress user awareness and education to address safety, security, and state infrastructure concerns before widespread CBDC adoption.

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FACTORS AFFECTING ECONOMIC GROWTH - A COMPARISON BETWEEN VIETNAM AND SINGAPORE

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Abstract: ***The objective of the study is to identify the factors affecting economic growth in Vietnam and Singapore. Using OLS regression and quantile regression for Vietnam and Singapore during the period 1992 to 2022, the research results show that employment has a positive impact on economic growth, but the effect of Singapore is larger than Vietnam. The research results also suggest that trade openness has not had a clear impact on economic growth in both Vietnam and Singapore. However, FDI inflows have a negative effect on economic growth in Vietnam at the low quantile, and have no effect on growth in Singapore at all quantiles.***

• Keywords: *growth, quantile, impact, OLS.*

JEL codes: G10, G15

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Tóm tắt: *Mục tiêu của nghiên cứu là xác định các nhân tố ảnh hưởng đến tăng trưởng kinh tế ở Việt Nam và Singapore. Sử dụng hồi quy OLS và hồi quy phân vị cho Việt Nam và Singapore trong giai đoạn 1992 - 2022, kết quả nghiên cứu cho thấy việc làm có tác động tích cực đến tăng trưởng kinh tế, nhưng tác động tại Singapore lớn hơn tại Việt Nam. Kết quả nghiên cứu cũng cho thấy độ mở thương mại chưa có tác động rõ ràng đến tăng trưởng kinh tế ở cả Việt Nam và Singapore. Tuy nhiên, vốn đầu tư trực tiếp nước ngoài có tác động tiêu cực đến tăng trưởng kinh tế ở Việt Nam ở phân vị thấp và chưa có tác động rõ ràng đến tăng trưởng ở Singapore ở tất cả các phân vị.*

• Từ khóa: *tăng trưởng, phân vị, tác động, OLS.*

1. Introduction

Economic growth is an increase in national output, which can be an increase in the domestic or the national output, or also per capita income. A high growth economy is associated with a high improvement of the national income or per capita income, and is also considered as an important indicator for each country on its path towards prosperous development. Therefore, the governments of countries always follow the annual economic growth target on the agenda and set for the country to achieve achievements in economic development, or to serve as a foundation for development and implementation of policies of social security, or employment.

In the current era, countries always have close relationships with each other based on mutual economic and social ties. The relationship between countries is both cooperative, and complementing based on each other's advantages. In some situation, countries are also as rivals in the marketplace. It is evident that countries should promote the trade in goods and services, and also open up to foreign investment flows. Numerous previous studies all suggested that there is an impact between foreign trade and economic growth. At the same time, foreign direct investment also has a positive impact on economic growth.

The Asia-Pacific is an area located in the western Pacific Ocean that includes many countries and territories located in East Asia, Southeast Asia, South Asia and other regions. This is an area with rapid economic development and is becoming a developed area of the world. In particular, Singapore is a country with a high level of economic performance, and it is also successful

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in attracting FDI inflows and expanding trade. Meanwhile, the case of Vietnam, which was starting from the poorest country in the world, has undergone economic, trade and investment reforms and has become one of the fastest growing economies in the region. Therefore, the study aims to evaluate factors affecting economic growth in the case of an emerging country as Vietnam, and compare it with Singapore as a developed country.

The purpose of the study is to evaluate the factors affecting economic growth. Through the study, it is possible to find out the causes of economic growth in this region, and typically the case of Vietnam and Singapore. In addition, we can draw lessons for other countries in achieving economic development goals. In addition to the introduction, the remaining parts of this study include: The next section discusses the previous studies, followed by data collection and research methods. Next, the study presents the results, discusses the research results and general conclusions.

2. Literature review

Research on factors affecting economic growth has attracted much attention from scholars worldwide. It can be said that there are many factors that affect economic growth, such as: the influence of foreign direct investment attraction, international trade, energy consumption, employment, or other factors.

Considering that trade is the process of direct bilateral trade contact, or general contact with a third country that acts as an intermediary of the trade network, de Soyres & Gaillard (2022) examined the relationship between future trade and GDP among 134 countries between 1970 and 2009. The study found that bilateral trade either directly or through intermediaries has an effect on GDP, showing that trade has an impact on GDP through direct and indirect channels. At the same time, high-income countries become more uniform as trade leans toward intermediate inputs, while trade in final goods is key for lower-income countries. Further, de Soyres & Gaillard (2022) also said that increase in international trade trends in recent years is associated with increase in the density of the international trade network.

Research by Magazino & Mele (2022) studies the relationship between FDI and growth in Malta between 1971 and 2017 based on the stationarity test of statistical variables. The authors believed that there is always a relationship between FDI and economic growth. Therefore, the change of FDI has an influence on the economic growth of this country. In addition, the contribution of sea trade to the economy is important for coastal countries, Zheng & Tian (2021) argued that sea trade is an important driver for China's economic development but its contribution is overestimated compared to the total commercial value. Therefore, promoting the sustainable development of the Chinese economy needs to improve the efficiency of seaborne trade and develop the current fleet to reduce transportation costs.

Tran et al. (2022) studied on a sample data of 26 OECD countries between 1971 and 2014, and suggested that there exists a GDP threshold in which GDP affects energy consumption. Specifically, when GDP per capita is less than $48,170, there exists a one-way causality from energy consumption to GDP in the long run, but no relationship in the short run. The research results call for the attention of policymakers to proactively implement energy-saving measures when the economy reaches a certain level of development and there is a need for an appropriate energy policy transition. in different stages of economic growth to promote sustainable development.

Further discussed on this relationship, Research Saldivia et al. (2020) studied in 50 US states from 1963 to 2017, the results of the Dumitrescu-Hurlin causality test show that there is mixed evidence on the direction of causality between energy consumption and GDP, while there is a bidirectional causality for most subgroups between income, energy, and energy prices in the medium and long run. Research by Ghosh (2009) evaluates the relationship between electricity supply, employment and GDP in India using ARDL estimation and determining cointegration among the variables, suggesting that there is a long-run equilibrium relationship between the above factors. The authors argued that GDP growth and electricity supply are responsible for the high level of employment in India, but there is no causal relationship from electricity supply to GDP and hence the supply and demand measures can be applied to reduce electricity waste, which does not affect future economic growth of India. Research by Dedeoğlu & Kaya (2013), which studies in OECD countries, and suggests that energy-GDP, energy-exports and energy-imports pairs have cointegration and two-way Granger causality. between each pair. Specifically, for every 1% increase in GDP, exports and imports increase energy use by 0.32%, 0.21%, 0.16% and vice versa.

3. Data and methodology

This study uses data from Vietnam and Singapore from 1992 onwards. Statistical data were collected from the World Bank. Based on the previous study, the estimated equation is shown as follows:

$$GDP_t = \beta_0 + \beta_1 TRADE_t + \beta_2 FDI_t + \beta_3 EMPLOYMENT_t + \varepsilon_t$$

Where: GDP_t is the per capita income (USD/person/year); $TRADE_t$ is the trade openness and is calculated by total trade to GDP; FDI_t is net FDI attraction, calculated as % GDP; $EMPLOYMENT_t$ is the total employees in the labor force;

The study uses the method of least squares regression OLS, and the study also uses quantile regression to compare the results. There is a difference between OLS and percentile regression, that is, OLS regression on the mean, and quantile regression on each percentile, and all should be complementary. Research results are drawn from the above two regression methods.

4. Results

4.1. Descriptive statistics

Table 1. Descriptive statistics for Vietnam

	GDP	FDI	TRADE	EMPLOYMENT
Mean	1416.492	5.628763	124.9333	73.43693
Median	851.9524	4.860984	127.9877	74.34800
Maximum	3756.489	11.93948	186.4682	76.06900
Minimum	141.3837	3.390404	66.21227	69.88200
Std. Dev.	1218.610	2.214893	30.76108	2.001166
Skewness	0.621259	1.279934	-0.165732	-0.303393
Kurtosis	1.866343	3.657972	2.320708	1.543335
Jarque-Bera	3.536285	8.732315	0.714132	3.112575
Probability	0.170650	0.012700	0.699726	0.210918
Sum	42494.76	168.8629	3748.000	2203.108
Sum Sq. Dev.	43065320	142.2668	27441.07	116.1353
Observations	30	30	30	30

Source: Authors' analysis

Table 1 shows that Vietnam's per capita income has improved rapidly in recent years, from 141.28 USD/person/year in 1992 to 3756.48 USD/person/year in 2021, reflecting a great economic performance for Vietnam. At the same time, foreign direct investment (FDI) averages 5.62% of GDP and is relatively high in the region, partly reflecting the important contribution of FDI inflows to the country's economic development. Trade openness averages 124.9 percent of GDP in the whole period and is quite high, showing the high level of economic openness and integration. Therefore, the employment rate of working age has always remained at 73%.

Table 2. Descriptive statistics for Singapore

	GDP	FDI	TRADE	EMPLOYMENT
Mean	41222.26	18.40472	352.1277	64.73735
Median	38926.81	18.93986	345.4593	64.15700
Maximum	82807.65	32.69117	437.3267	68.69800
Minimum	16136.24	4.228440	303.1365	60.52200
Std. Dev.	19357.15	7.494747	35.68039	2.652409
Skewness	0.460361	-0.116168	0.797483	0.083503
Kurtosis	1.960609	2.266305	2.824513	1.536544
Jarque-Bera	2.490416	0.765039	3.325673	2.802393
Probability	0.287881	0.682141	0.189600	0.246302
Sum	1277890.	570.5465	10915.96	2006.858
Sum Sq. Dev.	1.12E+10	1685.137	38192.70	211.0582
Observations	31	31	31	31

Source: Authors' analysis

Table 2 describes the economic indicators achieved by Singapore between 1992 and 2022. Singapore experiences a strong improvement in per capita income, from USD 16136.24/person/year in 1992 to 82807.65 USD/person/year in 2022. The current income level of Singapore is one of the highest in the world today. FDI attraction reaches a very high level of up to

18.40% of GDP. At the same time, trade openness also reaches 352% of GDP.

4.2. The regression of OLS and quantile regression

Table 3. The regression of OLS for Vietnam

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	-96.02239	48.47444	-1.980887	0.0583
TRADE	31.09241	3.375612	9.210897	0.0000
EMPLOYMENT	281.4935	50.14927	5.613113	0.0000
C	-22599.52	3663.789	-6.168346	0.0000
R-squared	0.837080	Mean dependent var		1416.492
Adjusted R-squared	0.818281	S.D. dependent var		1218.610
S.E. of regression	519.4749	Akaike info criterion		15.46708
Sum squared resid	7016209.	Schwarz criterion		15.65391
Log likelihood	-228.0062	Hannan-Quinn criter.		15.52685
F-statistic	44.52912	Durbin-Watson stat		0.417746
Prob(F-statistic)	0.000000			

Source: Authors' analysis

Table 4. The Quantile regression for Vietnam

	Quantile	Coefficient	Std. Error	t-Statistic	Prob.
FDI	0.250	-173.2327	59.90832	-2.891631	0.0076
	0.500	-43.17407	101.1158	-0.426977	0.6729
	0.750	48.37690	94.34874	0.512746	0.6125
TRADE	0.250	21.92123	6.038692	3.630129	0.0012
	0.500	28.65055	8.899943	3.219183	0.0034
	0.750	35.89126	5.122398	7.006730	0.0000
EMPLOYMENT	0.250	327.8347	49.41347	6.634521	0.0000
	0.500	290.2675	59.08225	4.912940	0.0000
	0.750	247.9793	45.87169	5.405933	0.0000
C	0.250	-24695.80	3509.887	-7.036065	0.0000
	0.500	-23231.02	3528.579	-6.583677	0.0000
	0.750	-21329.46	2990.366	-7.132725	0.0000

Source: Authors' analysis

Table 3 shows: OLS regression confirms that there is a positive impact of trade openness and employment on economic growth, however, there is a negative impact of FDI on economic growth. The results of Table 4 also show that there is a positive impact of trade openness and employment on economic growth at all quintiles. However, there is a negative effect of FDI on growth at the lower quintile, and no effect at the high quintile.

Regression results in Vietnam show that Vietnam implements an open trade policy and increases international trade, there is a positive impact on economic growth, which reflects the correctness of Vietnam's integration policy into the international economy. This also reinforces the correctness of Vietnam in the integration process, especially participating in free trade agreements (FTAs), which has increased the commercial cooperation relationship between Vietnam and other countries. Parallel to that process, the job creation process of the economy ensures social security and per capital income, and is a basis for promoting economic growth of Vietnam. The process of economic integration has brought benefits in attracting FDI inflows, thus increasing the possibility of job creation and creating a positive effect on economic growth. However, this study also shows that attracting FDI does not have a positive effect on economic growth and this evidence occurs at the low percentile that is corresponding to the case of low FDI inflows. Indeed, FDI inflows are low, it may not have enough good effects on the economy, so it cannot generate economic growth directly.

Table 5. The regression of OLS for Singapore

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	341.3254	219.4708	1.555220	0.1315
TRADE	20.58603	33.64300	0.611896	0.5457
EMPLOYMENT	6269.017	628.9155	9.967981	0.0000
C	-378148.2	42675.13	-8.861093	0.0000
R-squared	0.903835	Mean dependent var		41222.26
Adjusted R-squared	0.893150	S.D. dependent var		19357.15
S.E. of regression	6327.434	Akaike info criterion		20.46309
Sum squared resid	1.08E+09	Schwarz criterion		20.64812
Log likelihood	-313.1779	Hannan-Quinn criter.		20.52341
F-statistic	84.58956	Durbin-Watson stat		0.806465
Prob(F-statistic)	0.000000			

Source: Authors' analysis

Table 6. The quantile regression for Singapore

	Quantile	Coefficient	Std. Error	t-Statistic	Prob.
FDI	0.250	260.8327	328.2991	0.794497	0.4338
	0.500	122.0484	294.2811	0.414734	0.6816
	0.750	398.0575	259.4802	1.534057	0.1367
TRADE	0.250	63.74710	53.35440	1.194786	0.2426
	0.500	-3.427565	40.83394	-0.083939	0.9337
	0.750	5.811931	34.18805	0.169999	0.8663
EMPLOYMENT	0.250	7008.391	1104.605	6.344705	0.0000
	0.500	6256.868	812.1291	7.704277	0.0000
	0.750	5750.443	699.4144	8.221796	0.0000
C	0.250	-444293.9	82703.72	-5.372115	0.0000
	0.500	-364447.0	51855.96	-7.028064	0.0000
	0.750	-337352.5	43560.80	-7.744405	0.0000

Source: Authors' analysis.

Research results for Singapore show that:

Table 5 shows that foreign direct investment has a positive effect, but is not statistically significant, so it can be said that FDI has not had a direct impact on Singapore's economic growth at a mean value. This result is similar to the case of Vietnam. At the same time, it is similar for trade openness which also has no impact on Singapore's economic growth and in contrast to Vietnam with a positive relationship of employment to this country's economic growth. It can be understood that Vietnam has an abundant labor force, and the country is under pressure to provide enough jobs for the economy. Therefore, the economy is capable of creating jobs, the impetus for economic development is greater.

According to Table 6, the research results show that employment has a positive and significant impact on Singapore's economic growth and this effect remains at all percentiles and at the mean value. This explains the role of employment in Singapore's economic growth and the evidence is similar to that of Vietnam.

5. Conclusion and policy implications

Economic growth is the top goal in any country and is one of the key economic indicators on the annual agenda along with jobs, trade, and foreign direct investment attraction. The study evaluates the factors influencing on economic growth, especially in the case of comparison between Vietnam and Singapore to assess the similarities and differences between these two countries. The study uses OLS and quantile regression analysis to evaluate different scenarios in the economy and their effects on economic growth. The regression results show that international trade has no effect on Singapore's economic growth, but does affect Vietnam's economic growth. The study also argues that FDI has not had a direct impact on Singapore's economic growth, but has an indirect effect through employment, because FDI has the ability to create jobs in the economy and is the driving force behind economic growth in this country. In the case of Vietnam, FDI has a negative effect on growth, especially at the lower quintiles, showing that FDI inflows are not large enough, there may be no effect on growth, and vice versa. The study also confirms that employment has a very positive effect on growth in both the case of Vietnam and Singapore, and the effect in Singapore is larger than that in Vietnam.

Through the study, there are some policy implications for Vietnam or Singapore as follows: Vietnam and Singapore continue to improve employment opportunities for the workforce, improve the quality of training and human resources to help the workforce. number of laborers who can access the labor market and have jobs. Second, Vietnam needs more improvement in FDI attraction to be able to offer more opportunities in promoting economic growth. This improvement should be done through improving the investment environment, reduce informal costs and market access, reduce transaction costs and increase investment efficiency for businesses. Third, countries continue to implement trade policies to increase cooperation opportunities between countries and promote foreign trade activities. Fourth, countries always set economic growth targets to increase per capita income, while optimizing energy consumption for environmental protection and sustainable development is an urgent requirement. Indeed, it is indispensable for the role of energy sources, especially electricity consumption in the socio-economic development. Previous studies also confirm that energy consumption can help economic development.

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WHY SUPPLY CHAIN FINANCE IS NOW A NEW TREND OF TRADE FINANCE

PhD. Phan Tien Nam*

Abstract: ***Globalization as well as digitalization are influencing how the parties in a supply chain work with each other. The emergence of fintech and new technologies in the area of financial services fuels the optimism that new solutions are being created to close the finance gap for enterprises, especially SMEs. Contemporary supply chain finance solutions - thanks to the way they are structured - are perceived to be among those solutions that aim to overcome traditional lending limitations. Financial institution and/ or banks, and other societies around the world, in accordance with their directives and depending on the circumstances of their specific markets, are actively exploring supply chain finance initiatives as a viable way to enable more access to credit to SMEs…***

• Keywords: *SCF, supply chain, invoices, receivables, financial institution,…*

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Tóm tắt: *Toàn cầu hóa cũng như số hóa đang ảnh hưởng đến cách các bên trong chuỗi cung ứng làm việc với nhau. Sự xuất hiện của fintech và công nghệ mới trong lĩnh vực dịch vụ tài chính mang lại niềm lạc quan rằng các giải pháp mới đang được tạo ra để thu hẹp khoảng cách tài chính cho các doanh nghiệp, đặc biệt là các doanh nghiệp vừa và nhỏ. Các giải pháp tài chính chuỗi cung ứng hiện đại - nhờ vào cách cấu trúc - được coi là một trong những giải pháp nhằm khắc phục những hạn chế cho vay truyền thống. Tổ chức tài chính và/hoặc ngân hàng cũng như các hiệp hội khác trên thế giới, theo chỉ thị của họ và tùy thuộc vào hoàn cảnh của thị trường cụ thể của họ, đang tích cực khám phá các sáng kiến tài trợ chuỗi cung ứng như một cách khả thi để tạo điều kiện tiếp cận tín dụng nhiều hơn cho các doanh nghiệp vừa và nhỏ…*

• Từ khóa: *SCF, chuỗi cung ứng, hóa đơn, khoản phải thu, tổ chức tài chính,…*

1. Introduction

The pandemic and many recent emerging issues have exposed the slow reaction of supply chains to external shocks, leading to a significant concern to an agility in adapting working capital levels to disruptive external events as businesses face continued challenges in the global supply chain. The heightened complexity and lack of visibility over most supply chains also mean that the move from 'just in time' to 'just in case' planning in order to manage supply risk may bring further working capital challenges. That is why executives today mentioned working capital efficiency as the main objective for change management and restructuring activities.

While all businesses need financing either for investment or working capital for daily operations, the later is employed to purchase the input materials for production, to finance inventory and to bridge the time until customers pay their invoices. That's why entrances to suitable instruments to manage working capital requirements is key in global efforts to reduce the finance gap for those businesses, especially mall and medium-sized enterprises (SMEs). The term Supply Chain Financing (SCF) is then becoming an increasingly common vertical within the banking industry.

Supply Chain Finance is defined as the use of financing and risk mitigation practices and

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techniques to optimize the management of the working capital and liquidity invested in supply chain processes and transactions. SCF is typically applied to open account trade and is triggered by supply chain events. Visibility of underlying trade flows by the finance provider(s) is a necessary component of such financing arrangements which can be enabled by a technology platform (GSCFF, 2016).

Since the complexity of the Covid-19 pandemic along with recent regional conflicts and global inflation threat elevated risky levels of debt and ongoing supply chain disruption, capital efficiency has been in front of executive's mind as a major concern to incoming uncertainty situation, that forced trade finance seekers to look for alternatives as liquidity in supply chains (PwC, 2021). This spurred an increased demand for supply chain financing as businesses worked to maintain liquidity and their competitive edge.

This article focuses on understanding SFC's products as a specialized financing solution and can be applied to SMEs in order to finance working capital and improve cash flow. For that purpose, the study which proposes some recommendations to develop some forms of SFC products for enterprises in supply chain finance particularly in Vietnam, is presented in the following layout: (1) Introduction; (2) Theory of SCF; (3) SCF process and an example of a SCF transaction; (4) Comparison between trade and supply chain finance; (5) Technology trends, and (6) Recommendations and Conclusion.

2. Theory of SCF

Access to Finance

In principle, the terms of trade, the duration of production cycles, and collection methods determine which party in a trade relationship bears the burden of having to finance the working capital, which is bound within the value chain. Various analyses indicated that multiple trillions of dollars are trapped in global value chains - either in inventory, during production, in transit, or receivables - which could be partly unlocked when applying the appropriate instruments (PwC, 2021).

Access to suitable instruments to manage working capital requirements, basically the particular focus of SCF, is therefore a key element of tackling the finance gap among SMEs. Therefore, SCF provides working capital efficiency and cash conversion cycle benefits to SMEs and corporations. It also provides an opportunity to banks to develop longterm relationships and cross-sell products. As a result, supply chain finance is a set of technology-enabled business and financial processes that provides flexible payment options for a buyer and one of their suppliers at lower financing costs.

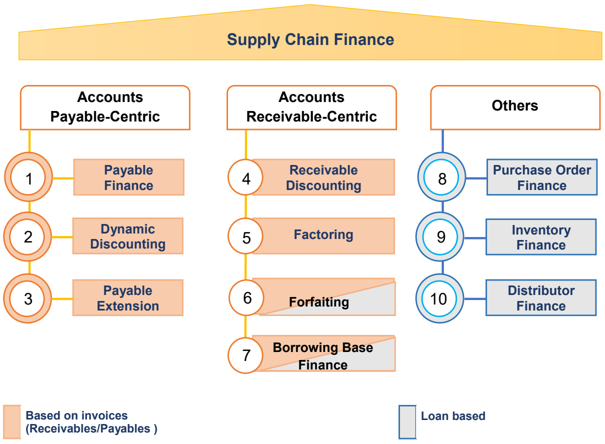
The supply chain finance ecosystem consists of a diverse set of players. These include core players like suppliers, buyers, banks, etc., and supporting players like industry associations, regulators and advisors, among them, direct parties to SCF transactions consist of the buyers and suppliers and distributors that trade and collaborate with each other along the supply chain. As the situation may require, these parties work with finance providers to raise finance using various SCF techniques and other forms of finance with the aim to reduce capital costs, as illustrated in below Figure 1, by means of integrated relationships of partners in the supply chains. Finance providers or financial institutions in SCF programs can be commercial banks, non-banks, and, recently, also investors or even the buyers themselves.

Supply chain finance can address perceived constraints and risks by providing innovative ways of providing financial services to businesses and distributors with in-chain products flow used as collateral. Accordingly, supply chain financing enables SMEs (as suppliers) to diversify funding sources, access competitively priced financing, mitigate concentration risk and improve cash flow; and buyers improve supply chain governance, negotiate better terms, and also improve their cash flow (IFC, 2021).

SCF Products

SCF includes a broad set of products that can be categorized into three main categories (IFC, 2021), as shown in Figure 1, ranging either from an accounts-receivable to accounts-payable centric approaches based on invoices or being grouped under "Other SCF" that possess principally a loan or advance character. This differs to previously mentioned SCF selection in two categories: (1) receivables purchase-based SCF products and (2) loan-based SCF products (IFC, 2019).

Figure 1: SCF product categories



Source: IFC (2021)

It is noted that SCF based on invoices (receivable and payable products) represent banks finance sellers through purchasing a part or the entire receivable from them and take these receivables off the balance sheet of the seller. The bank gains ownership over the receivable and holds the title rights. Against this purchase, the seller receives an advance payment with a certain margin for the bank. In the other hand, loan based products make banks finance sellers/buyers through providing loans against receivables, P/O, inventory... In this category, the receivable stays on the balance sheet of the seller, with the underlying asset being used as a collateral.

A main differentiation as shown in Figure 1 is that an invoice must have been issued for all the products of the invoice-based categories - implying the occurrence within the post-shipment phase. In the case of receivables discounting, forfaiting, factoring, and payables finance, there is usually a transfer of rights in this receivable happening vice versus. The transactions of all sorts of pre-shipment finance (for example, purchase-order finance), inventory finance, distributor finance, and loans/advances against receivables (also called borrowing base finance) usually have a loan character.

Among listed products in Figure 1, Receivables discounting, Factoring, Payables finance (reverse factoring), Distributor finance and Purchase-order finance are in popularity of use. Specifically:

(1) Receivables discounting is a form of receivables purchase, flexibly applied, in which sellers of goods and services sell individual or multiple receivables (represented by outstanding invoices) to a financial institution or a bank at a discount. At maturity, the buyer pays back the receivable proceeds to the financial institution;

(2) Factoring is a form of receivables purchase, in which sellers of goods and services sell their receivables (represented by outstanding invoices) at a discount to a financial institution (commonly known as the factor. Typically, the financial institution becomes responsible for managing the debtor portfolio and collecting the payment of the underlying receivables. Factoring provides finance via early payment of receivables;

(3) Payables finance is provided through a buyer-led program within which sellers (suppliers) in the buyer's supply chain are able to access finance by means of receivables purchase. The technique provides a seller of goods or services with the option of receiving the discounted value of receivables (represented by outstanding invoices) prior to their actual due date and typically at a financing cost aligned with the credit risk of the buyer. The payable continues to be due by the buyer until its due date. Payables finance is the SCF concept for which the terms approved-payables finance, reverse factoring, confirming, buyer-led supply chain finance, supplier finance, or just supply chain finance are used synonymously;

(4) Distributor finance is a loan for a distributor of a large manufacturer to cover the holding of goods for resale and to bridge the liquidity gap until the receipt of funds from receivables following the sale of goods to a retailer or end customer. Usually, the whole distributor finance structure is set up based on established trading relationships between the supplier and distributor. Distributor finance helps a large corporate (anchor) supplier (for example, a large manufacturer) to sell more

inventory, while it finances the distributor´s working-capital needs until the distributor gets a liquidity inflow from its sales. The bank provides financing directly to the distributor by facilitating the payment of the invoices issued by the anchor supplier; and,

(5) Pre-shipment or purchase-order finance is a loan provided by a finance provider to a seller of goods and/or services for the sourcing, manufacture, or conversion of raw materials or unfinished goods into finished goods and/or services, which are then delivered to a buyer. A purchase order from an acceptable buyer or a documentary or standby letter of credit or bank payment obligation, issued on behalf of the buyer in favor of the seller, is often a key element in motivating the finance, as is the ability of the seller to perform under the contract with the buyer. The bank will then provide a certain percentage of the purchase-order volume as financing, which can be increased in stages as production/performance level of fulfilling the purchase order increases.

SCF Benefit

SCF is a very efficient way to reinforce the stability of a buyer's supply chain and market reach with regard to its suppliers, allowing it to benefit from better credit terms and streamlined invoice payment procedures (supply chain finance tends to be made available through online platforms). It is also very beneficial to suppliers, as it supports them to shorten their receivables cycle and therefore reinvest their operational cash-flow at a faster pace. The supplier will therefore receive its money earlier and thus improve working capital. Above advantages also tend to include financing in better terms for both parties, who traditionally are financed through more costly methods such as overdrafts, invoice discounting, debt factoring or similar products, as suppliers don't need to take out financing under their own credit lines and may benefit from their clients' access to credit at lower rates, and buyers may get credit from their suppliers at a lower cost than that of taking out a loan. It also helps address the issue of larger entities paying smaller suppliers late or extending credit terms to the advantage of the larger entity.

Consequently, the motivations of the buyer, supplier, and distributor for participating in SCF programs vary depending on their individual (financial/non-financial) situations and relative position in the whole value chain, and the nature of the relationships of the participants. There is a imparity of size and strength along the value chain, SCF tools help set the framework for a win-win situation among the involved parties by solving conflicts of interest and removing hurdles for the provision of financing.

As for a financial institution's benefit, SCF fosters long-term relationships with large buyers through heavy interaction with key stakeholders, including CFOs, treasurers and heads of procurement in buyers' organizations. It also helps broaden the financial institution's customer base by providing access to new SME clients. Financial providers generally can purchase assets at a discount which they can then sell on to investors and/or make a profit on when they collect the full amount of the receivables. This provides an opportunity for cross-selling and represents a very stable and low-risk revenue stream compared to conventional lending products.

SCF risk

Unlike conventional credit risk, SCF credit risk focuses not just on the balance sheet of the supplier but also on supplier-buyer relationship duration, dilution rates, importance of supplier... There are five major types of risk in SCF as shown in Table 1.

Table 1: SCF credit risk

Risk type	Description	Mitigation measures
Anchor risk	Encompasses the risk associated with the anchor client for the financial institution, including dilution risk which embraces any situation that may reduce the value of out-standing invoices, other than default by the debtor, e.g., return of goods, commercial dispute on goods, etc.	Credit-approval process (depending on SCF products)
Spoke risk	Encompasses credit and performance risks: - Credit risk: This includes the risk that the spoke defaults on contractual obligations to the bank by failing to make payments. This type of risk is typically less relevant for SCF, as products are based on the credit risk of the large anchor - Performance risk: Risk that the spoke/supplier fails to meet obligations to the buyer (e.g., issues with manufacturing or shipping goods, providing services in a timely fashion and according to agreed quality)	Spoke selection: (1) supplier is evaluated in light of buỷe's profile, and; (2) reviewing on supplier data

Risk type	Description	Mitigation measures
Fraud risk	- Double financing: The same receivable is used to get a loan from two financiers, which can lead to a conflict on the assignment of the underlying receivable; - Fake invoices: The sharing of forged invoices with financial institution for financing; - Collusion between buyer and seller that leads to diversion of funds from meeting maturity obligations - The diversion of funds borrowed for other purposes (such as financing the growth of the business in other directions) rather than repaying the financing.	A robust monitoring system or an Early Warning System (EWS)
Product portfolio risk	A risk that the client portfolio or product portfolio crosses the minimum threshold for bad debts, leading to lower recovery for financial institutions. This can happen due to a sudden downturn in performance of clients	
Country risk	The risk of political and economic turbulence that will negatively impact SCF assets in that country (only specific to international transactions)	

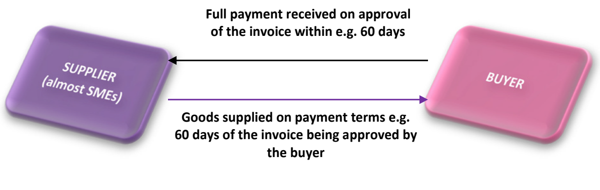
Source: IFC (2019), ICC (2017) and ICC Academy (2023).

3. How SCF process works

Clearly, a company's commercial activities can be split into two categories: the physical supply chain, and the financial supply chain. The physical supply chain is the flow of goods and services towards the end-customer whereas the financial supply one is the flow of money from the customer back up the chain to the supplier. The supply-chain cycle is called the "purchase-to-pay" (P2P) process when looked at from the buyer's perspective and the "order-to-cash" (O2C) process when seen from the supplier's point of view.

With supply chain finance, the process of cash flow is flowed from buyers to suppliers, with the participation of intermediaries who are financial institutions and banks, that helps to optimize the working capital, suppliers get additional operational cash flow and all these factors easily help to minimize the risk across the supply chain.

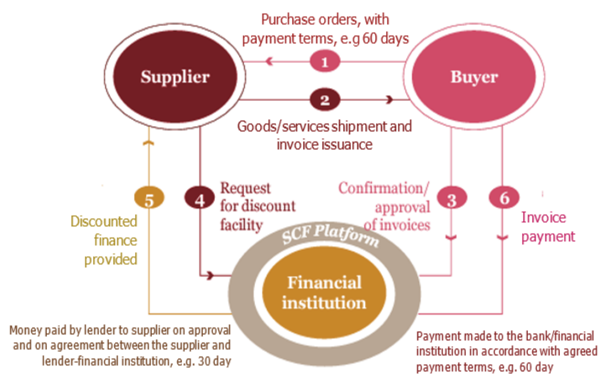
Figure 2: Traditional supply chain



Source: GSCFF (2016)

With a normal routine, the circulation process starts at the supplier of goods and service then flows to manufacturers, distribution channels and ends up in consumation market. The shipment of goods marks a trigger event for SCF, indicating the most suitable basis for financing. Pre-shipment/ purchase order finance is an acceptable solution for businesses looking forward to SCF financing scheme. However, as the invoice is issued on an open account basis after shipment, the financing can be easily switched over to invoice-based one. SCF requires the involvement of a SCF platform and an external financial institution who settles supplier invoices in advance of the invoice maturity date, for a lower financing cost than the suppliers'own source of funds. Following is a simple chart of SCF relationship.

Figure 3: Flow chart of a SCF process



Source: PwC (2018)

As shown in Figure 4, the supply chain finance platform is a financial arrangement between the buyer and the supplier/seller, in which the buyer makes an arrangement with a financial institution to pay the seller immediately and buyer pays them later.

The buyer and the seller enter into an agreement with each other and the supply chain financier. The buyer and the seller's transactions occur, and the seller raises invoice on the buyer. The buyer then approves the invoice and confirms to financial institution of payment at maturity. Supplier sells (at predetermined discount rate or fee) to financial institution and has payment received being less invoice value for the early settlement. The financier then approaches the buyer and gets back the payment for the invoices on the actual due date of the invoices. Depending on the nature of the supply chain finance program the financing charges (fee, interest rate…) might be borne by one of the parties or by both.

Example of a business adopting supply chain financing

ADZ Ltd is a Hongkong-based fashion retailer that has a partnership with a Vietnamese supplier - Garment 10 Company, which manufactures garments and textile. They both agreed to the following terms in the purchase order:

Garment 10 Company arranges to produce 1,500 white T-shirts for $25 each with a total order value is 37,500 USD. Payment terms are 60 days after the invoice is issued. The invoice clearly states the order details, quantity and trade term. However, Garment 10 Company does not want to wait 60 days to receive a payment from ADZ Ltd. while ADZ Ltd needs cash to pay other expenses and smooth out their cash flow and better manage their working capital.

In this case, Garment 10 has two options: (1) do nothing and wait for the invoice to be paid after 60 days, and (2) request to provide supply chain finance to a financial institution/bank who is called Bank D in this situation.

Garment 10 and Bank D. negotiate financing terms, including: an imbursement of 100% of the invoice value (75% financing and 25% refund when invoice is due), along with banking service fee and interest (e.g 1% and 6% per annum, correspondingly).

Garment 10 sends invoice details to the Bank D. and requests financing under the receivables purchase agreement and receives an advanced funding (37,500 * 75% - 37,500 * 1%) = 28,500 USD directly to the account of Garment 10 at Bank D, and Bank D. gains ownership over the receivable and holds the title rights.

On the due date (in 60 days) of the invoice, ADZ Ltd (Buyer) pays back into Bank D's account the total amount of the invoice of 37,500 USD. Bank D then transfers the remaining 25% of the bill deducting interest to Garment 10. That is, 37,500*25% - 37,500%*75%*6%*30/365 = 9,236.3 USD.

Supply chain finance allows ADZ Ltd not only to extend its payments to 60 days thereafter but also to provide cash advances to Garment 10 to meet their immediate cash flow needs. This optimizes the cash flow of both parties while Bank D. collects interest and fees for financing services.

4. Trade finance versus supply chain finance

In general, trade and supply chain finance provide innovative solutions for the working capital gap faced by growing companies. They can unlock the potential in businesses by accelerating cash flows, providing finance, reducing the end-to-end trade cycle, improving financial ratios, and mitigating counterparty and other risks in cross-border transactions

Both trade finance and supply chain finance are also widely used in international trade and business operations, and their popularity can vary based on the industry, region, and specific business needs. Trade finance has been a fundamental aspect of global trade for many years and is extensively used by importers, exporters, and financial institutions to facilitate cross-border transactions. Supply chain finance, on the other hand, is a type of financing that is provided by banks or other financial institutions to businesses that are involved in the production, distribution or sale of goods that has gained popularity in recent years as businesses seek ways to optimize their supply chain relationships and enhance working capital management.

Eventually, the choice between trade finance and supply chain finance depends on the specific requirements and goals of a business. In many cases, these two mechanisms can complement each other to provide a comprehensive approach to managing financial aspects of international trade and supply chain operations.

While both trade finance and supply chain finance are designed to finance international and domestic supply chains, trade finance offers a broader set of solutions. Table 2 below illustrates the main features that compare those two streams.

Table 2: Differentiation between trade finance and SCF

Criterion	Trade Finance	SCF
Purpose	Used to finance the sale of goods to buyers. The seller will take out a loan against the value of the sale, using the anticipated proceeds from the sale as collateral	Typically used to finance the purchase of raw materials or inventory from suppliers. The buyer will typically take out a loan against the value of the goods being purchased, using the goods as collateral
Players	Importer and exporter of goods and involves a large number of parties, including banks, freight companies, and insurance providers	Involves just three parties: the supplier, the buyer, and the financial institution (factor)
Products	- Products are long-established and include letters of credit, bank guarantees and documentary collections - Used more frequently when trading partners do not know each other well	- More recently developed financing and risk mitigation techniques based on receivables and/or loan based products - Used in relation to open account trade where the buyer and seller have done business together before
Financing basis	- Shipment-based finance - Banks acting as intermediaries to facilitate the exchange of payments for shipping documents, risk mitigation, and payment for underlying transactions between buyers and sellers	- Flow - based finance (goods and funding) - Banks have a lower level of financing intermediation that is structured based on agreements between the parties in the transaction
Security	- High level - Control of shipping documents and related assurance documents - Once the buyer pays for the goods, the seller repays the loan, plus interest and fee	- Lower level - Limited ability of trading control - Once the goods are sold, the buyer repays the loan, plus interest and fees
Guideline	Complicated process is governed by ICC publications (UCP600, URC522, ISP98, URDG758, ISBP, ...)	Much easier to comprehend and smoothly adapted
Form	It is referred as a loan	The financial provider makes the payment to the seller on time and extends the payable time for the buyer.
Funding decision	It works as the shipment is made	It works by the supplier raising invoices
Technology platform	Human touch	IT-based

Source: PwC (2018), ICC Academy (2023), E.Fernando (2021).

5. Technology trends

Various emerging technologies - namely, artificial intelligence (AI) and machine learning (ML), internet of things (IoT), distributed-ledger technology (DLT), and other technology trends (for example, software as a service (SaaS) and e-invoicing) - are the basis for a number of initiatives from providers offering the so-called fintech, regtech, and insuretech solutions. These technologies and their combinations influence the evolution and creation of new product propositions in trade and SCF and have the potential to disrupt the incumbent´s business models and/or enable new forms of collaboration. With their applications, providers aim to reach out to underserved market segments, ease administrational burden, improve risk management, and support compliance with regulatory requirements. The maturity level of these new technologies varies considerably, some being already adopted, others still in proof-of-concept status.

Technology platforms are an important element in the implementation of SCF's funding models and processes. Each SCF product has its own distinctive characteristics to develop in accordance with technological advances. In the world, the increasing application of SCF solutions is mainly driven by the development of fintech and third-party technology product providers. Anchor buyers/sellers, suppliers and distributors in the trade ecosystem must ensure payment status as well as credit to easily be verified and approved to participate in bank's supply chain financing system, thereby accessing bank capital at a more reasonable cost than traditional borrowing.

However, in the context of Vietnam, the operation of SCF is still under limitation and beginning phase because most businesses are unfamiliar with as well as the difficulties related to financial infrastructure. Although large commercial banks in Vietnam have proactively deployed SCF types to serve a specific range of customers, such as reverse factoring solutions (buyer-side factoring) and invoice discounting, which have been improved and upgraded with the application of technology platforms in tendency of digital transformation. In particular, the impact of the Covid-19 pandemic has highlighted the need to develop digital financial services.

Recommendations and conclusion

Currently, the end-to-end process digital transformation solution is considered a breakthrough for simplifying banking service.

Longstanding paper-based process of issuing line of credit and disbursements within Vietnam's commercial bank has been gradually transformed into a productive digitization, enabling businesses to conduct transactions themselves, track the approval process and get paid online to their account. The electronic platform will then play an important role in creating a transparent database of SCF transactions between suppliers and buyers and smoothing up credit activities of financial institutions.

However, commercial banks and institutions in Vietnam overwhelmingly prefer immovable assets as eligible collateral such as real estate to receivables and inventory in accessing banking credit. This preference is also reflected in the regulatory frameworks prescribing capital while movable and intangible assets being less desirable due to securing collateral against movable assets is difficult or impossible because it either is costly and/or does not offer effective protection against credit risk that could result in conflicting claims. In addition, banks and other financial institutions are not aware of the market potential and absent of the necessary expertise for movable asset valuation, especially machinery and equipments. Moreover, a shortage in productivity and product quality make it difficult for Vietnam's SMEs to participate in global value chains.

As of October 2023, only approxiamately 800 SMEs in Vietnam's supporting industries are contributing in the global supply chain at all tier levels. In order to allow for the effective setup of SCF initiatives, appropriate enabling frameworks are required or are at least desirable components, on which related parties should:

(1) In the short term: (i) initiate financial technology (fintech) and facilitate the operation of SCF; (ii) build a SCF electronic platform to establish a translucent database for transactions and enabling a framework in contact with secured transactions/asset-based lending reforms, bank regulation, legal enforcement systems, standards for e-invoicing and e-identity, and digital payments infrastructure for supporting the adoption of SCF;

(2) In the long term, (i) include the contribution of domestic SMEs to an ecosystem where participating large corporations (anchor buyers) nominate to join any of their SCF platform along with the establishment of an adequate legal, regulatory, and secure transaction environment; (ii) provide an environment that will allow the eligibility, which in some cases means working with regulators and lawmakers to set the legal basis for the SCF instruments (factoring laws, deal-perfection rules, the enforceability of rights, collateral registries or know-your-customer (KYC) repository, etc.) and; (iii) provide a secure payment-solutions infrastructure.

In summary, trade and supply chain finance products can finance any stage of the customer's trade cycle in which there are different drivers for banks, clients, and fintechs to choose between the two streams. Actually, a financing product's innovation has helped enterprises to substantially grow their business and ongoing global disorder situations reveal that supply chain finance will be in growth more as time goes by.

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RESEARCH THE ROLE OF BUSINESS CREDIT RATING ORGANIZATIONS GLOBALLY AND IN VIETNAM

PhD. Cao Minh Tien*

Abstract: ***The study highlights the crucial role of credit rating agencies (such as Moody's, S&P, and Fitch) in assessing and pricing the debt repayment capability and risk levels of businesses globally. Credit ratings are significant for evaluating corporate debt repayment abilities and ensuring financial market transparency. These ratings determine the risk level of loans and financial assets, aiding investors and borrowers in risk management. High-rated companies are often viewed as more creditworthy, fostering market trust and aiding in capital raising. In Vietnam, the importance of corporate credit ratings is equally vital in guiding investment decisions and financial management. Trust from rating institutions also promotes the sustainable development of Vietnam's financial market and attracts international investment.***

• Keywords: *credit rating, enterprises, level, organizations.*

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Tóm tắt: *Bài nghiên cứu nhấn mạnh vai trò quan trọng của các tổ chức xếp hạng tín nhiệm (như Moody's, S&P và Fitch) trong việc đánh giá và định giá khả năng trả nợ và mức độ rủi ro của các doanh nghiệp. Tại thị trường toàn cầu, các xếp hạng tín nhiệm có ý nghĩa quan trọng đối với việc đánh giá khả năng trả nợ của các doanh nghiệp và đảm bảo tính minh bạch trên thị trường tài chính. Các xếp hạng này giúp xác định mức độ rủi ro của các khoản vay, tài sản tài chính và quản lý rủi ro cho các nhà đầu tư và người vay. Các doanh nghiệp được xếp hạng cao thường được coi là có khả năng trả nợ tốt và ít nguy cơ mất vốn, tạo sự tin tưởng trong thị trường và thuận lợi trong việc huy động vốn. Tại Việt Nam, ý nghĩa của mức độ xếp hạng doanh nghiệp cũng vô cùng quan trọng trong việc hướng dẫn quyết định đầu tư và quản lý tài chính. Việc tạo sự tin tưởng từ các tổ chức xếp hạng cũng giúp thúc đẩy phát triển bền vững của thị trường tài chính Việt Nam và thu hút đầu tư quốc tế.*

• Từ khóa: *xếp hạng tín nhiệm, doanh nghiệp, mức độ, tổ chức.*

1. Introduction

The research paper examines the significance of corporate credit ratings globally and in Vietnam, focusing on debt repayment and risk assessment. It emphasizes the increasing importance of credit rating agencies like Moody's, S&P, and Fitch in a globalized business environment and evolving financial markets. Globally, credit ratings play a crucial role in determining the true value of companies and financial assets. In Vietnam, the rapid development of financial markets highlights the need for risk management and transparency. The paper also discusses the challenges in using credit ratings, including issues of transparency and reliance on information sources, underlining the importance of understanding how these agencies operate and cautiously using their ratings. This study aims to enhance understanding of the impact of credit ratings on investment decisions and financial market development.

2. Literature review

According to S&P (2016), they define themselves as an organization that provides credit rating products and services, where they express opinions on the ability and willingness of the issuing organization (a company, a corporation) to meet their financial obligations fully and on time. Credit rating can also refer to the credit quality of an individual debt, such as a corporate bond, and the related risks that may lead to loss.

As per White (2010), a corporate CRA (Credit

** Academy of Finance*

Rating Agency) is an organization that develops and disseminates rating opinions for investors and other market participants so that they can use them to assess the level of risk when investing, making business decisions. All major credit rating agencies use an Alphabet symbol system as a scale of symbols to represent creditworthiness. CRAs are not directly involved in transactions in the capital market; they are considered by both sides - investors and issuing institutions - as independent providers of credit risk assessments (White, 2013). Therefore, a corporate CRA is an organization that provides credit rating services for the issuing organization, which is a business, and its individual financial obligations, thereby disseminating credit rating opinions to the market for entities such as investors and other market participants to use for their investment purposes

Global Credit Rating Agencies (global CRAs) play a crucial role in regulating the debt market. The demand for their ratings has increased at an unprecedented rate in the past two decades as the financial system has become more integrated and more companies seek global financing. Despite a large volume of literature on credit rating agencies and the economic importance of global CRAs, international evidence on their rating standards is limited. Furthermore, while the dominance of global CRAs in the market has attracted significant attention and regulatory debate, previous research has mainly focused on the impact of increased competition as new firms enter the market. These studies provide important insights into competition and credit ratings (Becker and Milbourn 2011; Bae et al. 2015) but are not designed to assess the impact of CRAs' overall market power. Using a global sample, this study examines how the market power of global CRAs affects their rating standards.

The corporate credit rating market in the United States is a natural monopoly, with S&P and Moody's together holding over 90% of the market share. However, outside the United States, the market power of global Credit Rating Agencies (CRAs) varies significantly across countries. Global CRAs play an important role in controlling the debt market. The demand for their ratings has increased at an unprecedented rate over the past two decades as the financial system has become more integrated and more companies seek global financing. Despite a large volume of literature on credit rating agencies and the economic importance of global CRAs, international evidence on their rating standards is limited. Furthermore, while the dominance of global CRAs in the market has attracted significant attention and regulatory debate, previous research has mainly focused on the impact of increased competition as new firms enter the market. These studies provide important insights into competition and credit ratings (Becker and Milbourn 2011; Bae et al. 2015) but are not designed to assess the impact of the overall market power of CRAs. Using a global sample, this study examines how the market power of global CRAs affects their rating standards.

In addition to entry barriers, factors such as the nature of credit rating (i.e., the imperfect assessment of debt risk), economies of scale, and network effects also contribute to this market power (Katz and Shapiro 1985; Tirole 1993; OECD 2010). As ratings from global CRAs have become an implicit requirement for businesses wishing to access a wide investor base, the increase in foreign bond issuance and cross-border investment has also helped to enhance the openness and dominance of the global CRA market. It is not surprising that the market power of global CRAs has become the focus of regulatory reforms worldwide, with regulators exerting considerable efforts to encourage new CRAs to enter the market.

3. Global Corporate Credit Rating Agencies

3.1. Theories on Global Corporate Credit Rating Agencies

Global Credit Rating Agencies (global CRAs) play a crucial role in assessing and determining the credit risk level of businesses and governments. Their primary function is to provide credit ratings for loans and bonds issued by financial institutions, aiding investors and borrowers in having reliable information to make investment and financing decisions. Theories on Global Credit Rating Agencies include the following aspects:

Providing Reliable Information: Global CRAs act as independent and professional third parties, offering reliable information on the debt repayment capabilities of businesses and governments. Their ratings help quantify credit risk and shape the investment mindset for financial institutions and investors.

Facilitating Transactions: Businesses and governments require funding from the debt market to develop and expand their operations. Global CRAs provide credit ratings, which facilitate the issuance of bonds and loans, helping them access financial resources on the international market.

Contributing to Market Stability: Global corporate credit ratings play a crucial role in maintaining stability and transparency in the financial market. They help prevent opacity and risk in financial transactions.

Influencing Interest Rates and Bond Prices: Credit ratings affect interest rates and bond prices. Bonds with higher ratings usually have lower interest rates as they are considered safer. Conversely, bonds with lower ratings typically have higher interest rates to compensate for higher credit risk.

Impacting Global Markets and Finance: Global CRAs influence not only domestic markets but also have an impact on global markets and finance. Their ratings can create ripple effects through global capital flows and assets.

3.2. Introduction to Global Corporate Credit Rating Agencies.

Global Corporate Credit Rating Agencies (global CRAs) include significant and widely recognized credit rating companies in the world. These organizations play an essential role in assessing the credit risk of businesses and loans. Below are some examples of global corporate credit rating agencies: Standard & Poor's (S&P): S&P is one of the largest and most prestigious credit rating companies in the world. Founded in 1860, S&P provides ratings for businesses, governments, and various financial instruments. S&P uses a rating system from "AAA" to "D" to indicate the credit risk of debt sources. Moody's Investors Service: Moody's is also one of the world's leading credit rating companies. Established in 1909, the company also provides ratings for businesses and various debt sources. Moody's uses a rating system from "Aaa" to "C" to indicate the level of credit risk..

Fitch Ratings: Fitch is also one of the three major credit rating companies in the world. Founded in 1913, Fitch provides credit ratings for businesses, governments, and various debt sources. Fitch's rating system ranges from "AAA" to "D".

These global credit rating companies play a significant role in ensuring transparency and reliability in the international financial market. However, it should be noted that they also face controversies and challenges related to the objectivity of their ratings, their correlation with financial institutions, and their potential to cause ripple effects in the financial market.

According to Naciri (2015), global credit ratings have different classification systems but use a similar approach in assessing the risk of long-term and short-term losses. The rating symbols, rating scales, and various definitions related to the ratings of the CRAs are widely disseminated in the market through regularly updated publications, as well as published on websites and in CRA rating report

Table 1: Basic Symbol System for Long-Term Corporate Credit Ratings of MIS, S&P, and FR

Moody's	S&P	Fitch	Ý nghĩa cơ bản về khả năng và rủiro tài chính
Aaa	AAA	AAA	Extremely strong
Aa1; Aa2; Aa3	AA+; AA;AA-	AA+; AA;AA-	Very strong
A1; A2; A3	A+; A; A-	A+; A; A-	Strong
Baa1; Baa2; Baa3	BBB+; BBB;BBB-	BBB+; BBB; BBB-	Adequate
Ba1; Ba2; Ba3	BB+; BB;BB-	BB+; BB;BB-	Less vulnerable
B1; B2; B3	B+; B; B-	B+; B; B-	More vulnerable
Caa; Ca	CCC; CC; C	CCC; C; C	Currently vulnerable, highly vulnerable, highly likely to provide non-payment
C	D	D	Failed to pay
e, p	pr	Expected	Failed to pay
WR			Expected
	SD	RD	Withdrawn rating

Source:Naciri (2015)

4. Domestic corporate credit rating agencies in Vietnam

4.1. Introduction to Corporate Credit Rating Agencies in Vietnam

In Vietnam, there are several corporate credit rating agencies that provide symbols and meanings to indicate the credit risk level of businesses. Below are some domestic credit rating agencies in Vietnam along with their symbol systems and meanings:

Vietnam Credit Rating (VCR):

+ Symbol: VCR

+ Meaning: The "VCR" symbol by Vietnam Credit Rating is commonly used to indicate the credit risk level of businesses. The ratings by VCR can be divided into several different levels, ranging from A++ (low risk) to D (high risk).

Table 2. Symbols and meanings of corporate credit ratings published by Vietnam credit in 2009

AAA	Highest capability in meeting financial obligations
AA	High capability in meeting financial obligations but lower than AAA
A	Very low risk in transactions with these businesses, but affected by changes in circumstances and economic environment
BBB	Relatively safe, economic environment and adverse changes can increase the risk significantly

BB	Clearly vulnerable when factors such as business conditions, finance are unfavorable
B	Likely to lose the ability to pay debts though still capable of meeting financial commitments
CCC	High risk, less likely to meet financial commitments if economic conditions are unfavorable
CC	Has debts and very high risk of non-payment
C	Evident bankruptcy but still trying to arrange debt repayment
D	Business has actually defaulted

Source: Vietnamcredit (2009)

Vietnam Bond Rating (VBR):

+Symbol: VBR

+Meaning: The "VBR" symbol by Vietnam Bond Rating is also used to indicate the credit risk level of businesses and debt sources. The rating system of VBR also includes various levels, from AAA (low risk) to C (high risk).

Table 3. Symbols and meanings of corporate credit ratings published by CRV in 2010

Type	Content
AAA	Optimal type: highly efficient operations, excellent financial autonomy, long-term development prospects, strong financial potential, and very low risk
AA	Superior type: Quite efficient operations and fairly high competitiveness. Fairly good financial autonomy. Efficient cost usage. Low risk
A	Good type: Efficient operations and high competitiveness. Good financial autonomy. Efficient cost usage. Relatively low risk.
BBB	Fairly good: Relatively efficient operations and average competitiveness. Financial autonomy present. Fairly efficient cost usage. Moderately low risk.
BB	Above average: Operations and competitiveness not high. Low financial autonomy. Inefficient cost usage. Moderate risk
B	Average: Low operational efficiency and competitiveness. Lack of financial autonomy. Inefficient cost usage. High risk
CCC	Below average: Very low operational efficiency and competitiveness. Almost no financial autonomy. Extremely inefficient cost usage. Quite high risk.
CC	Weak: Extremely low operational efficiency and competitiveness. No financial autonomy. Extremely inefficient cost usage. Very high risk.
C	Very weak: Poor operations, prolonged losses, no financial autonomy. Poor production and business capacity with no ability to pay debts, very high risk

Source: CRV(2010)

Saigon Phatthinh Credit Rating Joint Stock Company (Saigon Phatthinh Credit Rating - PTR)

\+ Symbol: PTR

\+ Meaning: Saigon Phatthinh Credit Rating Joint Stock Company (SAIGON PHATTHINH Credit Rating - PTR) is the first and only Credit Rating Agency (CRA) in Vietnam to date. PTR was granted the Business Qualification Certificate No. 01/GCN-DVXHTM by the Ministry of Finance on July 21, 2017.

The symbol systems and the meanings of these symbols help investors and market participants gain an overview of the credit risk level of businesses and debt sources. However, it is important to understand the methods and approaches that these rating agencies use to issue these ratings, in order to have a more detailed and comprehensive view of the financial situation of businesses.

Table 4: Symbols and Meanings of Long-Term Corporate Credit Ratings Published by Saigon Phatthinh Credit Rating in 2019

Rating Level	Definition
vnAAA	AAA rated organizations have a very high capability in fulfilling their financial commitments. AAA is the highest credit rating in the scale of Saigon Phatthinh Credit Rating.
vnAA	AA rated organizations have a high capability in fulfilling their financial commitments. The AA rating is not too different from AAA.
vnA	A rated organizations have a relatively high capability in fulfilling their financial obligations, but this ability may be impacted by adverse changes in the business environment and economic conditions.
vnBBB	BBB rated organizations have the capability to fully meet their financial commitments. However, this ability is susceptible to adverse changes in the business environment and economic conditions.
vnBB	BB rated organizations are less affected in the short term than lower-rated issuers. However, significant impacts from unstable business operations and adverse economic and financial conditions may compromise their ability to meet financial obligations.
vnB	B rated organizations have a higher likelihood of default than BB, but still have the ability to pay financial obligations. Adverse business, financial, and economic conditions could significantly diminish their ability or willingness to meet financial commitments.
vnCCC	CCC rated organizations are in a condition easily affected negatively by the risk of losing the ability to pay and can only meet financial obligations under favorable business, financial, and economic conditions.
vnCC	CC rated organizations face a very high risk of losing the ability to pay. The prospect of default has not occurred but is anticipated in the future, although the exact timing of default is uncertain.
vnR	R rated organizations are under the supervision of the authorities due to their financial situation. During supervision, the authorities may require the borrower to prioritize the repayment of one or several debts over others.
vnSD and vnD	Credit ratings of SD or D apply to organizations that have failed to pay one or more debt obligations when due, including both rated and unrated obligations, except for obligations arising from hybrid instruments counted in statutory capital or not requiring payment. The D rating is applied when there is sufficient basis to conclude that the organization has completely defaulted and cannot pay most or all of its debt obligations when due. The SD rating is applied when there is suffici...

Source: PTR (2019)

4.2. The Role of Corporate Credit Rating Agencies in Vietnam

Domestic credit rating agencies in Vietnam, such as Vietnam Credit Rating (VCR), Vietnam Bond Rating (VBR), and Saigon Phatthinh Credit Rating (PTR), play an important role in providing information about the credit risk level of businesses and debt sources. The roles of these credit rating agencies include:

Providing information for investors: Credit ratings help investors understand more clearly the risk level of companies and debt sources they intend to invest in. This information helps investors make informed decisions about investing in businesses and financial assets.

Supporting decisions for banks and financial institutions: Banks and financial institutions often use credit ratings to assess the risk level when lending or investing in businesses and debt sources. Information from rating agencies helps them determine interest rates and conditions for financial transactions.

Enhancing transparency and trust in the market: Credit ratings help create a transparent and trustworthy business environment. Public disclosure of information about the credit risk level of businesses and debt sources helps minimize inaccurate information and increases transparency in the market.

Pricing and limiting credit risk: Credit ratings help determine the value of financial assets and clearly define their credit risk level. This enables investors and financial institutions to have a more accurate view of the real value and risk of their investments and financial transactions.

However, it is important to note that credit ratings also face challenges and controversies, including ensuring objectivity, the risk of conflicts of interest, and the potential for widespread impact in the market. Investors and market participants need to understand the methods and processes used by these rating organizations to issue ratings, and consider information from multiple sources before making investment or financial decisions.

6. Conclusions

A research paper examining the role of corporate credit rating agencies globally and in Vietnam, as well as the significance of corporate credit ratings, has drawn important conclusions about the importance of credit ratings in risk valuation and financial management. Here are some key conclusions from the paper:

First; Credit ratings are a crucial tool in risk assessment: The study focused on the role of credit rating agencies in providing essential information for evaluating the credit risk level of businesses and financial assets. This assists investors and financial institutions in making informed investment and transaction decisions.

Second; The importance of transparency and trustworthiness in the market: Credit ratings play a vital role in creating a transparent and trustworthy business environment. Public disclosure of credit risk levels helps minimize inaccurate information and facilitates market participation.

Third; The impact of credit ratings on financial and investment decisions: The study demonstrated that credit ratings significantly influence the decisions of banks, financial institutions, and investors. Credit ratings help them in pricing assets and assessing risk levels, thereby supporting decisions related to interest rates, lending conditions, and investments.

Fourth; The relationship between credit ratings and the stock market: The study explored the connection between credit ratings and stock market volatility. While no direct correlation was found in the short term, the paper indicated that changes in ratings could affect future market fluctuations.

Fifth; Recommendations for research and practice: The study suggests that the importance of credit ratings should continue to be emphasized. Additionally, the transparency and objectivity of rating agencies should be scrutinized to ensure the reliability of the information they provide.

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IMPACT OF FISCAL DOMINANCE ON INFLATION IN VIETNAM

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Abstract: ***In emerging economies including Vietnam, fiscal policy is expected to be expansionary to promote economic growth. However, expansionary fiscal policy can be seen as the determinant of high inflation in emerging economies. Fiscal dominance is the situation where expansionary fiscal policy dominates monetary policy and cause high inflation. This paper employs a VAR model with four variables including inflation rate, budget deficit, government internal debt and money supply to investigate whether there is fiscal dominance in Vietnam and the determinants of inflation fluctuation in Vietnam from 2001 to 2020. The findings are: (1) there is no significant evidence of fiscal dominance in Vietnam, (2) both fiscal and monetary policies have impact on inflation of Vietnam, and (3) among all, lagged inflation rate and domestic debt are found to be important determinants of inflation fluctuation in Vietnam.***

• Keywords: *inflation, monetary policy, fiscal dominance, Vietnam..*

JEL codes: E31, E52, E62

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Tóm tắt: *Tại các nền kinh tế đang phát triển như Việt Nam, chính sách tài khoá nới lỏng thường được sử dụng để thúc đẩy kinh tế. Tuy nhiên, chính sách tài khoá nới lỏng có thể gây ra lạm phát tại các nền kinh tế này. Lấn át tài khoá cho thấy tình trạng chính sách tài khoá nới lỏng lấn át chính sách tiền tệ và gây ra lạm phát. Bài nghiên cứu này sử dụng mô hình VAR với bốn biến gồm lạm phát, thâm hụt ngân sách, nợ trong nước của chính phủ và cung tiền để phân tích tình trạng lấn át tài khoá tại Việt Nam, cũng như những nhân tố của lạm phát trong giai đoạn 2001-2020. Các kết quả cho thấy: (1) chưa có bằng chứng đáng kể về lấn át tài khoá tại Việt Nam, (2) cả chính sách tài khoá và tiền tệ đều có tác động nhất định đến lạm phát tại Việt Nam, và (3) nợ trong nước của chính phủ và lạm phát kỳ trước là những nhân tố quan trọng tác động đến lạm phát tại Việt Nam.*

• Từ khóa: *lấn át tài khoá, chính sách tiền tệ, lạm phát, Việt Nam.*

1. Introduction

The fiscal deficit is largely financed by the issuance of government bonds. However, government bonds are mainly sold to large commercial banks. These bonds are then used by commercial banks to borrow money from the State Bank of Vietnam (SBV) through lending facility or open market operation (OMO). Ultimately, this will increase the money supply and cause inflation in the economy. The data from the Hanoi Stock Exchange (HNX) shows that in the period of 2006-2017, the volume of government bonds issued reached over VND 1000 trillion, accounting for nearly 50% of the total government debts in the period of 2006-2017, which also means an average of more than 100 trillion VND per year borrowed by the Vietnamese government. Thus, together with the high credit demand from the private sector, public spending financed through bond issuance has also indirectly led to a sharp increase in money supply in recent years.

The increase in money supply has been widely known as the main source of inflation, as Milton Friedman famously said "Inflation is always and everywhere a monetary phenomenon". It can be seen that there is the risk of fiscal dominance in Vietnam. Therefore, this paper is motivated to investigate whether Vietnamese economy is exposed to the risk of fiscal dominance. Together with the mission of determining whether monetary policy or fiscal policy has stronger effect on inflation in Vietnam, the paper has also discovered the determinants of inflation fluctuation in Vietnam. The rest of the paper is organized as follows. Literature review is shown in section 2, while section 3 introduces methodology and data. Section 4 discusses the

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results, while section 5 provides conclusions and policy recommendations.

2. Literature review

The relationship between fiscal dominance and price stability is a matter of concern for many countries, especially developing countries, whose fiscal discipline is still not strong enough, compared to developed countries. It can be seen that the studies on the relationship between fiscal dominance and price stability are divided into two phases. Phase one includes studies from the 1990s to the 2000s. These studies mostly focused on examining the impact of fiscal policy on inflation in the relationship between monetary policy and fiscal policy. Phase two includes studies from the late 2000s to the present. The studies in this period have focused on analyzing the quantitative effects of fiscal dominance on the general price level or the inflation rate in the economy. Some studies also measure the degree of fiscal dominance of several countries.

First of all, about the studies from the 1990s to the 2000s, most studies in this period agreed that the inflation is not only determined by monetary policy but also the fiscal policy. Prominent studies in this subject are Woodford (1994, 1995, 2001), Sims (1994, 1997), Leeper (1991), and Cochrane (1998, 2000). These studies showed that it is not only monetary policy that is related to price behavior, or that both monetary and fiscal policies are related, but in some cases, only fiscal policy is related. Another study by Michael Woodford (2001) pointed out that "a central bank charged with maintaining price stability cannot be indifferent as to how fiscal policy is determined". In other words, a commitment to fighting inflation and maintaining a low inflation target cannot guarantee price stability by itself. According to Sargent and Wallace (1981), budget deficits cause inflation because governments tend to run long budget deficits.

Regarding the studies from the late 2000s to the present, these studies have focused on in-depth quantitative analysis of the impact of fiscal dominance on the inflation. Some studies also measure the degree of fiscal dominance in several countries. It can be seen that since the public debt crisis in Greece in 2009, followed by the public debt crisis in other European countries, researchers have focused more on the issue of budget deficit and how this deficit is financed in different countries. Accordingly, the issue of fiscal dominance is paid more attention, especially in developing countries, where the degree of monetary independence is not as high as in developed countries and the central bank can print out money to finance the budget deficit. Some of the notable studies in this phase include Sulaiman et al. (2009), which studied on Pakistan, Musa, Asare and Gulumbe (2013) and Afolabi and Atolagbe (2018), which both studied on Nigeria, Aguilar and Samano (2018) on Mexico, Tan and Mohamed (2019) on Thailand, and most recently, Sanusi (2020) on Nigeria and South Africa.

Foremost, Sulaiman et al. (2019) which studied about money supply, government spending, output and prices in Pakistan showed that the government spending has an effect on inflation of Pakistan in the long run. Both studies on Nigeria, Musa, Asare and Gulumbe (2013) and Afolabi and Atolagbe (2018), showed that the fiscal policy variables have impact on inflation in this country. Specifically, Musa, Asare and Gulumbe (2013), by using the VAR model and co-integration test, concluded that there is a positive effect of fiscal revenue and consumer price index (CPI) of Nigeria. The study also suggested that this positive effect comes from the positive relationship between public revenue and government expenditure. Meanwhile, the later empirical study of Nigeria, Afolabi and Atolagbe (2018), showed that the fiscal policy variables do not have a direct impact on the price level in Nigeria. This study analyzed Nigeria's fiscal dominance and examined the impact of fiscal policy variables on the price level in the economy, in order to make the following main conclusions: (1) There is no empirical evidence of fiscal dominance in Nigeria; (2) The budget deficit and the government's internal debt have no impact on the general price level, but have a significant impact on the money supply in the short run.

Aguilar and Samano (2018) has provided empirical evidence on Mexico that budget deficits financed by money issuance have a significant effect on inflation in this country. In addition, this study also showed that the exchange rate and the interest rates on public debt have significant influence on expected inflation, and accordingly, price volatility in Mexico. In addition, Tan and Mohamed (2019) attempted to assess the long-term relationship between monetary policy, fiscal policy and inflation in Thailand. This study applied the ARDL

(Autoregressive Distributed Lag) model to the quarterly data series from 1980 to 2017. The results showed that the long-run relationship between government spending and inflation is positive. Compared with monetary policy, fiscal policy has a stronger impact on inflation in Thailand. One of the latest studies on fiscal dominance is Sanusi (2020). This study measured the fiscal dominance degree in two African countries, Nigeria and South Africa. The degree of fiscal dominance in South Africa was found to be higher than in Nigeria. However, the inflation in South Africa is lower than in Nigeria. Accordingly, the study concludes that the degree of fiscal dominance does not have a significant effect on inflation. This result is also consistent with the results of the previous study by Afolab and Atolagbe (2018) on Nigeria.

It can be seen that the relationship between fiscal dominance and inflation has received much attention in many countries, especially in developing countries where fiscal discipline is not as strong as in developed countries. Most studies showed that the fiscal policy variables such as government spending, budget deficit have the effect on inflation in the economy. In addition, a noticeable trend in research methodology on this topic is that the studies have been applying more and more quantitative techniques to measure the degree of fiscal dominance of a country, as well as correlation between fiscal policy and inflation in the economy.

Even though fiscal dominance and its effect on inflation have paid more attention in the world, especially in developing countries, there is a shortage of studies on this subject in Vietnam. The most related study, Le Thi Dieu Huyen (2014), studied the possibility of fiscal dominance in Vietnam and its effect on monetary policy of the State Bank of Vietnam. The study showed that fiscal policy has dominated monetary policy in the period of 2008-2013 due to expansionary fiscal policy and increasing budget deficit. However, this study did not provide conclusion about the impact of fiscal dominance on inflation in Vietnam.

It can be seen that there has not been any study focusing on the impact of fiscal dominance on inflation in Vietnam, which is the goal of monetary policy of SBV. However, the inflation rate can be easily affected by fiscal policy rather than monetary policy in developing countries, where the fiscal discipline is not as strong as in advanced countries. Therefore, there is a strong motivation for the authors to investigate the impact of fiscal dominance on inflation in Vietnam.

3. Data and Methodology

3.1. Data

The time series data of four variables including inflation (INF), money supply (M2), budget deficit (BDF) and internal debt (DOMD) was collected from IMF and SBV database. The collected data frequency is annual, from 2001 to 2020. In order to generate more observations, these annual time-series data were interpolated into quarterly data with the total observations of 80.

3.2. Methodology

This study employs Vector Auto-regression (VAR) model, which was first introduced by Christopher A. Sim in 1980, to examine the impact of monetary and fiscal policies on inflation in Vietnam.

A model of VAR(p) has a form:

$$y_t = \Phi_0 + \Phi_1 \times y_{t-1} + \Phi_2 \times y_{t-2} + \cdots + \Phi_p \times y_{t-p} + \epsilon_t$$

Where Φi with i = 1,…,p are coefficient matrices, ϵt is error term.

In order to examine the impact of monetary and fiscal policies on inflation in Vietnam, this study follows the study of Afolabi and Atolagbe (2018) and the VAR model is applied to a vector of variables y = (INF,BDF,M2,DOMD), where INF is inflation rate, which is measured year-over-year, BDF is budget deficit as a percentage of Gross Domestic Product (GDP), M2 is growth rate of money supply, which is measured year-over-year, and DOMD is government internal debt as a percentage of GDP. All time-series have measurement unit of percentage.

Specifically, this study will focus on the estimation of inflation rate on its determinants:

INF = f(M2,DOMD,BDF)

This equation will be used to estimate whether the monetary policy, fiscal policy, or government internal debt of Vietnam has significant impact on the inflation rate. Moreover, the magnitude of these effects will be estimated.

Unit root tests and lag selection

Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are used to test the stationarity of the time series data of four variables.

Table 1: Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests

Variable	ADF	PP
INF	-1.390501	-2.387407
D(INF)	**-3.614571*** **	**-5.404576*** **
BDF	-1.655469	-2.388997
D(BDF)	**-3.385095** **	**-5.936272*** **
M2	-1.096459	-2.132995
D(M2)	**-3.775334*** **	**-5.648032*** **
DOMD	-1.378967	-1.660553
D(DOMD)	**-5.755899*** **	**-3.231132** **

, **, * represent the significance level of 10%, 5% and 1%, respectively.*

The results show that all four variables, INF, BDF, M2, and DOMD, are not stationary at initial level but stationary at first difference level. Therefore, the first differences of these four variables, which are DINF, DBDF, DM2 and DDOMD will be employed into the VAR model.

Moreover, the lag of 5 is chosen for the VAR model of DINF, DBDF, DM2 and DDOMD. This selection is unambiguous among all selection criterions.

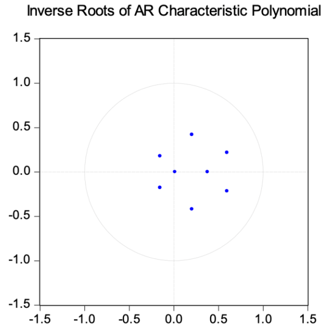
Table 2: Lag selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-144.1204	NA	0.000719	4.114456	4.240938	4.164809
1	-113.4410	57.09784	0.000479	3.706694	4.339101	3.958457
2	-110.3883	5.342268	0.000689	4.066341	5.204674	4.519514
3	-92.99904	28.49901	0.000670	4.027751	5.672010	4.682335
4	-3.232184	137.1438	8.81e-05	1.978672	4.128856	2.834667
5	50.04019	75.46919*	3.24e-05*	0.943328*	3.599439*	2.000734*
6	54.21797	5.454335	4.73e-05	1.271723	4.433759	2.530539
7	58.66464	5.311291	7.01e-05	1.592649	5.260611	3.052876

** denotes the chosen lag*

In addition, all inverse roots of AR Characteristic Polynomial are inside the unit circle (or less than 1), indicating that the stationarity condition of the VAR model is satisfied.

Figure 1: Stationarity condition of VAR



4. Results and discussion

Table 3: Estimation Results

	DINF	DBDF	DM2	DDOMD
DINF(-1)	**0.501442*** **	0.022037	0.128587	-0.166204
	(0.12574)	(0.04418)	(0.26207)	(0.19304)
	[3.98781]	[0.49880]	[0.49067]	[-0.86099]
DINF(-2)	0.046246	-0.001852	-0.004760	-0.060238
	(0.09164)	(0.03220)	(0.19098)	(0.14068)
	[0.50467]	[-0.05752]	[-0.02493]	[-0.42820]
DINF(-3)	-0.007036	-0.010550	-0.057114	-0.143740
	(0.09267)	(0.03256)	(0.19314)	(0.14227)
	[-0.07592]	[-0.32401]	[-0.29571]	[-1.01035]
DINF(-4)	0.107230	**-0.081100** **	**-0.696626*** **	-0.094785
	(0.10974)	(0.03856)	(0.22871)	(0.16847)
	[0.97713]	[-2.10335]	[-3.04587]	[-0.56262]
DINF(-5)	-0.135461	0.053945	**0.444969** **	0.052237
	(0.10650)	(0.03742)	(0.22195)	(0.16349)
	[-1.27198]	[1.44170]	[2.00481]	[0.31951]
DBDF(-1)	-0.025307	**0.787288*** **	0.050126	0.768835
	(0.33992)	(0.11943)	(0.70845)	(0.52185)
	[-0.07445]	[6.59187]	[0.07075]	[1.47330]
DBDF(-2)	0.077060	0.052372	-0.020587	0.152635
	(0.23442)	(0.08236)	(0.48856)	(0.35988)
	[0.32872]	[0.63586]	[-0.04214]	[0.42413]
DBDF(-3)	0.060439	0.040324	0.100620	0.306442
	(0.23614)	(0.08297)	(0.49216)	(0.36252)
	[0.25594]	[0.48600]	[0.20445]	[0.84530]
DBDF(-4)	**0.508122** **	**-0.931469*** **	**-1.318953** **	-0.172696
	(0.27018)	(0.09493)	(0.56309)	(0.41478)
	[-1.88068]	[-9.81231]	[-2.34235]	[-0.41636]
DBDF(-5)	0.280005	0.782165***	1.041511	0.538386
	(0.34255)	(0.12035)	(0.71391)	(0.52587)
	[0.81742]	[6.49885]	[1.45888]	[1.02380]
DM2(-1)	0.026183	0.006506	0.714612	-0.047389
	(0.05744)	(0.02018)	(0.11972)	(0.08819)
	[0.45580]	[0.32234]	[5.96896]	[-0.53737]
DM2(-2)	0.007247	0.000449	0.074892	0.014321
	(0.04733)	(0.01663)	(0.09865)	(0.07266)
	[0.15311]	[0.02697]	[0.75920]	[0.19709]
DM2(-3)	0.005409	0.001590	0.031885	0.021664
	(0.04762)	(0.01673)	(0.09925)	(0.07310)
	[0.11359]	[0.09505]	[0.32127]	[0.29634]
DM2(-4)	0.330511***	**-0.060775*** **	**-1.089472*** **	-0.086886
	(0.04890)	(0.01718)	(0.10191)	(0.07506)
	[6.75948]	[-3.53759]	[-10.6910]	[-1.15749]
DM2(-5)	**-0.136540***	0.040028	**0.710543*** **	0.006474
	(0.07287)	(0.02560)	(0.15187)	(0.11187)
	[-1.87381]	[1.56345]	[4.67874]	[0.05787]
DDOMD(-1)	-0.090525	**-0.072339** **	-0.296116	-0.006491
	(0.11035)	(0.03877)	(0.22998)	(0.16940)
	[-0.82038]	[-1.86584]	[-1.28760]	[-0.03832]
DDOMD(-2)	-0.111008	-0.038232	-0.231991	**-0.423612** **
	(0.11041)	(0.03879)	(0.23010)	(0.16949)
	[-1.00546]	[-0.98559]	[-1.00822]	[-2.49929]

	DINF	DBDF	DM2	DDOMD
DDOMD(-3)	-0.173652	**-0.085932***	-0.460921	**-1.010841*****
	(0.13479)	(0.04736)	(0.28091)	(0.20692)
	[-1.28834]	[-1.81453]	[-1.64079]	[-4.88512]
DDOMD(-4)	1.781030***	0.233969	**3.548537*****	0.102001
	(0.47235)	(0.16596)	(0.98444)	(0.72514)
	[3.77057]	[1.40978]	[3.60463]	[0.14066]
DDOMD(-5)	-1.315666*	**-0.296643***	**-2.886802*****	0.694993
	(0.46336)	(0.16280)	(0.96570)	(0.71134)
	[-2.83939]	[-1.82209]	[-2.98932]	[0.97702]
C	-0.002711	-0.015761	-0.017551	**-0.115378***
	(0.03854)	(0.01354)	(0.08032)	(0.05916)
	[-0.07034]	[-1.16404]	[-0.21853]	[-1.95023]

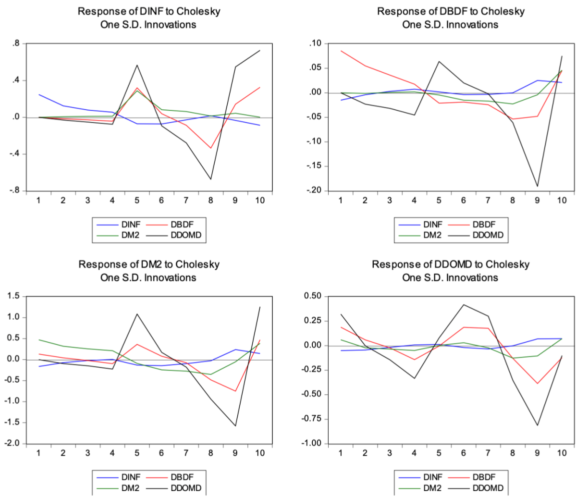
, **, * represent the significance level of 10%, 5% and 1% respectively, standard errors are inside the parentheses, t-statistics are inside the square brackets.*

Firstly, the current inflation is affected by the first lagged inflation, indicating that expected inflation has a strong effect on inflation in Vietnam. A high inflation at the current period will increase the inflation expectation of households and businesses in the economy, which unquestionably affects their behavior including consumption and investment. Ultimately, the current inflation should have effect on the inflation in the following period. For instance, if the economy is experiencing high inflation, people tend to store the goods, which makes the prices of goods are even higher, and search for different ways to store the wealth outside bank deposit, including real estate, stocks, gold and foreign currencies, which makes the prices of these assets to rise. As a matter of fact, the inflation in the economy will be eventually higher and higher, which is consistent with the results showed in the table that first lagged inflation positively affects the current inflation of Vietnam. The VAR estimation for the equation of DINF shows the coefficient of DINF(-1) having the value of 0.5 at the significance level of 1%, suggesting that when the current inflation increases by 1%, the inflation in the following period should increase by 0.5%.

Secondly, budget deficit only has statistically significant impact on inflation after a year, as the coefficient of DBDF(-4) in the equation of DINF is estimated to be 0.5 at the significance level of 5%, implying that if the current budget deficit as a percentage of GDP increases by 1%, the inflation four quarters later will increase by 0.5%. This result suggests that it takes about a year for budget deficit to have impact on the inflation of Vietnam. Moreover, this impact will not last for long, as the coefficient of further lagged DBDF, which is DBDF(-5), was found to be not statistically significant.

Thirdly, money supply also only has statistically significant impact on inflation after a year, as the coefficient of DM2(-4) in the equation of DINF was found to be 0.33 at the significance level of 1%. According the estimation result, if the current money supply growth rate increase by 1%, the inflation a year later will increase by 0.33%. This shows the positive impact of expansionary monetary policy on the inflation in Vietnam, which is consistent with the theory as an increase in money supply tends to increase the components of aggregate demand which causes demand-pull inflation.

Lastly, government internal debt was found to have statistically significant impact on inflation of Vietnam after a year as the coefficient of DDOMD(-4) in the equation of DINF was found to be 1.78 at the significance level of 1%. This



The impulse response functions of DINF to the shocks of other variables show that the inflation only significantly respond to the shocks of money supply, internal debt and budget deficit after four quarters, which is shown at the fifth quarter in the figure as the shocks of DDOMD, DBDF and DM2 starts from the second quarter. All these effects are positive as inflation increase when there is a positive shock of either DDOMD, DBDF or DM2, though the magnitudes of responses are different. Inflation increases higher to a shock of DDOMD than to a shock of DM2 or DBDF, which implies that government internal debt may be an important indication to predict inflation in the following year.

Moreover, the impact of DDOMD on DINF was found to be closed to zero in the fifth quarter, which is equivalent to the six period in the figure. This implies that the impact of government internal debt on inflation does not last for long. As a matter of fact, there is no significant evidence of fiscal dominance in Vietnam.

In addition, both money supply and budget deficit respond to a shock of internal debt with the lag of four quarters. This finding is consistent with the previous conclusion about the strong impact of internal debt on inflation in Vietnam, through the impulse response function of DINF to other variables. Because an increase in government internal debt has a positive influence on both deficit budget and money supply, implying expansionary fiscal policy as well as expansionary monetary policy, therefore the inflation should be increased.

5. Conclusions and policy recommendations

This paper has provided empirical evidence on the impact of both monetary and fiscal policies on inflation in Vietnam, which indicates whether there is fiscal dominance in Vietnam. Besides fiscal and monetary policies variables, this paper also employs the variable of government internal debt into a VAR model in order to present important determinants of Vietnamese inflation. The main findings of this paper include: (1) there is no significant evidence of fiscal dominance in Vietnam, (2) both fiscal and monetary policies have impact on inflation of Vietnam with the lag of four quarters, and (3) among all, lagged inflation rate and domestic debt are found to be important determinants of inflation fluctuation in Vietnam.

Based on that, some policy recommendations are provided. Firstly, the Vietnamese government should apply measures to reduce the budget deficit including reducing the fund from the state budget and public credit, reviewing and cutting inefficient investment into some state-owned enterprises, lowering the recurrent expenditures. Secondly, the government should strictly manage public debt at each step including mobilization, use of loans, debt repayment, and risk handling, continue to reduce the public debt balance, ensure timely repayment of existing debts, and avoid overdue debt, which will strengthen the national credit rating. Thirdly, the Vietnamese government should strengthen the independence of the SBV. Specifically, the SBV should have the autonomy in choosing operating tools, reconciling monetary policy goals with fiscal policy objectives in a certain period and not being under any pressure from budget spending. Fourthly, the Vietnamese government should coordinate between monetary policy and fiscal policy in order to facilitate both price stability and economic growth in the economy. Lastly, the Vietnamese government may pay more attention and have controlling measurements on the internal debt as this is found to be an important determinant of inflation of Vietnam.

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EARNINGS MANAGEMENT, BANK LOANS AND THE COST OF DEBT IN AN EMERGING COUNTRY: THE CASE OF VIETNAM

Nguyen Thi Yen Nhi* - Bui Thu Hien*

Abstract: ***The study investigates the effect of earnings management on banks' lending decisions, namely incremental bank loans and the cost of debt in Vietnam. Analyzing firm-specific data, the regression analysis is conducted using a sample of 119 non-financial listed companies on HOSE and HNX over an 11-year duration (2011-2021). The results indicate a positive, yet insignificant association between earnings management and an increase in bank loans. Regarding the impact of earnings management on the cost of debt, the results confirm a negative relationship between the two factors. However, this relationship is only statistically supported in the case of accruals-based earnings management. This means that Vietnamese banks do not detect firms' earnings-managing behaviors, uncovering a poorly designed loan management mechanism in Vietnam, resulting in high credit risk and an increasing amount of non-performing loans.***

• Keywords: *earnings management, accruals-based earnings management, real earnings management, bank lending decision, bank loans, cost of debt.*

JEL codes: G21, G24, M40, M41

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Tóm tắt: *Nghiên cứu kiểm chứng ảnh hưởng của hành vi quản trị lợi nhuận đối với quyết định về việc cho vay của ngân hàng, cụ thể là các khoản vay tăng thêm và chi phí sử dụng nợ vay tại Việt Nam. Với phương pháp phân tích hồi quy được thực hiện trên dữ liệu của 119 doanh nghiệp niêm yết phi tài chính tại Việt Nam trên hai sàn HOSE và HNX trong vòng 11 năm (2011-2021), kết quả cho thấy mối quan hệ cùng chiều nhưng không đáng kể giữa quản trị lợi nhuận và sự gia tăng của các khoản vay ngân hàng. Về ảnh hưởng của quản trị lợi nhuận và chi phí sử dụng nợ vay, kết quả phản ánh mối quan hệ ngược chiều, song chỉ đáng kể trong trường hợp quản trị lợi nhuận được tính dựa trên biến kế toán dồn tích. Những kết luận này cho thấy, hiện nay, các ngân hàng Việt Nam không phát hiện được hành vi quản trị lợi nhuận của doanh nghiệp và cơ chế quản lý khoản vay thiếu hoàn chỉnh, dẫn đến rủi ro tín dụng cao và số lượng các khoản nợ xấu tăng lên. Từ đó, nghiên cứu đề xuất một số giải pháp và khuyến nghị.*

• Từ khóa: *quản trị lợi nhuận, quản trị lợi nhuận thông qua biến kế toán dồn tích, quản trị lợi nhuận thực, cho vay ngân hàng, chi phí sử dụng vốn.*

1. Introduction

Earnings management has become a topic of much controversy over decades, given the poor information asymmetry on the capital market (Chandren, 2016; Cohen et al., 2008). On the one hand, managers handle incomes to appear more financially healthy, attracting more resources such as capital, employees, and supplies for firms' operations. This is considered efficient earnings management because it enhances firms' well-being in the long run. On the other hand, researchers criticizing earnings manipulation emphasize the potential destruction of the capital market structure through managers delivering false information and pursuing personal incentives.

External financing, especially bank financing, is a vital source of equity that determines firm performance and unfortunately encourages firms' earnings manipulation in application for favorable loans. Researchers observe income-managing behaviors in both developed and developing markets. However, due to variations in the legal environment, significant differences are spotted across types of markets. In developing markets, regulators have access to superior information, allowing them to keep up with management trends

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and take responsive actions (Kim et al., 2021; Malfrolla and D'Amico, 2017; Palumbo and Rosati, 2022; Pappas et al., 2019; Shen and Huang, 2013). As a consequence, firms manipulating income are penalized with stricter lending contract terms. Whereas, in an emerging market like China, results obtained by Cui (2020) and Li et al. (2018) reflect banks' inefficient loan management which facilitates income-managing behaviors, leading to an increase in non-performing loans as well as high credit risk.

In Vietnam, earnings quality is alarmingly low, posing a great threat to the information asymmetry in the capital market (Worldbank, 2016). Although certain improvements have been recognized, Vietnamese banks still struggle against the problems of non-performing loans and high credit risk. This requires deeper investigation into the existing loan management mechanism, especially the banking sector's awareness of earnings management. Regarding the topic of earnings management, literature in Vietnam has investigated factors determining earnings management despite the lack of reverse explorations. While drivers are examined, not much evidence has been found to answer (1) whether firms fulfill their purposes when adopting earnings management, and (2) whether involved parties are able to identify earnings manipulation to avoid harmful effects of the methods. Regarding the studies on the effects of earnings management on lending decisions, there are papers by Le and Vo (2021), as well as Vu (2022) which provide important insight that creditors of Vietnamese firms, in general, are against firms' earnings management by charging these firms with higher interest rates. However, the studies fail to concern the differences among sources of external financing, which raises questions on the applicability of the findings to distinct lending-borrowing relationships. Acknowledging the vital role of bank financing towards the firms' operations and the research gap in prior studies in Vietnam, we aim to extend the existing papers by concentrating on bank financing. In particular, the correlation between earnings management and banks' lending decisions, including incremental bank loans and the cost of debt, will be explored by regression analysis using data from 119 non-financial listed companies on the Vietnamese Stock Exchange over an 11-year period (2011-2021).

This paper is organized into 5 parts. The first part provides an overview of this paper. The second part reviews existing studies, highlighting research gaps and developing hypotheses for the study. Research models and measurement of variables are clarified in the third part. Following, the fourth part provides descriptive analysis and regression analysis along with further discussions. The study will be wrapped up by conclusions and recommendations presented in the final part.

2. Literature review and hypothesis development

To begin with, in terms of earnings management approaches, prior studies uncover two methods: accruals-based earnings management and real earnings management. While the accrual-based approach handles incomes by delaying the recognition of expenses in accrual accounts, the real one deals with operational activities. Noticeably, a study by Cohen et al. (2008) documents that firms begin to adopt real earnings management in place of accounting management due to the detection of regulators and auditors. Nonetheless, empirical research has uncovered either simultaneous or substitute use of the two approaches in different economies (Khunkaew and Qingxiang, 2019; Shah et al., 2020; Zhang, 2012). This brings us to employ both measures to examine whether Vietnamese companies use the measures alternatively or simultaneously to access beneficial lending conditions.

Literature documents that banks' competence to detect and mitigate earnings management varies among types of markets. In developed markets, banks figure out how to gain soft information to facilitate their lending decision and responsive lending conditions. Whereas banks located in emerging countries like China and Vietnam are still struggling against low earnings quality due to weak corporate governance and poor regulations.

In emerging markets, as a result of weak corporate governance and poor compliance of national accounting standards with international ones (Worldbank, 2016), banks are unable to detect earnings management, giving rise to non-performing loans (Li et al., 2018). Research by Li et al. (2018), Cui (2020), and Phung et al. (2018) claims that firms push their incomes upwards to favor their lending contract terms. Particularly, sampling Chinese companies, Cui (2020) finds that firms get more loans thanks to manipulated ROA ratios. A study by Li et al. (2018) shares the same conclusion when firms manipulating their incomes are granted more loans, with a lower interest rate. Studying energy companies in Vietnam, Phung et al. (2018) uncover a negative, but insignificant relationship between cost of debt and earnings management. This leads the authors to conclude that firms in the energy industry are unable to influence their creditors' decisions through income manipulation. Overall, the studies of emerging countries indicate that their banks are unable to identify and respond to firms' earnings management.

On the contrary, studies in developed economies conclude a negative relationship. Shen and Huang (2013) with their multi-country study emphasize how differently earnings management affects credit ranking in high- and medium-income areas. In short, banks located in high-income countries are able to facilitate their ranking with multiple sources of information. Specifically, besides financial statements as hard information, banks in matured economies also get access to soft information to issue responsive lending terms. Consequently, banks in these countries charged firms managing income with a higher interest rate. This is consistent with the findings of Mafrolla and D'Amico (2017), Pappas et al. (2017), Kim et al. (2021), Palumbo and Rosati (2022) from which earnings management is proven to be penalized with stricter lending contract terms.

According to Worldbank (2016), although actions have been taken, earnings quality in Vietnam is quite low, as a result of weaknesses in internal and external mechanisms. In terms of internal factors, Vietnam is ranked poorly for weak corporate governance which lays a harmful impact on the quality of financial information. With regard to external mechanisms, although accounting standards in Vietnam undergo certain improvements, the fact that they are not in line with international ones creates opportunities for earnings management. Besides, it is noted that the limited proficiency of users of financial statements also results in the rise of income-manipulating behaviors. Particularly, in spite of recognized improvements in the legal environment addressing non-performing loans and loan loss provisions, Vietnamese banks still struggle against poor earnings quality (Worldbank, 2016). As a consequence, loan management is not well-designed enough, triggering opportunistic behaviors of firms to gain preferable treatments. Studies by Nguyen (2021) and Phung (2020) discuss banks' overuse of financial reports. This adversely encourages firms to manage their incomes to pass banks' pre-approval evaluation for loans with low-interest rates. Besides, information asymmetry in Vietnam has been a concerning matter, especially in the magnitude of the capital market.

Combining the context of Vietnamese market with interpretations of above-discussed studies, research hypotheses are proposed as follows:

H1. Degree of earnings management positively influences increase in bank loans.

H2. Degree of earnings management negatively influences cost of debt.

H3. Banks do not detect earnings management before accepting loan application.

3. Methodology

3.1. Sampling, and data collection

Research data is mostly sourced from FiinPro platform which is a well-known software launched in 2008, and visioned as an application-based platform gathering accurate, timely, and in-depth data supporting professional analysis. Data on bank loans are collected from notes of audited financial statements. The final sample contains 1,309 firm-year observations from 119 non-financial listed companies on HOSE and HNX Exchange during a 11-year period (2011-2021).

3.2. Research model

3.2.1. Measuring accruals-based, and real earnings management

In this study, measures of two approaches are employed for multivariate regression models.

To estimate degree of accruals-based earnings management, following Modified Jones model proposed by Dechow et al. (1995), DA is computed as residuals of the model (1):

$$\frac{ACC_{it}}{TA_{it-1}} = \alpha_0 \frac{1}{TA_{t-1}} + \alpha_1 \frac{\Delta Sales_{it} - \Delta Rec_{it}}{TA_{it-1}} + \alpha_2 \frac{PPE_{it}}{TA_{it-1}} + \epsilon_{it} \quad (1)$$

Where:

DA_{it}: Measure of accruals-based earnings management based on Modified Jones model of firm *i* in year *t*

ACC_{it}: Total accruals equal change in current assets minus change in current liabilities minus depreciation of firm *i* in year *t*

TA_{it-1}: Total assets of firm *i* in year *t - 1*

$\Delta Sales_{it}$: Change in sales of firm *i* in year *t*

PPE_{it}: Property, plant, and equipment of firm *i* in year *t*

When it comes to real earnings management, based on study of Roychowdhurry (2006), abnormal costs recorded from real activities, namely expenses, production, and cash flow are estimated respectively by the three following regression models:

$$\frac{DISX_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \alpha_2 \frac{Sales_{it}}{TA_{it-1}} + \epsilon_{it} \quad (2)$$

$$\frac{PROD_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \alpha_2 \frac{Sales_{it}}{TA_{it-1}} + \alpha_3 \frac{\Delta Sales_{it}}{TA_{it-1}} + \alpha_4 \frac{\Delta Sales_{it-1}}{TA_{it-1}} + \epsilon_{it} \quad (3)$$

$$\frac{CFO_{it}}{TA_{it-1}} = \alpha_0 + \alpha_1 \frac{1}{TA_{t-1}} + \alpha_2 \frac{Sales_{it}}{TA_{it-1}} + \alpha_3 \frac{\Delta Sales_{it}}{TA_{it-1}} + \epsilon_{it} \quad (4)$$

Where:

$DISX_{it}$:Sum of research and development expense, selling expense, general and administrative expense of firm *i* in year *t*

$PROD_{it}$:Sum of cost of goods sold and change in inventory of firm *i* in year *t*

CFO_{it}: Cash flow from operations of firm *i* in year *t*

TA_{it-1}: Total assets of firm *i* in year *t - 1*

$Sales_{it}$: Sales of firm *i* in year *t*

$\Delta Sales_{it}$:Change in sales of firm *i* in year *t*

$\Delta Sales_{it-1}$: Change in sales of firm *i* in year *t-1*

After that, ABN_DISX, ABN_PROD, and ABN_CFO are estimated as residuals of the above equations. Proxy representing degree of real earnings management is acquired following Li et al. (2018) in which the level of real earnings management increases in the combination:

$$REM = -ABN\_DISX + ABN\_PROD - ABN_{CFOA} \quad (5)$$

3.2.2. Measuring banks' lending decision

In order to quantify banks' lending decision, following Le and Vo (2021), Li et al. (2018), as well as Palumbo and Rosati (2022), two proxies are used which are increase in bank loans (NLOAN), and cost of debt (COD).

$$NLOAN_{it} = \frac{Bank\ loans_{it} - Bank\ loans_{it-1}}{Total\ assets_{it}} \quad (6)$$

$$COD_{it} = \frac{Interest\ expense_{it}}{\frac{Total\ debts_{it} + Total\ debts_{it-1}}{2}} \quad (7)$$

3.2.3. Multivariate regression models

To investigate effect of earnings management on banks' lending decision, I follow multivariate models utilized by Li et al. (2018) as below:

$$NLOAN_{it} = \beta_0 + \beta_1 EM_{it-1} + \beta_2 SIZE_{it-1} + \beta_3 CFOA_{it-1} + \beta_4 GROW_{it-1} + \beta_5 LEV_{it-1} + \beta_6 ROA_{it-1} + \beta_7 IC_{it-1} + \beta_8 Z_{it-1} + \varepsilon_{it} \quad (8)$$

$$COD_{it} = \beta_0 + \beta_1 EM_{it-1} + \beta_2 SIZE_{it-1} + \beta_3 CFOA_{it-1} + \beta_4 GROW_{it-1} + \beta_5 LEV_{it-1} + \beta_6 ROA_{it-1} + \beta_7 IC_{it-1} + \beta_8 Z_{it-1} + \varepsilon_{it} \quad (9)$$

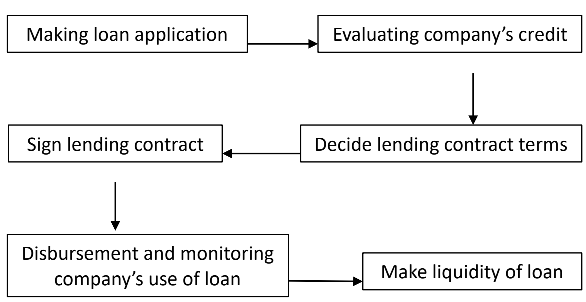
Where NLOAN and COD account for ratio of incremental bank loans, and cost of debt respectively which are representers of banks' lending decisions. EM refers to measures of accruals-based and real earnings management. To avoid potential collinearity, each measure of earnings management will be examined in separate models. Besides, all variables to the right of equal sign are computed as lagged value in order to prevent endogenous issue. Control variables are added which are suggested by previous studies (Bae et al., 2009; Cui, 2020; Hsieh and Wu, 2012; Kim et al., 2021; Li et al., 2018; Mafrolla and D'Amico, 2017; Palumbo and Rosati, 2022; Pappas et al., 2019); Shen and Huang, 2013). Computations of the variables are detailed in appendix 1.

4. Results and discussions

4.1. Loan management mechanism in Vietnam

Bank loans have become one of the major external finances that is supposed to be determinants of firms' economic survival in Vietnam. However, in such an emerging market like Vietnam, weaknesses in bank mechanism especially lending process itself give rise to the issue of non-performing loans, thus lead to higher level of credit risk.

Figure 1: Common lending process in Vietnam



Source: Dang (2022)

Many problems arise from the loan management process, questioning the efficiency and effectiveness of loan management in Vietnamese banks. In terms of pre-approval steps, inefficient planning leads to poor predictability and readiness for possible credit risk. Nguyen (2021) argues that planning is not made tactically and practicably. Instead, targets are set based on the current year's indices and the bank's future direction, rather than focusing on customer demand and management competency. Additionally, CEO assignments matter more to their plan, which uncovers a passive and inefficient planning in the loan management mechanism.

Another issue stems from information used to examine a customer's ability and trustworthiness, as Vietnamese banks still heavily depend on information provided by their customers, defined as hard information (Nguyen, 2021; Phung, 2020). This causes unbalanced information asymmetry, giving rise to non-performing loans (Tran, 2022). Besides, soft information is still regarded as a crucial input for monitoring, as banks usually conduct field examinations or require local lending. Nevertheless, those are not efficiently performed due to the shortage of professional and experienced credit staff, as well as a deficient loan management system that is overdependent on top managers (Phung, 2020).

The last problem originates from the poor design of management. Firstly, criteria and standards for assessing customers' well-being are not well-prepared, preventing credit staff from correctly evaluating firms' situations. Secondly, the monitoring role of top managers on their employees still suffers from ineffectiveness (Ngo et al., 2022). Lastly, the adoption of technologies facilitating monitoring is still in trials, which has not delivered a solution for the issue. These result in inefficient and ineffective monitoring, hindering necessary and timely actions against credit risk.

4.2. Descriptive statistics

Table 1: Descriptive statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Banks' lending decision					
NLOAN	1309	0.0339	0.2084	-0.6227	4.5326
COD	1309	0.0393	0.0250	0.0004	0.2691
Earnings management					
DA	1309	0.0000	0.2076	-0.5703	5.1585
REM	1309	0.0000	0.4398	-1.3840	9.6344
Control variables					
SIZE	1309	27.3433	1.3228	24.0294	31.3623
CFOA	1309	0.0593	0.1402	-0.6958	1.1892
GROW	1309	0.0871	0.4031	-3.4225	2.5252
LEV	1309	0.5445	0.1859	0.00391	1.2944
ROA	1309	0.0594	0.0686	-0.6455	0.3610
IC	1,309	-19.9783	115.5506	-3181.141	10.39903
Z	1309	7.1805	4.8806	-5.2171	81.8490

Source: STATA 16

Regarding variables representing banks' lending decisions, it is noticeable that firms are accepted diverse amount of loans, but charged similar interest rate. In terms of earnings management measures, all values of standard deviation are much larger than their means which illustrate remarkable fluctuation and broad distribution of data portraying firms' earnings manipulation. When it comes to control variables, as shown in variables of SIZE, LEV, and Z, sampling firms tend to depend on its liabilities to fund their operations, while healthy financial well-being of firms are spotted (Altman, 2017). With regards to remaining ratios, is noted the diversity of firms' efficiency, and profitability.

4.3. Correlation matrix

Table 4.2 presents correlation coefficients of the variables. Apart from multicollinearity of earnings management measures, all of other variables obtain correlation coefficients which are smaller than 0.8, indicating no collinearity in the regression models.

Table 2: Pairwise correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) NLOAN	1.000										
(2) COD	-0.026	1.000									
(3) DA	0.029	-0.062	1.000								
(4) REM	-0.008	-0.009	0.339	1.000							
(5) SIZE	-0.068	-0.011	0.016	-0.080	1.000						
(6) CFOA	0.048	-0.143	-0.094	-0.387	-0.058	1.000					
(7) GROW	0.004	0.076	0.190	0.029	-0.002	-0.096	1.000				
(8) LEV	-0.112	0.249	-0.091	-0.054	0.253	-0.276	0.053	1.000			
(9) ROA	0.079	-0.205	0.125	0.149	-0.052	0.253	0.231	-0.490	1.000		
(10) IC	0.016	0.174	-0.001	0.006	0.056	-0.125	-0.001	0.215	-0.182	1.000	
(11) Z	0.140	-0.244	0.115	0.087	-0.126	0.200	0.036	-0.653	0.572	-0.379	1.000

Source: STATA 16

4.4. Multivariate regression results

Multivariate regressions are conducted to investigate the impacts of earning managements, namely accruals and real approaches on banks' lending decision. Variance inflation factor values (VIF) of all independent variables are smaller than 3 indicating that multicollinearity does not exist in my regression models (Kock and Lynn, 2012).

Table 3: Variance inflation factor values of multivariate regressions

Equation	(11)		(12)	
Dependent variable	NLOAN		COD	
Independent variable	DA	REM	DA	REM
Z	2.27	2.27	2.27	2.27
LEV	2.02	2.01	2.02	2.01
ROA	1.74	1.83	1.74	1.83
IC	1.18	1.18	1.18	1.18
CFOA	1.15	1.42	1.15	1.42
GROW	1.15	1.13	1.15	1.13
SIZE	1.08	1.09	1.08	1.09
EM	1.07	1.30	1.07	1.30
Mean VIF	1.46	1.53	1.46	1.543

Source: STATA 16

Table 4: Multivariate regression results of equation 8 on the impacts of earnings management on change in bank loans

	DA			REM		
	OLS	FEM	REM	OLS	FEM	REM
EM	0.0144	0.0239	0.0144	-0.0098	0.0109	-0.0098
	(0.6111)	(0.4178)	(0.6110)	(0.5047)	(0.5097)	(0.5046)
Control variables						
SIZE	-0.0078	-0.0567***	-0.0078	-0.0079	-0.0547***	-0.0079
	(0.0835)	(0.0000)	(0.0832)	(0.0771)	(0.0001)	(0.0769)
CFOA	0.0380	0.1017*	0.0380	0.0208	0.1167*	0.0208
	(0.3824)	(0.0250)	(0.3823)	(0.6677)	(0.0256)	(0.6676)
GROW	0.0012	-0.0026	0.0012	0.0016	0.0002	0.0016
	(0.9384)	(0.8638)	(0.9384)	(0.9147)	(0.9886)	(0.9147)
LEV	-0.0146	-0.3229***	-0.0146	-0.0164	-0.3240***	-0.0164
	(0.7382)	(0.0000)	(0.7382)	(0.7057)	(0.0000)	(0.7056)
ROA	-0.0425	0.0679	-0.0425	-0.0237	0.0645	-0.0237
	(0.6979)	(0.6068)	(0.6979)	(0.8328)	(0.6274)	(0.8328)
IC	0.0001**	0.0001	0.0001**	0.0002**	0.0001	0.0002**
	(0.0055)	(0.0551)	(0.0054)	(0.0051)	(0.0523)	(0.0050)
Z	0.0068***	0.0080***	0.0068***	0.0068***	0.0082***	0.0068***
	(0.0001)	(0.0005)	(0.0001)	(0.0001)	(0.0004)	(0.0001)
_cons	0.2086	1.6938***	0.2086	0.2144	1.6386***	0.2144
	(0.0836)	(0.0000)	(0.0833)	(0.0765)	(0.0000)	(0.0763)
N	1309	1309	1309	1309	1309	1309
R^2	0.0290	0.1062	0.0631	0.0291	0.1061	0.0622
F-test		0.0000			0.0000	
Breusch and Pagan test		0.0000			0.0000	
Hausman test		0.0000			0.0000	

, **, * denote significance at 0.1, 0.05, 0.01; Source: STATA 16*

Table 5: Multivariate regression results of equation 9 on the impact of earnings management on cost of debt

	DA			REM		
	OLS	FEM	REM	OLS	FEM	REM
EM	-0.0066*	-0.0066*	-0.0078**	-0.0008	-0.0021	-0.0019
	(0.0452)	(0.0202)	(0.0067)	(0.6462)	(0.1818)	(0.2403)
Control variables						
SIZE	-0.0012*	-0.0104***	-0.0043***	-0.0013*	-0.0109***	-0.0045***
	(0.0168)	(0.0000)	(0.0000)	(0.0124)	(0.0000)	(0.0000)
CFOA	-0.0103*	-0.0142**	-0.0138**	-0.0103	-0.0169***	-0.0158**
	(0.0408)	(0.0013)	(0.0018)	(0.0665)	(0.0009)	(0.0018)
GROW	0.0060***	0.0050***	0.0055***	0.0053**	0.0043**	0.0047**
	(0.0007)	(0.0006)	(0.0002)	(0.0022)	(0.0031)	(0.0014)
LEV	0.0182***	0.0322***	0.0250***	0.0187***	0.0323***	0.0250***
	(0.0003)	(0.0000)	(0.0001)	(0.0002)	(0.0000)	(0.0001)
ROA	-0.0327**	0.0109	-0.0001	-0.0322*	0.0109	0.0001
	(0.0097)	(0.3948)	(0.9950)	(0.0132)	(0.4003)	(0.9963)
IC	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***	0.0000***
	(0.0003)	(0.0003)	(0.0002)	(0.0004)	(0.0004)	(0.0002)
Z	-0.0003	-0.0000	-0.0001	-0.0003	-0.0001	-0.0001
	(0.1306)	(0.9573)	(0.6118)	(0.1078)	(0.8082)	(0.4878)
_cons	0.0679***	0.3063***	0.1448***	0.0695***	0.3205***	0.1517***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
N	1309	1309	1309	1309	1309	1309
R^2	0.1041	0.0997	0.0827	0.1015	0.0969	0.0787
F-test		0.0000			0.0000	
Breusch and Pagan test		0.0000			0.0000	
Hausman test		0.0000			0.0000	

, **, * denote significance at 0.1, 0.05, 0.01; Source: STATA 16*

Rejecting H1, the results demonstrate the positive, yet, insignificant impact of earnings management on change in reported bank loans. Consistent with findings of Li et al. (2018), Cui (2020), and Palumbo and Rosati (2022), positive associations are withdrawn between DA, as well as REM and change in bank loans with the estimated coefficients at 0.0239, and 0.0109. Coefficient value of DA is slightly higher than REM's which indicates that banks likely perceive real earnings management more detrimental than accruals one. Mainly, it can be concluded that firms manage income upward to appear more profitable so that more bank financing can be obtained.

With regard to cost of debt, similar to findings of Li et al. (2018), it is noted that Vietnamese banks also ignore earnings management when deciding interest rate incurred by firms. Particularly, both earnings management variables are negatively correlated with COD. However, the correlation is only significant in the presence of accruals-based earnings management, partly confirming H2. This means that accounting manipulation is a popular choice which guarantees firms to apply for bank loans with lower cost. Furthermore, this finding is also opposite to that of studies of Le and Vo (2021), and Vu (2022) on cost of all external debts. In other words, although creditors in Vietnam generally perceive earnings management as detrimental, this interpretation is not fixed across different types of creditors.

Regarding control variables, significant roles of SIZE, CFOA, LEV, and Z towards the relationship between earnings management, and incremental bank loans are obtained. When it comes to the impact on COD, it is clarified that SIZE, CFOA, GROW, LEV, and IC are all relevant to the interaction between earnings management and cost of debt. Coefficients of SIZE are all negative which states that banks tend to allocate larger loans with lower cost to small firms compared to large ones. On the contrary, while high CFOA secure more loans offered, it is usually attached with higher interest rate. In terms of GROW, it is suggested that profitable firms are more likely charged higher interest rate. Furthermore, coefficient values of LEV are opposite in both examining models. Specifically, while higher leverage prevents firm to apply for new loan, it also decrease the cost that firms are contracted to acquire. This means that banks tend to avoid granting loans for firms with high level of debt. Nevertheless, if an application is accepted, firms are likely granted low degree of interest which encourages constant cash flow. Concerning interest coverage, the results reveal the positive association between IC and COD, however combined with almost zero coefficient values. In other words, firms' ability to pay interest matter in banks' lending decision, yet is not a critical determinant. Finally, the regression analysis also argues that ignorance on earnings management may result in high credit risk which is uncovered by coefficient values of Z. Particularly, high level of firms' financial constraints is positively associated with increase in bank loan size with statistical power.

All in all, the results provide evidence for weak correlation between earnings management and banks' lending decision. Only significant effect of accruals-based earnings management on cost of debt is revealed. Besides, it is also claimed that Vietnamese banks do not identify earnings management behaviours before granting loans which is consistent with prediction of H3. Last but not least, the results also suggests a simultaneuous use of both accruals-based, and real earnings management in Vietnam. This confirms previous findings of studies sampling in other emerging markets (Zang, 2012). In particular, in these markets, accruals-based earnings management are not dectected and thus, not effectively tackled. Whereas, the launch of new approach which is real one also promise more favorable treatments which lead to a simultanenous adoption of both approaches among firms in these countries.

5. Conclusions and recommendations

5.1. Conclusions

The findings provide evidence supporting a common lending-borrowing scenario in emerging economies, wherein earnings management is adopted for favorable loan contract terms. Consistent with studies in emerging markets (Cui, 2020; Li et al., 2018; Palumbo and Rosati, 2022; Phung et al., 2018), this study also observes that firms managing their income are granted more loans and incur lower costs of debt. However, it is unable to strengthen most of the findings with statistical power, except for the relationship between accruals-based earnings management and the cost of debt. Furthermore, it is found that Vietnamese banks do not detect either approach of earnings management before finalizing lending decisions, explaining their high proportion of non-performing loans and a high level of credit risk.

Moreover, in comparison with prior studies sampling Vietnamese companies exploring how earnings management can influence the general cost of debts (Le and Vo, 2011; Vu, 2022), we obtain contrasting results. This means that, in general, creditors of Vietnamese firms view earnings management as detrimental behavior. However, the finding is not fixed in the case of bank financing, while banks are proven not to be against income-manipulating behaviors, thus accepting beneficial lending conditions.

Lastly, the results also suggest a simultaneous use of both accruals-based and real earnings management among Vietnamese firms. This is because the accruals-based method has not been identified and effectively mitigated by responsible agencies, there is no need to give up on the method. Besides, the effectiveness of real earnings management is also proven. Thus, instead of shifting from the traditional approach to the newly-introduced one, Vietnamese firms adopt both approaches simultaneously.

5.2. Recommendations

5.2.1. Recommendations for banks

Provided that bank is an essential component in lending-borrowing scenario, strengthening bank efficiency is a plausible solution for the problem of high credit risk, and non-performing loans. In the very first step, banks should enhance their competency in evaluating customer profile through specializing assessment criteria, as well as diversifying information sources. Specifically, criteria based on which customers are assessed must be clearly provided. Furthermore, banks are advised to improve the quality of their monitoring by enhancing employee competence, and flexibility in monitoring, and detecting opportunistics behaviors. Last but not least, Vietnamese banks should pay attention to borrowers' income-managing behaviours when they apply for loans. Specifically, we would like to suggest an addition to current lending process with a earnings management-detecting step once a loan request is delivered.

5.2.2. Recommendation for Vietnamese government, and regulators

Besides banks, government, and regulators also pose significant impacts on lending activities. In developed economies, bank efficiency is facilitated with the launch of national database. This database collects and present all financial data, non-financial data, and default information so that banks, and other involved institutions can access and gain input for their decision-making process. This helps to balance information asymmetry between firms and their stakeholders which resultedly ensure sustainable collaborations.

5.2.3. Recommendation for Vietnamese listed companies

As for listed companies in Vietnam, they should be aware that earnings management is a trade off between risk, and opportunities. On the one hand, in the view of efficient management, the method can help to attract necessary resources for operations which boosts their profitability, and efficiency. On the other hand, providing untrue information of their current situation could triggers potential risks. Specifically, stakeholders especially banks who are users of financial reports may become victims of accounting deception. As a consequence, they are unable to estimate risk, as well as to respond to underlying problems which lead to poor returns, and conflicts with managers.

5.3. Limitations and future research directions

This study acknowledges its limitations. Firstly, due to difficulties in accessing to data relating to bank loans, the size of research sample is quite small compared to studies on the same topic. This limits statistical power of the findings. Secondly, the study has not considered potential endogeneity problem arising from the interaction between earnings management, and banks' lending decision.

Despite its certain limitations, the study provides important basis for future research directions. To begin with, further investigation may be specilized on types of bank loans. Besides, more lending contract terms could be added to explorations such as collateral requirements, loan spread, etc. Lastly, discovery on mediating effects of ownership structure, or marketization degree, etc. towards the relationship of earnings management, and banks' lending decision is also worth being carried out.

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THE EFFECT OF TOURISTS' VALUE CO-CREATION BEHAVIOR ON BRAND EQUITY

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Abstract: ***This paper presents a study on the influence of tourists' value co-creation behavior on brand equity. Quantitative research was conducted with tourism enterprises in Hanoi, including reliability analysis, exploratory factor analysis, measurement model analysis, and structural model analysis. The research results show that value co-creation behavior, including both value co-creation participation behavior and value creation citizenship behavior of tourists, has a positive influence on brand equity. This influence encompasses three aspects of brand equity: brand awareness, satisfaction, and loyalty. These results provide empirical evidence to support social exchange theory and the service-oriented perspective, while also offering useful information for tourism managers, in particular, and managers in general, to promote tourism and enhance brand equity for businesses.***

• Keywords: *brand equity, co-creation, tourists, value co-creation, value co-creation behavior.*

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Tóm tắt: *Bài viết này trình bày một nghiên cứu về ảnh hưởng của hành vi đồng sáng tạo giá trị của khách du lịch đến giá trị thương hiệu. Nghiên cứu định lượng được thực hiện với các doanh nghiệp du lịch tại Hà Nội, bao gồm phân tích độ tin cậy, phân tích nhân tố khám phá, phân tích mô hình đo lường và phân tích mô hình cấu trúc. Kết quả nghiên cứu cho thấy hành vi đồng sáng tạo giá trị, bao gồm cả hành vi tham gia đồng sáng tạo giá trị và hành vi công dân tạo ra giá trị của khách du lịch, có tác động tích cực đến giá trị thương hiệu. Ảnh hưởng này bao gồm ba khía cạnh của giá trị thương hiệu: nhận thức về thương hiệu, sự hài lòng và lòng trung thành. Những kết quả này cung cấp bằng chứng thực nghiệm hỗ trợ cho lý thuyết trao đổi xã hội và quan điểm hướng tới dịch vụ, đồng thời cung cấp thông tin hữu ích cho các nhà quản lý du lịch nói riêng và các nhà quản lý nói chung nhằm quảng bá du lịch và nâng cao giá trị thương hiệu cho doanh nghiệp.*

• Từ khóa: *giá trị thương hiệu, đồng sáng tạo, khách du lịch, đồng sáng tạo giá trị, hành vi đồng sáng tạo giá trị.*

1. Introduction

Since value co-creation was first introduced by Normann and Ramirez (1993), it has received attention from many authors in different aspects. Vargo and Lusch (2004) introduced the Service Dominant Logic (SDL) which was a basis for a better understanding of value co-creation. SDL presents the fundamentals of value co-creation in services. According to SDL, customers are considered an active resource, participating in the value creation process, and should be able to affect the available resources of enterprises (Solakis et al., 2022). Based on SDL, customer-to-customer co-creation has also received attention, Finsterwalder and Tuzovic (2010) pointed out that if a customer does not contribute properly, it can lead to an incomplete service experience for others. In the tourism sector, the characteristics of simultaneous production and consumption make the role of value co-creation more important. Binkhorst (2006) is one of the first authors researching co-creation in tourism, who believed that tourists as innovation partners have not been emphasized in the designing, reporting experience, and evaluating innovation. However, recent studies have recognized the significance of co-creation in tourism, emphasizing the important role of tourists in creating experiences. Tourists are co-creators of experiences and therefore co-creators of value (Antón et al., 2018).

According to SDL, co-creation helps enterprises maximize the lifetime value of desirable consumers (Payne et al., 2008). Value co-creation can improve the process of identifying customer needs (Lusch and Vargo, 2006), develop new products (Alves et al., 2016), establish valuable relationships with

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customers (Füller and Bilgram, 2017), bring revenue and profits to enterprises (Payne et al., 2008). In particular, literature research shows that brand equity is the result of value co-creation. In the case of travel enterprises in Vietnam, the role of tourists in building brand equity through value co-creation behavior has not received much attention. This study will clarify the role of customer value co-creation behavior in the brand equity of tourism enterprises, therefore, provide some solution implications.

2. Literature Review and Research Hypotheses Development

2.1. Brand Equity

Aaker (1991, 15) defines customer-based brand equity as 'a set of brand assets and liabilities linked to a brand, its name, and symbol, that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers'. In this study, brand equity is considered including 3 elements: brand awareness, customer satisfaction, and loyalty.

Brand awareness refers to the strength of a brand presence in the minds of customers (Mishra and Datta, 2011). Keller (1993) believed that brand awareness includes two components which are brand recognition and brand recall. Ha and Perks (2005) believe that brand awareness is reflected in the intimacy of the brand; customers feel familiar with the enterprise and its products. One of the basic elements of brand awareness is the ability of customers to recognize the brand (Aaker, 1991; Jr.William Perreault, 2011; Keller, 1993). The identifying signs of the brand, the enterprise, and its products demonstrate brand awareness (Aaker, 1991; Jr.William Perreault, 2011; Keller, 1993). According to Jr.William Perreault (2011), brand awareness is also expressed in brand differences: customers can recognize the difference between the enterprise among competitors in the market and its brand in the list of competing brands. Jr.William Perreault (2011) also insisted that brand awareness affects customer decisions; the information customers receive will impact their buying behavior.

Satisfaction is a customer's feelings toward a brand based on contact and use of its products (Bitner, 1994). Satisfaction is measured through customer satisfaction because what they feel when using the service meets or exceeds their expectations (Reid, 2003). Hennig-Thurau (2004) argued that customer satisfaction is reflected in the fact that customers are fully satisfied with the enterprise, their expectations are met, they have never been disappointed with the enterprise, and their experiences with the enterprise are great.

Loyalty to a brand is the result of a series of strong emotions between the customer and the brand. Aaker (1991) arranged the levels of brand loyalty in a pyramid with five levels, in which loyal customers consider the brand as a friend, use and reuse, are associated with the brand, proud of and recommend the brand to others. Reichheld and Sasser (1990) argued that customer loyalty is demonstrated by the willingness to repurchase brand's products despite the existence of attractive alternatives. In the service sector, many authors believe that loyalty is expressed through customers considering a business as their first choice when compared to other brands (Mattila, 2001). About brand loyalty, Zeithaml et al. (1996) emphasized that customers encourage their friends and relatives to use the brand's products.

2.2. Value co-creation behavior and tourists' value co-creation behavior

The concept of value co-creation was first proposed by Normann and Ramirez (1993). Normann and Ramirez (1993) believed that value is created based on the interaction between enterprises and customers. Since then, value co-creation has been recognized and researched by many authors. Based on SDL, Vargo and Lusch (2016) argued that service and engagement are fundamental to realizing value for enterprises and customers. According to SDL, customers are considered an active resource participating in the value creation process, with collaboration and reciprocity between enterprises and customers at every stage of the value creation process (Vargo and Lusch, 2016). The value co-creation approach based on SDL has received the approval of many authors. Payne et al. (2008) argued that value co-creation is a process of exchanging resources and creating value together. Hoyer et al. (2010) identified co-creation as product development cooperation between customers and enterprises. Chathoth et al. (2013) argued that co-creation is the customization of a product with a high degree of customer collaboration for innovation. In the tourism sector, value co-creation is defined as "the tourist's interest in mental and physical participation in an activity and its role in tourist experiences" (Prebensen et al., 2016).

Early studies examined value co-creation based on the perspectives of expression and value production processes (Ranjan and Read, 2016), while recent studies focus on the different roles of customers in value co-creation activities (Yi and Gong, 2013), value co-creation behavior receives attention. While value co-creation is a holistic and abstract concept, value co-creation behavior is a specific, measurable concept that describes how customers perform their role, and behaviors as cocreators in the value co-creation relationship (Laud & Karpen, 2017). Yi and Gong (2013) developed a scale to measure the value co-creation behavior of customers approaching SDL, whereby value co-creation includes value co-creation participation behavior and value co-creation citizenship behavior.

Value co-creation participation behavior is behavior in which the customer's role is a prerequisite to service provision, customers participate in the value creation process and create successful services (Yi et al., 2011). Value co-creation participation behavior includes: "information seeking" which helps customers understand how to perform their role as value co-creators in the service delivery process; "information sharing" helps enterprise's employees complete their tasks; "responsible behavior" is cooperation and following instructions and rules during service use to successfully implement value co-creation; "personal interaction" demonstrates friendliness, kindness, and respect to hotel staff (Yi and Gong, 2013).

Value co-creation citizenship behavior brings superior value to enterprises but is not mandatory, it is a voluntary behavior, exceeding expectations about the customer's role in service provision (Yi and Gong, 2013). Value co-creation citizenship behavior includes: "feedback" is information and suggestions which are provided by customers to improve services; "advocacy" refers to positive word of mouth when customers recommend enterprises to relatives, friends, and others; "helping" represents customers helping other customers; "Tolerance" is the tendency for customers to accept if services are not provided as expected or errors occur (Yi and Gong, 2013).

2.3. The impact of tourists' value co-creation behavior on brand equity

Social exchange theory and SDL are used for this research. Social exchange theory was first introduced by Homans (1958), according to which social exchange is the exchange of activities, tangible or intangible, and more or less beneficial or costly between two people at most. The proposition of social exchange theory applied in value co-creation studies is the success proposition, whereby success includes rewards given throughout the interaction process to encourage value co-creation participation (Frooghi and Rashidi, 2019). According to the SDL approach, enterprises cannot provide value to customers unless customers actively participate in co-creating value (Vargo and Lusch, 2004). The interaction and relationship between businesses and customers is at the heart of the co-creation process to create value, not only that, customers can also co-create by influencing other customers (Payne et al., 2008).

Based on these theories, co-creation emphasizes the important role of customers in co-creating brand equity (Vargo and Lusch, 2004). Brand equity is only realized or co-created when customers experience the brand (Merz et al., 2009). In the tourism sector, studies on the effect of tourists' value co-creation behavior on brand equity have been studied, however, the effects of each aspect of brand equity (including brand awareness, satisfaction, and loyalty) and the combined effect on brand equity have not been focused and clarified. Therefore, the following hypotheses are proposed:

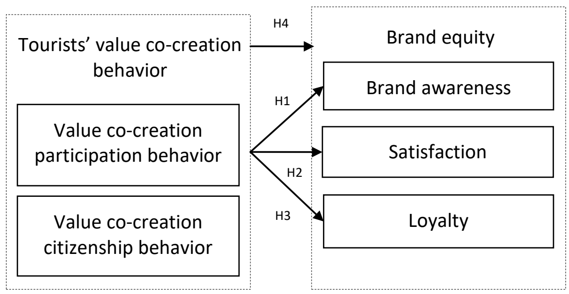
H1: Tourists' value co-creation behavior is positively associated with brand awareness.

H2: Tourists' value co-creation behavior is positively associated with customer satisfaction.

H3: Tourists' value co-creation behavior is positively associated with brand loyalty.

H4: Tourists' value co-creation behavior is positively associated with brand equity.

Fig.1: The proposed conceptual model



3. Research methodology

3.1. Research context and data collection

The research was conducted with travel enterprises in Hanoi. Creating and affirming a brand plays an important role in the development of travel enterprises, especially in the context of the industry's recovery after the COVID-19 pandemic. The objects of the investigation are customers who have used services of travel enterprises in Hanoi. The sample size is determined according to Hair (2009) based on the ratio of observations/observed variables (5:1) and Tabachnick et al. (2007) based on the number of variables in the model (> 50 + 8m, m is the number of variables). Accordingly, 600 questionnaires were distributed, and 423 responses were collected, of which 394 were valid, reaching a rate of 65.67%. The 5-point Likert scale was used for all scales.

Quantitative research was conducted including scale reliability analysis and exploratory factor analysis (using SPSS 21 software), confirmatory factor analysis, and structural model analysis (using AMOS software 21).

3.2. Measurement

Value co-creation behavior is a second-order factor measured through value co-creation participation behavior and value co-creation citizenship behavior, developed based on the scale of Yi and Gong (2013). Accordingly, the value co-creation participation behavior is expressed through tourists asking others for information about the enterprise, providing necessary information so that employees perform their duties; follow employees' directives or orders; friendly to the employees (Yi and Gong, 2013). Meanwhile, value co-creation citizenship behavior is expressed through commenting tourists receive good service, recommending the enterprise to others, assisting other tourists if they need help, willing to put up if the service is not provided as expected.

Brand awareness was measured based on the scale development of Ha and Perks (2005); Aaker (1991); Jr.William Perreault (2011); Keller (1993), Foroudi et al. (2014). Accordingly, brand awareness is expressed through: finding the enterprise very familiar and close; recognizing the enterprise and its services; finding the enterprise's brand and services memorable; easily recalling the enterprise and its services; seeing the enterprise as different from others; recognizing a enterprise is one of the factors that make tourists choose it.

Satisfaction was measured on the basis of scale development of Hennig-Thurau (2004): tourists are completely satisfied with the enterprise, the enterprise always meets customers' expectations, the enterprise has never disappointed customers, experience of customers was excellent.

Loyalty is measured based on the scale development of Aaker (1991) and Zeithaml et al. (1996): customers will continue to use the enterprise's services in the future, the enterprise is their first choice among travel companies, customers encourage friends and relatives to use the enterprise's services.

4. Research results

The reliability analysis result shows that item-total correlation coefficients of observed variables BA5, BA6 < 0.3, which do not meet the requirements and should be deleted. After that, Cronbach's alpha coefficient of brand awareness is 0.810 (> 0.7), item-total correlation coefficients of all observed variables are > 0.3, which meet the requirements (Table 1). Cronbach's alpha coefficients of value co-creation participation behavior, value co-creation citizenship behavior, satisfaction, and loyalty > 0.7; the total correlation coefficients of all observed variables are > 0.3 (Table 1).

Table 1: Cronbach's alpha and factor loading

Items	Cronbach's Alpha	Item-Total Correlation	Factor Loading
VCPB	***0.868***		
VCPB1		0.599	0.575
VCPB2		0.787	0.899
VCPB3		0.733	0.732
VCPB4		0.772	0.840
VCCB	***0.846***		
VCCB1		0.644	0.686
VCCB2		0.722	0.788
VCCB3		0.714	0.716
VCCB4		0.652	0.711
BA	***0.810***		
BA1		0.679	0.739
BA2		0.533	0.508
BA3		0.727	0.917
BA4		0.578	0.686
SAT	***0.802***		
SAT1		0.651	0.790
SAT2		0.591	0.603
SAT3		0.657	0.788
SAT4		0.570	0.647
LOY	***0.816***		
LOY1		0.719	0.987
LOY2		0.670	0.670
LOY3		0.621	0.577

Source: Research results

The EFA result obtained the component rotation matrix results with loading factors according to Table 1. KMO coefficient is 0.828 > 0.5. Sig of Barlett test is 0.000 < 0.05, which proves observed variables are correlated with each other. The total variance is 68.813 > 50% and the eigenvalue is 1.111 > 1, which means the model is appropriate. Factor loadings of all factors are > 0.5, which shows a good correlation relationship between observed variables and factors (Hair, 2009). The rotated matrix has stabilized, and 19 observed variables are group into 5 factors (Table 1).

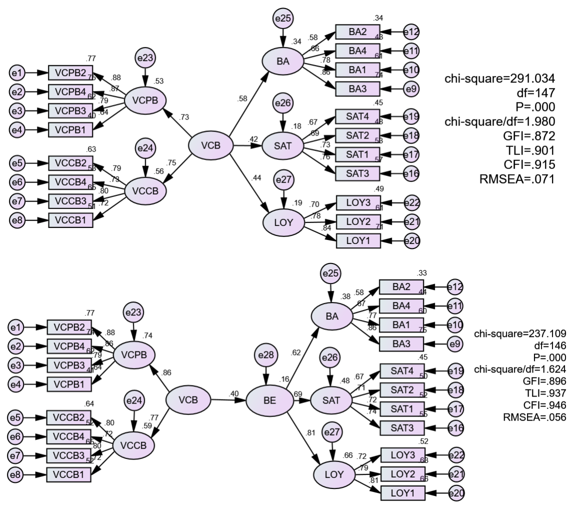
The CFA result of model 1 shows that the indicators meet the requirements: P-value of Chi-square is 0; CMIN/df is 1.559 < 2; CFI is 0.952 > 0.9; GFI is 0.901 > 0.9; RMSEA is 0.053 < 0.08. The standardized loading coefficients of all variables are > 0.05. Indices of Convergent validity and discriminant validity analysis: all factors have CR > 0.7; AVE > 0.5; MSV < AVE and SQRTAVE were larger than the correlations between constructs (Table 2). The CFA result of model 2 shows that the indicators meet the requirements: P-value of chi-square is 0; CMIN/df is 1.624 < 2; CFI is 0.946 > 0.9; GFI is 0.896 > 0.8; RMSEA is 0.056 < 0.08. The standardized loading coefficients of all variables are > 0.05. As the results of CFA, two research models are appropriate for the data.

Table 2: Convergent validity, and discriminant validity of measurement model

	CR	AVE	MSV	MaxR(H)	SAT	BA	VCB	LOY
SAT	0.804	0.507	0.359	0.807	0.712			
BA	0.815	0.530	0.253	0.848	0.367	0.728		
VCB	0.801	0.670	0.207	0.828	0.230	0.455	0.818	
LOY	0.819	0.603	0.359	0.824	0.599	0.503	0.229	0.776

Source: Research results

Fig. 2: Structural Model



Source: Research results

The result of the structural model analysis of model 1: P-value is 0; CMIN/df is 1.980 < 2; GFI is 0.872 > 0.8; CFI is 0.915 > 0.9; RMSEA is 0.071 < 0.08. The result of Structural model analysis of model 1: P-value is 0; CMIN/df = 1.624 < 2; GFI = 0.896 > 0.8; CFI = 0.946 > 0.9; RMSEA = 0.056 < 0.08. That means two models are suitable for the survey data (Figure 2).

Value co-creation behavior directly and positively affects brand awareness at the 1% significance level with β = 0.579; directly and positively affects satisfaction at the 1% significance level with β = 0.419; directly and positively affects loyalty at the 1% significance level with β = 0.439. Hypotheses H1, H2, and H3 are supported (Table 3). Overall, value co-creation behavior directly and positively affects brand equity at the 1% significance level with β = 0.403. Hypothesis H4 is supported (Table 3).

Table 3. Summary of results from the SEM models

Relationships		Regression	Standardized regression	P-value	Conclusion
VCB	→ BA	0.688	0.579	0.000	Supported
VCB	→ SAT	0.420	0.419	0.000	Supported
VCB	→ LOY	0.426	0.439	0.000	Supported
VCB	→ BE	0.253	0.403	0.002	Supported

Source: Research results

5. Discussion

Based on social exchange theory and SDL, the study suggests that tourists' value co-creation behavior directly and positively affects brand equity. Findings from the study are reinforced social exchange theory, SDL and consistent with the results of many previous studies. Omar et al. (2020) demonstrated that co-creation participation behavior and co-creation citizenship behavior have a positive influence on brand equity.

Research result shows that tourists' co-creation behavior positively affects customer satisfaction, which is consistent with previous studies. Hunt et al. (2012) demonstrated that engaging in value co-creation has a positive and significant impact on customer satisfaction. Navarro et al. (2016) found that customers are more likely to be satisfied if there is feedback, advocacy, help, and tolerance. Cheung and To (2016) point out that the new knowledge and skills that customers gain from co-creation enhance their competence and self-esteem and thus lead to satisfaction.

The study has demonstrated a positive relationship between value co-creation behavior to loyalty, that is consistent with the results of previous studies by Nysveen and Pedersen (2014), Cossío-Silva et al. (2016), Kaufmann et al. (2016), Hajli et al. (2017)… In particular, research in the tourism sector by Polo Pena et al. (2014) has demonstrated that tourists' participation in co-creation creates a positive effect on their loyalty.

The result of this research are new compared to previous studies in demonstrating the positive effect of tourists' value co-creation behavior on each component of brand equity (including brand awareness, satisfaction, and loyalty) as well as the overall effect on brand equity. The tourists' value co-creation behavior has the strongest effect on brand awareness, which is also a new point in the research. Thus, tourists' participation and tourists' citizenship behavior in value co-creation activities help travel enterprises increase brand awareness, satisfaction, and loyalty in which brand awareness is the most enhanced aspect.

6. Conclusion and Implications

The study evaluates the effect of tourists' value co-creation behavior on brand equity. Results from reliability analysis, EFA, CFA, and SEM using survey data from 394 customers of travel enterprises in Hanoi supported the hypotheses. The study provides evidence supporting social exchange theory and SDL by demonstrating the positive effect of value co-creation behavior on brand equity. Both value co-creation participation behavior and value co-creation citizenship behavior of tourists play important roles in increasing brand awareness, customer satisfaction, and loyalty, thereby enhancing brand equity.

Based on these results, the study proposes implications for travel enterprises' managers to increase brand equity through tourists' value co-creation behavior. Travel enterprises need to facilitate tourists' value co-creation behavior, encompassing both participation and citizenship. To enhance tourists' value co-creation behavior, travel enterprises should provide adequate information to tourists about themselves and their services, train staff in exploiting tourist information, guide tourists, and maintain a proper and friendly attitude towards guests. Additionally, enterprises can enhance tourists' value co-creation behavior by creating favorable conditions for responses through various information channels, establishing customer and community groups for sharing and mutual assistance, and implementing solutions for service errors.

This study leaves gaps for future research. The research was conducted with travel enterprises in Hanoi, so it is necessary to explore other types of enterprises in the tourism sector or different sectors to provide more evidence confirming the relationship between these factors. Although this research primarily focuses on studying the effect of value co-creation behavior on brand equity, there are still many factors that affect or regulate this relationship that have not been studied, such as company support for co-creation, information and communication technology, etc. These issues can be considered in future research.

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FACTORS AFFECTING THE LEARNING CAPACITY OF ACCOUNTING STUDENTS AT EAST ASIA UNIVERSITY OF TECHNOLOGY

Nguyen Thi Mai Anh*

Abstract: ***This study aimed to identify the factors influencing the learning capacity of accounting students. The survey subjects were accounting students at East Asia University of Technology. We employed quantitative research methods, utilizing SPSS software for reliability analysis, factor analysis, correlation analysis, and regression analysis. The research revealed seven factors affecting students' learning capacity. Based on these results, the study proposes recommendations to enhance learning capacity for students. This will assist students, managers, and lecturers in researching and discovering new methods to improve the quality of teaching and training, both in universities in general and specifically at East Asia University of Technology.***

• Keywords: *factors; learning capacity; student, university.*

JEL codes: M4; M49

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Tóm tắt: *Nghiên cứu này được thực hiện với mục đích tìm hiểu các nhân tố ảnh hưởng đến năng lực học tập của sinh viên. Đối tượng khảo sát là sinh viên ngành kế toán trường Đại học Công nghệ Đông Á. Tác giả sử dụng phương pháp nghiên cứu định lượng được thực hiện trên phần mềm SPSS, bao gồm phân tích độ tin cậy, phân tích nhân tố, phân tích tương quan và phân tích hồi quy. Kết quả nghiên cứu cho thấy có 7 nhân tố ảnh hưởng đến năng lực học tập của sinh viên ngành kế toán. Dựa trên kết quả này, nghiên cứu đề xuất một số khuyến nghị nhằm nâng cao năng lực học tập của sinh viên. Điều này giúp nhà trường, giảng viên nghiên cứu tìm ra những hướng đi mới nhằm nâng cao chất lượng giảng dạy và đào tạo ở các trường đại học nói chung và trường Đại học Công nghệ Đông Á nói riêng.*

• Từ khóa: *nhân tố; năng lực học tập; sinh viên; đại học.*

1. Introduction

Learning capacity is both the goal of the educational process and the outcome of the teaching process. Developing learning capacity and assessing learning outcomes based on capacity have become educational innovation trends in many countries worldwide. In Vietnam, amid the ongoing fundamental and comprehensive education reforms, there is a special focus on developing learners' capacity, particularly in the teaching process, signifying a groundbreaking approach.

Human capacity is in constant motion and development through training, study, practice, and practical experience, requiring continuous nurturing and tireless effort based on various factors. These elements, including knowledge, skills, attitudes, and personal qualities acquired from school, as well as external factors such as family, teachers, friends, and society, are used appropriately to impact learners' development. This impact intensifies with the advent of digital transformation in education.

Research results from various authors, along with reports from organizations and associations worldwide (European Union, UNESCO, Partnership for 21st Century Learning), emphasize that, in addition to professional qualifications and vocational skills, students need essential skills such as life skills, information technology skills, and foreign languages to integrate and succeed in the 4.0 technology era. While many authors focus on reviewing the constituent components of learning capacity and specific aspects like vocational and academic skills, practice, attitudes, and learning behavior, few have considered the influence of factors on students' learning ability.

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To address this gap, the authors chose the topic "Research on Factors Affecting Students' Learning Capacity" for this study. Due to time constraints, the scope and subjects of this research are students at East Asia University of Technology.

2. Literature review

Based on the results of previous studies, the authors systematized 7 factors that affect the students' learning capacity, including:

Training program: Many studies have proven that training programs have an impact on learners' capacity. Because the training program equips learners with knowledge, skills and attitudes appropriate to the chosen major (Nguyen Thanh Son, 2014). Williams et al (2011) emphasized that training programs provide students with tools that they can apply to their lives now and in the future. Satisfaction with the training major and the content of the subjects will help students have more passion and desire to explore new things, and therefore will inevitably lead to good learning results. In particular, in the Knowledge Economy, under the impact of information technology, the training programs of many educational institutions have been designed based on learners' abilities and society's needs (Jenkins, 1994). This contributes to improving the quality of education (Hall & Jones, 1976) and learners' academic achievement (Anema & McCoy, 2010).

Hypothesis H1: Education program has a positive influence on the students' learning capacity

Facilities and teaching equipment: When studying the relationship between facilities and teaching and learning activities, Mayama (2012) discovered that facilities have an impact on learning outcomes of students. If the learning environment is fully equipped with facilities such as classrooms, laboratories, and learning materials, it will contribute to improving the learning quality of learners. Besides, Thuy Dung and Thuc Anh (2012) also showed that good learning conditions, curriculum materials, and classroom equipment will help students study more effectively. In particular, with the impact of digital transformation, the learning method has changed from face-to-face to online, and technical infrastructure factors have a great influence on students' learning activities. Nguyen Thi Bich Nguyet (2022) emphasizes that with digital learning resources, information and statistics from all fields of science and life be updated daily, hourly, and even every minute has opened up opportunities for both teachers and learners to access and collect a huge source of knowledge as quickly as possible.

Hypothesis H2: Facilities and learning support facilities have a positive influence on the students' learning capacity

Learning motivation: Many researches show that learning motivation is one of the important factors affecting students' learning capacity. In the human motivation system, learning motivation takes an important role in motivating people to strive to gain knowledge, aim for success, develop personality, ability and professional ethics, meeting the needs of the labor market and the standards set by society (Tran Thi Bich Diep, 2021). In according to Pekrun (2006), if learners have the right learning motivation, they often have a positive learning attitude, are interested, passionate and overcome all difficulties to succeed; On the contrary, inappropriate learning motivation makes learners bored, less enthusiastic, and the acquisition of knowledge becomes difficult. Research by Spratt et al (2012); Murphy et al (2005) showed that learning motivation has a positive correlation with the development of analytical, critical thinking and learner autonomy. Learning motivation is also the basis to explain why learners are enthusiastic, interested, positive and do not feel pressured when participating in learning activities.

Hypothesis H3: Learning motivation have a positive influence on the students' learning capacity

Personal characteristics: In the opinion of many scientists, personal qualities such as health, physical, intellectual, psychological, personality... affect students' learning capacity. People having those qualities can easily develop their abilities and achieve goals more easily than people not having the appropriate qualities. However, qualities are a necessary but not sufficient condition for capacity development. Furthermore, according to Huitt (2000), such innate characteristics must be practiced to gain and develop. Most personal characteristics are mainly due to learning and training. These characteristics are usually self-confidence, assertiveness, discipline, self-responsibility, adaptability to the environment, high tolerance, and a spirit of cooperation (Chamrro et al, 2003). Nguyen Van Thuy & Doan Thi Thanh Hang (2021) demonstrated that self-confidence has a strong impact on students' academic results in a study using data from students of banking university in Ho Chi Minh City.

Hypothesis H4: Personal characteristics has a positive influence on the students' learning capacity.

Lecturers' capacity: Previous studies have shown that lecturers' capacity affects student academic achievement. Williams et al (2011) stated that teachers play an important role in promoting learners' positivity. At the university level, if the lecturer has good knowledge and pedagogical skills and cares a lot about students, it will contribute to increasing learning capacity. Research by Raffini (1993); Rivkin (2005) and Boyd (2006) found that their experience and confidence in their profestional knowledge caused students to have great efforts in studying, which also impact students' attitudes. Besides, the teaching method, personality and enthusiasm of the lecturer are factors that create attraction and determine of student's passion in the subject. If lecturers prepare the curriculum and apply teaching methods carefully and flexibly, it will create excitement in learning for learners (Raditya, 2017). In the context of digital transformation, teaching method is the most important factor in online teaching, increasing the level of interaction with learners, thereby increasing learning efficiency and encouraging learners to participate in different learning opportunities (Mayerova and Rosicka, 2015; Kim et al. (2010)

Hypothesis H5: Lecturers' capacity has a positive influence on the students' learning capacity.

Information technology: When studying students' intentions and habits of using technology, Davis (1989) built a theoretical model of acceptance of information technology with two original factors: "Ease of use" and "Usefulness". According to this model, when students feel the usefulness of digital transformation, it will increase the efficiency and quality of their learning. When students feel the ease of use of information technology, they will know how to widely use information technology as an effective learning method. Based on the results of Davis's research, Mohammadi's research (2015); Sukendro et al (2020) have shown that the use of technology in education is more effective in developing skills that promote learning motivation (Gafulov et al, 2020) and is suitable for all individuals (Elhafiez, 2021). Research results by Le Van Hao (2020) show that digital transformation helps students take most advantage of online resources to collect and create knowledge. Small (2008) argues that habitual use of digital technology such as the internet and smartphones can change the way the brain functions. According to his opinion, continuous learning helps human brain developed continously and createdly. Research by Nguyen Thi Thang (2019) also shows that digital transformation in education helps learners be more proactive, easily self-orient and self-regulate their own learning.

Hypothesis H6: Information technology has a positive influence on the students' learning capacity.

Career characteristics: When studying the relationship between professional characteristics and students' academic achievements, Cui (2013) discovered that the more students identify with their majors, the more time and energy they spend on their professional study. The similar, Chen (2013) pointed out the more college students like their major, the higher their professional skills, and they would also attempt to find positive solutions to the difficulties in professional learning. Research by Zhang and Wang (2018) shows that major identity can positively predict the learning input of college students. This is mainly because the current college education is mainly professional education, and major identity is the basis of learning. The deeper the college students' understanding of their major and the more positive their emotional experience, the more conscious their professional learning behavior will be, and then they will be more actively involved in learning. If the students' own personality and professional characteristics cannot form a good match, it may cause college students to be tired of learning and abandon their studies, reduce their academic investment, leading to a decline in academic performance and lack of competitiveness in the labor market (Hui Wang et al, 2023)

Hypothesis H7: Career characteristics has a positive influence on the students' learning capacity.

3. Research method

To achieve our research goals, we use quantitative research methods. Within this research, there are 2 types of variables: dependent variable and independent variable. The independent variables include: Training program (TP) with 3 observations; Facilities and learning support facilities with 4 observations; Learning motivation (LM) with 3 observations; Personal characteristics (PC) with 3 observations; Lecturers' capacity (LC) with 5 observations; Information technology (IT) with 4 observations; Career characteristics (CC) with

3 observations. The dependent variables include: students' learning capacity with 5 observations. In which each observed variable is measured by the 5-level Likert scale.

The survey subjects in this study were accounting students at East Asia University of Technology. The authors randomly sampled data and use an online survey method to easily access, synthesize, and evaluate data. Of the returned copies, 550 copies were valid and usable, while 56 copies were found to be invalid and unusable for analysis. This sample size is completely satisfied with the minimum sample conditions to regression (according to Hair et al (2010), with 25 observed variables, the minimum number of samples should be $n \geq 25 * 5 = 125$). Data analysis was conducted. The authors entered the responses into SPSS software 22.0. This software allowed us to perform descriptive statistics, reliability analysis, factor analysis, correlation analysis, and regression analysis.

4. Research results

In pilot research, the Cronbach's Alpha technique is applied with 25 observes and the result has shown that correlation coefficients of these coefficients are all greater than 0.6 and correlation coefficients between variable are greater than 0.3. Therefore, all observing variables were brought into EFA

Table 1. Cronbach's Alpha coefficients of the scales

Scales	Cronbach's Alpha	N of Items
Training program (TP)	0.929	3
Facilities and learning support facilities (FL)	0.828	4
Learning motivation (LM)	0.935	3
Personal characteristics (PC)	0.908	3
Lecturers' capacity (LC)	0.845	5
Information technology (IT)	0.944	4
Career characteristics (CC)	0.961	3

After that, the EFA technique is applied to reduce bad items in variable measurements and the result presented in Table 2 shows that all items converge in 06 variables as synthesized with sig of KMO test < 0.05. The extraction method in EFA is principal axis factoring and rotation method is promax with format sort blank is 0.5

Table 2. Result of EFA

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	12309.201
	df	300
	Sig.	.000

Table 3. Pattern Matrixa

	Component						
	1	2	3	4	5	6	7
LC3	.867						
LC4	.866						
LC2	.856						
LC1	.848						
LC5	.844						
IT4		.893					
IT2		.888					
IT3		.887					
IT1		.877					
FL2			.831				
FL4			.818				
FL3			.814				
FL1			.762				
CC1				.851			
CC2				.846			
CC3				.837			
TP2					.861		
TP1					.841		
TP3					.838		
LM2						.823	
LM1						.818	
LM3						.815	
PC2							.808
PC3							.763
PC1							.757

According to table 4, the results of correlation analysis explain there is a significant positive correlation (in the 0.01 or 0.05 level) between variable the students' learning capacity (SLC) and Training program (TP), Facilities and learning support facilities (FL), Learning motivation (LM), Personal characteristics (PC), Lecturers' capacity (LC), Information technology (IT) and Career characteristics (CC)

Table 4: Correlations

		SLC	TP	LM	CC	PC	FL
SLC	Pearson Correlation	1	.531**	.591**	.558**	.692**	.574**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	494	494	494	494	494	494
TP	Pearson Correlation	.531**	1	.517**	.472**	.524**	.497**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	494	494	494	494	494	494
LM	Pearson Correlation	.591**	.517**	1	.530**	.573**	.488**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	494	494	494	494	494	494
CC	Pearson Correlation	.558**	.472**	.530**	1	.576**	.574**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	494	494	494	494	494	494

		SLC	TP	LM	CC	PC	FL
PC	Pearson Correlation	.692**	.524**	.573**	.576**	1	.600**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	494	494	494	494	494	494
FL	Pearson Correlation	.574**	.497**	.488**	.574**	.600**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	494	494	494	494	494	494
LC	Pearson Correlation	.589**	.401**	.478**	.427**	.449**	.437**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	494	494	494	494	494	494
IT	Pearson Correlation	.424**	.329**	.394**	.350**	.385**	.398**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
	N	494	494	494	494	494	494

Regression analysis: The author has done multivariate regression analysis by ANOVA in Table 6. Thereby we can say residual distribution is roughly up to standard. According to Table 5, the corrected value of R2 is 0.604 respectively showing that independent variables put in the regression model affect 60,4% of the changes of dependent variables, the remaining 39,6% is due to external variables and random errors. Durbin - Watson correlation = 1.754 lying in the range from 1.5 to 2.5 so there is no first-level serial autocorrelation.

Table 5: Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.790[a]	.624	.619	.36873	1.797

a. Predictors: (Constant), TB, LM, CC, PC, FL, LC, IT
b. Dependent Variable: SLC

Table 6: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	109.811	7	15.687	115.383	.000[b]
	Residual	66.076	486	.136		
	Total	175.887	493			

To test if regression coefficient Bi of each independent variable is non-zero (Bi ≠ 0), the statistical quantity t is used. In Table 7, the t-statistics are significant at sig. are very small (sig. < 0.1%). Furthermore, Variance inflation factor (VIF) coefficients are less than 2 (VIF < 2) and the Tolerance are greater than 0.5 (Tol > 0.5).

Thus, the model does not contain multi-collinearity phenomenon and the variables are suitable for regression analysis, the regression coefficients Bi corresponding to the independent variables in the model are all non-zero). That means that the variables TB, LM, CC, PC, FL, LC, IT all affect the dependent variable SLC with very high reliability (99%). Therefore, the regression equation is established as follows:

SLC = 0.46 + 0.085*TP + 0.106*LM+ 0.066*CC + 0.329* PC + 0.082* FL+ 0.243LC+ 0.075*IT

Table 7: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.046	.151		.307	.059		
	TP	.085	.035	.087	2.458	.014	.611	1.636
	LM	.106	.034	.118	3.105	.002	.533	1.877
	CC	.066	.035	.072	1.913	.046	.539	1.854
	PC	.329	.039	.341	8.488	.000	.480	1.084
	FL	.082	.038	.084	2.160	.031	.517	1.936
	LC	.243	.032	.252	7.507	.000	.687	1.457
	IT	.075	.028	.084	2.658	.008	.773	1.294

5. Conclusions

The multivariate regression results consistently align with the correlation test, indicating that the independent variables TB, LM, CC, PC, FL, LC, and IT all have relationships that affect the dependent variable. This result provides support for hypotheses H1, H2, H3, H4, H5, H6, H7.

With these results, several points need to be discussed:

Firstly, among the factors influencing students' learning capacity, personal characteristics and learning motivation have the most significant impact. This underscores the pivotal role students play in their learning abilities. To become qualified individuals capable of integrating and succeeding in the digital technology era, learners must dedicate effort to study, invest time, clearly define their motivations and learning goals, and mobilize all their abilities to achieve those goals. Moreover, students need to actively question themselves, encouraging their brains to work actively, making information easier to remember. Self-discovery and research help to think faster and maintain a positive attitude, making learning more interesting. Additionally, students need to enhance essential skills, creative capacity, language proficiency, and technology skills to adapt to the integration context and digital transformation.

Secondly, the lecturer's capacity is the second-strongest factor influencing students' learning capacity. As organizers, designers, and guides in learning activities, lecturers play a crucial role in the process of forming and improving learners' learning capacity. Each lecturer must have a high sense of responsibility in training the young generation and should pay attention to the following points: understanding innovative learning methods, promoting learner initiative, and effectively using information technology. Enthusiastic lecturers create a lively atmosphere in the classroom, focusing on encouraging and caring for students. Additionally, trainers should hone their expertise extensively to meet modern teaching requirements, encompassing methods, skills, ability to apply IT to teaching, design of high-quality electronic lectures, self-study capability, and scientific self-study.

Thirdly, school factors positively and statistically significantly relate to students' learning ability, including the education program, facilities, and equipment. Innovating the training program in an open direction, suitable for learners' abilities, is crucial. Regular reviews, supplements, and adjustments to training plans and programs are necessary to adapt to changes. In addition to the main training program, building extra-curricular programs to train soft skills, communication skills, and teamwork skills is essential. With education moving towards smart education, modern facilities integrated with scientific and technological achievements are crucial. Therefore, schools need to invest in infrastructure conditions and new equipment for both learners and teachers, such as smartboards, large screens, internally connected TVs, projectors, tablets, to create the best conditions for training. Developing digital library portals (textbooks, lectures, digital learning materials) and online learning systems, selecting and using foreign online lectures suitable for domestic conditions, is also recommended. Besides, the school needs to establish a remuneration regime to encourage lecturers to study and improve their professional qualifications.

In summary, the recommendations derived from the assessment of factors affecting accounting students' learning capacity will help students, managers, and lecturers research and discover new ways to improve the quality of teaching and training, both in universities in general and, more specifically, at East Asia University of Technology. However, the paper still has limitations, such as the sample focusing only on students at East Asia University of Technology. Additionally, the squared multiple correlations of the model are 0.604, meaning the seven factors explain only 60.4% of the intention to apply students' learning capacity. Therefore, subsequent studies can supplement this paper by expanding the sample or adding more factors to the model for further research in the future.

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CONSERVATISM OF ACCOUNTING FROM CORPORATE GOVERNANCE PERSPECTIVE: A CASE OF VIETNAM

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Abstract: ***Using collected data of the 69 non-financial companies in period 2015-2022, the study aims at investigating the relationship between Corporate Governance and conservatism of accounting of Vietnamese companies. To measure conservatism of accounting, we apply Givoly & Hayn index (2000). The Corporate Governance includes Board of Director (BOD) characteristics, ownership structure and audit quality. Our results show that BOD independence and ownership concentration have positive effect on accounting conservatism; while institutional ownership and BOD size have negative impact on conservatism of accounting. Managerial ownership, CEO duality and audit quality, on the other hand, are not statistically significant.***

• Keywords: *corporate governance, conservatism of accounting, agency problem, Vietnam.*

JEL codes: M4; M49

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Tóm tắt: *Sử dụng dữ liệu thu thập được của 69 công ty phi tài chính trong giai đoạn 2015-2022, nghiên cứu nhằm mục đích điều tra mối quan hệ giữa Quản trị Công ty và tính thận trọng trong kế toán của các công ty Việt Nam. Để đo lường tính thận trọng của kế toán, chúng tôi áp dụng chỉ số Givoly & Hayn (2000). Quản trị Công ty bao gồm các đặc điểm của Hội đồng quản trị (HĐQT), cơ cấu sở hữu và chất lượng kiểm toán. Kết quả của chúng tôi cho thấy tính độc lập của HĐQT và sự tập trung sở hữu có tác động tích cực đến tính thận trọng trong kế toán; trong khi sở hữu tổ chức và quy mô HĐQT có tác động tiêu cực đến tính thận trọng trong kế toán. Mặt khác, quyền sở hữu của người quản lý, tính kiêm nhiệm của CEO và chất lượng kiểm toán không có ý nghĩa thống kê.*

• Từ khóa: *quản trị doanh nghiệp, chủ nghĩa thận trọng trong kế toán, vấn đề đại diện, Việt Nam.*

1. Introduction

The agency issue and Corporate Governance are among the topics that receive much attention from academic as well as company executives and investors worldwide. The traditional theory of corporate finance holds that managers have a duty and responsibility to maximize the value of the company or to maximize the value of shareholder equity. However, in reality, the goals of managers and shareholders are not always aligned. One of the information sources that investors use to monitor and evaluate the financial situation, business operations, and potential development of a company is the annual financial report (AFR) published by the company. To obtain an accurate view of a company's financial health, the company's AFR must reflect the true and reasonable financial situation and operating results, which depends heavily on the accounting principles that the company applies.

Corporate governance facilitates favorable contract agreements by encouraging the application of conservative accounting methods in financial reporting (Fama & Jensen, 1983). Accounting conservatism is pivotal in ensuring financial statement quality by reducing agency problems. It enables timely and comprehensive disclosure, diminishing managerial manipulation opportunities in financial reporting (Ahmed & Duellman, 2007).

Vietnam is a rapidly developing economy with significant potential to attract foreign investors; however, its legal system still exhibits several gaps, lacking appropriate mechanisms to protect investor rights. Therefore, corporate governance and the

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reliability of financial statements serve as effective tools for investors to protect their interests. Several studies have been conducted in Vietnam to explore Investor Relations or the prudence principle in accounting. However, according to the authors' research, no study has been undertaken to investigate the relationship between corporate governance and the Conservatism of accounting. Consequently, the aim of our research is to provide new research outcomes and assisting companies in formulating measures to enhance operational efficiency.

According to Givoly and Hayn (2000) due to the absence of a generally accepted definition of conservatism, a number of measures of reporting conservatism are identified and examined. Using a sample of 896 companies, Givoly and Hayn (2000) demonstrated a substantial decrease in the total inactive accruals of these sample companies from the period of 1965 to 1998. However, they observed that during the same period, the total active accruals of the 896 companies increased. On a net basis, the increases in active provisions were not large enough to offset the decreases in inactive provisions. They argued that the increasing trend in these negative accruals represents an indication of rising accounting conservatism levels.

2. Literature review

2.1. Corporate governance and conservatism of accounting

Corporate Governance is a tool for maintaining the Conservatism of accounting and reducing agency problems (El-Habashy, 2004). Studies in emerging markets on the accounting consequences of Corporate Governance show mixed findings. Mohammed et al. (2017); Adawi & Rwegasira (2011); Alareeni, (2018) in Malaysia and UAE consider BOD size and BOD independence as governance variables affecting the quality of financial statements in Malaysia and UAE. The authors show that independence of BOD as well as internal ownership have a positive impact on delegating firm income management authority. Moreover, BOD size has been found to have an inverse correlation and the separation of CEO and BOD chairman does not affect management compensation. Positive accounting which refers to conservatism of accounting as a method in reducing agency problems (El-Habashy, 2004). However, conservatism of accounting limits the opportunities for managers to do so. In Vietnam, where ownership is concentrated among the government and families, collusion can weaken the rights of small shareholders to obtain accurate and complete information. Separate ownership and control rights will reduce conflicts related to agency issues, so ownership concentration is negatively related to conservatism of accounting since cautious financial reports shareholder requirement (Chi ctg. 2009).

2.2. Board of director size and conservatism of accounting

Agency theory explains that managers are projected to reduce agency conflicts to apply conservatism of accounting. While signaling theory suggests that a larger BOD is a favorable signal for investors regarding the BOD's monitoring function (Ahmed & Duellman, 2007). A larger BOD helps to increase monitoring process and expands caution in accounting by having more expertise in financial statements quality (Ebrahim and Fattah, 2015). Ahmed and Henry (2012) studied the Australian market and found that a larger BOD size increases imprecision of income and book values, resulting to more accounting conservatism. Nevertheless, Ahmed and Duellman (2007) studied 200 US companies and found no significant correlation. Elshandidy and Hassanein (2014) found no statistically significant positive correlation between BOD size and conservatism of accounting for 100 UK companies in the FTSE index. This also suggests that a larger BOD size results in difficult management and effective coordination since larger BOD size has an inverse relationship with the BOD's ability to work efficiently. Therefore, we believe that BOD size has a positive impact on conservatism of accounting in Vietnam.

2.3. Board of director independence and conservatism of accounting

Fama (1980) suggests that external managers can effectively monitor the behavior of managers, thereby reducing agency problems. Mohammed et al. (2017) find that external managers have more experience since they manage other businesses, which improves the accounting quality as well as realizing the significance of conservatism of accounting. A high level of independence among BOD is crucial for effective monitoring of managers and can have an impact on conservatism of accounting. Kukah et al. (2016); Mohammed et al. (2017); and Nasr & Ntim (2018) show that external managers limit the opportunities of managers and thus increase conservatism of accounting their reports. Lin et al. (2014) demonstrated that increasing the number of external managers improved transparency and led to greater caution in accounting practices in Chinese companies. The conclusions drawn from these studies indicate that BOD independence has a positive impact on conservatism of accounting in Vietnam.

2.4. CEO duality and conservatism of accounting

Agency theory suggests that having the CEO also serve as BOD chairman is not favorable since it can restrict process of monitor and intensify issues related to conflicting interests and unequal distribution of information. By separating the positions of CEO and chairman can help to identify responsibility for decisions that damage corporate value. Research on the effects of CEO duality on accounting conservatism has produced varying outcomes. Lim (2011) and Elshandidy & Hassanein (2014) show a positive but statistically insignificant relationship between separating CEO/chairman roles and conservatism of accounting, Chi et al. (2009) argue that when the CEO is also chairman, company tends to be more cautious in reporting because the CEO/chairman dual role is a sign of weak Corporate Governance and encourages managers to implement accounting conservatism as a way of addressing that deficiency. However, some researchers state that there is no significant impact of CEO duality on accounting conservatism (Ahmed & Duellman, 2007; Ahmed & Henry, 2012; Nasr & Ntim, 2018). In our study, we conclude that separating the roles of CEO and chairman has a positive impact on conservatism of accounting in Vietnam.

2.5. Ownership structure and conservatism of accounting

Companies with large shareholders such as financial institutions, investment funds, and large conglomerates have opportunities, resources, and capabilities to control and influence the BOD. Shareholders, especially large financial institutions or corporations, are an important governance mechanism in requiring accounting conservatism. Jiang and Kim (2000) and Lin et al. (2014) have demonstrated that institutional investors play a critical role in improving financial reporting quality and reducing asymmetric information. This can have an impact on accounting practices and financial statements by overseeing the BOD and enhancing the quality of financial statements (Jo et. al., 2015). Alkordi et al. (2017) also indicated that institution investors support an increase in conservatism of accounting by promoting BOD and audit committees. Therefore, companies with large institutional shareholders and financial institutions can shorten the time required for effective and cost-effective preparation of annual financial statements. Based on the results of the previous research, we value the benefits of institutional ownership on conservatism of accounting and therefore managers to be more cautious.

2.6. Ownership concentration and conservatism of accounting

Investors who possess a considerable number of shares are inclined to engage in managing and operating the company by manipulating the information that has been gathered. Lskavyan & Spatareanu (2011) state that ownership concentration increases the efficiency of business operations and helps to choose accounting principles to reduce opportunistic behavior, optimize company resources, and enhance investor trust. According to the study of Apadore and Mohd-Noor (2013), a greater degree of ownership concentration would result in a lengthier period of time required to analyse financial statements. Large shareholders have two aspects that affect financial statements: (1) through participation in activities such as finance, investment, and management; (2) exploiting internal information to achieve personal gain or influence management decisions (El-Habashy, 2019). Higher ownership concentration makes shareholders less motivated to monitor the company and participate weakly in operational policies such as conservatism of accounting. Therefore, ownership concentration has an inverse effect on conservatism of accounting in Vietnam.

2.7. Manager ownership and conservatism of accounting

The application of accounting conservatism results in a decrease in short-term income but an increase in long-term income. Managers tend to favor over-investment as it offers them numerous advantages. Ellili (2013) shows that manager ownership is positively related to financial statements quality because Manager Ownership is related to managing poor income, increasing accounting information quality. However, Mohammed et al. (2017), Sugiarto & Fachrurrozi (2018), and Jayaraman (2019) show that manager ownership is negatively related to quality of financial statements. Lafond & Roychowdhury (2008) studied the impact of manager ownership on earnings management and found that companies owned by managers faced lower earnings management. Jayaraman (2019) studied in China and proved that manager ownership had an inverse correlation with earnings management. Companies with high managerial ownership will lead to their strategies and decisions will be beneficial for the managers. With manager ownership, directors who are both representatives and owners will reduce conflicts between parties so that the company tends to use earnings management. Ownership structure affects the quality of financial statements, from which we believe that manager ownership has a positive relationship with conservatism of accounting in Vietnam.

2.8. Audit quality and conservatism of accounting

Audit quality can be seen as an option for external monitor. Separate ownership and control requirements from third parties provide guarantees to enhance shareholder trust in the quality of financial statements. Francis & Wang (2008) investigated how income quality and audit procedures performed by Big 4 firms in 42 countries are related and find that income quality only increases in firms audited by Big 4 firms. This means that the quality of income and Audit quality in developing economies such as Vietnam are related to whether the company is audited by Big 4, which have low investor protection mechanisms. In Malaysia, Mohammed et al. (2017) show that the use of Big 4 auditing is positively related to rigorous approach to accounting. Mitra et al. (2016) showed that US companies switching auditors from Big 4 firms to other audit firms showed less caution in accounting work. On the other hand, Yasar's (2013) study found no difference between the impact of audits by Big 4 firms and other audit firms on income management in Turkey. Therefore, these studies show that companies with high Audit quality tend to be more cautious in preparing financial statements, and the quality of financial statements audited by Big 4 firms is positively related to conservatism of accounting in Vietnam.

2.9. Research in Vietnam

In Vietnam, issues related to corporate governance and Conservatism of accounting have attracted significant attention from researchers. However, according to the authors' investigation, research on the impacts of corporate governance on Conservatism of accounting is still relatively new and unexplored.

A study by Nguyen Van Tam (2019) was conducted on 50 listed companies on the Ho Chi Minh Stock Exchange (HOSE) during the period 2015-2017 to examine the relationship between corporate governance and company value in Vietnam. The research results indicated that the scale of the Board of Directors (BOD) had a reverse effect on company book value but had a positive impact on the company market value; BOD independence had a positive effect on the company value; level of BOD activity and the duality between the positions of CEO and Chairman of the BOD seemed to have no significant impact on the company value; the presence of institutional shareholders in the company's governance structure would increase the value of the company.

A study by Nguyen Thi Phuong Thuy (2019) was conducted on 225 non-financial companies listed on the HOSE and the Hanoi Stock Exchange during the period 2008-2017. The research show that corporate governance (BOD scale, reputation of audited enterprises) had a reverse impact on financial leverage; independent BOD, CEO duality, female members in the BOD, and concentrated ownership had varying relationships with company efficiency; financial leverage had a similar direction of impact with company efficiency; financial leverage acted as an intermediary in the relationship between corporate governance and company efficiency.

3. Methodology

3.1. Data

The data was collected from the consolidated financial statements and annual reports of 69 non-financial companies in the VN100 index, which are continuously listed on the Ho Chi Minh Stock Exchange (HOSE) from 2015-2022. The rationale behind the selection of this research sample stems from the fact that entities encompassed within the VN100 index account for around 90% of the aggregate market capitalization and close to 80% of the market's trading volume (VAM Investment Corporation, 2023). This choice aims to mitigate certain constraints associated with the VN-Index, particularly its susceptibility to the dominance of a limited number of high-capitalization stocks and those with lower liquidity levels.

3.2. Methodology

To find the optimal regression method, we conducted Pooled OLS, FEM, REM, GLS, then conducted relevant tests to find the most suitable method.

3.3. Research model

Based on the approach of El-Habashy (2019), the research model is constructed as follows:

$CONACC_{it} = \alpha_1 + \beta_k{*}BC_{it} + \gamma_z OS_{it} + \delta_h{*}CV_{it} + \varepsilon_{it}$ (1)

Where:

CONACC - Conservatism of accounting

BC - BOD characteristics is used to test the impact of BOD' characteristics on conservatism of accounting, including: BOD size (BSZ), BOD independence (BIND), Separation of CEO and BOD chairman (Dual), and Audit quality (AuditQ).

OS - Ownership structure is used to test the impact of ownership structure on conservatism of accounting, including: Ownership of managers (ManOwn), Institutional ownership (INST), Ownership concentration (OWNC).

CV -controlling variables includes: Company size (Size), Financial leverage (Lev), and Market value to book value value ratio (MBV).

ε_{it}: error terms

3.4. Variables

3.4.1. Dependent variable

Penman and Zhang (2002) argue that conservatism of accounting creates hidden reserves, and this can be used to measure the degree of firm conservatism of accounting. They argue that the higher the level of hidden reserves, the more conservatism in company's financial statements. The measurement of conservatism of accounting is calculated as follows:

$$ACCRUALS = \frac{EBEXTit + DPit - OCFit}{TAit} \quad (2)$$

$$CONACC = (ACCRUALS) * (-1) \quad (3)$$

Where:

CONACC is the conservatism of accounting based on the accruals of company i in year t, EBEXT is pre-tax income and extraordinary items, DEP is depreciation expense for the year, OCF is operating cash flow, and TA is total assets. The reason for using negative accruals is that conservatism of accounting uses accruals to defer recognition of economic gains and accelerate recognition of economic losses. Through such a process of deferring gains and accelerating losses, the cumulative accrual level in a company becomes increasingly negative, and the more negative it is, the higher the level of conservatism of accounting is reflected.

3.4.2. Independent variables

The Corporate Governance mechanisms include BOD characteristics, ownership structure, and auditor quality:

- ManOwn - Manager Ownership, measured by the proportion of shares owned by BOD members

- INST - institutional and governmental Ownership, measured by the proportion of institutional and governmental investors owned shares.

- OWNC - Ownership concentration, measured by the proportion of largest shareholder owned shares

- BSZ - BOD Size, measured by BOD members

- BIND - BOD Independence, measured by non-executive members to the total number of BOD member.

- Dual - Separation of CEO and BOD Chairman, with a value of 0 if the CEO and BOD Chairman are the same person and 1 otherwise

- AuditQ - Auditor Quality, takes a value of 1 if the independent auditor is from BIG4 group (including four audit firms: Deloitte, PWC, EY, and KPMG) and 0 otherwise

3.4.3. Controlling variables

To guarantee results reliability and prevent endogeneity among the variables in the model, three controlling variables are used include: financial leverage (Lev: measured by total debt/total assets), firm size (Size: measured by natural logarithm of total assets), market value to book value ratio (MBV). The agency theory suggests that high leverage increases the conflict of interest between shareholders and debt holders, leading to increased demand for financial reporting quality (Ahmed & Duellman, 2007). Thus, we hypothesized that leverage has a positive relationship with financial reporting quality. The BOD of large companies tends to be more cautious when creating financial statements by promptly identifying negative news over positive ones to prevent potential agency costs and legal liabilities. Company growth opportunities is reflected by market value to book value (Roychowdhury & Watts, 2007).

4. Results

4.1. Descriptives

Table 4.1: Descriptives

Variable	Mean	Std. Dev.	Min	Max	Observations
CONACC	-0.0733	0.1337	-1.0428	0.3088	552
ManOwn	8.39%	14.8%	0	78.33%	552
INST	54.43%	29.94%	3.16%	99.9%	552
OWNC	36.58%	22.54%	5.98%	98.9%	552
BSZ	6.3536	1.7159	3	11	552
BIND	61.86%	20.58%	14.29%	100%	552
Size	15.8314	1.2964	10.8362	19.8162	552
Lev	48.15%	18.16%	6.43%	89.06%	552
MBV	0.7433	1.1215	0.0643	9.5116	552
Dummy variables					
	Dummy	No.	Percentage		
Dual	0 value	157	28.44%		
	1 value	395	71.56%		
AuditQ	0 value	172	31.16%		
	1 value	380	68.84%		

Sources: Authors' calculation

Table 4.1 shows that CONACC has a mean value of -0.073 which is less than 0, indicating that firms tend to be more conservative in the process of preparing financial statements. The percentage of managers ownership (ManOwn) has a mean value of 8.39% and a standard deviation of 14.8%, indicating a significant difference in managers ownership. The minimum value is 0% and the maximum value peak 78.33%. The percentage of shares owned by institutions and government (INST) has a mean value of 54.43% and a standard deviation of 29.95%. In addition, an important feature is that in the past, some Vietnamese joint-stock companies had a very high percentage of state ownership, but now the government is proceeding to reducing this percentage to improve operational efficiency and encourage foreign investment, thus increasing autonomy. Large shareholders are foreigner organizations that can also increase the effectiveness of Corporate Governance. The largest shareholder ownership (OWNC) has average value of 36.58% and a range from [5.98%;98.99%]. The BOD size (BSZ) has an average value of 6.35, which is lower than a study of El-Habashy (2019) in Egypt, which was 10.72. This indicates that the number of BOD members in Vietnam is still relatively small. Additionally, the variable BIND has a mean value of 61.89%, indicating that the majority of Vietnamese joint-stock companies meet the minimum requirement that non-executive members comprise one-third of the members on the BOD. The Dual measures the separation between BOD Chairman and CEO. According to the descriptive statistics, 71.56% of Vietnamese joint-stock companies have this separation. The AuditQ measures the quality of financial statement auditing. Based on the descriptive statistics, 68.84% of companies are audited by a Big 4 accounting firms. Finally, the controlling variables include company size (Size) with an average value of 15.83 and a range from [10.83;19.81]. The leverage ratio (Lev) has an average value of 48.15%, with a range from [6.43%;89.06%]. Lastly, the Market value to book value (MVB) ratio has an average value of 0.743 with a range from [0.06;9.51].

4.2. Results

Table 4.2: Results using the GLS method

Variable	Model (1)		Model (2)		Model (3)	
	Coef.	Std.Dev.	Coef.	Std.Dev.	Coef.	Std. Dev.
ManOwn	-0.0084	0.0367	-	-	-0.0015	0.0361
INST	-0.0246	0.016	-	-	-0.0239*	0.0144
OWNC	0.0298	0.0208	-	-	0.0401**	0.0180
BSZ	-0.0041*	0.0023	-0.0046**	0.0023	-	-
BIND	0.0375*	0.0199	0.0319	0.0215	-	-
Dual	0.0065	0.0084	0.0079	0.0093	-	-
AuditQ	-0.0036	0.0097	-0.0057	0.0096	-0.0001	0.0093
Size	0.0049	0.0032	0.0051	0.0034	0.0049	0.0030
Lev	0.0928***	0.0246	0.0948***	0.0238	0.0885***	0.0241
MBV	0.0033	0.0036	0.0027	0.0035	0.0031	0.0036
Cons	-0.1803***	0.0526	-0.1791***	0.0554	-0.1842***	0.0462
Prob > Chi2	0.0000		0.0000		0.0000	
Obs.	552		552		552	

(***), (**), (*) correspond to significance levels of 1%, 5%, 10%, respectively

Source: Authors' calculation

Model (1) examines how Corporate Governance including BOD characteristics, ownership structure, audit quality affect conservatism of accounting. The equation of the model is as follows:

$$\begin{aligned} CONACC_{it} &= \beta_0 + \beta_1 ManOwn_{it} + \beta_2 INST_{it} + \beta_3 OWNC_{it} \\ &+ \beta_4 BSZ_{it} + \beta_5 BIND_{it} + \beta_6 Duality_{it} + \beta_7 AuditQ_{it} \\ &+ \beta_8 Size_{it} + \beta_9 Lev_{it} + \beta_{10} MBV_{it} + \mu_{it} \end{aligned} \tag{4}$$

The results show that the BOD size (BSZ) has an inverse relationship with the level of conservatism of accounting (CONACC) at a statistically significant level of 10%. This result is consistent with the research of Asr & Ntim (2018) in Egypt.

The BOD independence (BIND) and conservatism of accounting (CONACC) are positively related. This result is in line with the research of Nasr & Ntim (2018), Mohammed et al. (2016), and Ahmed & Duellman (2007), supporting agency theory as the more BOD non-executive members, the more likely the company is to apply conservatism of accounting to reduce agency issues, create favorable conditions for controlling and managing company more effectively.

The remaining independent variables include managers ownership ratio (ManOwn), institutional ownership ratio (INST), largest shareholder ownership ratio (OWNC), separation between CEO and BOD chairman (DUAL), and audit quality (AuditQ) show statistical significance.

Regards controlling variables of the model (1), the financial leverage variable (Lev) has a positive relationship with conservatism of accounting at a significance level of 10%, implying that a company with a higher debt ratio will have a higher level of conservatism of accounting. This result is consistent with agency theory as when a company has a higher debt ratio, the risk of financial distress also increases. When a company is in debt, conflicts of interest arise between shareholders and creditors, so shareholders will be more likely to pursue their self-interest strategies. These conflicts of interest will be amplified when financial distress occurs and incurs agency costs, thus managers will implement self-interested strategies such as investing in high-risk projects, reducing investment in positive NPV projects, and asset stripping. The shareholders become the victims since rational creditors know when financial distress occurs and they must protect their own interests through protective agreements. The principle of conservatism of accounting can be seen as a positive protective agreement because when a company implements conservatism of accounting, it will not exaggerate assets and hide potential future debts, helping creditors to have a more accurate assessment of the company and limit the risks when the company goes bankrupt.

Model (2) aims to examine the impact of BOD characteristics including BOD size (BSZ), independence of BOD members (BIND), separation of CEO and BOD chairman (Dual), and audit quality (AuditQ), on conservatism of accounting (CONACC). Controlling variables include the size of the firm (Size), the degree of financial leverage (Lev), and the market value to book value ratio (MBV).

$$CONACC_{it} = \beta_0 + \beta_1 BSZ_{it} + \beta_2 BIND_{it} + \beta_3 Duality_{it} + \beta_4 AuditQ_{it} + \beta_5 size_{it} + \beta_6 Lev_{it} + \beta_7 MBV_{it} + \varepsilon_{it} \quad (5)$$

The results indicate that BOD size (BSZ) has a negative relationship with company conservatism of accounting (CONACC) at a statistically significant level of 5%. The remaining independent variables, including BOD independence (BIND), separation of CEO and chairman (Dual), and audit quality (AuditQ) do not have a statistically significant relationship.

Financial leverage (Lev) has a positive relationship with CONACC at a statistically significant level of 1%. This implies that a company with a higher debt-to-equity ratio will have a higher level of caution in its accounting practices. This is similar to the regression results in Model 1. The remaining controlling variables, including company size (Size) and market value to book value ratio (MBV) do not have a statistically significant relationship.

Model (3) measures the impact of ownership structure, including managers ownership ratio (ManOwn), institutional ownership ratio (INST), largest shareholder ownership ratio (OWNC), the separation between CEO and BOD Chairman (DUAL), Audit quality (AuditQ) on company conservatism of accounting (CONACC).

$$CONACC_{it} = \beta_0 + \beta_1 ManOwn_{it} + \beta_2 INST_{it} + \beta_3 OWNC_{it} + \beta_4 AuditQ_{it} + \beta_5 Size_{it} + \beta_6 Lev_{it} + \beta_7 MBV_{it} + \varepsilon_{it} \quad (6)$$

The results show that largest shareholder ownership (OWNC) is positively related to company conservatism of accounting (CONACC) at a statistically significant level of 5%. This implies that the higher the ownership concentration, the more positive impact it will have on the company's conservatism of accounting. This research result is similar to the study by Lskavyan and Spatareanu (2011), which suggests that ownership concentration enhances the company's operational efficiency, helps select accounting principles to reduce managerial opportunistic behavior, optimize company resources, and increase investor trust. However, Ahmed & Henry (2012) suggest that controlling shareholders existence affects the transparency of information disclosed in financial statements negatively. A higher ownership concentration leads to less motivated shareholders to monitor company's activities, weaker decision-making and management principles such as conservatism of accounting.

Institutional ownership (INST) has a negative correlation with conservatism of accounting (CONACC) at a statistically significant level of 10%, showing that a higher proportion of institutional ownership will have an inverse effect on the company conservatism of accounting. This result is consistent with Salehi & Sehat (2018), Ramalingegowda & Yu. (2012), and El-Habashy (2019). Ahmed & Duellman (2007) explained that the inverse relationship between institutional ownership and conservatism of accounting may be due to the fact that institutional ownership is considered a control mechanism that can replace accounting principles and be considered as a tool for monitoring managers behavior. The remaining independent variables including: Managerial Ownership Ratio (ManOwn), Separation of CEO and BOD Chairman (DUAL), and Audit Quality (AuditQ) are not statistically significant.

Financial leverage (Lev) has a positive relationship with the CONACC at a significance level of 1%, indicating that companies with higher debt-to-equity ratios tend to be more cautious in their accounting practices. This result is consistent with the findings in model (2). The remaining controlling variables includes firm size (Size) and market value to book ratio (MBV) are not statistically significant.

5. Conclusion

The study analyses the relationship between Corporate Governance including BOD structure, ownership and capital structure, size and independence of the BOD, separation of CEO and BOD Chairman, managers and institutional investors ownership, on conservatism of accounting. The results show that (1) BOD size exhibits an inverse relationship with the company conservatism of accounting; (2) BOD independence positively impact company conservatism of accounting; (3) ownership concentration and company conservatism of accounting demonstrate a positive relationship; and (4) institutional ownership displays an inverse relationship with company conservatism of accounting. The remaining independent variables including managers ownership ratio (ManOwn), CEO-Chairman separation (DUAL), and audit quality (AuditQ) are not statistically significant. Only the leverage ratio (Lev), company value (Size), and market value to book value ratio (MBV) is positively related to company conservatism of accounting.

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BUSINESS PERFORMANCE OF LISTED COMMERCIAL BANKS IN VIETNAM - CURRENT SITUATIONS AND SOLUTIONS

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Abstract: ***Business performances of commercial banks are able to be measured by variety of indicators, however there are three common financial indicators that play important roles for both commercial banks and related parties, which are: ROA (Returns on assets), ROE (Returns on equity), NIM (net interest margin). According to previous literatures, the authors propose models to examine the current situations about financial performances of 26 commercial banks listed in 3 stock exchanges: HOSE, HNX and Upcom, all commercial banks in the sample statisfy the assumption of ongoing business during the period 2016-2022, accounted for more than 80% in total assets of commercial banks in Vietnam. The authors study the effects of 10 factors on commercial banks' business performances. These factors include: Firm size (SIZE), The ratio of owners' equity to total assets (CAP), The ratio of non-interest expenses to non-interest incomes (CFS), Sales growth rate (SAGR), Firm age (AGE), Loan to deposit ratio, Gross domestic products (GDP), Comsumer price index (CPI), Income structure (IR-group) and Covid 19 (COVID). The empirical results show that almost factors have impacts on business performances at different levels with different directions: factors: SIZE, SAGR, CAP, GDP affect positively to business performances, while the opposite is true for other factors: CFS, AGE, LDR, CPI, IR-Group. Covid-19 has an ambiguous effect on business performances. Based on the empirical results, the authors propose solutions to enhance the business performances of commercial banks in the current situation.***

• Keywords: *business performances, listed commercial banks, factors.*

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Tóm tắt: *Hiệu quả hoạt động kinh doanh của các ngân hàng thương mại có thể được đo lường bằng nhiều chỉ số khác nhau, tuy nhiên có 3 chỉ số tài chính chung đóng vai trò quan trọng đối với cả ngân hàng thương mại và các bên liên quan, đó là: ROA (Tỷ suất lợi nhuận trên tài sản), ROE (Tỷ suất lợi nhuận trên vốn chủ sở hữu) , NIM (biên lãi ròng). Theo các tài liệu trước đây, tác giả đề xuất mô hình kiểm tra thực trạng hoạt động tài chính của 26 ngân hàng thương mại niêm yết trên 3 sàn chứng khoán: HOSE, HNX và Upcom, tất cả các ngân hàng thương mại trong mẫu đều thỏa mãn giả định hoạt động kinh doanh liên tục trong giai đoạn 2016- 2022, chiếm hơn 80% tổng tài sản của các ngân hàng thương mại Việt Nam. Các tác giả nghiên cứu ảnh hưởng của 10 nhân tố đến hiệu quả kinh doanh của các ngân hàng thương mại. Các yếu tố này bao gồm: Quy mô doanh nghiệp (SIZE), Tỷ lệ vốn chủ sở hữu trên tổng tài sản (CAP), Tỷ lệ chi phí ngoài lãi trên thu nhập ngoài lãi (CFS), Tốc độ tăng trưởng doanh thu (SAGR), Tuổi doanh nghiệp (TUỔI)), Tỷ lệ cho vay trên tiền gửi, Tổng sản phẩm quốc nội (GDP), Chỉ số giá tiêu dùng (CPI), Cơ cấu thu nhập (nhóm IR) và Covid 19 (Covid). Kết quả thực nghiệm cho thấy hầu hết các yếu tố đều tác động đến hiệu quả kinh doanh ở các mức độ khác nhau theo các hướng khác nhau: các yếu tố: SIZE, SAGR, CAP, GDP tác động tích cực đến hiệu quả kinh doanh, trong khi các yếu tố khác: CFS, AGE, LDR, CPI thì ngược lại. Tập đoàn IR. Covid-19 có tác động không rõ ràng đến hiệu quả kinh doanh. Dựa trên kết quả thực nghiệm, tác giả đề xuất các giải pháp nâng cao hiệu quả kinh doanh của các ngân hàng thương mại trong tình hình hiện nay.*

• Từ khóa: *kết quả kinh doanh, ngân hàng thương mại niêm yết, các yếu tố.*

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1. Introduction

The Vietnamese Government sets an annual GDP growth target of around 6.5% in 2023 to continue the 2022 GDP growth of 8.02%, taking considerations on the downward economic cycle trend and risks, negative factors around the world and within the country. However, the GDP growth rate in the first quarter 2023 only reached 3.32%, lower than 4.02% over the same period in 2022, which exposes challenges to achieve the Vietnamese economic growth targets in 2023. Commercial bank is one of the financial institutes who monitor and control medium and short-term capital of capital market. Apart from commercial banks who are operating efficiently, competing strongly, transforming digitally rapidly and professionally, affirming the brands and reputations in the market, there are many other commercial banks who are operating inefficiently, especially in the current economic context showing the signals of stagnation and recessions. In the first six months of 2023, business performances of almost commercial banks decreased compared to the same period. This reduction might affect significantly to the economic growth. Therefore, we decided to conduct the research about current situation of business performances, factors affecting the business performances of listed commercial banks in Vietnam during the period 2016-2022, based on previous literatures and data collected from financial statements of 26 listed commercial banks in the period 2016-2022 to propose solutions for enhancing business performances of commercial banks in the coming time.

2. Empirical results and current situations of listed commercial banks

According to data of listed commercial banks in the period from 2016 to 2022 collected from audited financial statements and annual reports which are available in the commercial banks' websites, macro-economic data is collected from reports issued by General Statistics Office of Vietnam and The World bank, after eliminating omission observations and adding 2 dummy variables including Covid and income structures of listed commercial banks. The authors use Stata 14 software to analyse panel data. The models used to study current situations and factors affecting to business performances of listed commercial banks are presented in the Table 1 below:

Table 1. Variable definitions and hypotheses for studying factors affecting the business performances of commercial banks

Variables	Name	Measurement	Hypo	Authors
Dependent variables				
ROA	Return on assets	Net profit/Average total assets		Alexandru loan Cuza (2014), Isayas, Y. N. (2022), Nghiem Thi Tha,.et al (2022)...
ROE	Return on equity	Net profit/Average total equity		Alexandru loan Cuza (2014), Isayas, Y. N. (2022), Nghiem Thi Tha,.et al (2022)...
NIM	Net interest margin	(Thu nhập lãi thuần- Chi phí dự phòng RRTD)/Tài sản có sinh lời bình quân (Net interest income - Provision expenses for credit losses)/ Average earning assets		Alexandru loan Cuza (2014), Isayas, Y. N. (2022)
Independent variables				
SIZE	Commercial bank's size	Natural logarit of total earning assets	+	Sufian (2009), Alexandru loan Cuza (2014), Nghiem Thi Tha,.et al (2022)...
SAGR	Sales growth rate	[(Sales in year t)/Sales in year (t-1)] - 1	+	Sufian (2009), Nghiem Thi Tha,.et al (2022)...
CAP	Ratio of owners' equity to total assets	Owners' equity/ Total assets	+/-	Alexandru loan Cuza (2014), Isayas, Y. N. (2022), Nghiem Thi Tha,.et al (2022)...
CFS	Ratio of non-interest expenses to non-interest incomes	Non-interest expenses/ non-interest incomes	-	Alexandru loan Cuza (2014), Gupta, N., & Mahakud, J. (2020), Nghiem Thi Tha,.et al (2022)...
AGE	Commercial bank age	Studied year - year of establishment	+/-	Isayas, Y. N. (2022), Nghiem Thi Tha,.et al (2022)...
LDR	Loan-to-deposit ratio	Total loans/Total deposits	+/-	Shingjergji và Hyseni (2015), Nghiem Thi Tha,.et al (2022)...
IR-Group	Income structures	Interest incomes/total incomes	+/-	Proposed by authors
Covid				Proposed by authors
CPI	Consumer price index	Consumer price index	-/+	Alexandru loan Cuza (2014), Isayas, Y. N. (2022).....
GDP	GDP growth rate	GDP growth rate	+	Alexandru loan Cuza (2014), Isayas, Y. N. (2022).....

Source: The authors synthesized and proposed

Sample includes 170 observations presented by unbalanced panel of 26 commercial banks during period of 7-year from 2016 to 2022. Data is attached as the following link:

https://docs.google.com/spreadsheets/d/1VkMmOTxUfAcEbpV8mctJHjup8BD2QnX0UZZPKm0N6ms/edit?usp=sharing.

Extracted from Stata 14 software, descriptive statistic used to describe the current situations of business performances is presented as below:

Table 2: Descriptive statistic

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	170	.011	.008	0	.036
ROE	170	.135	.079	0	.303
NIM	170	.025	.01	.007	.053
SIZE	170	12.089	1.138	9.855	14.567
SAGR	170	.186	.166	-.179	1.351
CAP	170	.086	.032	.038	.185
CFS	170	.467	.218	.084	.976
LDR	170	.722	.111	.016	.883
CPI	170	.03	.006	.018	.035
GDP	170	8.132	.12	7.918	8.321
DPR	170	.1	.193	0	2
AGE	170	26.853	11.282	8	65

Source: The result is extracted from Stata14 software.

The business performance of listed commercial banks in Vietnam in the period 2016-2022 fluctuates the most in the ROE ratio, the standard deviation is 7.9%, other business performance ratios also fluctuate quite strongly. Specifically, return on assets (ROA) in the period 2016-2022 has an average value of 0.011 with the smallest value being 0 for NVB in 2022 and the largest value being 0.036 for TCB in 2021 and the standard deviation is 0.008. Thus, during the research period, on average for one dong of assets used in business activities, the commercial banks in the sample earned 0.011 dong of net profit. Return on assets of commercial banks in Vietnam in the past 7 years, although there has not been a significant difference between commercial banks, these results are relatively low, in which TCB achieved the highest ROA. The return on equity (ROE) of commercial banks fluctuates strongly, the smallest value is 0 for NVB in 2022, the largest value is 0.303 for VIB in 2021, the average value is 0.135, that mean, on average, one dong owner's equity used for business activities, commercial banks earn 0.135 dong net profit during the research period.

These results show that the efficiency of owners' equity management of Vietnamese commercial banks has fluctuated considerably, the benefits for shareholders of some commercial banks such as TCB, VIB, OCB, VCB... are relatively large, which means some commercial banks' stocks are strongly attractive to investors and are considered to have good growth potential. The net interest margin (NIM) measuring the business performances of commercial banks on average in the period 2016-2022 is 0.025, the smallest value is 0.007 for VBB in 2020 and the highest value is 0.053 for VPB in 2017 and the standard deviation is 0.01. Thus, on average, one dong earning asset invested in period generates 0.025 dong net profit, NIM of commercial banks is quite attractive to investors. In particular, during the analysis period, all 26 listed commercial banks achieve positive business performances, no listed commercial banks suffered losses, this is a positive result showing that the development potential of Vietnam's listed commercial banks is very large, therefore listed commercial banks should find the right way to unleash these potentials.

Almost factors affecting to business performances of listed commercial banks in the period 2016-2022 are suitable to hypotheses. Specifically:

+ The descriptive statistics result shows that: the size of commercial banks calculated by the natural logarithm of total assets reaches the smallest value of 9,855 (19,048 billion VND) and the largest value of 14,567 (2,120. 609 billion VND). The average of firm size variable during the analysis period is 12,089, however the standard deviation is relatively high at 1,138, showing that commercial banks' sizes in Vietnam has a relatively large difference. Sales growth rate (SAGR) of the research samples averages 18.6%, fluctuates between 17.9% and 135.1%, and the standard deviation is 0.166, which means the sales growth rate of commercial banks in the analysed sample and during the research period has a relatively large segmentation. Capital structure (CAP) reaches an average value of 8.6%, of which the smallest value is 3.8% and the largest value is 18.5%. The results mean that in the analysed sample, on average, one dong owners' equity finances 0.086 dong Total Assets, this capital structure is relatively suitable for the business characteristics of commercial banks. The average non-interest expense ratio of commercial banks during the research period was 46.7%, ranging from 8.4% to 97.6%, with a standard deviation of 0.218, showing the ability of cost management for business activities apart from credit activities of commercial banks in the research sample are relatively different. The average loan to deposit ratio reached 72.2%, ranging from 1.6% to 88.3%. The average dividend payout ratio in the period 2016-2022 of the studied commercial banks is 10% with the smallest ratio being 0% and the largest ratio being 20%. The average years of establishment and development of commercial banks in the research sample is 26,835 years, ranging from 8 years to 65 years, with a standard deviation of 11,282, showing a huge difference in the history of establishment and development of listed commercial banks in Vietnam.

The results of testing the correlation between independent variables in the research model in Table 2 show that there is no sign of multicollinearity occurring in the model.

Table 3: Correlation table

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) SIZE	1.000								
(2) SAGR	0.050	1.000							
(3) CAP	-0.345*	-0.191	1.000						
(4) CFS	0.115	0.106	-0.264*	1.000					
(5) LDR	0.239*	-0.229*	0.197*	-0.231*	1.000				
(6) CPI	-0.071	0.210*	-0.043	0.078	-0.064	1.000			
(7) GDP	0.176	-0.177	0.116	-0.054	0.111	-0.226*	1.000		
(8) DPR	0.254*	0.113	-0.008	-0.134	0.049	0.026	0.012	1.000	
(9) AGE	0.486*	-0.218*	-0.129	-0.030	0.239*	-0.062	0.118	0.027	1.000
*** p<0.01, ** p<0.05, * p<0.1									

Source: The result is extracted from Stata14 software.

The authors tested 03 linear regression models, studying factors affecting to the business performances of commercial banks measured by 3 variables including ROA (model 1), ROE (model 2) and NIM (model 3), using OLS methods with the condition of fixing the influence of time. The VIF test results of the 3 models are 1.73 and no coefficient is greater than 10, showing that the models do not have multicollinearity. However, the White test results show that model 1 and model 2 have heteroskedasticity at the significance level of 1% and 10%, respectively. Continuing to test 3 models using the fixed effects model (FEM) method and random effects model (REM) method. The results of the Wald-test and Hausman test show that the most effective method for model (1) and model (2) is the FEM model, model (3) is the REM model. However, the results of the Wooldridge test (autocorrelation) and the Breusch and Pagan Lagrangian test (heteroskedasticity) show that all above models have heteroscedasticity and autocorrelation. To overcome referred errors and increase the accuracy of empirical results, authors applied FGLS method to all 3 models.

Summary of results from the linear regression models used to study factors affecting the business performances of commercial banks in the period from 2016 to 2022 by using the following methods: OLS, REM, FEM, FGLS are presented as follows:

Model 1: Factors affecting to return on assets (ROA)

$$\begin{aligned} ROA = {} & 0{,}005\ x\ SIZE + 0{,}007\ x\ SAGR + 0{,}146\ x\ CAP \\ & -0{,}004\ x\ CFS - 0{,}00017\ x\ AGE - 0{,}007\ x\ LDR \\ & +0{,}011\ GDP - 0{,}002\ x\ IR_{Group}\ Dummy - 0{,}146 \end{aligned}$$

Model 2: Factors affecting to return on equity (ROE)

$$\begin{aligned} ROE = {} & 0{,}055\ x\ SIZE + 0{,}073\ x\ SAGR + 0{,}408\ x\ CAP \\ & -0{,}049\ x\ CFS - 0{,}001\ x\ AGE - 1{,}037\ x\ CPI + 0{,}12\ GDP \\ & -0{,}019\ x\ IR_{Group}\ Dummy - 1{,}425 \end{aligned}$$

Model 3: Factors affecting to net interest margin (NIM)

$$NIM = 0{,}006\ x\ SIZE + 0{,}013\ x\ SAGR + 0{,}18\ x\ CAP$$
$$-0{,}0003\ x\ AGE + 0{,}017\ GDP - 0{,}194$$

The linear regression results of the three models show that the factors: SIZE, SAGR, CAP, GDP have positive impacts on the business performance ratios of commercial banks with different levels of impact, while the opposite is true for factor AGE. Other factors like CFS, IR-Group have negative impacts on ROA and ROE, CPI affects nagetively on ROE and LDR only have positive effects on ROA. Covid have an ambiguous impact on business performances.

The empirical results of studying the impact of factors on business performances of listed commercial banks in recent times help authors to propose some solutions to improve the business performances of commercial banks in the coming time.

3. Solutions to enhance the business performances of listed commercial banks in Vietnam

Firstly, it is necessary for listed commercial banks in Vietnam to increase the scale of business activities that have impacts on factor "Firm size" (SIZE). The firm size has a positive relation with the business performances of listed commercial banks at the significant level of 1%: if firm size increase by 1%, ROA increases by 0.005%, ROE increases by 0.055% and NIM increased by 0.006%. Each commercial bank must have a roadmap and proactively develop a budget plan to choose appropriate methods of mobilizing resources, assesst structure, focus on investing in modern technology to improve competitiveness. In the current context of Industry 4.0, the advantage is only for banks with strong financial resources to invest in modern facilities (AI, big data...). Promoting digital transformation and develop digital products requires large financial resources. Successful technology investment and digital transformation will help listed commercial banks to improve business performances in the current context.

Secondly, increasing financial autonomy and independence by increasing CAP will help commercial banks to have more credibility to partners in financial relationships and have better respond to financial risks. Inadequacies in capital structure, especially too high capital multipliers and too low CAP are one of the reasons why the business performances of many commercial banks are not appropriate to their potential and strengths. Capital structure has a signicant positive impact on the business performances of listed commercial banks during the research period. A 1% increase in CAP will increase ROA, ROE and NIM by 0.146%, 0.408% and 0.18% respectively at the significance level of 1%. Financing policies of commercial banks always have a significant impact on business performance, the more commercial banks increase their financial independence from outsiders, the higher their business performances and vice versa, especially for commercial banks who have the high proportion of interest income to total income. To increase CAP, listed commercial banks can choose the following methods: issuing shares, M&A, retaining profits, reasonable dividend policies, restructuring capital... However, increasing CAP will also increase costs of capital, therefore maintaining balance between costs and benefits plays an important role in financing policy of commercial banks. If commercial banks increase CAP through capital mobilization channels to increase both scale and financial autonomy, but do not control investment and capital effectively, especially bad debt management, it can easily lead to solvency risks which means disadvantages outweight advantages. On the contrary, using capital effectively and simultaneously increasing financial independence will lead to maximum benefits. Therefore, taking full advantages of the dividend policy to increase CAP and managing capital adequacy according to Basel standards will help listed commercial banks increase their business performances more sustainably.

Thirdly, expanding financial products and services to ensure revenue and income growth (SAGR) to increase business performances. Sale growth rate (SAGR) has positive impact on all three variables ROA, ROE and NIM. If sale growth rate increases by 1%, it will increase ROA by 0.007%, increase ROE by 0.073% and increase NIM by 0.013% at the significance level of 1%. This result implies that sale growth rate play a relative important role in contributing to improving business performances of commercial banks, especially commercial banks who have incomes deriving from different types of services. In the context that the business model of commercial banks is transforming from traditional model which focusing on credit activities to retail service model, listed commercial banks who are digitally transforming faster and widely applying fintech will have greater business performances.

Fourthly, controling costs, including interest expenses and non-interest expenses. For commercial banks who develop retail products combined with fintech services, SAGR could be increased but at the same time, non-interest costs and CFS could be increased, and eventually they would face up with the risk of reduction in business performances. Non-interest expense ratio (CFS) has a negative impact on ROA and ROE, but has no relationship with NIM. Specifically, a 1% increase in CFS causes ROA to decrease by 0.004% and ROE to decrease by 0.049% with p-values both less than 1%. CFS of commercial banks who provide retail services (LIR) affect on ROA and ROE more significantly than that of commercial banks who focus only on providing traditional credit services (HIR). Besides that, although results of the entire sample did not show a relationship between CFS and NIM, specific research for each group showed that, for the LIR group, CFS increased by 1% will increase NIM by 0.006% at the significance level of 5% and vice versa, for HIR group, CFS increase by 1%, NIM will decrease by 0.006% at the significance level of 10%. This proves that the more economically and effectively commercial banks manage costs for retail service activities, the higher their business performances (ROA, ROE). This is also an irreversible trend for operation model of commercial banks when per capita income increases, the middle-class accounts for a large proportion of society and personal financial services and financial literacy develop. In addition to interest costs, costs for retail products, and costs of capital, commercial banks need to strengthen cost management: risk provisions, especially credit risks, expenses for employees, fixed costs,..., reduce CFS reasonably. Listed commercial banks must focus on further promoting the digital transformation process, applying AI technology, developing digital financial products and services, electronic transactions... reasonably reducing payroll and reducing office rents...., have a flexible business strategy, change in accordance with the trends of society, the market, and technology, seize the best opportunities. All of which will enable commercial banks to enhance business performances as well as obtain the sustainable development.

Fifthly, taking deposit for lending is a traditional credit activity that is still the strength of many listed commercial banks in Vietnam today, the loan-to-deposit ratio (LDR) factor has an negative relationship with ROA, while the empirical results also show that there is no significant relationship between LDR and the variables ROE and NIM. At the significance level of 5%, a 1% increase in the loan to deposit ratio will reduce ROA by 0.007%. Thus, the more a commercial bank increases the loan-to-deposit ratio, the smaller return on assets and vice versa. In the period 2016 to 2022, commercial banks's credit growth rate is very high, especially real estate loans - long-term loans while commercial banks mainly mobilize short-term deposits, therefore when the real estate market stucks with liquidity risks, commercial banks will be bounded by bad debts, and thus business performances will certainly decline, including technical provisions - due to increased credit risk provisions. Therefore, to solve the root of the problem, listed commercial banks themselves will have to implement many temporary solutions such as debt restructuring, tightening real estate credit, handling bad debt... but in the long term, it is really necessary to transform the business model as mentioned in solutions 3, 4 and improve risk management to enhance business performances in a more sustainable way.

Sixthly, the results show that the commercial bank' age has a insignificant negative impact on ROA, ROE and NIM, there is no difference between 2 groups LIR and HIR regarding to the influence of age on business performances. Thus, it can be seen that the long history of establishment and development is no longer an advantage, an important factor to improve the business performances of commercial banks. Even the conservatism, stagnation, and burden of the apparatus, the management mechanism of long-standing commercial banks in Vietnam can be a factor hindering the business performance of commercial banks themselves. In addition, the authors use two dummy variables, IR_Group and Covid, to test the impact of income structure and the Covid 19 pandemic on the business performances of commercial banks in the period 2016-2022. The results show that the Covid 19 epidemic outbreak from 2019 to 2022 does not affect business performance (NIM), but Covid is a catalyst to promote digital transformation, diversifying products and services, focusing on customer satisfaction experiences and then contribute to improve the business performances of commercial banks (an increase in ROA and ROE). The IR-group variable, which classifies groups according to the ratio of interest income to total income, has a negative impact on ROA and ROE with significance levels of 5% and 1%, respectively. This means the commercial banks who have lower ratio of interest income to total income will have higher business performances and vice versa. Empirical results show that commercial banks providing diversified products and retail services in group 2 have higher business performances than commercial banks who only focus on providing traditional credit services in group 1. Under the development of science and technology, the foundation for digital banking is ready, the Vietnamese population is also ready to use digital technology in personal as well as professional life, so Vietnamese commercial banks need to promote faster the digital transformation which then lead to an increase in business performances.

Seventhly, commercial banks need to study macroeconomic policies to adjust business activities flexibly, because the macroeconomic environment always has a considerable impact on commercial banks' business activities. When macroeconomic management policies are stable, the economy will grow and develop sustainably, and people's income will increase, then they will contribute to promote and improve business performances of commercial banks and vice versa. The empirical results show that: GDP growth has a positive relationship with ROA, ROE and NIM at the 1% significance level. A 1% increase in GDP growth rate causes ROA to increase by 0.011%, ROE to increase by 0.12% and NIM to increase by 0.017% at the 1% significance level. CPI has no relation to ROA and NIM, but has a significant negative impact on ROE. At the 10% significance level, CPI increased by 1%, ROE decreased by 1,037%. The finding means that higher inflation will have a negative impact on return on equity. In the coming years, according to World Bank forecasts, Vietnam will still be a bright spot in terms of growth and good inflation control compared to international and regional markets, although macroeconomic indicators such as GDP increase slowly, CPI increased faster than the period 2016-2022, but the estimated GDP growth reaching around 6% and inflation around 4% still provide opportunities for commercial banks to increase profitability if they have an effective business management.

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FACTORS INFLUENCING CUSTOMERS' INTENTION TO USE DIGITAL BANKING SERVICES IN HANOI

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Abstract: ***The study aims to identify factors that affect customers' intention to use digital banking services in Hanoi. Based on a survey of 850 customers, research results indicate that there are 07 factors affecting customers' choice to use digital banking services in Hanoi including: usefulness, risk perception, social influence, innovativeness, cost perception, supplier image, and ease of use.***

• Keywords: *intention to use services, digital banking.*

JEL codes: M19

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Tóm tắt: *Nghiên cứu nhằm xác định các nhân tố ảnh hưởng đến ý định sử dụng dịch vụ ngân hàng số của khách hàng trên địa bàn Thành phố Hà Nội. Trên cơ sở khảo sát 850 khách hàng, kết quả nghiên cứu cho thấy có 07 nhân tố ảnh hưởng đến ý định sử dụng dịch vụ ngân hàng số của khách hàng trên địa bàn thành phố Hà Nội: tính hữu ích, nhận thức rủi ro, ảnh hưởng xã hội, tính đổi mới, cảm nhận chi phí, hình ảnh nhà cung cấp, tính dễ sử dụng.*

• Từ khóa: *ý định sử dụng dịch vụ, ngân hàng số.*

1. Introduction

Apparently, developing digital banking services is essential for transforming the digital economy and motivating countries to integrate deeply and widely with the international economy, creating an ecosystem for the economy's digital transformation environment. In particular, the strong development of digital banking services will reduce the pressure on cash circulation in the economy, thereby saving the economy's printing costs and issuing cash. Simultaneously, digital banking helps authorities tackle difficulties in determining the amount of cash circulating in the market. In addition to measuring, creating solidarity between financial institutions helps to optimize the national financial system. In reality, the State has complete information about tax payment: the banking system facilitates all tax payment transactions to be carried out quickly. The completed information will be backed up in the system for easy review. Moreover Implementing digital banking services aids customers in easily accessing financial services while saving time and effort during use, creating convenience for customers... The services that digital banks provide to customers can be performed conveniently without limitations in space and time, and customers do not have to travel to banks or credit institutions to perform transactions. In fact, customers can make and confirm transactions with high accuracy and speed. All transactions will be automated and processed quickly, including bill payments and money transfers, and all transaction confirmations will be sent to the recipient immediately. Customers take the initiative in using the services provided by digital banks. Undoubtedly, researching customers' intention to use digital banking services is vital for developing digital banking services in Hanoi in particular and Vietnam in general.

2. Literature review

It is the development of digital technology that has changed the operations of the Vietnamese banking system, requiring banks to integrate technology into operations and digitize business processes in an automated manner

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to provide products, services, and services on digital platforms, effectively exploiting data to increase customer experience and engagement. Therefore, research on the intention to use digital banking services to identify influencing factors is significant and of interest to many researchers. In particular, Cao Hao Thi and Nguyen Thanh Duy (2011) proposed a model of acceptance and use of electronic banking in Vietnam, including the following factors: expected effectiveness, compatibility, ease of use, behavioral control, subjective standards, transaction risks, banking image, law. Hamdi (2015) researched factors affecting consumer acceptance of M-banking, including ease of use, usefulness, credibility, trust, and customer attitude, staff. Duy, K.H.K (2016) pointed out the factors affecting the acceptance of using electronic banking services, including compatibility, perceived effectiveness, banking image, and perceived usefulness... Phu, L.C (2019) put forward factors such as Expected efficiency, transaction risk, perceived ease of use, perceived preference, social influence, and bank brand as the main factors that have significant influence on the decision to use e-banking services of individual customers. According to Giao, H.N.K and Chau, K.T (2020), factors affecting the decision to use Smartbanking services are arranged in descending order of level of impact: perceived risk, feel trust, perceived usefulness, perceived ease of use, perceived cost. Inheriting the research, the author clarifies the factors that affect the intention to use digital banking services, including product usefulness, risk perception, social influence, innovation, cost perception, supplier image, and ease of use.

3. Theoretical background

According to Gaurav Sarma (2017), Digital Banking is perceived as a form that digitizes all traditional banking activities and services. In other words, everything customers can do at traditional bank branches is digitized and integrated into a single digital banking application. Through this application, customers do not need to go to Bank branches. They can still carry out all transactions and at the same time bank activities such as risk management, capital resources, product development, marketing, sales management... are also digitized. There is no doubt that E-banking is an electronic banking service system (including services such as Internet Banking, SMS Banking, and Mobile Banking) created to complement services on traditional banking platforms (digital out). It is a digital bank with the full functions of a bank, from organizational structure to working processes, products and services, documents, and transaction methods with customers (includes both digital in and digital out). In terms of factors affecting the intention to use digital banking services, they arre:

3.1. Usefulness

Usefulness is the customer’s belief that applying technology will increase work performance. Apparently, using digital banking services means utilizing the services of a technology application system to enhance the performance of the user’s work (Davis et al. (1989), (Pikkrainen et al. (2004)). Usefulness is built based on the research of Pikkrainen et al. (2004), Le Van Huy et al. (2008), and many other studies reaveal that the product’s usefulness affects customers’ purchase intention. Customers will intend to choose digital banking services that are helpful to them. The service’s usefulness is indicated by helping customers save time and costs and access diverse services (Davis, 1989; Pavlou, 2003; Erkan & Evans, 2016). In the model TAM, usefulness is identified as a factor that directly affects the intention to use technology products, including mobile applications (Park et al., 2014). According to Venkatesh et al. (2003), usefulness refers to the extent to which people perceive a new technology to be helpful in their daily lives in enhancing their productivity and saving them time and effort. If the costs are lower or the benefits are higher, the valuable value of the technology will be greater, and the intention to use it will also be positive.

3.2. Risk awareness

Perception of risk in using digital banking services is understood as the attitude of anxiety or uncertainty that consumers perceive when using digital banking services. When being aware of the risk, the consumer’s intention will adjust because of the fear/anxiety that the intending user (or user) faces when they cannot predict the consequences of using/continuing to use that service (Chan, Lu (2004)). Perceived risk by Chan and Lu (2004), (Venkatesh (2003), Pham Long and Associates (2013), and Nguyen Duy Thanh and colleagues (2014) imply the risks affecting the intention to use products customers such as financial risk, time risk, psychological risk, operational risk. Furthermore, operational risk is the risk of loss due to inadequately regulated internal processes or errors from human factors due to errors, system failures, or due to external factors causing loss to users. It is considered a critical factor that negatively affects the intention to use customers' digital banking services (Littler and Melanthiou, 2006). Regarding the element of perceived risk, many previous studies have identified that perceived risk affects customers' intention to use the customer service. Lee (2001) studied the intention to accept and use e-commerce services in Korea. Brown (2003) studied to predict the intention to use Cellphone banking services of customers in South Africa. Laforet and Li (2005) investigated the barriers to using Internet banking in China including risk perception, computer and technology skills, lack of awareness and understanding of the benefits and money culture carrying face. Chan and Lu (2004) studied the intention to use and accept the use of Internet banking services in Hong Kong and confirmed that risk factors negatively affect the intention to use the service of potential customers. The higher the perceived risk of security and trust of suppliers to consumers, the lower the perceived usefulness of e-commerce (Lee, 2001). Actually, risks of security and confidentiality through internet transactions reduce perceived usefulness for customers (Chan and Lu (2004)).

3.3. Social influence

Social influence is understood as the impact of influential people on customers' intention to use digital banking services. According to Venkatesh et al.'s (2003) research model, social influence is defined as the degree to which others influence whether a person should use technology or not and influences the intention to accept use by that individual. People around will influence each individual's intention to use digital banking services (Amin et al. (2008). According to Lee (2009), this social influence includes the influence of friends as a significant element to stimulate inquiry, encourage learning, and intention to accept service use. In addition, the impact of managers/high-status people (according to Gang and Associates (2008) also influences customer's intention to use the service. According to Emad (2009), research adds the influence of people with high status in society.

Undoubtedly, social influence occurs when one person influences the behavior of another (Rice, Grant, Schimitz, and Torobin, 1990). It is the degree to which relevant others influence an individual's intention to use (Venkatesh, 2003). In reality, individuals will feel comfortable adopting socially recognized technological systems because they believe they will feel the same way as those using the system (Anandarajan, Igbaria & Anakwe, 2000); Igbaria, Parasuraman & Baroudi, 1996). According to Ming Chi Lee (2008), and Forsythe and Shi (2003), unfavorable perceptions about digital banking by relatives, acquaintances, or people who influence customers' views on digital banking activities will affect affects customers' views and attitudes about services.

3.4. Innovativeness

Innovativeness is understood as the affection of change, experience with new services that digital banks provide, new buying tendencies, and preference for product differences. In fact, innovation is closely related to the tendency to adapt to change and make independent judgments, seek novelty, be willing to change, and accept new things. New banking services were born with the support of modern information technology, and increasingly diverse and professional service features and utilities have attracted and stimulated customers' intention to utilize digital banking services row. Digital banking services contain high levels of technology and technical innovation, so the interest in learning about new technology and new products is an essential factor affecting customers' intention to use digital banking services. The research author built consumer innovativeness based on the scale of Manning et al. (1995). Consumer innovativeness is measured through the desire to seek information about new products.

It cannot be denied that innovativeness reflects an openness to change, reflecting the need to create novelty and excitement (Schwartz (1992)). According to Manning et al. (1995), innovative consumers like novelty, search for new product information and want to have new experiences with products. Up to now, many researchers have demonstrated the influence of innovativeness on the intention to accept and use new products applying quantitative methods in many different fields (Dickerson (1983), Foxall and Bhate (1983), Foxall and Bhate (1983). 1991), Wood and Swait (2002), Paswan and Hirunyawipada (2006), Ho and Wu (2011),…).

3.5. Perceived cost

Perceived cost is understood as the customer's perceived cost (low/reasonable price) when using digital banking services, and costs include both money costs and time costs. Perceived low cost is built based on Poon's (2008) scale. Many research projects, such as Bekhet et al. (2011) and El-Qirem and Associates (2013), have researched and appraised the scale. Undoubtedly, perceived low/reasonable cost is the perception that a service is provided at a lower price than other services used at the counter or free of charge (Poon (2008), Junhua du (2011)). In reality, price is what consumers give up or sacrifice to obtain a product (Zeithaml, 1988). Value is measured by the correspondence between customers' prices and the goods and services they receive (Petrick, 2002). The more customers feel the value is commensurate with what they receive, the higher their perceived value of the goods and services will be. As a result, perceived cost will affect customers' intention to use digital banking services.

3.6. Supplier image

Supplier image reflects value and reputation, and the perception of the supplier is stored in customers' minds. The image of a reputable supplier will ensure service quality and fulfill good commitments to customers. A business can attract new customers and help it build a good image based on its material and non-material contributions, such as brand, architecture, product diversity, service, culture, ideology, and quality (Nguyen & Leblanc, 1998). The supplier image scale was built on the basis of the scale of Nguyen and Leblanc (1998). Research and testing by Maiyaki et al. (2011), Chu Tien Dat (2014), and many other studies identify that purchasing on social networks has become faster and easier than ever. Providers will have to work to unravel what is driving customer intent. It is suggested that companies should use this data as a basis to inform their tests and strategies. This will help the supplier build its image closer to the ultimate goal. That is seen as the useful way to drive more sales. Moreover, supplier image is the overall impression of that supplier in the customer's mind (Zimmer & Golden, 1988). It reflects the supplier's value, reputation, and customer perception. The image of a reputable supplier will assure service quality and fulfill good commitments to customers. A business can attract new customers and help the business build a good image based on the business's material and non-material contributions (Nguyen & Leblanc, 1998).

3.7. Ease of use

Ease of use is the degree to which customers/users perceive the difficulty or ease of learning to use the products and services of the providing organization. It means users believe that they do not need to make any effort to use it (Davis (1989)). Davis's research (1989) was verified, developed, and achieved successful results through the research of Moore and Benbasat (1991), Pikkrainen et al. (2004), Cheng et al. (2006), Mohamad (2012)), Nguyen Duy Thanh and Cao Hao Thi (2014) and many other studies have found that the behavioral effort required to learn and utilize an information technology component directly affects purchase intention, especially in the exploratory phase of technology use (Venkatesh and Davis, 2000; Gefen, 2003). According to Hansen (2006), the primary motivation for customers to choose digital banking services is to maximize convenience by minimizing the physical and mental effort required to complete a non-essential shopping task available from other alternative channels.

Table 1. Factors affecting customers' intention to use digital banking services

Numerical order	Factor	Source
1	Usefulness	Pikkrainen et al (2004), (Davis et al (1989)
2	Risk awareness	Chan and Lu (2004), (Vankatesh (2003), Pham Long and Associates (2013)
3	Social influence	Amin et al (2008), Gang et al (2008) and Emad (2009)
4	Innovativeness	Manning et al (1995)
5	Feel the cost	Poon (2008), Bekhet et al. (2011), El-Qirem et al. (2013)
6	Ease of use	Nguyen & Leblanc, 1998, Maiyaki et al (2011), Chu Tien Dat (2014)
7	Ease of use	Pikkrainen et al (2004), Cheng et al (2006), Mohamad (2012), Nguyen Duy Thanh and Cao Hao Thi (2014)

Source: Compiled by author

4. Research Methodology

In respect to secondary data, they are collected from books, newspapers, magazines, documents published on mass media, the internet, and from agencies; from the summary report at the Bank for the period 2018-2023 and the operating direction for the following year.

On the subject off primary data, they are conducted through a survey of customers using digital banking services in Hanoi city.

Sampling: The study implemented a non-probability sampling method (convenience sampling). The expected appropriate sample size is determined according to the formula of Cochran (1977):

Sample size calculation formula:

$$n = \frac{Z^2 p(1-p)}{e^2}$$

For the most representative sample size, select p = q = 0.5

Z2 α/2= 1.96; ε = 10%; With a confidence level of 1- α = 95%, the sample size can be calculated as: Based on the minimum sample size of 96, the official number of samples determined by the author when conducting the research is 8500 to ensure the level of reliability of the collected data.

Data analysis and processing methods include: synthesis method, comparison method, descriptive statistics method.

Table 2. Research sample information is customers using digital banking services in Hanoi city

Sample information	Number (People)	Ratio (%)
Sex	**850**	**100%**
Male	203	35%
Female	647	65%
Income	**850**	**100%**
Under 10 million	57	6.7%
From 10 - 20 million	283	33.3%
From 21 - 30 million	312	36.7%
Over 30 million	198	23.3%
Profession	**850**	**100%**
Office staff	221	26%
Officials and civil servants	255	30%
Business	340	40%
Other	34	4%
Educational qualifications	**850**	**100%**
High school	43	4.06%
College	212	24.94%
University	312	36.7%
Postgraduate	283	33.3%
Time to use banking services	850	100%
1-3 years	357	42 %
3-5 years	238	28%
>5 years	255	30 %
Level of understanding of digital banking services	**850**	**100%**
Not understand	51	6%
Clearly understand	571	67.18%
Completely understand	228	26.82%

Source: Author's survey, 2023

5. Research results

Statistics from the State Bank illustrate that about 95% of credit institutions have or are in the process of building a digital transformation strategy; approximately 80 credit institutions have provided Internet banking services, and 44 credit institutions have provided Mobile banking services. In addition, the entire market currently has more than 90,000 QR payment points. Especially in the first nine months of 2021, more than 36 million billion VND was transacted via the Internet and mobile devices, of which payments via Internet channels reached more than 435 million transactions, with a value of nearly 23 million billion VND. This means an increase of more than 54% in quantity and 30% in value compared to last year. Payments via mobile phone channels also increased by nearly 75% in quantity and 94% in value.

Interestingly, digital banking services are penetrating deeper into the market. The proportion of customers of the commercial bank system in Vietnam using digital banking services accounts for about 44%, according to statistics from the Banking Strategy Institute and Department of Information Technology, State Bank of Vietnam, in 2022. Report on Banking services - User behavior and trends in Vietnam of IDG Vietnam indicated that by 2023, up to 81% of surveyed users would have used banking solutions compared to 21% survey in 2015. Statistical data from commercial banks on the system, such as VP Bank and Vietnam International Commercial Joint Stock Bank (VIB), also depicts that most bank transactions occur via electronic channels, in natural form online, through the bank's software applications. In terms of VP Bank, in 2023, the bank has mobilized VND 10,000 billion from the digital banking service channel, accounting for 9% of the total mobilization of the entire bank, and over-the-counter transactions have decreased to 17 - 18%. According to VIB, 80% of the bank's non-cash transactions are currently taking place on MyVIB and Internet banking applications, with only 20% of transactions being performed at the counter. The number of customers regularly using MyVIB in 2023 is expected to increase by 87% compared to 2015.

Based on the investigation data obtained through the survey of customers using banking services, conducting statistics, analysis, and evaluation of the current status of customers' intention to use digital banking services in Hanoi City, this study uses the average value method to evaluate the level of agreement of businesses with each information collected on the issue of business model innovation. As follows:

- *Use the distance value scale*

Distance value = (Maximum - Minimum)/5 = (5-1)/5= 0.8

- *Analyze the meaning of each average value for the interval scale*

The average value	**Meaning**
1.00 - 1.80	Strongly disagree
1.81 - 2.60	Disagree
2.61 - 3.40	Confused/Neutral
3.41 - 4.20	Agree
4.21 - 5.00	Very agree

After that, the author conducted statistics, analyzed and evaluated customers' opinions on their intention to utilize digital banking services based on the average price of the survey scale scores and combined with other factors and other secondary information.

Table 3. Evaluation of factors affecting customers' intention to use digital banking services

Observed variables	Content	Medium score	Standard deviation	Meaning
Usefulness (U)				
U1	I realize that using digital banking services makes banking transactions easier.	4.00	0.793	Agree
U2	I find that using digital banking services helps me control my finances effectively.	4.05	0.757	Agree
U3	I find that using digital banking services helps me save time.	3.96	0.749	Agree
Risk awareness (RA)				
RA1	I realize that transactions on digital banking are not secure. Other people can forge the information.	3.99	0.740	Agree
RA2	I am concerned that privacy may not be guaranteed.	3.95	0.770	Agree
RA3	I realize there may be fraudulent loss of money when using digital banking services.	4.09	0.706	Agree
Social influence (S)				
S1	People who are important to me think I should use new and more modern banking services.	4.1	0.792	Agree
S2	People who are familiar with me think that I should use new and more modern banking services.	4.11	0.751	Agree
S3	People with high status in society think I should use digital banking services.	3.98	0.723	Agree
S4	I see a lot of people using digital banking services. I think I should use digital banking services for my activities.	3.84	0.797	Agree
Innovativeness (I)				
I1	I always like to learn about new services and new conveniences of banking services.	4.03	0.779	Agree
I2	I like the new experiences that digital banking services provide.	4.05	0.786	Agree

Observed variables	Content	Medium score	Standard deviation	Meaning
I3	I took advantage of the first opportunity to learn about the new digital banking service.	4	0.775	Agree
Feel the cost (FC)				
FC1	I find that digital banking costs are lower than over-the-counter transactions.	4.01	0.782	Agree
FC2	I find that using digital banking saves me time and money.	3.91	0.772	Agree
FC3	I noticed that the bank offers many free digital banking services.	4.06	0.754	Agree
Supplier image (SI)				
SI1	The quality of this supplier is up to standard helping me feel secure in using the service.	4.02	0.803	Agree
SI2	Supplier image influences my choice.	4.02	0.828	Agree
SI3	In my opinion, other people also have a good impression of this service provider.	4.10	0.755	Agree
Ease of use (EU)				
EU1	I find using digital banking services flexible and easy.	4.09	0.715	Agree
EU2	I can easily use digital banking services fluently.	4.09	0.813	Agree
EU3	I feel learning how to use digital banking services is very easy.	3.73	0.843	Agree
Intention to use banking service number (IU)				
IU1	I plan to use more digital banking services in the near future.	4.1	0.695	Agree
IU2	I intend to use digital banking services in the near future.	4.06	0.721	Agree
IU3	I intend to use digital banking services more often in the future.	4.01	0.793	Agree
IU4	I intend to use Digital Banking services in the near future.	4.08	0.744	Agree

Source: Results of data processing

Conclusion

In reality, the digital banking market, with high customer requirements and complex technology, is creating a high and fierce level of competition. Researching customer usage intentions has become an essential factor for banks to implement "differentiation" strategies and create a sustainable competitive advantage in digital transformation. In the "experience economy", in the "industrial revolution 4.0", the competitive advantage that digital banks have will often come from creating unique and different experiences based on products and services to attract and retain customers. Hence, recognizing customer intentions and factors that influence the choice to use digital banking services has also become an essential part of the product creation process for banks. During the shopping process, positive guidance and positive emotional experiences can make customers trust, increase repeat purchase intentions, and spread positive information about the products and brands that they want to have a good experience. Especially in the current situation, banks can create advantages from niche markets to attract and retain customers and assure sustainable competitive advantage by integrating technology and available banking services.

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CASH FLOW MANAGEMENT AND OPERATIONAL EFFICIENCY OF SMEs IN VIETNAM

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Abstract: ***Cash flow management is one of the most important aspects of financial management for small and medium enterprises (SMEs). However, currently, for small and medium enterprises in Vietnam, cash flow management has not been focused on, which causes SMEs to be in a passive position in cash flow management, resulting in many difficulties for the business activities of enterprises. In this study, the authors analyze and evaluate cash flow management and the impact of cash flow management on the performance of SMEs in Vietnam. From there, the study provides recommendations for the cash flow management of SMEs in Vietnam.***

• Keywords: *cash flow, cash flow management, SMEs, SMEs performance.*

JEL codes: G39

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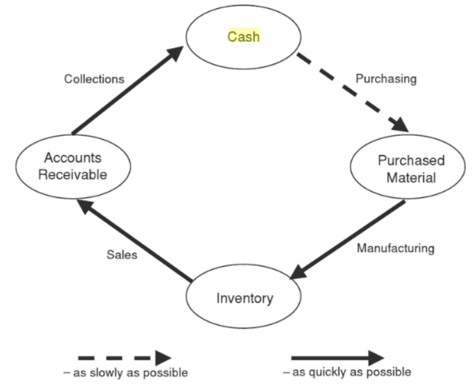
Tóm tắt: *Quản trị dòng tiền là một trong những nội dung quan trọng nhất trong quản trị tài chính của các DNNVV, việc quản trị dòng tiền đóng vai trò tiên quyết giúp doanh nghiệp có thể đạt mục tiêu tối đa hóa giá trị của mình. Tuy nhiên, đối với các doanh nghiệp nhỏ và vừa tại Việt Nam hiện nay, công tác quản trị dòng tiền vẫn chưa thực sự được chú trọng dẫn tới bị rơi vào thế bị động trong việc quản trị dòng tiền gây ra nhiều khó khăn cho hoạt động của các DN. Trong Nghiên cứu này nhóm tác giả phân tích và đánh giá quản trị dòng tiền và tác động của quản trị dòng tiền tới hiệu quả hoạt động của doanh nghiệp vừa và nhỏ tại Việt Nam. Từ đó đưa ra các khuyến nghị cho công tác quản trị dòng tiền tại các doanh nghiệp SME tại Việt Nam.*

• Từ khóa: *dòng tiền, quản trị dòng tiền, SME, hiệu quả hoạt động.*

1. Theoretical framework of cash flow management and enterprise value

Cash flow management is a process that includes the actions of planning, monitoring, evaluating and adjusting cash flow in an enterprise to optimize available resources, ensure liquidity in business operations, and contribute to the achievement of defined business objectives. Cash flow management helps businesses proactively understand their financial situation, as well as the efficiency of using the financial resources of the enterprise. That is the basis for enterprises to establish plans to develop and expand their business scale. It can be said that good cash flow management will help ensure the financial health of the business, which is essential to the survival of the business (Vu, 2015).

Figure 1: Cash generation cycle



Rob Reider, Peter B. Heyler, 2003

Cash flow management affects businesses in many operational aspects:

First, cash flow management helps optimise the distribution of money to form the necessary resources to meet the operational needs of enterprises in each period. Optimizing the distribution of the enterprise's money to serve its economic activities is

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a common goal in corporate financial management. In each activity, managers need to make optimal use of monetary resources, ensure the best final results, and contribute to achieving the development goals of the enterprise.

Second, cash flow management ensures the full and timely implementation of payment obligations of enterprises. The financial success of an enterprise is not only reflected in its capital, revenue and profits but also in the ability of the enterprise to fulfil its financial obligations. Insufficient cash flow to meet business operations is one of the factors leading to financial difficulties.

Third, cash flow management optimizes financial costs. With a relatively accurate prediction of cash needs, businesses will minimize the need for borrowed capital, thereby reducing interest expenses to a minimum. Thus, effective cash flow management ensures maximum available resources and minimizes financial costs arising from resource requirements from third parties.

Fourth, cash flow management assists in policy setting and decisions in business operations. Cash flow management provides the basis for financial predictions, which are the basis of management activities, clarifying not only financial policies but also general policies in enterprises. From there, the enterprises can implement operational activities, especially production and business activities, ensure strict control of enterprises' activities and make timely adjustment decisions if required (Nguyen, 2023).

Factors affecting cash flow management in Enterprises

Political and legal environment

This factor has a strong impact on the formation and exploitation of business opportunities and the realization of business goals. Political stability is an important prerequisite for production and business activities. Enterprises operate under the management of the State with an open and transparent legal system. The complete legal system and strictness in law enforcement create healthy competition for businesses. In addition, the degree of transparency of the law also affects the financial decisions of enterprises.

Economic environment

The economic environment represents the characteristics of the economic system in which enterprises conduct production and business activities. The change in the economic environment has a strong impact on the performance of enterprises.

The cash flows of enterprises have sensitive responses to changes in the economy. As the economy develops, investment opportunities are plentiful as well as abundant capital markets. Various capital mobilization channels. At this time, the net cash flow increased a lot.

On the contrary, when the economy has a slow economic growth rate or falls into recession due to tight monetary policy, large enterprises tend to increase debt, while small enterprises still maintain the same debt level. Net operating cash flow can be significantly reduced when the economy is in crisis, causing revenue growth to slow down or decrease significantly.

Inflation is one of the important macro factors affecting the amount of cash that businesses hold. When inflation is high, businesses are worried that prices will continue to rise, so they will increase the cost of buying raw materials, tools, and goods or have to cut output. Enterprises will also have the risk of having to increase the selling price of their products or risk reducing the quantity of goods sold, which will reduce their cash income. From there, it is possible to change the value and time of cash flow.

Characteristics of business sectors/ industry

Manufacturing enterprises and commercial and service enterprises have different asset structures, and different products, resulting in different cash inflows and outflows. Therefore, enterprises need to rely on the characteristics of their business lines to decide on trade credit policies, and inventory policies that enterprises apply, and ensure the implementation of the planned cash flow plan.

Size of enterprise, degree of diversification of business activities

The size of the enterprise is one of the important factors affecting the cash flow of the enterprise. Large-scale enterprises often have more stable cash flow, continuous and stable cash flow than small-sized enterprises. In addition, firms operating in multiple sectors hold less cash than firms that focus on one area of activity because diversification facilitates better coordination of cash flows and capital structure. investment association.

Qualifications of human resources for cash flow management

The professional qualifications of staff working in cash flow management in particular and financial management in general greatly determine the cash flow management of enterprises. The qualifications, attitudes and ethics of human resources involved in cash flow management affect the quality of advice and decision-making on the creation, distribution and use of monetary funds in enterprises.

Enterprise managers implement a high level of cash flow management, combining internal control with tight cash management, especially internal control for employees related to accounting books and standards. cash fund. Staff in charge of cash flow management must have working experience, and understand the characteristics and operation of the enterprise to coordinate smoothly with other related departments, ensuring continuous cash flow.

Corporate finance policy

Investment decisions, capital mobilization and profit distribution decisions all directly affect the cash flow of enterprises. Investment decisions affect the capital structure, thereby affecting the liquidity of enterprises, including spending on fixed assets and other investments. The decision to pay dividends in cash affects the cash balance of the enterprise and the solvency of the enterprise.

2. Impact of cash flow management on the operational efficiency of small and medium enterprises in Vietnam

Cash flow management is one of the most important aspects of the financial management of SMEs. However, small and medium enterprises in Vietnam today, are still in a passive position in cash flow management, which causes many difficulties for businesses.

Lack of capital is currently a common issue for SMEs in Vietnam

One of the biggest barriers to the development of SMEs is the lack of capital. Not only start-up enterprises lack capital, but operating enterprises also lack capital to expand production and business and expand markets, despite having good growth and high profits. Capital is the most important factor to survive for an SME. Many businesses realize that effective cash flow control is their biggest concern. In the steel manufacturing industry, due to the oversupply crisis, businesses have to sell goods at 30-40% lower prices to have operating cash flow and pay very high-interest rates while waiting for the next credit target allocation.

In the supporting industry, businesses stated that in the past, they could use signed contracts or mortgage real estate to borrow capital, but now banks do not disburse because of credit restrictions. They are unable to maintain their position in the supply chain due to a lack of capital to invest in new machinery and technology following demand from demanding markets.

In agricultural production, businesses do not have money to purchase when several agricultural products (especially seeds and supplies) have a concentrated purchase in the last months of 2022 and early 2023. In a short time and in need of large amounts of capital, local enterprises cannot compete with FDI enterprises without credit loans. Meanwhile, foreign-invested enterprises, which have better foundations, are less heavily affected by COVID-19 and are not dependent on loans from domestic commercial banks, will have more advantages.

Export data as of September 2022 of the General Statistics Office shows that exports of domestic enterprises decreased by 1.6% compared to the same period last year, while foreign-invested enterprises kept the 14.1% growth (Huong, 2022).

SMEs are limited in capital mobilization channels while internal capital can inhibit the development of enterprises.

When facing a cash shortage, businesses often have two options: either raise more equity (i.e. put their own money in) or mobilize external loans (banks, financial markets). Due to limited access to financial markets, SMEs often use equity and rarely use external official capital sources to finance their operations. Many surveys in the world as well as in Vietnam show that many SMEs answer that they do not need bank loans. According to the survey results of 996 Vietnamese enterprises (Enterprise Survey) by the World Bank from 2014 to 2016, difficulty in accessing capital is considered the biggest barrier for enterprises, however, only 28.8% of surveyed enterprises have used bank loans.

In a survey that involve businesses that do not take loans, the results show that a large percentage of businesses answered because they do not want to be in debt and/or think that loans are too risky. This may suggest that SMEs may not be aware of the benefits and proper use of loans. Therefore, it is necessary to change the perception of SMEs about the use of loans. If this aversion to loans is not addressed, it can be a significant impediment to SME growth, as most expansion projects are financed by loans. Often, the profits are not large enough to finance expansion plans and jobs.

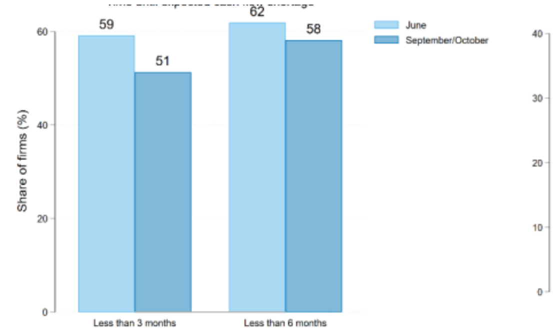
It is easy to lose liquidity when there are macro fluctuations in the business environment.

In 2020, manufacturing enterprises return to work after a long period of isolation, and the impacts of the covid 19 pandemic have shown gaps in the cash flow management of enterprises, especially liquidity ability.

Due to the impact of the pandemic, demand has decreased, mainly due to a decrease in the number of new orders. Declining orders are the main reason for the decrease in demand. In addition, businesses also suffer from delayed payments and order cancellations, but the main reason is still the decrease in the number of new orders. Demand fell and some businesses retreated. The majority (60%) of enterprises did not see any change in the level of competition in the market while about a quarter felt competitive pressure increased compared to last year, mainly due to a decrease in demand. A relatively large number (16%) also saw reduced competitive pressure as some competitors withdrew. Competitive businesses often choose to reduce their selling prices. Production costs also move in different directions: while in 19% of enterprises, production costs increased by about 14%, in 13% of enterprises production costs decreased by 20%. About 40% of businesses faced difficulties due to reduced input supply, and 10% had to cancel sales contracts due to insufficient input materials. In addition, businesses also face difficulties due to long waiting times or problems with logistics. Large enterprises have less input supply chain problems. Firms that rely on Chinese supplies are more likely to have supply problems (Figure 8). Most businesses rely on domestic or Chinese supply. Businesses that buy goods from abroad are more likely to have problems with logistics. For most businesses, waiting times remained stable, but about 10% of businesses had their wait times extended by about 25% in September compared to the same period in 2019.

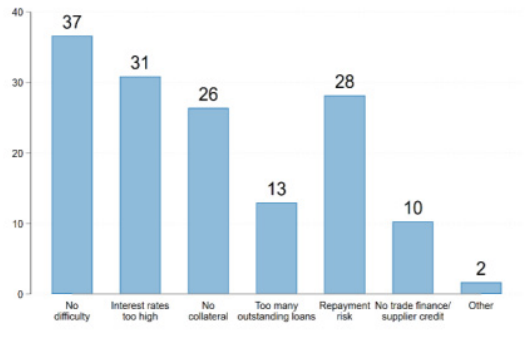
In the context of lower-than-normal demand, liquidity became a regular problem, although there has been some improvement. About half of the SMEs in Vietnam have enough liquidity for 3 months, and about 60% have enough liquidity for 6 months. For other service businesses (ie services but not in the wholesale and retail sector), liquidity is the most serious problem. Access to capital is a challenging issue in Vietnam, which is exacerbated when businesses simultaneously face liquidity difficulties. Over 60% of enterprises have difficulty accessing financial resources. Key issues include high-interest rates, repayment risk, and lack of collateral. Large enterprises do not have difficulty accessing finance, but SMEs do. About collateral. Interest rates and repayment risks are common problems that all businesses face. Businesses that experience a drop in revenue often find it harder to access credit.

Figure 2: Liquidity is a persisting issue despite some slight improvements



Shawn Tan, Trang Tran, 2020

Figure 3: Main difficulties related to access to finance are interest rate, fear of repayment risk and lack of collateral



Shawn Tan, Trang Tran, 2020

The above has greatly affected the performance of small and medium enterprises in Vietnam. In 2022, SMEs account for about 98% of enterprises (about 700,000 enterprises), providing jobs for 78% of the labour force and contributing 49% to GDP, and 41% of total state budget revenue. However, according to statistics from the Business Registration Administration (Ministry of Planning and Investment), every month, about 7,000 businesses close, mainly SMEs. One of the reasons leading to the above situation is that Vietnamese SMEs have weak financial management capacity: small scale, limited ability to mobilize capital, investment in fixed assets and long-term investment. there are few, the ability to manage capital is still inadequate, and the profitability is low.

3. Reviews of cash flow management of small and medium enterprises in Vietnam:

The unfavourable macroeconomic environment has revealed a series of weaknesses in small and medium-sized enterprises, and one of the main limitations is the lack of methodical cash flow management, and strong flexibility but weak long-term strategy.

3.1. Strengths in cash flow management of small and medium enterprises

Vietnam's small and medium-sized enterprises also have strengths in cash flow management, which are:

- Many enterprises have initially focused on building a system of financial regulations, internal spending regulations, and salary and reward regulations as a framework for cash flow management, and flexible management activities. Highly active and dynamic to adapt to the changing business environment.

- Most businesses have focused on building short-term cash flow plans to balance regular revenue and expenditure, using less debt in business activities, and relying more on equity to help minimize risks. financial risk.

- Many businesses have built up regular control indicators such as Cost, revenue, and profit-to-revenue ratio to control business activities, perform periodic financial analyses to control the financial situation and advise business management.

3.2. Limitations in cash flow management of small and medium enterprises

- Most businesses have not focused on building and communicating corporate strategy within the enterprise. Strategy is the basis for effective cash resource allocation, the failure to develop a clear strategy makes the company lack the most important basis for effectively allocating cash resources. The main reasons often given are the low stability of the business, and high uncertainty, which makes it difficult to develop a strategy. However, as many managers have stated, having an imperfect strategic plan is much better than no strategy at all. In addition, companies have not focused on collecting information about competitors in strategic planning.

- Strategic measurement indicators have not been developed through the application of a balanced scorecard. This makes strategy development still stop at qualitative factors, making it difficult to create an effective basis for evaluating operational efficiency and the effectiveness of strategy implementation. Senior management meetings also focus too much on operational issues, leaving little time for discussing strategic issues.

- Enterprises are also very limited in building long-term cash flow plans (3-5 years) associated with the strategy, besides, the budget plans are built independently, or serve other purposes. individual and inconsistent goals, separate from the overall strategy and goals of the business. Cash flow planning has not implemented sensitivity analysis/situational analysis and stress testing in the context of economic or market decline.

- Most small and medium-sized enterprises do not have professional financial specialists separated from the accounting department, most of them work part-time but still mainly do accounting tasks. The capacity and importance of the finance department have not yet fully met the requirements of the task, the chief accountant is usually mainly in charge of the accounting part while the finance department is still in charge of the Director or the Board of Directors. In addition, many businesses have not issued manuals on cash flow management/financial operations, leading to difficulties in performing these operations.

4. Recommendations to improve the efficiency of cash flow management for small and medium enterprises

To improve the efficiency of cash flow management for SMEs in Vietnam, it is necessary to focus on the following contents:

First, the key to effective cash flow management is budgeting and forecasting.

Businesses should prepare a financial plan. Typically, SMEs should prepare an annual budget plan that includes monthly revenue and expense projections. From this source, businesses will have a database related to monthly income and cash outflow. Budgeting predicts the profitability of a business, while cash flow forecasting predicts net cash flow. Based on the cash flow forecast, enterprises will have a plan to call for capital in case of cash flow shortage.

Whatever a company does, to achieve a good effect, the accompanying condition is to have a clear plan. The same is true of the use of money, for the economic and financial resources in the enterprise to be used most optimally, the enterprise needs to plan monthly or quarterly cash flows. The plan is also the basis for businesses to check and see the efficiency of using money, thereby offering the right cash flow management solutions. Therefore, one of the principles to effectively manage cash flow in an enterprise is to build a clear cash flow plan.

Second, SMEs should use technology to automate the accounting process.

If the SME's accounting system still includes a lot of paperwork, businesses should consider investing in cloud computing software to have a broader and more up-to-date view of the operations of all businesses. part.

Modern cloud accounting software has interfaces that allow them to interact with other applications. These applications include banking, payroll, sales software, and even project management for specific industries. This software includes smart tools that allow businesses to analyze their financial situation in detail and determine the direction of cash flow.

Third, SMEs should minimize risks from credit sales, and control receivables and payables.

Many customers of the enterprise deliberately prolong the payment time, leading to the company's cash shortage. Therefore, the risk of selling on credit is also an issue that businesses need to pay attention to.

Receivables are sources of capital that businesses are possessed by other parties. Without good management of receivables, businesses will easily fall into the case of losing money, partially hindering the business plan. This will negatively affect the cash flow of the business. For that reason, one of the important jobs for effective cash flow management is to first manage receivables well.

In addition to receivables, payables are also an item that businesses need to pay attention to. Liabilities are an indicator that partly reflects the cash outflow situation of the enterprise. If the debt is too high, it means that the cash outflow is congested, which means that the cash flow in the business is stuck. Therefore, to ensure the continuity of cash flow, enterprises must manage their liabilities well.

Fourth, SMEs can utilise tools that help forecast cash flow accurately.

From the perspective of SMEs, cash flow forecasting is understood simply as looking at the money to be received/received to ensure that the outflows can be managed to avoid them exceeding the inflows. Cash flow forecasting will help businesses suppress and maintain the initiative in balancing cash inflows and outflows, helping cash sources be used most effectively.

Cash flow forecasting has never been easy and errors often arise. And for this work to be most effective, businesses need to use support tools. Support tools will come into play after taking into account the arising internal and external factors that may affect cash flow.

Fifth, SMEs need to complete the work of checking and evaluating cash flow.

Enterprises should combine periodic inspection and assessment of cash flow and unexpected inspection and evaluation. This is essential for all businesses to properly assess the status of cash flow management objectively, especially in the context of the current business environment with many fluctuations affecting the cash flow of enterprises. Unscheduled inspection is not required for all enterprises, in the immediate future it is necessary to focus on enterprises with negative net cash flow.

Sixth, it is critical to improve risk management in enterprises.

Risk is an uncertain factor that affects the achievement of an enterprise's cash flow management goals, but the enterprise cannot eliminate or avoid risks. The lack of strict risk management makes it difficult for enterprises to manage cash flows, and the organization to implement a passive cash flow plan when risks occur and do not follow the approved plan. Therefore, it is necessary to improve risk management at all enterprises to promptly detect events, assess risks and determine the worst-case scenario handling plan to reduce risk. minimize negative impacts or seize opportunities to increase positive impacts on enterprises, contributing to achieving the goals set by enterprises.

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APPLYING THE IPA MODEL TO EVALUATE THE GLOBAL MINIMUM TAX POLICY IN VIETNAM DURING THE IMPLEMENTATION PHASE

PhD. Le Ha Trang*

Abstract: ***The global minimum tax is an agreement reached by G7 countries in June 2021 against tax avoidance by multinational corporations. This agreement is expected to be applied in 2024. However, by the end of 2023, Vietnam still has many deployment challenges. Therefore, the study uses the importance - performance analysis model (IPA model) to evaluate the current status of implementing the global minimum tax policy in Vietnam today. From the established set of criterian, the author distributed 125 survey questionnaires to several economic experts and financial managers of foreign-invested companies. The results show that there are 24 criteria that meet the requirements and continue to be used in analyzing the IPA model with the following results: 12 "Concentrate here" factors, 8 "Keep up the good work" factors, 2 "Low priority" factors and 2 "Possible Overkill" factors. From there, they are suggestions for the author to provide policy implications that contribute to improving the efficiency of the global minimum tax in Vietnam.***

• Keywords: *global minimum tax, corporate income tax, tax management, importance level - performance level.*

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Tóm tắt: *Thuế tối thiểu toàn cầu là thỏa thuận các nước G7 đạt được vào tháng 6/2021 để chống lại việc tránh thuế của các tập đoàn đa quốc, dự kiến áp dụng năm 2024. Tuy nhiên đến thời điểm cuối năm 2023 thì công tác triển khai thực hiện tại Việt Nam còn nhiều vướng mắc. Do đó, nghiên cứu sử dụng mô hình phân tích mức độ quan trọng - mức độ thực hiện (IPA - Importance - Performance Analysis) để đánh giá thực trạng triển khai áp dụng chính sách thuế tối thiểu toàn cầu ở Việt Nam hiện nay. Từ bộ tiêu chí được xây dựng, tác giả tiến hành phát 125 phiếu khảo sát cho các chuyên gia kinh tế và các nhà quản lý tài chính của một số công ty có vốn đầu tư nước ngoài. Kết quả cho thấy có 24 tiêu chí đạt yêu cầu và tiếp tục sử dụng trong phân tích mô hình IPA với kết quả như sau: 12 tiêu chí tập trung cải thiện, 8 yếu tố duy trì và giữ vững, 2 yếu tố chú ý thấp và 2 yếu tố hạn chế đầu tư nguồn lực. Từ đó là gợi ý để tác giả đưa ra hàm ý chính sách góp phần nâng cao tính hiệu quả khi áp dụng thuế tối thiểu toàn cầu ở Việt Nam.*

• Từ khóa: *thuế tối thiểu toàn cầu, thuế thu nhập doanh nghiệp, quản lý thuế, mức độ quan trọng - mức độ hiệu quả.*

Introduction

The regulatory role of the government is becoming more and more obvious along with the economic development, especially in tax management. The global minimum tax is one of the main contents in the program to prevent avoidance, which are initiated by the OECD and agreed to participate by 142 countries from 2024, including Vietnam. Accordingly, the minimum applicable tax rates is 15% for multinational enterprises with total consolidated revenue of 750 million euros (equivalent to 800 million USD) or more in 2 years of the recent 4 years. In Vietnam, the common corporate income tax rate is 20%, but due to the application of preferential tax rates for investment projects of foreign-invested enterprises, the actual tax rate is low (average from 6% to 8%).

The deployment evaluations of global minimum tax are crucial in suggesting policies for state management agencies in providing tax management service. The state must also consider providing better public services and reaching management goals. The IPA model is a model to measure service quality based on the difference between customer opinions on the importance level and the performance level of criteria from service provider. If state management is considered as a public service provided by the state,

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the IPA model application is appropriate to evaluate state management in the application of minimum tax in Vietnam today. Therefore, the objective of this study is to evaluate different perceptions of the importance and feasibility of a global minimum tax policy in our country, providing a better understanding of criteria for evaluating minimum tax policies and thereby proposing solutions.

The decision to apply this technique was motivated by three specific motivations. Firstly, the IPA model create more favorable conditions on global minimum tax decision-making. Secondly, the IPA map is a powerful tool that can assist policymakers in setting better priorities and allocating resources for tax policy adjustment activities. Thirdly, having guidelines to assess the importance level and feasibility are also valuable for any country. This study is one of the first project applying the IPAM matrix analysis model in assessing perceptions of the global minimum tax policy in Vietnam. The article is divided into four parts. The first one is an introduction and overview of the global minimum tax. The next one is the research methodology and IPA model. The third one is the research results and analysed findings. The last one includes recommendations and conclusions proposed at the end of the study.

1. Overview of global minimum tax

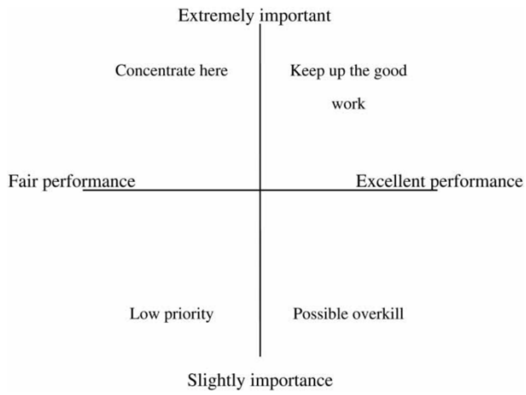
In the context of extensive international integration, many countries attract foreign direct investment by offering tax preferences, creating loopholes in tax management for multinational companies. Therefore, these companies with many advantages in capital and experience, have taken advantage to transfer their profits from high tax rates places to places with low tax rates, causing tax base erosion.

In 2013, the Organization for Economic Co-operation and Development (OECD) initiated the ideal to prevent base erosion and profit shifting (BEPS) with two main contents: (i) dividing taxing rights, making assessments on profit allocation; (ii) Ensure that all businesses operating internationally pay a minimum tax rate. In 2016, Vietnam officially signed the The Multilateral Convention to Implement Tax Treaty Related Measures to Prevent Base Erosion and Profit Shifting, also known as the Multilateral Instrument (MLI) with more than 100 other countries. In 2021, the OECD issued Global Anti-Base Erosion Model Rules (GloBE Rules), effective from January 1st, 2024. The tax rate will be 15% for multinational enterprises with total consolidated revenue of 750 million euros (about 800 million USD) or more in two of the four most consecutive years. Thereby, multinational companies with member companies which carrying out investment activities in other countries with high level of tax incentives must pay local additional tax. The Global Minimum Tax is a major reform to implement the BEPS action program with the main goal of ending the tax rates reducing race between countries, ensuring multinational corporations pay the minimum tax rate regardless of there headquarter location. If Vietnam does not impose a global minimum tax from the beginning of 2024, we will give up on tax assessment power and companies will pay additional taxes to the home country - where the mother company's headquarters is located. Thus, we will lose investment capital flows and tax resources. Therefore, the implementation of the global minimum tax gives Vietnam the opportunity to increase budget revenue from additional taxes; reduce tax evasion, price transfer, and profit transfer.

2. Research models and methods:

2.1. Research model

Figure 1. Traditional IPA grid



Currently, state management activities in general and tax management in particular are transforming from command, administration, and control to public service provision. With the characteristic of state management being the provision of public services, it also needs to be evaluated like other services to improve service quality. In order to evaluate the importance and performance level of each state management assessment criterion for this activity in Vietnam, IPA model is considered the most appropriate and feasible one because this model measures service quality based on the difference between the opinions of customers (multinational companies) on the importance of the indicators and the performance level of the indicators by the service provider (tax administration authority). IPA is performed based on the comparison of two levels of perception. Based on average values, IPA allows people to calculate the attribute of importance and performance level as well as compare the average difference of each quality attribute. Every obtained value of the attribute will be represented on a 4-zone graph (importance and performance).

The results from the analysis of importance and implementation level are shown on the IPA diagram with the vertical axis (Y) representing the importance level and the horizontal axis (X) representing the performance level.

- First quadrant (Concentrate here): These criteria in this quadrant are considered very important in state management but the implementation level of management agencies is at a low level. This result helps state management agencies focus on developing these criteria.

- Second quadrant (Keeping up good work): These criteria in this quadrant are considered very important for state management and the implementation level of current management agencies is very good. Therefore, these criteria need to continue to be maintained and promoted.

- Quadrant three (Low priority): The attributes in this quadrant are considered to have a low level of performance and are not important. State management agencies should limit resources and not focus too much on developing these criteria.

- Fourth quadrant (Possible Overkill): These criteria are considered unimportant, but the performance level by current state management agencies is very good. It can be seen that the current performance level is not necessary, so state management agencies does not need to spend too many resources to achieve these.

2.2. Research methods

This study uses the IPA model to evaluate perceptions of the global minimum tax policy according to two criteria: importance (I) and performance (P). The research method includes two stages: preliminary research and official research. In the preliminary research step, based on the basis theoretical overview, 4 major criteria and 24 attributes were identified, from which the study designed a draft questionnaire. Evaluating state management policies in general and tax policies in particular can be done by using many different methods. One of the popular evaluation methods today is using evaluation criterian. Based on the model of economic state management criterian, the author builds criteria to evaluate the global minimum tax policy according to the output model according to 4 criteria: efficiency, effectiveness , consistency, sustainability. Of which, 7 factors show effectiveness, 6 factors show efficiency, 5 factors show consistency and 6 factors show sustainability.

Effectiveness represents the strength and management productivity of the global minimum tax policy for the economy with 7 criteria (from HL1 to HL7). Efficiency is shown through maximum operational results and minimum costs of tax management policies for business activities, including efficiency in terms of economic and social benefits through 6 criteria (from HQ1 to HQ6). Suitability is a criterion for evaluating the appropriateness and feasibility of tax management activities for business activities in terms of policy, implementation, inspection and supervision in normal socio-economic conditions through 5 criteria (from HL1 to HL5). Sustainability is a criterion for evaluating the sustainable impact over time of the global minimum tax policy on business activities through 6 criteria (from BV1 to BV6).

The official research was conducted by surveying financial researchers and financial managers from several FDI enterprises in Vietnam in October 2023 (Vietnam has committed to applying global minimum tax from January 2024). The survey questionnaire was designed to evaluate the importance level and the performance level of 4 criteria through 24 indicators with a Likert scale from 1 to 5. The number of issued ballots was 148 and the number of valid received ballots was 125. The results from the analysis of the importance level and the performance level are shown on the IPA diagram with the vertical axis (Y) representing the level of importance and the horizontal axis (X) representing the level of performance. Based on the average value of the above two factors, build a Quadrant matrix consisting of 4 quadrants on the graph with analysis support by SPSS 22 software. The next technique is used for descriptive statistics of the average value of the importance level and the performance level; evaluated the reliability of the scale using Cronbach's Alpha coefficient, evaluated the average value, tested the differences using Paired Samples T-Test procedure and finally displayed it on the IPA graph.

3. Research results

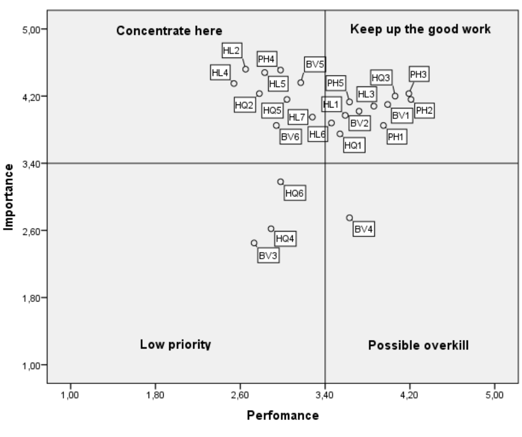
Table 1. The performance and importance attributes

Items	Importance	Performance	P-I gap	Significant level (*)
Effectiveness HL (Cronbach's alpha = 0.718)	4.18	3.17	-1.01	0,000
HL1	3.97	3.59	-0.38	0,000
HL2	4.52	2.65	-1.87	0,000
HL3	4.08	3.86	-0.22	0,019
HL4	4.35	2.54	-1.81	0,000
HL5	4.48	2,83	-1.65	0,000
HL6	3.88	3.46	-0.42	0,002
HL7	3.95	3.28	-0.67	0,000
Efficiency HQ (Cronbach's alpha = 0.803)	3.69	3.21	-0.48	0,000
HQ1	3.75	3.54	-0.21	0,197
HQ2	4.23	2.78	-1.45	0,000
HQ3	4.20	4.06	-0.14	0,271
HQ4	2.62	2.89	0.27	0,116
HQ5	4.16	3.04	-1.12	0,000
HQ6	3.18	2.98	-0.2	0,188
Consistency PH (Cronbach's alpha = 0.755)	4.17	3.79	-0.38	0,000
PH1	3.85	3.95	0.1	0,375
PH2	4.16	4.21	0.05	0,703
PH3	4.23	4.19	-0.04	0,760
PH4	4.51	2.98	-1.53	0,000
PH5	4.13	3.63	-0.5	0,000
Sustainability (Cronbach's alpha = 0.746)	3.59	3.36	-0.23	0,000
BV1	4.10	3.99	-0.11	0,386
BV2	4.02	3.72	-0.3	0,029
BV3	2.45	2.73	0.28	0,019
BV4	2.75	3.63	0.88	0,000
BV5	4.36	3.17	-1.19	0,000
BV6	3.85	2.94	-0.91	0,000

Source: Calculation results on SPSS software

Based on the average calculated values of importance level and the performance level, combined with the level of the corresponding factor draw a Scatter plot and based on the average value to divided into 4 quadrants as follows:

Figure 2: The empirical result of IPA matrix



Findings from research results

**** Elements that need be maintained***

It can be seen that in the criteria for evaluating the application of the global minimum tax policy in Vietnam, there are 8 factors that need to be maintained. Currently, this factor plays an important role in implementing the global minimum tax policy and the performance level of this factor is also quite high.

- The application of global minimum tax in Vietnam also ensures effectiveness (HL1, HL3), reflected in its connection with the country's socio-economic development policies as well as its coordination between multiple levels of state management in the organization of global minimum tax application. Minister of Finance Ho Duc Phoc also spoke at the 26th session of the National Assembly Standing Committee on September 28th, 2023: "The purpose of applying the global minimum tax is to build a tax policy that ensures protect the legitimate rights and interests of Vietnam; Vietnam's guidelines and policies to proactively respond to the OECD's global minimum tax proposal must put national and ethnic interests first and foremost. Vietnam supports and proactively applies global minimum tax regulations from 2024, creating favorable regulations to encourage businesses to pay additional taxes in Vietnam." To increase effectiveness, Prime Minister Pham Minh Chinh personally established an interdisciplinary working group to consult experiences from other countries have appropriate policies on this issue. The Prime Minister assigned the Ministry of Finance to prepare a report and propose tax imposition; The Ministry of Planning and Investment proposes a non-tax investor support regulation; The Minister of Justice was authorized by the Prime Minister to sign a proposal on behalf of the Government to report to the National Assembly and the National Assembly Standing Committee to add the above two draft resolutions to the Law and Ordinance Building Program in 2023.

- The effectiveness of applying the global minimum tax in Vietnam is reflected in contributing to improving the transparency of the corporate income tax system and reducing the tax evasion due to transfer pricing and profit transfer by companies. multinational company (HQ1, HQ3). Thereby it demonstrate the progress and transparency in the tax management system. Vietnam's business and investment environment approached international standards, met the state tax management requirements. For nearly 40 years, countries have used tax incentives as a popular measure to attract investment. Differences in corporate income tax rates between countries have created opportunities for multinational companies to benefit by transferring profits to countries with lower tax rates. In that context, applying the global minimum tax will bring the tax rate to 15% in all countries, eliminating that difference, thereby reducing the phenomenon of tax evasion due to transfer pricing and profit shifting of multinational companies.

- The suitability of the global minimum tax policy is maintained through 3 factors PH1, PH2, PH3. It can be seen that the global minimum tax is not an international treaty or international commitment and is not mandatory for countries to apply. However, this tax policy is the result of an agreement reached by 136 countries in June 2021 to fight multinational corporations that avoid taxes. There are about 122 businesses investing in Vietnam that are affected by global minimum tax regulations, with tax revenue of about 14,600 billion VND. If Vietnam does not apply the policy, it still has to accept that other countries apply the global minimum tax, and has the right to collect additional taxes from businesses in Vietnam (if subject to application) which lower interest rate than the global minimum of 15%, especially for foreign-invested enterprises. Therefore, to ensure its legal rights and interests, Vietnam's application of the global minimum tax is appropriate and highly feasible.

Preventing tax base erosion (BV1) is a factor that experts believe to be demonstrated the sustainability of the global minimum tax policy that needs to be maintained. According to OECD estimation, tax base erosion due to tax avoidance and profit shifting to enjoy differences in corporate income tax rates of multinational companies has resulted in tax revenue losses ranging from 100 billion to 240 billion USD each year, equivalent to about 4% to 10% of total global income tax revenues. The application of a 15% global minimum corporate tax rate for multinational companies will prevent these companies from shifting profits to countries with low tax rates to avoid and ensure financial safety and limit tax base erosion.

**** Factors to focus on improving***

- It can be seen in the results of classifying quality factors according to the IPA map, the effectiveness assessment factors have a very high importance level but the performance level is still low. In the IPA analysis matrix, there are up to 5 factors evaluating effectiveness in the "Concentrate here" section, meaning these are the factors that need to be prioritized improving, including HL2, HL4, HL5, HL6, HL7. Strong attention should be paid to factors related to the promulgation of a global minimum tax policy in Vietnam. To apply the global minimum tax, it is crucial to promulgate legal regulation in a timely manner, clear tax calculation methods with specific instructions, convenient administrative procedures, and lots of attention to handling problems. Therefore, it is necessary to focus on improvements to enhance the effectiveness of the global minimum tax policy.

- Efficiency needs to focus on increasing the state budget revenue and the supply from human resources for global minimum tax management (HQ2, HQ5). According to the Finance and Budget Committee's examination of the draft resolution on global minimum tax, there is currently no undertaxed payments rule (UTPR). If this regulation is not promptly supplemented, in the near future, Vietnam will not be able to increase state budget revenue because countries where businesses invest will collect the difference between the global minimum tax and the corporate income tax rate in Vietnam. This is a taxable right to retain in the case of a subsidiary in Vietnam that is allocated the right to collect income that has not been subject to global minimum tax in the host country.

Appropriateness not only contributes to creating appropriateness when applying the global minimum tax in all economic activities but also necessary to focus on ensuring commitments to investing enterprises as well as ensuring information technology infrastructure for implementing this policy (PH4, PH5). Businesses want to clearly understand their responsibilities and benefits regarding previous tax incentives as well as existing infrastructure conditions when applying the new policy as a secure to continue doing business.

In addition, the factors reflecting sustainability that people believe have not been focused on performing while being very important are BV5 and BV6. When the global minimum tax is applied, most of the current corporate income tax incentives that Vietnam has used for many years will no longer be effective. This leads to Vietnam's investment attraction policy being less attractive to large corporations and businesses. Report on the situation of attracting FDI in Vietnam in the first 4 months of the year, the Ministry of Planning and Information, as of April 20th, 2023, the total newly registered capital, adjustments, capital contributions and share purchases of investors foreign capital reached nearly 8.9 billion USD, equal to 82.1% compares to the data of the same period in 2022. In addition to adjusted investment capital continuing decreased, new investment capital, capital contribution and share purchases have increased again over the same period, foreign capital is estimated at 5.85 billion USD which is a decrease of 1.2%. The growth rate of new projects is much greater than the growth rate of total investment capital, showing that small and medium-sized investors continue to be interested and confident in the Vietnamese market. However, large corporations show signs of caution, carefully considering investing in Vietnam because of the impact from the global minimum tax policy. Projects with investment capital of less than 1 million USD account for nearly 70% of new projects, but investment capital only accounts for nearly 2.2% of total newly registered capital in 4 months. Therefore, it is necessary to focus on improving the investment environment and supporting businesses to attract foreign investment capital.

**** Factors that should not focus too much unnecessary resources on and current factors that should not be given much attention***

Besides the factors that need to be focused on improving, there are some factors that should not focus too much resources on because of their low importance level, such as expanding international cooperation when applying a comprehensive minimum tax. There are three current factors that should be in low priority such as global minimum tax management costs, improving the operational efficiency of multinational companies and the competitive environment for businesses.

Overall, beside some sub-criteria HQ4, PH1, PH2, BV3 and BV4 which have positive differences, the remaining criteria all have negative differences. It shows the perception of a lower level of performance compared to the expecting level of importance from customers. Up to 2/3 of the criteria achieve a statistically significant difference through the Pair sample T-test (see table 1) and if considered from an overall perspective of the 4 major criteria, all four criteria achieved meaningful differences.

4. Implications policy

First, *promulgate documents for the purpose of guiding the implementation of the global minimum tax policy*

The global minimum tax is considered a new tax regulation, not yet regulated in the Corporate Income Tax Law. It is also not inclued in the current corporate income tax, which has now been submitted to the National Assembly for promulgation of a Resolution. However, there are needs to build a system of synchronous and timely legal documents. Therefore, Vietnam needs to research the application of a domestic minimum additional tax in order to protect our taxing rights by collecting an additional tax difference between the domestic minimum tax and the preferential tax for FDI enterprises before that tax is collected back to the foreign countries. The two things that will have to be declared and paid additionally are Qualified Domestic Minimum Top-up tax (QDMTT) and Internal Rate of Return (IRR). In particular, QDMTT can be understood as a domestic mechanism in which the calculation of surplus profits and minimum taxes are applied equivalent to the regulations of the Organization for Economic Cooperation and Development (OECD). This is a measure that economies such as Hong Kong, Singapore, and Malaysia are considering and will likely apply. IRR is a top-down tax regulation, allowing the country where the parent company's headquarters is located to impose additional taxes on the income of member companies in countries with lower tax of 15%.

Thus, the immediate solution is issuing regulations and rules on tax deduction at source in Vietnam to avoid losing the taxing right. In the medium term, it is necessary to update and appropriately change relevant legal regulations such as the Corporate Income Tax Law, Value Added Tax Law, State Budget Law, Investment Law... to protect domestic revenue sources. In addition, new regulations should pay attention to the formula and method of calculating the global minimum tax to be at ease of enforcement. This is an important background to enhance the effectiveness of the State's tax administration. At the same time, organizing consultations and training for business managers is needed for the purpose of raising awareness and providing properly performance under the new regulations.

Second, *business support policies to attract investment*

The application of the global minimum tax means that Vietnam's tax incentive policies are no longer effective, which leads to Vietnam's investment attraction policies being less attractive. However companies subjected to this tax will still have to pay additional taxes in other countries if Vietnam does not apply. Therefore, Vietnam needs to find ways to adjust preferential policies to be compatible with the global minimum tax, ensure taxing rights, and provide maximum support for FDI enterprises.

For investing businesses in Vietnam, the government needs to consider other policies to ensure incentives under the law as well as previous commitments with businesses to maintain capital flows. Specifically, it is necessary to reevaluate support packages for businesses and introduce alternative supports for companies to continue to maintain their presence after the global minimum tax such as reducing, extending, waiving fees, charges, land rent or having solutions to freeze, reduce, defer and extend debt for businesses. The government can even consider quickly compensating businesses by supporting electricity bills, which is also a propising solution by other countries. This solution will keep businesses operation and increasing competition in attracting investment between countries.

Third, *new strategy in the policy of attracting foreign investment*

Tax incentives are no longer the main way to attract foreign investment, Vietnamese government needs to have a new attraction strategy aimed at after-tax support measures and improving international competitiveness along with the general trend and in accordance with international standards. Vietnam can consider using financial resources obtained from global minimum tax to support businesses with investment costs for expanding facilities, factories, human resource training, research and development activities, applying science and technology into production instead of using tax exemption policies as investment attractions. In addition, the support is also related to land, social housing development, infrastructure, a system of satellite businesses in the supply chain and supporting industries,...

Vietnam should also have special incentives for renewable electricity and green energy projects because these are policies that are doable and possible for the goals of green growth and environmental protection.

Fourth, *the need of improving administrative procedures for global minimum tax*

The government offers appropriate and competitive incentive policies to attract investment is a top priority. However, administrative procedures and tax policies is also important to promote trade growth under the EVFTA framework. Administrative costs in Vietnam are considered high, therefore, improving administrative procedures not only helps businesses to save their expenses but also reduces business transaction time. Currently, investing firms in Vietnam are facing difficulties related to the mechanism for granting foreigner work permits and approving fire prevention infrastructure... Therefore, the government needs to simplize administrative procedures on construction and fire prevention through increasing agencies with approval authority and establishing an online question and answer system. In particular, it is necessary to loosen regulations in censoring and appraising fire prevention for industries using high technology or specific business models. In addition, Vietnam also needs to complete its accounting system according to global standards to integrate with the new tax policy.

Administrative reform when applying the global minimum tax requires a great deal of attention to improving the capacity of management resources as well as the application of modern technology in management.

Conclude

Through theoretical research and analysis of practical background, the application of global minimum tax is necessary to ensure Vietnam's legal rights and interests. In the context of the approaching taxing deadline, the study has proposed new policies, incentives and investment support to enhance competition and attractiveness of the investment environment in Vietnam.

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ANALYZING THE IMPACT OF FINANCIAL DECISIONS ON FINANCIAL RISKS AT INFORMATION TECHNOLOGY AND TELECOMMUNICATIONS ENTERPRISES LISTED IN VIETNAM

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Abstract: ***The article clarifies the theoretical basis of financial risk, the results of previous works on the impact of factors on financial risk. The article uses econometric models and Stata 20 software to determine the impact of financial decisions on financial risks for listed information technology and telecommunications enterprises in Vietnam. FEM regression results - robust estimates show that there are 4 factors that reflect the capital mobilization and investment decisions of businesses: Ratio of debt to total capital; Enterprise scale; Asset growth rate; The proportion of fixed assets has an impact on financial risk and all are highly statistically significant.***

• Keywords: *financial risk analysis, financial risks, econometric models, investment decisions, listed telecommunications technology enterprises.*

JEL codes: G32

Date of receipt: 05th December, 2023 *Date of receipt revision: 02nd January, 2024*
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Tóm tắt: *Bài viết làm rõ cơ sở lý luận về rủi ro tài chính, hệ thống kết quả các công trình trước đây về tác động của các nhân tố đến rủi ro tài chính. Bài viết sử dụng mô hình kinh tế lượng và phần mềm Stata 20 để xác định mức độ tác động của các quyết định tài chính đến rủi ro tài chính đối với các doanh nghiệp công nghệ thông tin, viễn thông niêm yết tại Việt Nam. Kết quả hồi quy FEM - ước tính mạnh cho thấy có 4 yếu tố phản ánh quyết định huy động vốn và đầu tư của doanh nghiệp: Tỷ lệ nợ trên tổng vốn; Quy mô doanh nghiệp; Tốc độ tăng trưởng tài sản; Tỷ trọng tài sản cố định có tác động đến rủi ro tài chính và đều có ý nghĩa thống kê cao.*

• Từ khóa: *phân tích rủi ro tài chính, rủi ro tài chính, mô hình kinh tế lượng, quyết định đầu tư, doanh nghiệp công nghệ viễn thông niêm yết.*

1. Question

As one of the countries with the highest number of internet users in the world, Vietnam currently has a lot of potential in technology and telecommunications development. However, besides that, there are also many difficulties facing telecommunications technology businesses such as macro factors: Lack of clear policies, regulations, and legal framework; Fierce competition among businesses in the industry; Limited access to investment capital... in addition to factors originating from within the business such as: Recruiting and retaining talent; Product research and development, Risk management... Faced with this opportunity and challenge, listed companies in the telecommunications technology industry need to clearly identify important financial decisions, including investment decisions. Financial managers need to identify and analyze risks with appropriate tools to identify and prevent risks effectively. From the perspective of considering financial risk as the ability to pay debts (including short-term debt and long-term debt), the author proposes a research model on the effects of investment decisions, decisions mobilizing capital to address financial risks at listed companies in the information technology and telecommunications industry. Thus, adding scientific evidence on factors affecting financial risks as well as helping managers have solutions to minimize financial risks, improve efficiency and stability for development.

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2. Theoretical basis

**** Investment decisions and investment decision measurement criteria***

According to Meng (2013), a business's investment decision is one of the fundamental decisions made by each business to risk its funds in the hope of generating future profit streams .

Table 1: Measuring indicators for investment decisions

No	Targets	Reference from
1	Proportion of assets	Ngo Thu Giang (2015), Nguyen Thi Vu Khuyen (2020)
2	Proportion of fixed assets	Nenu et al (2018)
3	Accounts receivable turnover	Ngo Thu Giang (2015), Nguyen Thi Vu Khuyen (2020)
4	Inventory turnover	Ngo Thu Giang (2015), Nguyen Thi Vu Khuyen (2020)
5	Production capacity of fixed assets	Ngo Thu Giang (2015), Nguyen Thi Vu Khuyen (2020)
6	Production capacity of trainees	Iqbal and Shah (2012), Ngo Thu Giang (2015), Nguyen Thi Vu Khuyen (2020), Khassawneh and Dasouqi (2016)

According to Business Jargon (2020) Investment decisions are decisions made by investors or senior managers regarding the amount of money used in investment opportunities. In other words, choosing which assets to invest in a company's funds is called an investment decision.

According to Nguyen Thi Vu Khuyen (2020), an enterprise's investment decision is a financial administrator's decision to choose the type of asset that will be invested with the enterprise's funds to achieve the enterprise's goals.

Thus, the investment decision of an enterprise is a decision that helps the management entity choose the assets that will be invested during the operation of the enterprise.

The investment decision measurement criteria are summarized by the author and shown in Table 1.

**** Capital mobilization decisions and measurement criteria for capital mobilization decisions***

Financing decision refers to the different options used by a company to finance its assets (Bhaduri, 2002). In general, a company may use different levels/combinations of debt, equity or other financial arrangements.

The decision to raise capital is based on the research of Modigliani and Miller (1958) - who said that in a perfect market (no taxes, no transaction costs, no bankruptcy costs and asymmetric information), The value of a business is not related to how the business raises capital. According to Meng (2013) citing the conclusion of Fama and French (2005) that both the trade-off theory and the pecking order are partly correct, so they can complement each other to explain a business's capital mobilization decision. According to Brigham & Daves (2004), for a new business, nothing is more important than raising capital. How a company chooses the mix of debt and equity in its capital structure depends on many factors such as the characteristics of the company, the economy and the perceptions and goals of its managers. physical. Karadeniz, Kandir, Balcilar, and Onal (2009) note that management's top priority is to evaluate the various costs and benefits associated with the use of both debt and equity. Salawu (2007) identifies factors such as ownership structure and management control, growth, profitability, issuance costs and debt-related tax issues as the main factors influencing the structure. bank capital. Bevan and Danbolt (2001) also highlight firm size, profitability, tangibility, growth opportunities, non-debt tax shields and dividends as possible determinants of facility choice. capital structure.

Thus, the decision to mobilize capital is a decision related to choosing which capital source to finance the business's assets, thereby meeting the business's requirements.Through research works, it can be seen that a business's decision to mobilize capital can be explained quite clearly through capital structure ratios such as: debt ratio, equity ratio. ownership, long-term debt ratio, debt ratio...

The criteria for evaluating capital mobilization decisions are shown in the table below:

Table 2: Measuring indicators for capital mobilization decisions

No	Targets	Reference from
1	Ratio of debt to equity	Ahmad et al (2011), Ngo Thu Giang (2015), Irene Wei et al (2016)
2	Ratio of liabilities to total assets	Lee et al (2016), Khurshid (2013)
3	Ratio of short-term debt to payable debt	Nguyen Vu Thi Khuyen (2020)
4	Ratio of short-term debt to total capital	Nenu et al (2018)
5	Ratio of debt to total capital	Rommer (2005)

**** Financial risk***

Through the process of surveying domestic and foreign research works, it has been shown that the issue of financial risk and financial risk management has been published by many works. Research methods are divided into two quite clear opinions. According to a broad approach, financial risk is the decline in a company's value due to factors such as inflation, interest rates, exchange rates and other factors. According to a narrow approach, financial risk is the possibility that a business will have difficulty paying its debts when they finance capital with liabilities. According to Li (2003), financial risk involves the uncertainty of factors such as interest rates, exchange rates, stock prices and commodity prices. However, according to Defan (2005), financial risk includes both broad and narrow risks. In addition, financial risk means the possibility of capital loss during the use of financing methods, which can reduce the business's ability to operate (Zhea et al., 2012). In summary, although there are currently many different views on financial risk, within the scope of the article's research, the author uses the concept of financial risk in a narrow sense, that is, financial risk is a type of risks that businesses face when mobilizing capital from debt to finance business activities are risks that arise during the business's operations, affecting the financial situation, the profitability of the business and, most seriously, the inability to pay debts, leading to business bankruptcy.

Based on theoretical research, some authors have given the following experimental results:

Lizhe et al.'s (2012) research on financial risk management in electricity enterprises shows that financial risk through five groups of indicators reflects the ability to cover debts, operating capacity, development capacity, solvency, profitability. However, the study only identified financial risks for the electricity supply company Lifeng in the years 2008 - 2009. Research by Defang et al. (2005) found that although the size and debt structure had a relationship positively related to financial risk, but operating performance and profitability have a negative relationship. In addition, there is no scientific evidence to determine the relationship between loan interest rates, payment ability and financial risk. According to research by Simantinee et al. (2015), fixed asset turnover, earnings per share, net profit margin, net profit margin, short-term solvency ratio and tax ratio are all positively correlated with financial risk. According to author Vu Thi Hau (2017), financial risk is negatively affected by solvency, inventory turnover, fixed capital coefficient, self-financing coefficient and fixed capital coefficient. Author Trinh Thi Phan Lan (2016) also shares the same opinion as author Vu Thi Hau when she believes that identifying financial risks through indicators reflecting financial leverage and liquidity, signs of the financial risks pointed out by the author: exchange rate risk, interest rate risk, trade credit risk, raw material price fluctuation risk and bankruptcy risk. Author Pham Xuan Kien (2011) used qualitative research methods and evaluated the financial status of companies representing transportation industry enterprises in Vietnam. The research results were supplemented and perfect the criteria, content and methods of financial analysis, in which financial risk analysis is mentioned in the content and methods of completing financial analysis. According to research by authors Nguyen Ngoc Tra Vy and Nguyen Van Cong (2013), bankruptcy risk at pharmaceutical companies listed on the Vietnam stock market is determined through financial indicators. With the Z" model and statistical support tools, Microsoft office software, the authors have calculated and presented the calculation results graphically, thereby conducting analysis and making forecasts. The risk of bankruptcy at pharmaceutical companies.

Thus, research theory and practice both show that: Financial risk is affected by many factors and it affects the operating situation as well as enterprise value. From here, the author proposes a research model on the impact of financial investment decisions on financial risks at information technology and telecommunications enterprises in order to add more scientific evidence on the factors influencing affect financial risks as well as help managers have a scientific basis to provide solutions to minimize financial risks to help them manage risks and stabilize business development.

3. Research methods

In this study, the author uses quantitative methods, using regression econometric tools to estimate and to identify factors affecting the financial risks of businesses. information technology and telecommunications industry in Vietnam. The author uses Stata 20 software to analyze secondary data. Secondary data was collected through financial statements of 18 listed enterprises in the information technology and telecommunications industry quarterly from 2018 to January 2023 (18 * 21 = 378 observations), then Microsolt Excel software is used to calculate the variables in the model and finally determine the financial risk index (FRit).

4. Applying econometric models to analyze financial risks at listed plastic enterprises in Vietnam

4.1. Current status of development of listed information technology and telecommunications enterprises

Vietnam's economy in recent years has had a high growth rate with a large and diverse domestic market, an increasing number of consumers using digital technology, and a young population. As of January 2023, Vietnam has nearly 78 million Internet users,the ratio of users compared to the total population recorded an increase from 73.2% to 79.1%. The field of information technology and telecommunications is in the Top 7 industries, the field is considered to have the most growth potential in the next 3 years with a rate of 63.6%. This result is consistent with the current development trend of businesses, which is promoting the application of digital transformation in management and operations. In particular, the trend of digital transformation may become stronger when customers realize the importance of digitalization such as helping to reduce costs, increase efficiency...

Table 3: Listed technology and telecommunications enterprises in Vietnam

No	Company's name	Code stock	Floor listed	Year listed
1	FPT Joint Stock Company	FPT	HOSE	2006
2	CMC Technology Group Joint Stock Company	CMG	HOSE	2010
3	SAM HOLDINGS JSC	SAM	HOSE	2000
4	Saigon Telecommunications Technology Joint Stock Company	SGT	HOSE	2008
5	Electronics - Telecommunications Technology Investment and Development Joint Stock Company	ELC	HOSE	2010
6	Postal Equipment Joint Stock Company	POT	HNX	2006
7	Sieu Thanh Joint Stock Company	ST8	HOSE	2007
8	Sara Vietnam Joint Stock Company	SRA	HNX	2008
9	Sao Mai Viet Viet Investment and Development Joint Stock Company	UNI	HNX	2006
10	Tien Phong Technology Joint Stock Company	ITD	HOSE	2011
11	Saigon Far East Technology Joint Stock Company	SVT	HOSE	2011
12	COKYVINA JSC	CKV	HNX	2010
13	Fine Arts and Communications Joint Stock Company	ADC	HNX	2010
14	Sametel Joint Stock Company	SMT	HNX	2010
15	VTC Telecommunications Joint Stock Company	VTC	HNX	2003
16	No. 1 Communications Joint Stock Company	ONE	HNX	2008
17	Van Lang Technology Investment and Development Joint Stock Company	VLA	HNX	2010
18	KASATI JSC	KST	HNX	2010
19	Tien Trung Construction Investment and Technology Joint Stock Company	TTZ	HNX	2013 and thirteen

Source: Compiled by the author

4.2. Research model and assumptions

** Research models*

The variables in the model are selected and synthesized based on reasonableness according to theoretical inferences and based on previous research and personal opinions to propose independent variables and synthesized according to the model below. This:

Table 4: Description of model variables

No	Variable group	Symbol	Recipe	References
Dependent variable:				
01	Dependent variable	Frit: Value measuring the financial risk of the index SZLit: (Profit before tax + Depreciation of fixed assets + Deferred income tax)/ Short-term debt; SYit: Profit before tax/Total capital; GLit: Equity/Current Debt; YFit: Residual value of fixed assets/Liabilities; YZit: Working capital/Total assets.	FRit = SZLit + SYit + GLit + YFit +YZit	Gang & Liu Dan (2012), Bhunia & colleagues (2012), Fu & colleagues (2012), Okelo (2015), Gunarathna (2016), Vu Thi Hau (2013).
Be independent:				
01	The indicator reflects the capital mobilization decision of the enterprise	Ratio of liabilities on equity (X1)	Liabilities /Equity	Defang et al (2005); Trinh Thi Phan Lan (2016)
02		Ratio of liabilities on Total Assets (X2)	Liabilities/Total assets	Defang et al (2005); Trinh Thi Phan Lan (2016)
03		Ratio of short-term debt to liabilities (X3)	Short-term debt / Liabilities	Author suggested
04		Ratio of short-term debt to Total Capital (X4)	Short-term debt / Total capital	Author suggested
05		Loan debt to Total Capital (X5)	Loan debt / Total capital	Defang et al (2005); Trinh Thi Phan Lan (2016)
06		Enterprise scale (X6)	Enterprise scale	Defang et al (2005)
07		Asset growth rate (X7)	Asset growth rate	Author suggested
08	The indicator reflects the capital investment decision of the enterprise	Current assets on total assets (X8)	Short-term assets /Total assets	Author suggested
09		Fixed assets on total assets (X9)	Fixed assets/Total assets	Gang & Liu Dan (2012), Bhunia & colleagues (2012), Fu & colleagues (2012), Okelo (2015), Gunarathna (2016), Vu Thi Hau (2013).
10		Accounts receivable turnover ratio (X10)	Net revenue/ Average receivables	
11		Inventory turnover (X11)	Sales Capital price/ Average inventory	
12		Fixed asset turnover ratio (X12)	Net revenue/ Average of fixed assets	Defang et al (2005) Simantee et al (2015)
13		Asset Turnover Ratio (X13)	Net revenue/ Average of total assets	Defang et al (2005)

** Research hypothesis*

Based on related experimental and theoretical studies, the PhD student proposes the following research hypotheses:

Ratio of liabilities to equity (X1), Ratio of liabilities to total assets (X2), Ratio of debt to total capital (X5) are indicators that reflect financial leverage . Financial leverage shows the level of debt used in the total capital to finance a business's assets. This indicator is high, indicating that the use of debt in the total capital is large, bringing many risks to the business. Previous research results of Ahmad et al. (2011), Khasawneh and Dasouqi (2016), Alaghi (2011) show a positive impact of these indicators on the dependent variable Beta. Variables X1, X2 are expected to have a positive impact on Financial Risk.

Ratio of short-term debt to liabilities (X3), Ratio of short-term debt to total capital (X4) indicates the proportion of the enterprise's due debts in the short term . This high ratio will put businesses under pressure to pay when there are many due debts, which brings risks to businesses, including the risk of insolvency when the business fails to pay. Be proactive in cash flow. Thus, variables X3 and X4 are expected to have a positive impact on Financial Risk.

The size of the business (X6) in the models evaluating factors affecting equity risk, the size of the business is always present and has an impact with statistical significance level p value < 0.001. Variable X6 is expected to have a positive/negative impact on equity risk.

The growth rate of total assets (X7) indicates the business's ability to grow in scale. Scale growth brings positive signals to the business and investor psychology, which makes financial risks worse. Stock price fluctuations tend to decrease. Thus, variable X7 is expected to fluctuate inversely with equity risk.

X8, X9: Asset structure of businesses has an impact on financial risk. Asset structure shows the proportion of each type of asset in total assets. The article uses the indicators Proportion of Short-term assets (X8) and Proportion of fixed assets (X9) to reflect the asset structure. When the proportion of investment in fixed assets is high, the creditors' debts are more secured, the financial risk of the enterprise will decrease and vice versa. Thus, X9 is expected to have a negative impact on financial risk. However, the fact that businesses have a large proportion of fixed assets leads to a small proportion of short-term assets. According to author Vu Thi Hau, the quick ratio has a negative impact on financial risk, which reflects the level of meeting short-term debt with short-term assets of the enterprise. Thus, when a business's short-term assets are small, it is difficult to meet short-term debt payments. So X8 is expected to have a positive/negative impact on financial risk.

X10, X11: The operating capacity of businesses has a negative relationship with financial risk. Operational performance is the ability to achieve operational results when consuming input factors in the business process of enterprises in the information technology and telecommunications industry. The author uses two indicators "Inventory turnover" and "Receivables turnover" in the model to reflect the operating capacity of the business. The growth of the turnover rate shows the development of the business activities of the enterprise, the risk of financial risk is low and vice versa.

The higher the productivity of fixed assets (X12) and the higher the productivity of assets (X13), means that the enterprise's assets are used more effectively in production and business activities and the ability to expand production. Variables X 12, X13 are expected to have a negative impact on Equity Risk.

4.3. Analysis results

* The author calculated the variables in the model and synthesized the financial risk interpretation index (FRit) of listed information technology and telecommunications enterprises:

Table 5: Summary of financial risks of information technology and telecommunications enterprises in period 2018 - 2023

FR	2018		2019		2020		2021		2022		2023	
	SL	%	SL	%	SL	%	SL	%	SL	%	SL	%
FR≤ 1.0	0	0	1	5,556	0	0	1	5,556	1	5,556	1	5,556
1.0 < FR ≤ 2.0	9	50	7	38.89	7	38.89	5	27.78	7	38.89	6	33.33
2.0 < FR ≤ 5.0	9	50	10	55.56	11	61.11	12	66.67	10	55.56	11	61.11
FR > 8.0	0	0	0	0	0	0	0	0	0	0	0	0
Average FR	14.09		17.07		12.00		10.94		9.42		19.46	

According to Alexander Bathory's model, the higher the value of FRit represents the better financial situation of the company and the lower the financial risk. During the entire period 2018 - 2022, the average FR value of the information technology and telecommunications industry is 13.8, showing that the financial risk of the industry is low. From

2019 to 2022, the risk level of businesses in the telecommunications technology industry gradually increases, in 2022, the risk level value of the information technology and telecommunications industry has increased, when FR value decreased to 9.42, however, the FR value is still relatively high, showing the financial safety of telecommunications technology enterprises. During the research period, the number of businesses with financial risk level FR in the range of 2.0 - 5.0 was always high, accounting for 50% to 66.67. In 2020 listed telecommunications technology joint stock companies had an average FR value of about 12.00, in 2018 the average FR value was reached 14.09 and 100% of businesses had level 2.0 < FR < 5.0. In the first quarter of 2023, the financial risk coefficient FR reached to 19.46, showing safety quite high in this industry.

* Descriptive statistical analysis: The statistical indicators described include: Obs (Observation) - number of observations; Mean Std. - Average number; Dev. (Standard Deviation) - Standard deviation; Min - Minimum value; Max - The largest value is shown in the following results table:

Variable	Obs	Mean	Std. Dev.	Min	Max
Frit	378	13.2129	42.98585	.6423	388.0047
X1	378	1.342644	1.463657	0	6.537459
X2	377	2.448042	1.565679	0	7.134059
X3	378	.8941618	.1756715	0	1
X4	378	.3801998	.2172137	0	.8276615
X5	378	.134815	.1378315	0	.47359
X6	378	3383029	9489240	0	5.63e+07
X7	378	2.355892	17.53001	-100	111.9673
X8	378	.6626228	.2188459	.1150288	1
X9	378	.3373772	.2188459	0	.8849712
X10	378	198.4043	1234.331	-1729.838	21514.81
X11	378	254.8274	1288.956	-3668.327	20409.12
X12	378	31.11549	198.2645	-.0075319	2594.584
X13	378	.2919794	.2900779	-.0017574	1.552175

* Correlation analysis: The results of the model's correlation analysis show that the Frit variable is correlated with indicators reflecting the capital mobilization decision of the enterprise (X1, X2, X3, X4, X5) , enterprise size, indicators reflecting investment decisions (X8, X9). Solvency coefficient index results from correlation analysis between variables in the model are shown in the following table:

Table 6: Summary of correlations between variables

	Frit	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13
Frit	1.00													
X1	-0.25	1.00												
	0.00													
X2	-0.25	0.95	1.00											
	0.00	0.00												
X3	0.14	-0.47	-0.45	1.00										
	0.01	0.00	0.00											
X4	-0.44	0.60	0.59	0.09	1.00									
	0.00	0.00	0.00	0.08										
X5	-0.26	0.60	0.60	-0.45	0.47	1.00								
	0.00	0.00	0.00	0.00	0.00									
X6	-0.09	0.00	-0.11	-0.04	0.13	0.37	1.00							
	0.09	0.99	0.03	0.40	0.01	0.00								
X7	-0.03	0.07	-0.02	0.07	0.05	-0.01	0.02	1.00						
	0.56	0.20	0.69	0.19	0.31	0.85	0.65							
X8	-0.37	0.12	0.15	0.35	0.55	0.00	-0.11	0.07	1.00					
	0.00	0.02	0.00	0.00	0.00	0.99	0.04	0.15						
X9	0.37	-0.12	-0.15	-0.35	-0.55	0.00	0.11	-0.07	-1.00	1.00				
	0.00	0.02	0.00	0.00	0.00	0.99	0.04	0.15	1.00					
X10	-0.02	-0.05	-0.05	0.04	-0.06	-0.03	-0.04	-0.05	-0.12	0.12	1.00			
	0.72	0.37	0.35	0.40	0.21	0.50	0.43	0.29	0.02	0.02				
X11	-0.03	-0.07	-0.07	0.01	-0.11	-0.03	-0.05	-0.06	-0.16	0.16	0.96	1.00		
	0.55	0.19	0.16	0.87	0.04	0.60	0.32	0.23	0.00	0.00	0.00			
X12	0.02	0.03	0.02	0.09	0.12	-0.09	-0.05	-0.02	0.15	-0.15	-0.02	-0.02	1.00	
	0.73	0.60	0.70	0.08	0.02	0.07	0.34	0.74	0.00	0.00	0.70	0.69		
X13	-0.13	-0.01	-0.03	0.29	0.28	-0.20	-0.11	0.32	0.33	-0.33	0.12	-0.16	0.06	1.00
	0.01	0.82	0.56	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.00	0.24	

* Choose a suitable model: To choose a suitable model, NCS takes the following steps:

Use FEM and REM regression methods. Then to select the appropriate model, the author uses the Hausman test with:

Ho: REM is a more appropriate model than FEM

H1: FEM is a more appropriate model than REM

The Hausman test results show that: Choosing the appropriate model between FEM and REM shows that chi2(6) = 27.27; Prob>chi2 = 0.0001 < 0.05, the model estimates FEM parameters with a higher degree of fit than REM.

* Checking the model's defects: multicollinearity, heteroskedasticity and autocorrelation obtained the following results:

- Multicollinearity test: with VIF value = 13.73 < 10, so the model used has multicollinearity phenomenon, the author excludes variables causing multicollinearity: X2, X4, X8, X11.

- Testing heteroscedasticity: found that the value Prob>chi2 = 0.0000 < 0.05, so the model has heteroscedasticity.

- Checking the autocorrelation phenomenon: found that the value Prob>chi2 = 0.0000 < 0.05, so the model has autocorrelation phenomenon.

After correcting for autocorrelation and heteroskedasticity phenomena, the results are summarized in the following table:

Table 7: Summary of results measuring the influence of factors on FRit

VARIABLES	FEM	REM	Correction
X1	-1,832	-2,907	-1,558
X3	-7.123	10.38	19.84
X5	-14.46	-30.70	-36.03*
X6	94.68	-161.3	-365.0*
X7	-0.114	-0.0528	-0.131*
X9	-1,555	33.85**	80.33**
X10	2.98e-05	-0.000479	-0.000250
X12	-0.00415	-0.00259	0.00118
X13	0.102	-3,819	3.142
Constant	24.56	2,517	-23.84
Observations	378	378	378
R-squared	0.009		0.052
Number of names	18	18	18

Significance level of each factor

**** p<0.01, ** p<0.05, * p<0.1*

With the above model, there are 4 factors affecting Frit's financial risk: Ratio of debt to total capital (X5); Enterprise scale (X6); Asset growth rate (X7); Proportion of fixed assets (X9):

Frit = - 23.84 - 36.03 **X5** - 365 **X6** - 0.131 **X7** + 80.33 **X9**

From the results of the study when estimating the parameters using the FEM model on Stata20 software, the following conclusions can be drawn:

- *Regarding financial leverage*: The ratio of debt to total capital of listed information technology and telecommunications revenues has an inverse relationship with Frit. This is consistent with theory and reality: the higher debt businesses have, the greater their financial risk.

- *Regarding enterprise scale and asset growth rate:* Model results show that as enterprise scale and asset growth rate increase, Frit value will decrease, meaning financial risk increases. This shows that for telecommunications technology enterprises in Vietnam, increasing business scale will increase the level of financial risk.

- *Regarding asset structure:* Research results of the econometric model determine that the proportion of fixed assets in total assets has a positive relationship with the Frit coefficient, thus the proportion of fixed assets has a negative impact on financial risk. This is consistent with the practical requirements of information technology businesses in the need to change technology and increase investment in new and modern scientific and technological equipment.

From the above research results, the author finds that the use of debt, expanding production scale, and using fixed assets in telecommunications technology enterprises requires caution when these factors are present all affect the risks of the business. Businesses can take advantage of financial leverage to achieve the goal of increasing equity profit margin, avoiding a decrease in equity profit margin, but need to pay attention to the risks about solvency when unable to fulfill loan repayment obligations.

5. Conclusions and recommendations

Through the results of econometric model research, the author proposes solutions to reduce financial risks at telecommunications information technology enterprises. Specifically, in the short term, it is necessary to focus on improving the efficiency of using fixed assets, limiting the increase in debt to invest in fixed assets. In the long term, increase investment in fixed assets in terms of: investing in new technology to improve competitiveness compared to other technology competitors; developing fiber optic cable systems to villages, communes and hamlets to provide mobile information coverage to people with modern, widespread technology and international connections; upgrading current telecommunications infrastructure; deploying smart technology applications for fiber optic infrastructure; perfect the information infrastructure system according to the principles of ensuring information safety and network security; focusing on upgrading 4G mobile network and deploying 5G mobile network infrastructure; Pilot new service applications, platforms, and technology solutions for digital transformation...

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ABNORMAL RETURN OF STOCKS DURING THE EX-DIVIDEND DATE - EMPIRICAL RESEARCH OF VIETNAM BANKS

Phung Trung Manh* - Dao Van Thi*

Abstract: ***The impact of information disclosure on stock market reactions has consistently been a focal point of interest among financial analysts. In this study, employing event-study analysis methodology, we examine the response of the Vietnamese stock market concerning the ex-dividend date. Our research results indicate the presence of abnormal returns on the ex-dividend date and suggest that the delayed effects may extend up to the third day following the event. Moreover, the study identifies certain corporate characteristics that can impact market reactions. Based on these findings, several recommendations are proposed to enhance market efficiency.***

• Keywords: *event study; abnormal return; ex-dividend date; Vietnamese stock market.*

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Tóm tắt: *Tác động của việc công bố thông tin đến phản ứng của thị trường chứng khoán luôn là tâm điểm quan tâm của các nhà phân tích tài chính. Trong nghiên cứu này, sử dụng phương pháp phân tích sự kiện, chúng tôi kiểm tra phản ứng của thị trường chứng khoán Việt Nam liên quan đến ngày giao dịch không hưởng quyền. Kết quả nghiên cứu của chúng tôi cho thấy sự hiện diện của lợi nhuận bất thường vào ngày không hưởng cổ tức và cho thấy tác động chậm trễ có thể kéo dài đến ngày thứ ba sau sự kiện. Hơn nữa, nghiên cứu xác định một số đặc điểm của công ty có thể tác động đến phản ứng của thị trường. Dựa trên những phát hiện này, một số khuyến nghị được đề xuất nhằm nâng cao hiệu quả thị trường.*

• Từ khóa: *nghiên cứu sự kiện; lợi nhuận bất thường; ngày giao dịch không hưởng quyền; thị trường chứng khoán Việt Nam.*

1. Introduction

The COVID-19 pandemic has profoundly impacted the Vietnamese economy, touching every facet of society. Despite formidable challenges, the Vietnamese stock market exhibited resilience throughout 2021, even amidst the throes of the Covid-19 crisis. Triggered by the reduced interest rates prevalent in 2020, securities emerged as a compelling avenue for investment, attracting substantial capital influx from individual investors. Remarkably, the VN-Index achieved a significant milestone, surging past the 1,200-point mark after an arduous four-year interval. Simultaneously, the protracted upward trajectory, which endured for eighteen months and encompassed an average market liquidity exceeding one billion USD, propels Vietnam's stock market toward an unprecedented juncture. These achievements, defying expectations even amongst the most sanguine observers, are especially astonishing given the intricate backdrop of the ongoing pandemic complexities.

Seizing upon this opportune juncture, numerous companies have capitalized on the prevailing conditions to implement their dividend policies, strategically enticing a heightened level of investor engagement within the realm of securities. Fundamentally, dividend distributions manifest in two distinct formats: cash dividends and stock dividends. The former results in a reduction of the total equity, while the latter represents a superficial maneuver, subdividing the corporate pie into smaller portions without eliciting any substantive alteration in the total firm value. It is crucial, however, to underscore that the net asset value (NAV) of investors remains invariant, irrespective of the chosen dividend type, given that appropriate adjustments to stock prices are imperative in response to the issued dividends. As elucidated by Al-Yahyaee (2015), the crux of this matter lies in the perspective that dividend choices

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assume tangential relevance within the overarching decision-making framework.

The most plausible explanation for the ex-date effect can be rooted in the intricacies of market microstructure. For instance, Woolridge (1983) postulates that due to imperfect adjustments in US stock prices on the announcement day, a more pronounced effect is discernible in the context of smaller stock dividends in comparison to their larger counterparts. Building on this notion, Angel (1997) introduces the market maker hypothesis, asserting that companies engage in a competition for an optimized tick size. This strategic maneuvering is achieved through stock dividends, allowing a firm's management to calibrate tick sizes in alignment with desired levels relative to stock prices.

It is imperative to investigate the manifestation of the ex-dividend date effect across diverse trading landscapes to discern whether this phenomenon is exclusive to more mature markets. Compared to the U.S. market, the Vietnamese counterpart exhibits a blend of similarities and disparities, particularly in the organization of its market microstructure. For instance, a shared characteristic between both markets is the imposition of an additional fee for odd-lot transactions, thereby engendering higher transaction costs in odd lots compared to round lots. In the U.S., fractional shares are disbursed in monetary form and are subject to taxation; conversely, the conceptualization of such fractional share distribution remains distinct within the Vietnamese context. Individual orders transpire through price auctions, where preferences are extended to higher bids and lower offers. The absence of market makers within Vietnam underscores that the rationale underpinning dividend distribution within this context cannot be elucidated through the lens of the market maker hypothesis. Thus, the selection of Vietnam's stock market as a research subject serves to unravel the interplay between market structure and the ex-dividend date effect, shedding light on how distinct trading environments contribute to the intricate dynamics of this phenomenon.

The rest of this paper is structured as follows. In the second section, we introduce the event study approach and its development. The third section elucidates the research method and data selection. Subsequently, the fourth section presents the empirical analysis of results, followed by the conclusion and some implications in the final section.

2. Event studies and its development

Event study encompasses a structured framework of standardized methodologies, employed to systematically gauge the statistical significance of stock price reactions in response to extraordinary occurrences. The foundation of this analytical approach was laid by the seminal works of Fama et al. (1969), which unveiled the constructive influence of earnings surprises on stock prices. Throughout the annals of research, a plethora of scenarios have been subjected to this analytical lens, ranging from pivotal junctures such as dividend announcements, mergers and acquisitions, alterations in legislative frameworks, corporate litigation, nuclear crises, to even natural calamities like hurricanes.

Table 1. Elements and principles of event study

Core Elements	Supplemental elements	Overarching principles
1. Event(s)	- Macro-economic confounding event(s)	- Aggregation
2. Firm(s)	- Firm-specific confounding event(s)	- Synchronization
3. Time	- Statistical hypotheses testing	

The elements and principles of event studies can be illustrated as in Table 1. Within this analytical framework, the event assumes a paramount position as a fundamental determinant. This arrangement stems from the primary intention of researchers, which typically revolves around quantifying the influence of specific event categories on stock prices including earnings announcements, stock splits, or dividend adjustments. While the accurate identification of the firm and event date are integral, they present methodological intricacies rather than serving as the focal point of investigation. In this context, the prominence of firms takes a secondary role, as the emphasis shifts from the individual firm to the event itself. The aggregation of stock price reactions across firms is pursued to mitigate the influence of stochastic fluctuations in returns unrelated to the event.

Notably, firms are ranked second in the hierarchy of core elements, owing to the numerous event studies that seek to delineate how event impacts hinge on firm-specific attributes - such as firm size, magnitude of earnings surprises, or audit quality. However, it is imperative to underscore that the focus seldom rests solely on individual firms; instead, stock price reactions are either gauged at an aggregated level or hypothesized to exhibit a functional (linear) relationship with distinctive firm characteristics.

Time occupies the third rank within this analytical construct, primarily because researchers seldom seek to discern whether an event instantaneously impacts stock prices on a specific date in the calendar. To illustrate, if an analogous event unfolds for Firm A on March 3rd and for Firm B on September 15th, the conventional calendar days of March 2nd, 3rd, and September 14th, 15th, and 16th are redefined as days [-1], [0], and [+1] correspondingly. This temporal realignment, a crucial preliminary step, involves reshaping the stock return data to adhere to a standardized timeline that pivots around the event dates.

The inherent design of the event study method adeptly addresses the influence of macroeconomic events without precipitating substantial data loss. This is achieved by calculating and evaluating abnormal returns relative to a market index or a multiple factor model. By adopting this approach, the overarching influence of market-wide fluctuations on the stock returns of event-involved firms can be effectively disentangled, as illustrated in MacKinlay's work (1997). This analytical approach empowers researchers to effectively account for the impact of unforeseen changes in interest rates or unforeseeable events such as terrorist attacks - circumventing the need for explicit event identification.

3. Research method and data selection

3.1. Research method

According to MacKinlay (1997), market rationality dictates that the repercussions of an event are promptly incorporated into stock prices. Consequently, the quantification of the impact of an economic event can be ascertained by analyzing stock prices within a concise time frame. This method of assessing impact aligns with the approach undertaken by Gurgul (2003) and Dasilas and Leventis (2011), where the quantification process hinges upon the determination of abnormal returns exhibited by stocks within a defined "event window."

$$AR_{it} = R_{it} - E(R_{it}) \quad (1)$$

where is the abnormal return of stock i on day t; is actual rate of return; is the expected return of this stock, estimated by the market model over a period from day t-270 through day t-21 before the event.

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \quad (2)$$

where is the rate of return of the market portfolio on day t.

The cumulative abnormal return of a stock during an event window, [T_1 - T_2] days, can be computed as following.

$$CAR_{i(T_1,T_2)} = \sum_{T_1}^{T_2} AR_{it} \quad (3)$$

Because we concern about the impact of an event to the return of the whole stock market (or at least, an industry), it is necessary to calculate the cumulative average abnormal return of a stock portfolio, that is.

$$CAAR_{(T_1,T_2)} = \frac{1}{n}\sum_{i=1}^{n} CAR_{i(T_1,T_2)} \quad (4)$$

To test for the significance of these abnormal returns, we utilize the non-parametric t-test. Specifically, the t-statistic for average abnormal return is:

$$t_{AAR_t} = \frac{AAR_t}{\sigma_{AAR_t}} \quad (5)$$

where σ_{AARt} is the standard deviation of , that is calculated as following:

$$\sigma_{AAR_t} = \sqrt{\frac{1}{k-1}\sum_{T_0}^{T_1}(AAR_t - \overline{AAR_t})^2} \quad (6)$$

and the t-statistic for cumulative average abnormal return is

$$t_{CAAR_t} = \frac{CAAR_{(T_1,T_2)}}{\sigma_{CAAR_{(T_1,T_2)}}} \quad (7)$$

Where $\sigma_{CAAR(T1,T2)}$ is the standard deviation of $CAAR_{(T1,T2)}$

$$\sigma_{CAAR_{(T_1,T_2)}} = \sqrt{\frac{1}{N(N-d)}\sum_{i=1}^{N}(CAR_{i(T_1,T_2)} - CAAR_{(T_1,T_2)})^2}$$

3.2. Data selection

Following the climax of the Covid-19 outbreak in March 2020, the Vietnamese stock market embarked on a remarkable upward trajectory. All major market indices surpassed their historical benchmarks, setting new pinnacles of achievement. The impetus behind this surge can be largely attributed to the resounding success of the banking sector. By the conclusion of 2021, the market value of the banking industry in Vietnam soared to an impressive 80 billion USD, constituting approximately 30% of the entire market capitalization. A noteworthy facet is the striking degree of correlation, as evidenced by the close-to-one Beta coefficient, between the banking-sector index and the VN-Index. This proximity underscores a striking homogeneity in their movements, suggesting a closely intertwined relationship that intertwines the fortunes of these indices.

Therefore, in this study, we use the stocks of Vietnamese banks as representatives of the market. There are 27 banks listed on the two stock exchanges, namely, Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX). To avoid potentially confounding effects of events, a concern first raised by Miller and Scholes (1982) suggests that an ex-day should be excluded if it includes more than one announcement. Furthermore, following Al-Yahyaee (2014), we remove any case with more than one dividend distribution within 60 days to ensure that the results are not influenced by multiple events. Finally, to prevent the market impact of initial public offerings (IPO), we exclude stocks that do not have at least 90 days before the ex-date. Our final sample consists of 25 banks with 155 events (80 cash dividend and 75 stock dividend events).

4. Empirical results and analysis.

To vividly depict this investigative pursuit, the visual representation offered in Table 2 offers a comprehensive depiction of the daily average abnormal returns, meticulously annotated with their corresponding levels of statistical significance. This research further encompasses a nuanced exploration encompassing three distinct scenarios, each serving as a unique lens through which the diverse impacts stemming from distinct dividend types - namely, cash dividends and stock dividends - are meticulously evaluated and discerned.

Table 2. The Average Abnormal Returns (AAR - %) during Ex-Days

t	Miscellaneous	Cash Dividend	Stock Dividend
-5	-0.303	0.592	0.111
-4	-0.275	-0.064	-0.416
-3	0.396	0.457	0.355
-2	-0.800**	-0.724	-0.851*
-1	-0.260	0.063	0.392
0	4.135***	4.635***	3.649***
+1	3.253***	4.145***	1.324**
+2	-0.803**	-0.152	-0.904*
+3	0.033	0.376	-0.195
+4	0.087	-0.158	0.251
+5	0.111	-0.397	0.443

Notes: The ARR is the average of abnormal returns across types of dividend information. The significant level of each value is evaluated by t-statistics. Here ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.

The findings of this study reveal a pattern characterized by the pre-ex-dividend abnormal returns (AARs) demonstrating limited fluctuations with a modest amplitude. In essence, most AARs - excluding the cases of Miscellaneous and Stock Dividend on day t-2 - fail to attain statistical significance. However, a distinctive trend emerges, with abnormal returns surging significantly on the dividend distribution days. Specifically, for the case of stock dividends on day T0, the AAR attains a magnitude of 3.649%, notably smaller in comparison to both cash dividend and miscellaneous cases, which record AARs of 4.635% and 4.135%, respectively. Noteworthy is the semblance of these AARs to those documented in the work of Al-Yahyaee (2015). Interestingly, the presence of abnormal returns isn't confined solely to the ex-dividend day, extending its influence on the day T+1 albeit with a reduced magnitude, before entering a state of ambiguity on the day T+2. This particular outcome serves as a pointer towards the market's inefficiency, wherein stock prices do not instantaneously assimilate dividend-related information. As a result, opportunities for abnormal returns arise for stock traders who opt to initiate long positions one or two days before the ex-dividend day - a strategy that can be effectively leveraged under the context of the T+2 clearing system observed within the HOSE and HNX stock exchanges in Vietnam.

In the pursuit of understanding investors' decision-making behaviors around the ex-dividend day, a pertinent approach involves the assessment of Cumulative Average Abnormal Returns (CAARs), as elaborated in Table 3. These computations are predicated upon the evaluation of holding positions within the event window spanning from day T-5 to T+5. The outcomes gleaned from this analysis underscore a remarkable consistency across all three considered scenarios.

Table 3. The cumulative average abnormal return (CAAR) across event windows

Windows	Miscellaneous	Cash Dividend	Stock Dividend
(-5, -4)	-0.578	0.528	-0.305
(-5, -3)	-0.182	0.985**	0.050
(-5, -2)	-0.982**	0.261	-0.801*
(-5, -1)	-1.242**	0.324	-0.409
(-5, 0)	2.893***	4.959***	3.240***
(-5, +1)	6.146***	9.104***	4.564***
(-5, +2)	5.343***	8.952***	3.660***

Windows	Miscellaneous	Cash Dividend	Stock Dividend
(-5, +3)	5.376***	9.328***	3.465***
(-5, +4)	5.463***	9.170***	3.716***
(-5, +5)	5.574***	8.773***	4.159***

*Notes: The CARR is the Cumulative average abnormal returns across types of dividend information. The significant level of each value is evaluated by t-statistics. Here ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.*

Similar to the examination of abnormal returns (AR), akin patterns emerge in the realm of cumulative return margins. The most substantial cumulative return margin, a remarkable 9.328%, aligns with the case of cash dividends when holdings are sustained within the window of (-5, +3). Sequentially, the scenario of miscellaneous dividends yields the highest value of 6.146% within the corresponding event window of (-5, +1), followed closely by stock dividends registering at 4.564%, occupying a similar window frame. These discernible outcomes extend insightful recommendations to investors regarding optimal holding durations. Particularly, investors within emerging financial markets like Vietnam stand to capitalize on market inefficiencies to potentially amass abnormal returns. However, from a regulatory perspective, these findings bear significance in terms of advocating for enhanced efficacy in market information disclosure, thereby fostering a more informed investment landscape.

To discern the influence wielded by specific attributes of banks over the market's responsiveness as reflected in stock prices, a regression analysis was undertaken. It is pertinent to highlight that the computed outcomes presented in Table 2 pertain to the Cumulative Average Abnormal Returns (CAARs) preceding the ex-dividend date, whereby signigicant abnormal returns are not evident. Hence, our primary attention pivots towards the market's subsequent, delayed response - an aspect encapsulated by the $CAAR_{(i(+1,+5))}$ notation - which assumes the role of the dependent variable within our analytical framework.

TABLE 4. Descriptive statistics of regression's variables

Variable	Mean	Median	Min	Max	St.D.
	0.027	0.018	-0.126	0.578	0.055
Fsize	11.937	11.429	10.629	15.326	0.820
Beta	1.372	1.022	0.661	1.830	0.302
Dtype	0.402	0.000	0	1	0.509
CAR	11.187	10.884	8.350	16.623	1.925

Table 4 exposes of the descriptive statistics pertaining to the variables underpinning our regression model. Apart from the dependent variable, our analytical framework incorporates some control variables, each contributing distinct facets to the investigation. Specifically, "Fsize" is enlisted to capture the scale of the bank, calculated by the natural logarithm of total assets. Meanwhile, the variable "Beta" is harnessed to encapsulate the stock's Beta coefficient, a pivotal metric within the financial domain. Adding depth to our analysis, the variable "Dtype" assumes the guise of a binary dummy variable, endowed with values 0 and 1, thereby delineating between stock dividend and cash dividend scenarios respectively. Concluding the ensemble, the coefficient tied to the Capital Adequacy Ratio (CAR) is emblematic of the banks' resistance in countering credit risks - a pivotal gauge of their financial robustness.

The results of regression models are meticulously presented in Table 5. To discern the potential illness of the OLS model, a comprehensive diagnostic was administered, encompassing the Breusch-Godfrey (BG) autocorrelation test and the White heteroskedasticity test. The empirical outcomes derived from these diagnostic assessments impart valuable insights. Notably, the p-value attributed to the BG-test, quantified at 0.9503, compellingly signifies the model's exemption from the clutches of autocorrelation. Conversely, a distinct perspective emerges through the scrutiny of the Obs*R^2 statistic from the White test, which unmistakably illuminates a substantial propensity for latent heteroskedastic tendencies manifesting within the confines of the OLS model.

TABLE 5. Regression results

Variable	OLS		GLS	
	Coeff.	p-value	Coeff.	p-value
C	0.0164	0.0001	0.0164	0.0000
Fsize	-0.0234***	0.0003	-0.0234***	0.0004
Beta	-0.0005	0.8944	-0.0005	0.7503
Dtype	-0.0250***	0.0001	-0.0250***	0.0000
CAR	0.0012	0.8865	0.0012	0.8572
Adj. R^2	0.2563		0.2563	
F-statistic	14.5618		14.5618	
White heteroskedasticity test	Prob. (Chi^2) = 0.0426			
Breusch-Godfrey (BG) test	Prob. F = 0.9503			

*Notes: The significant level of each value is evaluated by t-statistics. Here ***, **, and * indicate statistical significance at the 1%, 5%, and 10%, respectively.*

To overcome this issue, the study employed the Generalized Least Squares (GLS) regression method. The regression outcomes bear testimony to a significant influence exerted by the bank's size on the CAAR, underscored by a coefficient of -0.0234 coupled with a significance level that registers at less than 1%. Moreover, a meticulous exploration into the repercussions of the "Dtype" variable accentuates a noteworthy divergence in CAARs, contingent upon whether the dividend is of the stock or cash variety. This distinction becomes pronounced through the coefficient associated with this variable, recorded as -0.0250. Notably, this finding implies that the return attributed to cash dividend could potentially exhibit a superiority of approximately 2.5% compared to scenarios involving stock dividends. Conclusively, the coefficient attributed to the Capital Adequacy Ratio (CAR) points to a nuanced and equivocal relationship between the bank's risk resistance and the resultant abnormal returns.

The findings extracted from this study harmoniously resonate with the conclusions of Al-Yahyaee (2015) illuminating a negative correlation between firm size and cumulative abnormal returns. This correlation can be attributed to larger banks' propensity to exhibit heightened transparency in divulging information, thereby minimizing the asymmetry of information compared to their smaller counterparts. Moreover, these sizable banking institutions often draw the attention of major financial entities that adhere to enduring and stable investment strategies. This overarching dynamic might lead to relatively subdued market reactions concerning dividend-related information emanating from larger banks, in contrast to the more pronounced responses evoked by smaller banks.

Furthermore, the conspicuous market responses to cash dividend disbursements mirror investor confidence in banks that signal promising growth prospects. Evidently, the inclination towards trading stocks associated with cash dividends, as opposed to stock dividends, resonates with the preferences of short-term investors. This propensity aligns with the perspectives elucidated by Dasilas and Leventis (2011).

5. Conclusion and Implication.

This study examines market reactions around the ex-dividend date of listed banking stocks on stock exchanges in Vietnam. Employing event study methodology, market reactions are measured through abnormal stock returns under different event window frames. Furthermore, the research delves into investigating the influence of certain banking characteristic factors on these reactions, as reflected in stock prices.

The research findings indicate market inefficiency in the semi-strong form, manifested in delayed market reactions following the ex-dividend date. Furthermore, among the internal factors influencing these reactions, we found that firm size (which has a negative effect) and the form of dividend distribution (the market reacts more strongly to cash dividends compared to stock dividends) contribute the most. However, one of the core values of banks, the capital adequacy ratio, does not significantly impact these reactions.

The research findings suggest multifaceted implications. From an investor perspective, it is advisable to refrain from short positions prior to the ex-dividend date and instead consider holding stocks for a maximum of 2-3 days following the event to capitalize on abnormal returns. Furthermore, investors with a propensity for risk may choose to allocate their investments towards stocks of smaller enterprises that prefer cash dividend distributions to optimize their abnormal returns. Regarding market oversight and regulation, this study underscores the importance of regulatory bodies in enhancing the effectiveness of information dissemination mechanisms. Concurrently, efforts should be directed towards the provision of educational programs aimed at augmenting investor awareness and fostering a deeper understanding of the core values in the financial market.

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ASSESSMENT OF CORPORATION SOCIAL RESPONSIBILITY AT FIVE-STAR HOTELS IN VIETNAM: CASE STUDIES OF MARRIOTT AND HILTON HOTEL

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Abstract: ***In order to ensure sustainable development for businesses and society, an increasing number of people are emphasizing corporate social responsibility (CSR). Despite Vietnam's growing participation in the process of globalization and international integration, the issue of social responsibility has not received sufficient attention from both theoretical and practical perspectives in the country. Today, hotels in Vietnam, especially 5-star hotels, have engaged in CSR activities and achieved success, but there are also many limitations. Based on an assessment of the actual situation of implementing CSR in several 5-star hotels in Hanoi, the article provides comments on the issue of implementing CSR in the hotel business and proposes solutions to improve the implementation of social responsibility in the hotel business in Vietnam.***

• Keywords: *Social responsibility; hotel business; corporate social responsibility; hospitality industry.*

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Tóm tắt: *Để đảm bảo sự phát triển bền vững cho doanh nghiệp và xã hội, ngày càng có nhiều người nhấn mạnh đến trách nhiệm xã hội của doanh nghiệp (CSR). Mặc dù Việt Nam ngày càng tham gia nhiều hơn vào quá trình toàn cầu hóa và hội nhập quốc tế nhưng vấn đề trách nhiệm xã hội vẫn chưa nhận được sự quan tâm đầy đủ cả về lý luận và thực tiễn trong nước. Ngày nay, các khách sạn ở Việt Nam, đặc biệt là các khách sạn 5 sao đã tham gia vào hoạt động CSR và đạt được thành công nhưng cũng còn nhiều hạn chế. Trên cơ sở đánh giá thực trạng thực hiện CSR tại một số khách sạn 5 sao ở Hà Nội, bài viết đưa ra nhận định về vấn đề thực hiện CSR trong kinh doanh khách sạn và đề xuất giải pháp nâng cao việc thực hiện trách nhiệm xã hội trong kinh doanh khách sạn tại Việt Nam.*

• Từ khóa: *Trách nhiệm xã hội; kinh doanh khách sạn; trách nhiệm xã hội doanh nghiệp; ngành công nghiệp khách sạn.*

1. Some basic issues about corporate social responsibility in hospitality industry

1.1. The conceptualization of Corporate Social Responsibility in the hospitality industry

There are many different definitions of Corporate Social responsibility (CSR). Each enterprise, and government organization considers natural resources from its perspective and point of view, depending on its conditions, characteristics, and development level. Keith Davis (1973) introduced a fairly broad concept: *"CSR is the concern and response of businesses to issues beyond satisfying legal, economic, and technological requirements."*. Meanwhile, Carroll (1999) argues that CSR is broader: *" all the economic, legal, ethical and other issues that society expects in business at every moment certain."*

On a larger scale, the effort to make CSR a common international practice has become a reality. This paper will approach CSR definition followed by The World Business Council for Sustainable Development (1999). They define CSR as the *"continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large."*

In essence, the CSR of a hotel is also the social responsibility of a business. In other words, the hotel's CSR is a harmonious combination of the

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implementation of the provisions of the law on labor, environmental protection, and consumer protection with the requirements of partners and customers; between the interests of the hotel and the interests of society; between the interests of the employee and the employer,... Meeting these requirements well, the domestic and international competitiveness of the hotel will increase (Tran Thi Thu Thao, 2010).

1.3. Contents of Corporate Social Responsibility in the hospitality industry

A hotel is considered to have good social responsibility when it does the following well:

- *Responsibility for employees:* In the hotel business, the human factor plays a decisive role in creating product and service quality. In reality, every individual employee in the hotel, regardless of their position and at any given time, is constantly influenced by internal and external factors, including interactions with related businesses and their conditions of employment. These factors are referred to as 'attractions' and 'pulls' for employees. The combination of these forces determines whether employees choose to stay with the hotel for an extended period or decide to leave for other businesses that offer better income or additional benefits. Some may also choose to work for the hotel temporarily while waiting for opportunities to move elsewhere. The attractions from the hotel encompass various factors, including salary and non-salary income, opportunities for promotion, working position, job-related stress, communication opportunities, relationship building, societal status, company treatment, and additional benefits such as social insurance and labor safety. Conversely, the factors contributing to the push from the hotel include inadequate salary, unfair treatment, lack of motivation, and work-related pressures. External attractions stem from factors such as promised promotion opportunities, competitive salary offerings, favorable working positions, social interactions, and the overall working environment.

- *Responsibility for the environment:* In the hotel business, hotels have a significant impact on the environment, releasing various types of waste into nature. These wastes result from the production and service provision within the hotel. It is crucial to manage and treat these wastes properly to prevent any adverse effects on the living environment and human health. The hotel's social responsibility toward the environment involves ensuring that its operations are eco-friendly, providing products of high quality that do not compromise consumers' health.

- *Responsibility to the community:* Responsibility to the community in general, in addition to protecting the environment, charity work is also one of the activities businesses are currently interested in. Hotels can spend a significant portion of their profits contributing to community-based activities, employing local residents, and creating jobs for them.

- *Responsibility to customers:* In the hotel business, fulfilling responsibility to customers entails ensuring their interests and safety. This implies providing accurate and truthful information about the hotel's products, committing to delivering high-quality products in accordance with standards and regulations, with quality commensurate with the product price, and without compromising the health and well-being of customers. Adhering to the law on 'Protecting the interests of consumers' not only demonstrates the hotel's responsibility but also serves as a crucial factor in creating and developing the brand - a resource that is increasingly valuable for hotels in today's competitive conditions.

2. Corporation social responsibility at hotels in vietnam

2.1. Responsibility for employees

In order to achieve cultural congruence, international hotel chains are taking appropriate actions to attract employees while promoting their CSR strategy in different cultural contexts. Firstly, they reach out to local employees through participation in the local community, such as creating job offerings and training qualified personnel, as well as engaging in socially useful activities. Additionally, they seek feedback from local staff about the hotel's contribution to the local community through surveys, meetings, electronic voting, and other forms of communication. Alongside these actions, international hotel groups often organize training programs on CSR as a crucial part of corporate culture and strategy. For instance, Marriott's business ethics training program, 'How We Do Business Is As Important As The Business We Do,' is a required part of orientation for every associate and emphasizes Marriott's commitment to human rights.

CSR acts as an important strategy for organizational justice aimed at its stakeholders. It is widely known that when employees perceive fair behavior from an organization, they tend to develop a positive attitude towards their work and exhibit organizational citizenship behavior. Employers pay special attention to improving the quality of employees' work, involving a combination of cultural, physical, and technological aspects of the working environment. In short, the employee experience is a general connection with the workplace, not limited to any one aspect of working life. The better the employer can make the employee experience, the higher the potential return on investment in recruitment, productivity, and staff retention.

Hilton's HR Director emphasizes, 'Our mission is to be the most welcoming company in the world, and you can't do that without great people, and you can't get great people without being a great workplace.' The overhaul of employee facilities is a continuation of Hilton's overall plan to increase employee engagement, including providing childcare benefits for up to 10 weeks for birth mothers and two weeks for other parents. Hotel upgrades range from new lighting and fresh paint to more extensive renovations, including refurbished cafeterias and changing rooms.

Marriott strives to provide a safe and healthy working environment for all its associates. Workplace policies and practices include commitments to: harassment and non-discrimination, child labor, ethical recruitment, freedom of association, forced labor, and human trafficking. Marriott's business conduct guide advises managers and associates on laws, practices, and procedures related to various business issues, including antitrust, unfair competition, political contributions, abuse of purchasing power, commercial and political bribery. It also provides guidance on issues relevant to the sphere of influence as a company in the travel and tourism industry, including human trafficking and the exploitation of children. Marriott condemns all forms of human trafficking and supports laws duly enacted to prevent and punish such crimes, including the exploitation of children. Marriott will continue to raise awareness of this issue and support programs that help children and their families break out of the cycle of poverty that makes them vulnerable.

2.2. Responsibility for the environment

Hilton Hotels in Vietnam are aware of their vital obligation to protect the planet's vitality for future generations. By conserving resources in the hotels, lowering the environmental impact of the supply chain, and working with local communities to engage in projects that promote environmental responsibility and resilience, Hilton is dedicated to halving its environmental impact throughout the value chain. Through the use of their Light Stay system, Hilton establishes and monitors energy, carbon, water, and waste reduction goals for every hotel. Properties use Light Stay to measure and manage their performance, identify priority areas, find and share best practices, and report on ongoing sustainability initiatives. Some of the activities that Hilton is currently practicing include food donations, reducing water use in managed operations by 50% (liters/m2 – 2008 baseline), and reducing waste in managed operations by 50% (metric tons/m2 – 2008 baseline).

Marriott hotels in Vietnam minimize their environmental footprint by sustainably managing energy and water use, reducing waste and carbon emissions, and increasing the use of renewable energy. They employ innovative technologies to plan, implement, track, and communicate how they operate responsibly to mitigate climate-related risks, benefiting business and the communities in which they operate. In 2021, Marriott increased water intensity by 4.7% but reduced carbon intensity by 25.6% against a 2016 baseline. They are currently rolling out a plan to replace tiny, single-use toiletry bottles of shampoo, conditioner, and bath gel in guestroom showers with larger, pump-topped bottles. When fully implemented globally, Marriott's expanded residential-sized amenity program is expected to prevent about 500 million tiny, single-use toiletry bottles annually from going to landfills. Due to the impacts of COVID-19 on the company, including decreased occupancy, Marriott experienced an increase in water intensity and a decrease in carbon intensity metrics in 2021.

2.3. Responsibility to the community

Every year, Marriott supports the Operation Smile Organization, hosting one of the biggest running charity events for children in the hotel industry in Vietnam. Additionally, in the spirit of spreading love and meaningful messages during the festive season, Marriott engages in charitable donations to help disadvantaged children through all activities at the Charity Christmas Village that takes place annually.

Hilton promises to donate food from its operated hotels. To support these initiatives, Hilton hotels collaborate with local food rescue organizations to donate extra prepared food to those in need in the local communities. They have created guiding tools, such as a Food Donation Toolkit. One of the largest hotel food donation projects to date, Hilton's food donation program was expanded in 2019 to include all managed hotels in Vietnam and around the world. With its food donation initiative, Hilton hopes to divert millions of pounds of food waste from landfills while also providing enough food to feed more than 160,000 people in North America alone.

These hotels in Vietnam are proactive in supporting community service activities with the goal of social and infrastructure development. They contribute to local environmental protection funds, support people affected by natural disasters, orphanages, veterans' associations, Red Cross, and contribute to planting trees, raising awareness of child protection, among other initiatives.

2.4. Responsibility to customers

The hospitality industry is currently one of the fastest-growing business sectors in the world, and although there was a brief hiatus due to COVID-19, with the current situation, the hospitality industry is one of the fastest-recovering industries in the economic recovery process. At the same time, then, the high income of the hospitality industry means that it will need to have more responsibilities to society. For example, Hilton's guest-related CSR activities, especially in terms of its loyalty. The first thing we need to know is that building customer loyalty to a company is very important, especially for a global chain industry like Hilton. By generating and preserving customer faithfulness, a company develops long-term, mutually beneficial associations with its clients. A loyal customer base results in a maintainable competitive. Hilton's corporate social responsibility is well represented. Despite an unprecedented downturn in the hospitality industry in 2020 due to the pandemic, Hilton is still active in the community and has made a significant social impact. Hilton quickly introduced "Hilton Clean Stay" after the outbreak to ensure the safety of Hilton teams around the world. This is a responsibility not only to our employees but also to our customers. (Hilton 2021 ESG Report, 2022)

Marriott Worldwide is committed to exemplary ethical behavior by all associates in every aspect of business. Marriott's policies require that all business be conducted with honesty and integrity and in full compliance with all applicable laws. All associates are required to comply with specific standards related to legal obligations, ethics, and business conduct. Upper-level management is required to participate in an Annual Ethical Conduct Survey. Marriott also has in place a Legal and Ethical Steering Committee to oversee the legal and ethical compliance program and a Business Integrity Line to report ethical and legal concerns. The commitment to integrity, ethical business conduct, and human rights extends to their own business operations (Marriott 2020 CSR Report, 2021).

2.5. Assessment

After researching the case studies of Marriott and Hilton hotels in Vietnam, in general, the practice of CSR in the hotel business has a positive effect on employees' attitudes toward the organization and its implementation. When employees realize that their organization participates in socially responsible activities, they are more likely to develop a positive attitude towards the organization and be actively involved in their work. A high level of CSR leads to higher employee engagement, defined as 'a positive, satisfying, work-related state of mind characterized by energy, determination, and absorption.' CSR perceived by employees has a positive effect on job satisfaction, defined as a positive emotional state reflecting affective reactions to the work environment. Moreover, it was found that organizational civic behavior, defined as individual employee behavior that is discretionary, has a positive impact on perceived CSR. Working in a socially responsible company leads to increased organizational identification, employee engagement, civic behavior in the organization, employee commitment, performance of their duties, and improvement of employee relations.

Secondly, carrying out environmentally responsible business has been identified by 5-star hotels in Vietnam as one of their social responsibilities for sustainable development. They are always pioneers in implementing environmental protection policies in the hotel business.

Thirdly, Marriott and Hilton hotels soon realized that contributing to community development can help improve public relations relationships with the local community and avoid conflicts in the future. Support for community development can generate positive public interest and enhance a hotel's reputation with the community and locals, as well as with the host government. Support for community development can enlist the support of visitors and people interested in community welfare. Securing resources for local people can help with conservation goals by creating new sources of livelihoods without negative impacts. Strengthening economic ties between local people and businesses helps develop sustainable tourism, maximizing economic and social benefits for local communities.

Finally, the responsibility to the customer of Marriott and Hilton hotels in Vietnam is to create a positive image of the industry, do business in a sustainable and ethical way without compromising comfort or quality for guests, while always striving to improve their experience.

3. Conclusion

CSR is now increasingly becoming an urgent issue in the development and integration process of our country. The effective implementation of social responsibility not only helps businesses increase their competitive advantages but also contributes to the creation and maintenance of Vietnam's sustainable socio-economic growth. Therefore, implementing social responsibility for Vietnamese enterprises is an indispensable task on the path of international economic integration, ensuring benefits for businesses, society, and supporting real estate to perform better than the provisions of labor law in Vietnam.

Compared to other businesses, the hotel industry is still a new area with many aspects to consider, from theory to practice. However, in recent years, Vietnam's hotel industry has made many encouraging developments. As one of the strong brands in the current hotel business in Vietnam, 5-star hotels are always at the forefront of sustainable development activities for Vietnam's tourism industry. Implementing CSR is a regular and long-term defined activity for hotels. The experiences drawn from the implementation of CSR at these hotels have partly shown the theoretical and practical basis for CSR implementation in the hotel business in Vietnam today. On that basis, hotels in Vietnam can apply their CSR implementation to improve efficiency in the hotel business, create a competitive advantage for hotels, and contribute to improving the quality of the tourism industry, creating prerequisites for sustainable tourism development.

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LEGAL FRAMEWORK FOR THE DIGITAL ECONOMY IN VIETNAM

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Abstract: ***The economy will inevitably undergo a digital revolution, and there will be significant qualitative differences from the conventional economy, which has been producing a lot of advantages with great efficiency. Beyond the benefits, Vietnam's economy is currently undergoing a digital transformation that has brought about several obstacles and hurdles, including legal environment-related problems that require in-depth investigation. Along with the Party's and the State's plans and policies, the legal system's concretization needs to be enhanced and put into practice with solutions based on best practices and scientific research.***

• Keywords: *digital transformation, digital economy, laws regulating the digital transformation process.*

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Tóm tắt: *Quá trình chuyển đổi số nền kinh tế là tất yếu theo quy luật khách quan, điều này khiến cho nền kinh tế hiện nay có nhiều thay đổi về chất so với nền kinh tế truyền thống, từ đó mang lại rất nhiều lợi ích với tính hiệu quả cao. Ở Việt Nam, bên cạnh những thuận lợi thì quá trình chuyển đổi số nền kinh tế vẫn còn đối mặt với nhiều khó khăn, thách thức, trong đó, vấn đề về khung pháp lý cần phải được nghiên cứu, bổ sung và hoàn thiện một cách toàn diện. Mặc dù Đảng và Chính phủ đã đưa ra nhiều định hướng về chiến lược, chính sách nhưng quá trình cụ thể hóa các vấn đề liên quan đến hành lang pháp lý cần được đẩy nhanh và áp dụng vào thực tiễn nền kinh tế dựa trên những cơ sở về lý luận khoa học và thực trạng nền kinh tế.*

• Từ khóa: *chuyển đổi số, kinh tế số, pháp luật điều chỉnh quá trình chuyển đổi số.*

1. Introduction

Digital transformation is a given in the fourth industrial revolution, affecting every nation and socioeconomic sector. The process of converting a real model into a digital one is known as "digital transformation". It involves using data and digital technology, such as Artificial Intelligence (AI), Big Data, Internet of Things (loT) technologies, cloud computing (cloud computing), and technology software, to collect, process, and analyze data comprehensively. This drastically alters the model, operation, management, management, and organization of the subjects.

Digital transformation, as opposed to digitization, is the conversion of actual values into digital form. It occurs when people employ technologies, digitized data, Big Data, variable data, and create a unique value. Information technology, computers, communication, and connectivity are used in this "process that aims to improve an entity by making significant changes to its properties" (Vial, Gregory, 2019).

Regardless of size or sector, digital transformation is critical for all companies. To remain competitive and relevant in the new consumer-centric economy, they must leverage technology to improve customer experience and optimize current processes.

2. Literature review

Digital transformation requires combining business with technical expertise and understanding in an appropriate way to ensure success. (Le Duy Binh, Tran Thi Phuong (2020).

The term "digital economy transformation" refers to the process of applying artificial intelligence (AI), big data (Big Data), cloud computing, Internet of things (loT), and technology software to various industries with the goal of altering how economic activities are conducted.

The term "digital economy" refers to an economy that "consists of markets based on digital technologies to create for trading, exchange of goods and services through e-commerce" (OECD, the Digital

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Economy, page 5). The economy changed because of the effects of the fourth industrial revolution, moving away from the simple exchange of goods and services between people to one that is centered on digital technology, which facilitates trade and the exchange of commodities and services. Digital technology is transforming economies at a rapid pace, impacting nations like Vietnam. Vietnam must thus maximize the advantages of this technology for the country's socioeconomic advancement.

Professor PhD Tran Tho Dat states: "There is broad consensus on the most fundamental concepts that define the structure of the digital economy, even though there is no universal definition and a wide range of methods to measure it. As per the wider interpretation, this encompasses sectors and occupations that have business models linked to digital technology and digital platforms (online platforms, platform support services, such the sharing economy, public financing…). The largest definition of the term "digital economy" refers to the entire network of social and economic activities that are reliant on digital platforms, including economies, sectors, government, and society. Traditional economic analysis models and principles are facing problems in the digital economy. Digital assets play a significant role in the digital economy by increasing the market value of enterprises and the economy as well as production efficiency. Big data analysis improves investment efficiency, increases the precision of financial market projections, and considerably reduces transaction costs and information "friction" in the market. In addition, it lowers transaction costs, "lubricating" the supply and demand balance in the market. Data generates positive externalities for the public sector economy, which help to advance societal welfare. Due to these features of the digital economy, conventional models of economic analysis must undergo significant revisions and develop new justifications, such as attempts to address the "Solow productivity paradox". (Tran Tho Dat, 2023).

The economy's digital transformation necessitates the following: resources, the legal framework (in particular, institutions in general), and the machinery of implementation. Specifically, an ideal legal framework that governs the economy's digital transition and the dynamics of interactions inside it is a necessary and highly significant prerequisite. Partnerships that emerge during the economy's digital transformation and its contents must be governed by law, establishing a thorough, suitable, cohesive, lawful, and highly implemented legal corridor that not only lays the groundwork for the economy's sector-by-sector digitalization process but also safeguards the fullest extent of individuals' and businesses' legal rights and interests in their participation in economic and social interactions.

A comprehensive legal framework that is in line with the innovative development process of the fourth industrial revolution and the feature of the digital economy is essential for the effective digital transformation of the economy. The following, in my opinion, should be the primary provisions of the law on the digital transformation of the economy:

First, regulations that specify the legal status of each type of subject and the location, roles, functions, rights, and obligations of each type of entity when engaging in transactions and digital economic activities; these regulations also specify the conditions under which subjects may engage in transactions and carry out economic digital transformation activities. Apart from customary topics like firms, clients, and so on, third parties need to be included, including FinTech companies on BigTech platforms (like Vietinbank's collaboration with ON and BE Group).

Specifically, how the digital economy functions and the legal standing of robots. Regarding the legal standing of this kind while using AI, there are presently two opinions: (i) Artificial intelligence (AI) is the law's capital; while these robots may evoke images of humans, they are not very similar to them; (ii) Artificial Intelligence is treated as a separate dollar in law and control, as stipulated by the regulation of; the AI carriers are not the same as the child; the copy is the property; the tool is the tool; or the product; the regulation simply states that AI is the only dollar-weighted control and that relevant regulations govern who gets to make decisions). Currently, Vietnam's legal system does not regulate the status of artificial intelligence (AI) or the entity that carries it; rather, it only establishes the subject's legal position as a human or legal entity. "Vietnam can address (ii) by defining AI and bringing up relevant concerns, rather than attempting to ascertain the legal standing of AI. Regarding entities that carry AI, certain legislation defining their nature must be in place (Pham Xuan Hoe, 2022).

The law must explicitly specify what constitutes a client in addition to the regulations pertaining to traditional consumers. This is especially important for newly established businesses that engage in transactions and other economic activity in the digital sphere.

Clearly state what it takes to be involved or active in the digital economy. What is the legal significance of subject authentication? For instance, client identity and user authentication? The digital economy necessitates regulation of digital signatures, electronic signatures, and biometrics to identify users (eKYC) in digital space. This is distinct from traditional economics, which verifies identity/ID/passport, photo, and signature.

Second, the content and methodology of using technology 4.0 in the context of the digital economy, particularly for new applications that are exclusive to the digital economy and do not exist in the traditional economy. The use of cloud computing technology, APIs, blockchain in economic transactions (e.g., adjusting the issue of crypto-assets, encryption, ecological application of blockchain technology, security, transparency...), and consumer protection in a digital environment are a few examples of legal regulations on the legal value of digital contracts, cryptocurrency transactions, and digital assets. When implementing AI, the legal question of intellectual property rights arises (How does AI technology apply the digital economy? Or how does the law modify products and inventions made by AI itself?)

Third, laws protect the digital economy's safety and security. Technology criminals have targeted and will continue to target the digital economy. Security risks are growing as digital technology advances, along with the connectivity and interaction of computer systems with corporate applications and user mobile devices in digital economic transactions. While using technological solutions like open API, eKYC, cloud computing, collaborating with fintech companies… can readily lead to hazards related to the security of consumer data and unauthorized access, particularly when there are third party risks involved. Legislation should therefore establish a legal foundation for control and apply full and comprehensive risk management processes, "including due diligence, operational risk management, etc., continuous monitoring of contract performance by third-party service providers and the right to audit," in addition to applying risk management practices and controls to outsourced services (Pham Xuan Hoe, 2022).

Fourth, rules regarding legal obligations and infractions amid the economy's digital development. With the advent of the digital economy, in addition to the rules that apply to transactions and actual economic activity, questions of legal responsibility and infractions also emerge that require investigation to ascertain suitability. Will there be legal ramifications, for instance, if AI is used by an entity to harm others or if it is the object of harm caused by its actions (e.g., providing customers with incorrect advice that harms customers, or if a business entity uses AI to gather and analyze privacy and personal data to serve its business purposes and profit from this data...)? Who transgresses? Who bears the legal responsibility?...

Fifth, rules for settling disagreements resulting from business dealings and the digital economy's change. New disputes that do not exist in the traditional economy (such as disputes over digital contracts, e-commerce disputes, disputes between customers and digital banks when applying AI, or disputes with FinTech) may also arise in addition to the disputes that may arise in the transactions and activities of the economic digital transformation process. The problem must be to determine the subject of dispute? What is the nature of the dispute? How to resolve disputes?... requires regulation by law. The legal framework must not only provide a framework for the emergence and growth of the digital economy, but also foster an atmosphere that encourages novel ideas and their adaptation to the swift pace of the industrial revolution. 4.0. Digital technology must even be considered while creating laws.

3. Methodology

In the article, the author has used many theoretical research methods - this is a group of methods of collecting scientific information based on studying existing documents and manipulating logical thinking. To draw necessary scientific conclusions, which can be mentioned as: Method of analysis and synthesis, method of classification and systematization to clarify theoretical and practical issues of the topic.

Analytical and synthetic method: Through this method, the author conducts research on various documents related to digital transformation of the economy by analyzing the content of each aspect of legal framework for the digital economy in Vietnam.

Classification and systematization method: In the article, the author has used the method of classification and systematization to classify aspects of legal framework for the digital economy in Vietnam according to the achieving goals.

4. Status of digital transformation in oil and gas enterprises in vietnam

4.1. Current legal status on digital transformation of the economy in Vietnam

Decision No. 749/QD-TTG (2020) on the National Digital Transformation Program to 2025, with a vision to 2030, has determined that the basic goal of the program is: "National digital transformation aims at dual goals is to develop the digital government, digital economy, digital society, and form Vietnamese digital technology enterprises with the capacity to go global."

Developing Vietnam's digital economy is one of the program's objectives. Vietnam aims to enhance its economy's competitiveness and grow the digital economy by 2025, as it falls into the category of economies where the digital economy is incompatible. The needs for legal adjustments to the digital economy are not met by many of the laws found in the law on electronic transactions and other associated legal instruments. To address shortcomings, legislation pertaining to, among other things, banking, e-commerce, intellectual property intelligence, investing, and information and communication technology need to be reviewed. Inconsistency in the legal framework for the economic transformation brought about by digitalization. As an illustration:

- The incompleteness of laws pertaining to electronic contracts (legal value, effective date, authentication, etc.) makes e-commerce operations challenging.

- Laws pertaining to electronic documents, digital signatures, and electronic proof still have flaws and are prone to conflict.

- There are still many issues with tax regulations, tax management, accounting, auditing, and commercial activity in the digital economy. Since then, laws that impose arbitrary bans have been introduced because tax money has been lost to the state budget or is unmanageable.

- The digital economy's criteria are not met by the legislative framework for digital banking.

In addition, many the current legislative modifications pertaining to the digital transformation of the economy are either nonexistent or improperly and insufficiently designed. Within that:

- The conditions and rules pertaining to individuals' ability to engage in transactions and perform digital transformation activities inside the economy are still lacking or inadequate.

As the economy undergoes a digital transition, new kinds of subjects have emerged and will continue to do so. These subjects' rights, obligations, responsibilities, positions, and roles as owners must all be determined by legislation. This organization engages in both the digital transformation process and the digital economy. However, legal rules are still either nonexistent in Vietnam today or exist but are still insufficient and require further research to make them better. Assisting individuals in various roles and positions to participate in accomplishing their objectives is necessary when operating in a digital world. Because of the digital transformation of the economy, new entities or properties are created that necessitate setting the conditions for participation. These conditions are not met by the current rules, so they must be modified.

- In the context of the digital economy, there are insufficient or no rules regarding the use of 4.0 technologies and their content.

Many of the new connections and materials that have emerged because of the economy's digital revolution are either not yet subject to legal regulation or have been modified but remain insufficient and require further development. The use of cloud computing technology, APIs, blockchain in economic transactions (e.g., adjusting crypto-assets, encryption; ecological application of blockchain technology; security, transparency...), new business models, automated trading processes on network environments, and consumer protection in digital environments are a few examples of how to adjust for electronic contracts, electronic transactions, e-commerce, digital finance, digital banking, cryptocurrency trading, digital assets… It can be challenging to implement legal principles pertaining to intellectual property rights while using artificial intelligence (AI), database security, personal data, individual rights rules, identification, and electronic authentication.

- Regulations guaranteeing people' security and safety as well as the safety of the digital economy are either nonexistent or inadequate.

The legal framework needed to protect the rights and interests of people engaged in digital economic transactions is crucial given the complexity of technology crimes and the need to operate in a digital environment. Vietnam's digital transformation process has exposed and continues to expose legal gaps that guarantee security, safety for individuals, and the safety of the entire economy have not been fully implemented, necessitating perfection.

- Throughout the process of the economy's digital transformation, there are insufficient or no regulations in place to identify legal infractions and duties.

New kinds of relationships—like those between customers and artificial intelligence, for instance—that need to be governed by law will emerge because of the digital economy and digital transformation. As a result, new kinds of legal infractions have emerged that are not yet sanctioned by the law and therefore need to be improved.

- Regulations to settle conflicts resulting from transactions and activities related to the digital transformation of the economy are either nonexistent or inadequate.

The economy's digital revolution may give rise to new conflicts that require resolution and the necessity for regulatory legislation. Vietnamese law is currently lacking in relation to disputes that arise in the digital sphere because they differ from problems that arise in the traditional economy in terms of their characteristics and the methods needed to identify and settle them.

4.2. Improving the law on on digital transformation of the economy in Vietnam

Currently, the goal and pressing need to establish a legal framework supporting the economic transformation process in Vietnam is to develop and enhance the legal system pertaining to economic digital transformation. Digital technology has been and will continue to be employed in every industry and field in the present industrial revolution 4.0, and the creation of laws is no exception. Thus, we believe that to establish a legal foundation for the process of economic transformation, the legal system must be developed and improved. This is also in keeping with international norms and is an unavoidable tendency. Vietnam's legal system for digital transformation needs to be developed and refined based on the following specific solutions:

First, ensuring the legal system's efficacy, appropriateness, uniformity, legality, and comprehensiveness considering the digital economy.

Reviewing all current legal norms governing the distribution relations born in the process of digital transformation is necessary to create a comprehensive legal environment for the economy's transformation (for new relationships that have not been regulated by law and need to be regulated by law but are lacking). Although there are new relationships, there are also new problems that need to be addressed by law. To address these issues, it is necessary to establish new legal regulations in the form of laws for pilot projects. If necessary, these laws will take effect following the review and the assessment will issue new legal documents to make the necessary adjustments.

The second step is to finish modifying the parts of the current law that pertain to the digital transformation of the economy that are missing, improper, or insufficient. Within that:

- Entire rules pertaining to subjects and prerequisites for subjects to engage in transactions and perform digital transformation tasks within the economy.

Establish legal rules governing recently created subjects. Clearly state the subject's legal status, rights, obligations, responsibilities, position, and role in relation to the digital economy and the process of digital transformation.

Examine the current legal document system to see if there are any subjects that are involved in the digital transformation of the economy but are not covered by the law. These subjects are primarily those that have the status of third parties, like financial technology companies (FinTech) on BigTech platforms. Find out what the legal status of robots is in relation to the operation of the digital economy.

- New laws governing the use and implementation of 4.0 technology in the digital economy should be enacted and completed.

Create and implement new legal guidelines to govern the new interactions and information coming from the economy's digital revolution. Update and amend any incoherent or contradicting current laws and regulations. Establish new legal guidelines, for instance, to amend or enhance rules pertaining to digital contracts, e-commerce, digital finance, digital banking, digital assets, and new business models; automatic transaction processes in network environments; utilizing blockchain, APIs, and cloud computing technologies in business interactions. Define rules controlling the use of cryptocurrencies and cryptoassets for capital mobilization; modify the ecosystem for applications of blockchain technology; address concerns about safety and transparency; safeguard consumers in the digital sphere; Addressing concerns with intellectual property rights when using AI, safeguarding databases and private information, enforcing laws on individual rights, addressing moral dilemmas while engaging in the digital economy, and using electronic identification and authentication...

Enhance legislation pertaining to businesses, investments, and digital environments; encourage innovation; and design and develop innovative digitally based goods, services, and business models. Establish and enhance corporate governance and management systems in the economy.

Clearly define the processes involved in creating, maintaining, connecting, and using databases. Completing the legal regulations pertaining to intellectual property, capital creation and mobilization, taxes, electronic payments, and other matters in the digital realm will establish the proper legal framework for businesses to operate, exercise their rights and responsibilities in the digital economy, and safeguard the actors' legitimate rights and interests.

Thirdly, establish and enhance legislative guidelines to guarantee subjects' security and safety as well as the safety of the broader digital economy.

To prevent legal infractions, particularly the prevention of crimes, extensive research on economic connections and technology must be done before new laws on the digital transformation of the economy are promulgated, amended, and supplemented. The goal of technology violations is to protect the subjects' lawful rights and interests when they engage in economic interactions in the digital world.

Fourthly, adopt and enhance legal laws to precisely identify legal transgressions and legal obligations in the context of the economy's digital revolution.

The introduction of new legislation is necessary to regulate digital offenses that are not permissible in the physical realm and assign enforcement responsibilities. Finalize the existing legislative regulations. In particular, stiffen the penalties for breaking the law when it comes to digital transformation in order to restrict and strictly address fraudulent acts that take advantage of the unauthorized use of personal and private data.

Fifthly, implement and finish new rules to best settle disagreements resulting from transactions and the economy's digital transition.

Conflicts that arise in business dealings need to be carefully resolved. The economy's shift to a digital economy will give rise to new conflicts that are unlike those in the actual world in terms of their origin and features, necessitating the right legal adjustments to settle them. Even the commercial arbitration or court resolution process must have a well-defined sequence and set of processes that are suitable for the digital age.

5. Conclusion

The fourth industrial revolution will inevitably bring about a digital transformation of the economy, which will have numerous positive social and economic effects now and in the future. Vietnam is currently actively implementing digital transformation, with observable outcomes. Furthermore, there are numerous challenges facing competent state agencies, businesses engaged in commerce, consumers, and other relevant entities. One of the causes is that the legislative framework governing the digital transformation of the economy is insufficient and deficient, necessitating the development of quick fixes.

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OWNERSHIP STRUCTURE AND THE PERFORMANCE OF COMMERCIAL BANKS IN VIETNAM: A QUANTILE REGRESSION APPROACH

Msc. Nguyen Mau Ba Dang*

Abstract: ***This study contributes to the related literature by looking into the impact of ownership structure on bank performance in Vietnam. The authors collected data from the financial statements of 25 commercial banks in Vietnam spanning from 2007 to 2021, utilizing panel data and quantile regression. The findings demonstrate that bank performance is affected by ownership structure on different percentiles. In which, state ownership has a statistically significant negative impact on banking performance, foreign ownership and ownership of a group of domestic organizations and individuals have a positive impact on banking performance.***

• Keywords: *ownership structure, banking performance, quantile regression.*

JEL codes: O16, G21

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Tóm tắt: *Nghiên cứu tác động của cấu trúc sở hữu đến hiệu quả hoạt động của các ngân hàng thương mại tại Việt Nam (NHTM). Dữ liệu của 25 NHTM trong giai đoạn 2007-2021 với kỹ thuật xử lý dữ liệu bảng và bằng phân tích hồi quy phân vị. Kết quả nghiên cứu cho thấy hiệu quả hoạt động ngân hàng chịu tác động của cấu trúc sở hữu trên từng phân vị khác nhau. Trong đó, sở hữu nhà nước tác động tiêu cực đến hiệu quả hoạt động ngân hàng, sở hữu nước ngoài và sở hữu của nhóm các tổ chức cá nhân trong nước tác động tích cực lên hiệu quả hoạt động ngân hàng.*

• Từ khóa: *cấu trúc sở hữu, hiệu quả hoạt động, hồi quy phân vị.*

1. Introduction

The issue of capital ownership plays an important role in banking management because it affects the motivation of managers and therefore affects performance as well as risk levels of commercial banks. Therefore, learning about the capital ownership structure of commercial banks is necessary for both bank administrators and policy makers in order to enhance the efficiency and safety in the operation of the commercial banks in Vietnam.

From the theoretical background and practical basis of the relationship between commercial banks ownership structures and their performances, the author examines the relationship between state, private and foreign capital ownership and sheds light on some new things in the field of research on the operational efficiency of commercial banks in Vietnam.

Although there are some studies on the relationship between ownership structure and the performance of commercial banks in Vietnam such as Xuan Cuong Dinh et al. (2015), Tran Nguyen Dan et al. (2016), Nguyen Tam Hoang Phuong (2018), Lam Chi Dung and Vo Hoang Diem Trinh (2020), however, the results of those research are not consistent. To our best knowledge, there are not many research in Vietnam considering how the ownership structure will affect the operating results of commercial banks, especially during the period from the global financial crisis occur until now. Therefore, studying the relationship between ownership structure and the performance of commercial banks in Vietnam in the period 2007-2021 is one of the author's objectives in this research.

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2. Liturature and research overview

Depending on the national institution, the views of different researchers, the concept of commercial banks is not the same, however, most of concepts are consistent in one characteristic that is like other businesses, the operating goal of commercial banks is to maximize their profits.

This can be found in the academic concepts of commercial banks given by Peter S.Rose (2005), Mishkin & Eakins (2012) or the definition of commercial banks according to the Law on Credit Institutions promulgated in Vietnam on June 16, 2010.

Hence, the author inherits and develops from the fundamental theories of equity structure and corporate governance performance as a literature for the research, in addition, the author also reviews empirical studies related to the relationship between ownership structure and operational efficiency of commercial banks, published in the world and Vietnam.

2.1. Literature of bank performance

The operational efficiency of commercial banks plays an important role in the global financial system, it reflects the financial health of banks and is a key factor in the prosperous development of banks.

Commercial banks aim for the best financial results. According to the theory of bank performance, profitability measures are closely correlated with bank performance.

There are many studies before that have used a series of performance indicators such as ROA, ROE and net interest income margin (NIM) as in the studies of Bonin et al. (2005), Athanasoglou et al. (2005), Athanasoglou et al. (2008), or research by Berger and colleagues (2009).

ROA indicates the ability of the bank's management board to manage the bank's asset portfolio to generate net income (Peter S.Rose, 2005). The higher this index shows the more effective the bank's ability to use assets. In many studies related to bank performance, many authors have used this index such as Okeahalam (2004), Micco et al (2007), Conett et al. (2010), Lin and Fu (2017), Kirimi et al (2022).

ROE is an indicator to evaluate a bank's performance. This index is determined by net profit divided by the bank's equity. Shareholders are often interested in this index as it shows the income they receive from contributing capital to invest in the bank. In many studies on factors affecting performance, authors Okeahalam (2004), Berger and Bonaccorsi (2006), Shawtar (2018), Saleh et al. (2017) use the ROE index to measure in his research.

This ratio is also known as the financial profitability ratio. It is considered one of the most used financial indicators to measure bank performance. It shows the contribution of equity in delivering results and measures, in some ways, the investor's rate of return. That is the higher ROE is, the more effectively the allocated money is used. Many authors have also used ROE to measure the operating efficiency such as Bouri and Bouaziz (2007).

According to Peter S.Rose (2005), one of the indicators he mentioned when measuring bank performance is the net interest income margin ratio (NIM). NIM is determined by the difference between interest income and interest expenses divided by the bank's total earning assets. The studies of Rudra and Ghost (2004), Fungáčová and Poghosyan (2011), Hamadi and Awdeh (2012) all showed that different ownership rights affected differently on NIM.

Agency theory

This theory argues that ownership structure plays an important role in reducing agency costs. Some authors such as Zeckhauser and Pound (1990) and Shleifer and Vishny (1997) assert that a clear separation of ownership and control rights for a company creates agency problems leading to conflicts between shareholders and managers. Several studies document that agency problems can shift from owner-manager to owner-owner when a particular group of owners attempts to control the firm's operations and management. (Shleifer and Vishny, 1997; Yeh, 2019). Firms with highly dispersed ownership are controlled by managers, which may ultimately adversely affect potential investors (Claessens et al., 2002).

And many other empirical studies show that in banks with separation between ownership and management rights, ownership structure affects operating efficiency due to the potential existence of agency conflicts.

Although there are disagreements among researchers about how ownership concentration affects risk-taking, they all agree that risk-taking behavior of banks is influenced by ownership concentration. Agency theory suggests that if controlling shareholders have higher cash flow ownership, agency costs will be reduced and firm performance can be improved (La Porta et al., 2002). Brickley, Lease, and Smith (1998); Berger and colleagues (2005) argue that agency costs can be reduced by attracting capital contributions from institutional shareholders rather than individuals because institutional shareholders have full capacity to carry out work as supervisors of company's operations.

Regarding the relationship between state ownership in enterprises and agency costs, research by Shleifer and Vishny (1997), Barth et al. (1999), Thomsen and Perdersen (2000), Alfaraih et al. (2012), Abramov et al. (2017), Liu (2018) show that business performance is negatively affected by State ownership. This happens because the goals of the State and shareholders are not the same, while the shareholder's goal is usually to maximize profits, the State has socio-political goal.

Laporšek et al (2021) studied the relationship between ownership structure and financial performance by comparing the performance of publicly and privately owned listed companies. Research results show that State-owned companies are less profitable than privately-owned companies.

In addition, studies in China by Firth (2008), Le & Buck (2011), Dieter Bos (1991) have found that state ownership has a positive relationship with company performance. A state-owned enterprise has the ability to mobilize capital more easily from borrowing capital from banks, in other words, if a company is state-owned, it will be subject to strict and effective supervision. by the state, thereby reducing agency costs and increasing profitability.

Regarding the issue of foreign ownership, researchers Xu, Zhu & Lin (2005) showed that in China, the higher the ratio of foreign investment capital an enterprise has, the better controlled it is, as a result, the enterprise has higher financial performance and significantly lower agency costs.

2.2. Relevant empirical studies

Research studies on the effect of ownership structure on firm performance were first appeared in the United States. Berle and Means first mentioned it in the study "Modern enterprise and private property" in 1932. Berle and Means (1932) demonstrated that there is an inverse relationship between operational efficiency and ownership dispersion. This research is the premise for many other studies in the fields of corporate finance and banking finance.

Bonin et al (2005) conducted research on the effects of ownership structure on bank performance in 11 countries with transition economies. Research results show that foreign-owned banks manage costs more effectively than other banks. In addition, these banks, especially those with strategic foreign ownership, also provide better services. Besides, the authors also show that the impact of private ownership on bank performance is insignificant.

Boubakri et al (2005) analyzed the performance of 81 banks after equitization in 22 developing countries. The study concluded that the state-owned banks with poor operating efficiency were selected for equitization. Over time, these banks' privatization has significantly improved economic efficiency and credit risk.

Beger & Zhou (2009) conducted research on the ownership structure and operational efficiency of banks in China in the period 1994-2003. Research shows that the "Big Four" banks (a group of banks with a major state ownership structure) have the lowest operating efficiency, while the foreign banks have the most effective operating efficiency. The authors also propose that banks with mainly state-owned capital structures that have foreign investment capital can significantly increase their operating efficiency.

Lin&Zhang (2009) conducted research on the operations of 60 banks in China during the period from 1997-2004. The objective of the study is to evaluate the impact of changes in ownership structure on bank performance. Research results show that large state-owned banks (big four) operate less effectively than urban commercial banks, domestic joint stock commercial banks, joint venture banks and foreign banks. The study also proposed a solution with the main content being that the government needs to promote the sale of shares in banks more than before to attract foreign and private investors.

Connett and colleagues (2010) study how state ownership and government involvement in the banking system affect banking activities in 16 East Asian countries, from 1989 to 2004. The study shows that before 2001, the state-owned banks earned less profit, held less equity capital, and had more risk in credit operations than the private banks. However, in the period after the Asian financial crisis (1997), from 2001 to 2004, research shows that there is no difference in performance when comparing state-owned banks or private banks.

Kobeissi & Sun (2010) studied the relationship between ownership structure and bank performance in 567 observations of 249 banks in 20 countries in the Middle East and South Africa in the 3 years 2000-2002, the results were that private banks with majority foreign ownership have better operating efficiency than other banks. At the same time, the author also points out that the level of ownership concentration has a significant linear relationship with the profitability of listed banks.

Chen & Liu (2013), Chen &Yeh (2000) analyzed the bank performance in the relationship with the ownership structure of banks in Taiwan. These two studies both concluded that the process of bank equitization contributes to significantly increasing bank operational efficiency.

Although studies have not reached the same results, in general, most studies suggest that ownership structure has an impact on bank performance.

In Vietnam, studies on ownership structure and commercial bank performance have only recently been researched. In the past, many studies had the same issue but those research only investigated businesses.

Nguyen Hong Son and his colleagues (2014) examined the impact of the ownership structure of 34 commercial banks in Vietnam on their profitability in the context of restructuring. The results show that the concentration of equity and the ratio of private ownership simultaneously impact the profitability of commercial banks. Meanwhile, the bad debt ratio has a negative impact on the bank's profitability.

Dung, L.C., & Trinh, V.H.D. (2020) through a data regression model studied on the data set of 25 commercial banks in Vietnam in the period 2007-2017 to analyze the impact of capital structure on the profitability of commercial banks based on ROA and NIM targets. Based on the analysis results, the authors came to the conclusion that the higher the state ownership ratio, the lower the profitability; conversely, the higher the non-state ownership, the higher the profitability.

There are also several studies based on experimental studies abroad as presented above such as research by Phong, N.T.&Tuan, N.Q. (2019) also pointed out that different ownership structures have different impacts on bank performance or the research that analyzed factors affecting the performance of the Vietnamese commercial banking system in the period of international financial integration by Hoang, T.H & Huan, N.H. (2016) shows that one of the factors is the holding rate of foreign investors.

In Vietnam, there is not much research on the issue of ownership structure and bank performance. Moreover, the number of Vietnamese commercial banks studied in the research is small as well as sampling period of the study is not long enough, and the results of the studies still have many differences. Those gaps are what the author will study. In this research, the author will investigate a larger number of observations and a longer research period throughout the process of restructuring the banking and financial system that has been going on for more than 10 years.

3. Research model and methodology

Based on the theoretical basis and inheritance from the studies of Shen et al. (2009) in 48 commercial banks in China (1997-2007) and author Kirimi (2022) applied in Kenyan (2009-2020), the author The author proposes the following research model:

$$ROA_{i,t} = \beta_{01} + \beta_1 SO_{i,t} + \theta_1 Micro_{i,t} + \gamma_1 Macro_{i,t} + \varepsilon_{i,t} \quad (1a)$$

$$\mathrm{ROA}_{i,t} = \beta_{02} + \beta_2 FO_{i,t} + \theta_2 Micro_{i,t} + \gamma_2 Macro_{i,t} + \varepsilon_{i,t} \quad (2a)$$

$$\mathrm{ROA}_{i,t} = \beta_{03} + \beta_3 DO_{i,t} + \theta_3 Micro_{i,t} + \gamma_3 Macro_{i,t} + \varepsilon_{i,t} \quad (3a)$$

The variables in the models are described in Table 1.

Table 1: Summary of variables in the proposed mode

Dependent variables	Name	Measure	Data sources
Dependent variable			
ROA	Return on assets	(Net income)/(Total assets)	Shen et al (2009), Kirimi (2022).
SO	state ownership	Ratio of the bank's equity shares held by the state	Micco and colleagues (2007), Lin and Zhang (2009), Kirimi (2022)
DO	domestic ownership	Ratio of the bank's equity shares held by other domestic individuals and organizations	Micco and colleagues (2007), Lin and Zhang (2009), Kirimi (2022)
FO	Foreign ownership	Ratio of the bank's equity shares held by foreign individuals and organizations	Okeahalam (2004), Boateng et al. (2015), Liu (2017), Kirimi (2022).
Control variables			
SIZE	Size of the bank	Logarithm of total asset	Iannotta et al (2007), Cornett (2010), Kirimi (2022)

Dependent variables	Name	Measure	Data sources
NPL	Rate of non-performing loans	(Non-performing loans)/(Loan balances)	Nguyen Thi Thu Hien (2017), Kirimi (2022), Meng (2018)
LIQ	Liquidity	(Total loan balances)/(Total deposits)	Iannotta et al (2007), Fidanoski (2018)
GDP	GDP growth	$(GDP_t - GDP_{t-1})/GDP_{t-1}$	Micco et al (2007), Chiorazzo et al (2007), Lee et al (2013), Wang and Wang (2015)
INF	inflation rate	$(CPI_t - CPI_{t-1})/CPI_{t-1}$	Micco et al (2007), Iannotta et al (2007), Chiorazzo et al.

Source: Compiled by author

Research data was collected by the author from the financial reports of commercial banks in Vietnam in the period 2007 to 2021. Indicators measuring macro variables are exploited from data published by the General Statistics Office of Vietnam list. To analyze the impact of independent variables on bank performance, the author uses the quantile regression method because this method's advantage is to consider in detail the impact of ownership structure (SO, DO, FO) on the bank performance (through ROA indicators) on each percentile, thereby propose appropriate solutions. Although quantile regression can be performed in detail from the 0.01 to 0.99 percentile, due to time limitations and the nature of the research samples, the author only chooses the basic quantiles of the performance variable coordination function () for analysis, including percentiles 0.1; 0.25; 0.5 and 0.75.

4. Research results and discussion

Table 2: Quantile regression results

Indepen-dant variables	Quantile 10			Quantile 25			Quantile 50			Quantile 75		
SIZE	0,0230***	0,1374***	0,0262***	0,0385	0,0472**	0,0305	0,0283	0,0148	0,0153	0,0327	0,0758	0,0030
	[0,0364]	[0,0497]	[0,0579]	[0,0311]	[0,0252]	[0,0396]	[0,0322]	[0,0258]	[0,0367]	[0,0615]	[0,0550]	[0,0717]
NPL	-0,0246***	-0,0444**	-0,0303***	-0,1093***	-0,1067***	-0,1076***	-0,1226***	-0,1323***	-0,1254***	-0,1720***	-0,1383***	-0,1624
	[0,0190]	[0,0221]	[0,0252]	[0,0194]	[0,0195]	[0,0190]	[0,0221]	[0,0196]	[0,0189]	[0,0465]	[0,0516]	[0,0436]
LIQ	0,5831	0,8905	0,1828***	0,3995	0,3162	0,3880	0,9547***	0,9195***	0,9994***	0,1592	-0,1061	0,1857***
	[0,4788]	[0,5672]	[0,5314]	[0,4076]	[0,4082]	[0,4249]	[0,2943]	[0,2856]	[0,2953]	[0,6197]	[0,6658]	[0,7418]
GDPG	0,0004	0,0104	0,0106***	-0,0305***	-0,0155	-0,0448*	-0,0572*	0,0603**	-0,0579*	-0,1278**	0,1244**	-0,1159*
	[0,0289]	[0,0330]	[0,0326]	[0,0269]	[0,0244]	[0,0271]	[0,0340]	[0,0296]	[0,0301]	[0,0641]	[0,0516]	0,0602]
INF	-0,0157**	0,0174**	-0,0208***	0,0304***	0,0312***	0,0306***	0,0328***	-0,0339***	0,0325***	0,0448***	-0,0358**	0,0404***
	[0,0068]	[0,0077]	[0,0065]	[0,0057]	[0,0059]	[0,0059]	[0,0062]	[0,0062]	[0,0066]	[0,0138]	[0,0169]	[0,0137]
SO	0,0043***			0,0017**			-0,0009***			-0,0024		
	[0,0014]			[0,0011]			[0,0011]			[0,0019]		
FO		-0,0051			0,0023			0,0047**			0,0171**	
		[0,0039]			[0,0026]			[0,0023]			[0,0070]	
DO			0,0037**			-0,0021			-0,0012			-0,0007
			[0,0018]			[0,0013]			[0,0010]			[0,0024]
_cons	-0,7337	-4,3823***	-0,4933	-0,5868	-0,9502	-0,0608	0,0777	0,5076	0,6029	0,9727	4,3383**	1,7868
	[1,2545]	[1,6587]	[2,0818]	[1,0451]	[0,8650]	[1,4482]	[1,1406]	[0,9094]	[1,2599]	[2,1526]	[1,9563]	[2,6000]
N	375	375	375	375	375	375	375	375	375	375	375	375

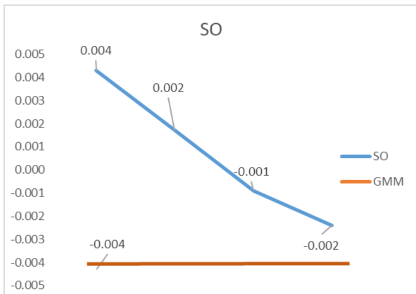
Source: Authors' calculation

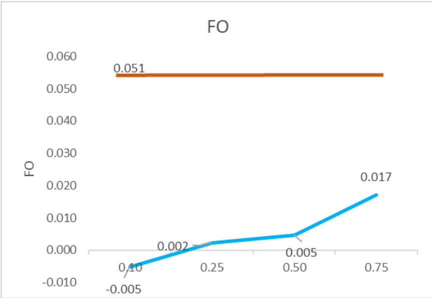
From Table 2, it can be seen that the SO variable is negatively correlated with the ROA variable in each statistically significant quantile, in the low quantile SO is positively correlated with ROA, while in the high quantile SO is negatively correlated with ROA (Figure 1), the results imply that the more state ownership increases, the more effective the operations of the Vietnamese commercial banks become, showing that there is a contradiction between the political role when the state owns shares of the banks and the role of the representative. The results are consistent with the research of Berger and colleagues (2005), Micco and colleagues (2007), Lin and Zhang (2009), Cornett (2010) and Kirimi (2022).

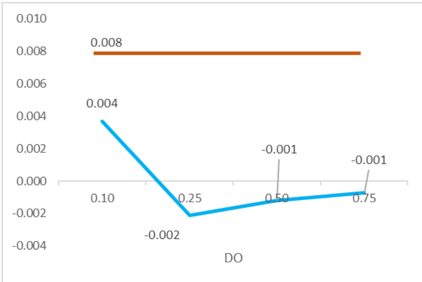
The results in table 2 also show that the variables FO and DO are positively correlated with the ROA variable at different quantiles, the FO variable has a positive correlation with ROA at high quantiles (0.5 and 0.75) and the DO variable is positively related to ROA at low percentiles (0.10 and 0.25) (figure 1). Regarding the FO variable, the results imply that increased foreign ownership plays an important role in increasing the banks' performance, the research's results are similar to Boateng et al. (2015), Liu (2015), Liu (2015). 2017), Kirimi (2022). Similar to the DO variable, the study shows that increasing the ownership rate of individuals and domestic organizations will increase the operational efficiency of commercial banks, which consistents with the research results of Micco et al. (2007), Lin and Zhang (2009) or Kirimi (2022).

In addition, the regression results show that the bank scale (SIZE), liquidity ratio (LIQ), economic growth (GPDG) are positively correlated with the performance of the commercial banks, while Bad debt ratio (NPL) and inflation rate (INF) have a negative correlation with the performance of commercial banks in Vietnam.

Figure 1: Quantile regression and GMM of ROA variable







5. Conclusion and policy implications

5.1. Conclusion

he results of studying the relationship between ownership structure and performance of the commercial banks in Vietnam in the period 2007-2021 using the quantile regression method show that state ownership has a negative impact on bank performance and is statistically significant.

Meanwhile, foreign ownership and private domestic ownership positively impact bank performance, in which the foreign ownership variable has a stronger impact than the private domestic ownership variable. The impact of ownership structure on bank performance varies across each percentile.

In addition, the regression results also show that bank size (SIZE), liquidity ratio (LIQ), and economic growth (GDP) positively correlated with bank performance, while bad debt ratio (NPL) and inflation rate (INF) have a negative correlation with the operating efficiency of the commercial banks in Vietnam.

5.2. Policy implications

By using the quantile regression method, the research results show that there is a strong differentiation in the level of impact of ownership structure based on percentiles on the bank performance in Vietnam. Therefore, policymakers of commercial banks should focus on the impact of the overall ownership structure and the impact of each ownership aspect on the relative growth of operating efficiency corresponding to each percentile of the bank to achieve the desired operating efficiency:

For banks who have low operating efficiency (percentile 0.1 and percentile 0.25): State ownership increases bank performance, implying the presence of state ownership in these banks is extremely important. State ownership promotes growth in operational efficiency, and demonstrates its role and responsibility in managing banking operations. In this case, there should be a consensus between management and shareholders. From there, commercial banks with low operating efficiency should maintain the state ownership ratio at a reasonable threshold to improve operating efficiency. Besides, the results of the study imply that banks need to increase the ownership ratio of individuals and organizations because the experience of individuals and organizations is necessary for these banks to improve their profits in the future.

For banks with high operational efficiency (percentile 0.5 and percentile 0.75): Foreign ownership, individual and organizational ownership increase commercial bank efficiency. In the age of technology 4.0, transnational connections are increasingly strong, modern technologies are extremely necessary for the growth of commercial banks, therefore, these banks should expand foreign ownership ratio, stimulate investment activities and technology transfer from foreign investors.

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EXPERIENCES PROMOTING INNOVATION AND CREATIVITY IN ENTREPRENEURSHIP IN SOME UNIVERSITIES AROUND THE WORLD

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Abstract: ***The digital economy has made significant advancements, impacting various aspects of society, including the economy, culture, and education. It serves as a catalyst for economic growth and sustainability worldwide. This research delves into the experiences that have fostered innovation and creativity in entrepreneurship within select universities worldwide. Drawing from these experiences, the study recommends empowering young intellectuals in Vietnam, enabling them to unleash their innovative and creative potentials and cultivate an entrepreneurial mindset in the digital economy era.***

• Keywords: *experiences, promotion, innovation, creativity, entrepreneurship, universities around the world.*

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Tóm tắt: *Nền kinh tế kỹ thuật số đã có những bước tiến đáng kể, tác động đến nhiều khía cạnh khác nhau của xã hội, bao gồm kinh tế, văn hóa và giáo dục. Nó phục vụ như một chất xúc tác cho tăng trưởng kinh tế và tính bền vững trên toàn thế giới. Nghiên cứu này đi sâu vào những kinh nghiệm đã thúc đẩy sự đổi mới và sáng tạo trong tinh thần kinh doanh tại các trường đại học được chọn trên toàn thế giới. Rút ra từ những kinh nghiệm này, nghiên cứu khuyến nghị trao quyền cho trí thức trẻ ở Việt Nam, giúp họ phát huy tiềm năng đổi mới và sáng tạo cũng như nuôi dưỡng tư duy khởi nghiệp trong kỷ nguyên kinh tế số.*

• Từ khóa: *kinh nghiệm, thăng tiến, đổi mới, sáng tạo, khởi nghiệp, các trường đại học trên thế giới.*

1. Introduction

According to American economist Drucker (2011), entrepreneurship can be defined as the actions taken by individuals who transform their sharp insights into business, finance, and innovation into economically viable products. This results in the creation of new organizations or the revitalization of existing ones. Entrepreneurship, in essence, embodies the spirit of innovation and creativity.

The Vietnamese government recognizes the significance of entrepreneurship. The Prime Minister has emphasized that the government's success in fostering entrepreneurship is a measure of its effectiveness. Moreover, a higher number of individuals, especially young people, engaging in entrepreneurship leads to a more dynamic economy and a better quality of trained human resources. To establish a conducive environment for the growth and development of rapidly expanding businesses based on intellectual assets, technology, and new business models, Vietnam needs to address the challenges associated with innovative entrepreneurship and support initiatives, which are still relatively new and complex in the country. Currently, entrepreneurial and startup support activities lack systematic training, fundamental knowledge and skills, effective networking, and the necessary resources to nurture sustainable startups in Vietnam. Therefore, it is essential for Vietnam to cultivate an entrepreneurial spirit among its population through educational programs that provide appropriate knowledge, ranging from basic education to specialized training for individuals with innovative entrepreneurial ideas, with the aim of increasing the success rate of startups.

In the era of the digital economy, where entrepreneurship is flourishing, countries worldwide prioritize applying science and technology in everyday life and promoting innovative entrepreneurship based on scientific and technological foundations. Successful entrepreneurship requires various factors, including the qualities of entrepreneurs, the entrepreneurial ecosystem, access to capital, and impactful ideas. However, one of the most crucial factors is the training, guidance, and support of entrepreneurs with entrepreneurial knowledge, especially among

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the young intellectual workforce. Currently, Vietnam lacks a unified understanding of entrepreneurship, and the provision of necessary entrepreneurial knowledge, both in general and within the education system, is not given sufficient attention. This research compiles theoretical and practical experiences from selected universities worldwide that have promoted innovation and creativity in entrepreneurship. Based on these experiences, the research offers recommendations to empower Vietnam's young intellectual workforce, enabling them to unleash their innovative and creative potential and foster entrepreneurial thinking within the context of the digital economy.

2. Lessons from universities on innovation and creativity in the digital economy from various countries

In the digital economy era, innovation and creativity are key factors in successful entrepreneurship. Guiding young people and the intellectual youth towards the right entrepreneurial path is crucial. Universities have developed entrepreneurial models that combine scientific rigor with practical relevance. Drawing lessons from universities worldwide is invaluable in enhancing the entrepreneurial capacity of today's youth.

2.1. Entrepreneurship lessons from US universities

During the period from the 1970s to the mid-2000s, the United States witnessed remarkable economic growth, characterized by the emergence of 500,000 to 600,000 new businesses annually, including influential corporations. What factors drove this development? Among the various factors, the entrepreneurial spirit of Americans and the pivotal role played by universities were crucial. Policymakers in the United States recognized the significant contribution of universities to regional economic development and the promotion of entrepreneurship. Notable examples include the Massachusetts Institute of Technology (MIT) driving industrial development in Boston and Stanford University's influence in the Silicon Valley region. MIT played a key role in advancing the digital era through the development of modern computing, network technologies, and user-interaction software. The institute not only benefited its industry partners but also established supportive organizations, philanthropic funds, and collaborations with the federal government.

US universities fostered an entrepreneurial culture by encouraging students to explore new business ideas, providing funding from the students' first year, and offering specialized courses on legal aspects, intellectual property rights, and product quality standards to supplement entrepreneurial knowledge.

Moreover, collaborations between universities and industrial enterprises were nurtured, taking various forms. The United States established linkages between universities and industrial enterprises, facilitated by the National Science Foundation (NSF), supporting research, collaboration, knowledge transfer, and technology transfer. US universities actively contributed to business development and entrepreneurship by establishing organizations such as business incubators, science parks, and technology parks. These incubators primarily focused on providing capital and infrastructure-related resources. Projects within these incubators had opportunities to connect with other supportive resources. Lee Kuan Yew, the first Prime Minister of Singapore, highlighted that the strength of the US economy stems from the business mindset that consistently seeks to commercialize scientific and technological advancements. The United States is a society driven by a constant pursuit of material progress, innovation, and entrepreneurship, transforming new inventions and innovations into commodities and creating new material wealth. The US society is in a constant state of evolution and change.

Furthermore, US universities prioritized knowledge transfer to implement new projects, technologies, and processes aimed at developing fundamental knowledge and fostering collaboration and the exchange of intellectual capital. This facilitated the growth of intellectual capital through various mechanisms, including accessing relevant parties, gaining value from interactions, providing motivation for activities, and fostering the creative abilities of all involved parties. Universities generated social capital through different mechanisms, contributing to the stabilization of intellectual capital within the region. US universities have demonstrated their role in driving regional growth.

2.2. Entrepreneurship lessons from Singapore's universities

Singapore, despite its small population of 5.4 million, boasts an impressive total of 42,000 startups, meaning that there is approximately one startup founder for every 100 individuals. The country consistently ranks as the world's most innovative nation and is renowned for its thriving startup ecosystem and strong promotion of entrepreneurship. The success of entrepreneurship in Singapore is the result of concerted efforts by the government, universities, and businesses, all of which prioritize fostering entrepreneurship as a crucial element of their sustainable economic development strategy.

Universities in Singapore, notably the National University of Singapore (NUS), play a significant role in promoting entrepreneurship and nurturing the startup ecosystem. NUS has established the NUS Enterprise Centre for Innovation and Entrepreneurship (NEC) as its entrepreneurship hub. NEC's primary objective is to comprehensively foster innovation, entrepreneurship, and commercialization through core research and training initiatives, with a particular focus on cultivating an entrepreneurial mindset that leads to the creation of high-growth ventures associated with NUS. Key activities of NEC include experiential learning, entrepreneurship development, incubation support, startup research, and innovative entrepreneurship.

NEC's experiential learning program encourages students to develop innovative ideas and brings them closer to the market through action-based learning initiatives. Its aim is to cultivate an entrepreneurial culture within the NUS community and facilitate meaningful connections with the real-world startup ecosystem. The incubation component provides startups and businesses with comprehensive support, encompassing infrastructure assistance, mentorship programs, capital access, practical experience, collaborative services, and facilities.

Startup research and innovation initiatives focus on managing topics related to high-tech innovation and entrepreneurship. These programs address challenges in the field of innovation and entrepreneurship, particularly in the high-tech sector.

Overall, NEC's programs are spearheaded by passionate entrepreneurs within the NUS community, including students, faculty members, and alumni. Additionally, NEC supports various student and alumni initiatives such as the Startup Plan Competition and other programs that have a positive impact on the startup community. The significant increase in the number of participating startups and observed profits in early-stage ventures have led to job creation and the attraction of high-quality talent to the ecosystem.

2.3. Entrepreneurship lessons from Israeli universities

The success of Israel's economy goes beyond the passionate nature of its people, entrepreneurial spirit, and geopolitical factors. It is also attributed to the effective policies implemented by the government in administrative management. The government has made substantial investments in capital infrastructure, ensuring sustainable funding for research and encouraging multinational corporations to engage in research activities. They have also established and supported investment funds for high-tech startups and implemented programs to promote technological innovation. The universities in Israel recognize the value of their students as valuable resources and foster their strong entrepreneurial spirit through collaborations with businesses, the establishment of incubators and technology accelerators, and the development of an environment conducive to innovative ideas.

Israeli universities have implemented various strategies to promote entrepreneurship among students. They focus on building an entrepreneurial culture and equipping students with the necessary skills. They establish partnerships between universities and businesses and develop programs for incubation and technology acceleration. The overall environment and culture in Israel encourage entrepreneurship and leadership, embodying the values necessary for building and nurturing startup companies. Even within lecture halls, students receive training and education on entrepreneurship. In Israel, entrepreneurship is a familiar term and is considered a culture that shapes the entrepreneurial character. The positive aspects of the entrepreneurial culture in Israel include respecting ideas, accepting failure as a learning experience, daring to seek novelty and uniqueness, and fostering an entrepreneurial mindset. Most students are encouraged to embrace an entrepreneurial spirit, particularly in universities such as the Technion Hebrew University of Jerusalem, Tel Aviv University, and Haifa University, where entrepreneurship centers are integrated, offering courses and modules on entrepreneurship to both undergraduate and graduate students.

Israeli universities also establish training programs for entrepreneurial ideas, with organizations like JA-YE Europe (Junior Achievement Young Enterprise Europe) conducting activities in Israel. They provide support to student groups participating in mini-corporation programs under the guidance of educational advisors from schools, centers, and volunteers. Israel's national entrepreneurial strategy continues to expand its activities, focusing on capital support, training programs, and education to further enhance their effectiveness.

When analyzing the factors that promote entrepreneurship in Israeli universities, the ability to accept failure is recognized as the most crucial factor. Additionally, the establishment of an entrepreneurial culture and the development of entrepreneurial skills, the promotion of university-business collaboration to create favorable conditions, and the presence of innovative incubators and technology accelerators all play significant roles. These elements have collectively contributed to creating a conducive cultural environment that encourages students and young intellectuals to embrace creativity and entrepreneurship.

3. Solution to enhance the entrepreneurial capacity of young intellectuals in Vietnam

The current startup environment for young intellectuals in Vietnam is relatively nascent compared to the global stage. However, Vietnam possesses significant potential to foster a strong entrepreneurial spirit. Drawing insights from the experiences of other countries in innovation and creativity is invaluable for Vietnam's ongoing development.

Vietnam boasts millions of active businesses, hundreds of universities, and research centers nationwide. Nonetheless, a long-standing challenge persists: the lack of fundamental solutions to innovate the education system and the absence of mechanisms and policies supporting private-sector entrepreneurship at all levels of government. Particularly, there is a dearth of initiatives aimed at nurturing an entrepreneurial culture and fostering a mindset that embraces failure within the Vietnamese population, especially among the youth.

To cultivate an entrepreneurial spirit and culture in Vietnam, several key issues must be addressed. Firstly, there is a need for entrepreneurship training and educational programs starting from basic education to instill an entrepreneurial mindset in young individuals while they are still in school. Lessons from developed nations emphasize the importance of fostering individuals' self-determination within the education and social systems from an early age.

Therefore, it is imperative to reform the education system from primary to higher education by integrating practical activities into education and training, emphasizing self-determination, and promoting an entrepreneurial culture. Additionally, incorporating STEM education into the mainstream curriculum is crucial. Furthermore, specific programs and roadmaps should be developed to enhance awareness and ignite the entrepreneurial spirit among the general population across all social sectors.

Secondly, consistent and coherent policies from the government and local authorities are necessary to create a favorable environment for young people's entrepreneurial activities. Implementation and synchronization of the National Program to Support the Innovation and Entrepreneurial Ecosystem until 2025, as approved by the Prime Minister under Decision 844/QD-TTg on May 18, 2016, are essential.

Thirdly, the role of the private sector needs to be emphasized, and a proactive government that supports entrepreneurship should be established. Given Vietnam's current economic difficulties, which exhibit signs of unsustainable development and significant corruption within state-owned enterprises, it becomes crucial to promptly and decisively reform the institutional system towards a "proactive government, people's entrepreneurship" approach. This reform aims to remove obstacles and create optimal conditions for a smooth and effective startup process.

Drawing inspiration from the startup experiences of countries like the United States and Finland, Vietnamese universities should establish strong relationships with businesses, international organizations, and research support funds. These connections can create opportunities for students to embark on their entrepreneurial ventures, engage in scientific research, and apply research findings to successful entrepreneurship.

Lastly, the establishment of a national startup information gateway is essential to provide support and assistance to the young generation in entrepreneurship-related activities. This platform will offer fundamental knowledge about entrepreneurship, foster collaboration and knowledge sharing, and provide support among government officials, the scientific community, successful businesses, and individuals or startup groups.

4. Conclusion

In conclusion, in the age of digital technology and the impressive growth of the digital economy, young intellectuals, often referred to as the young intellectual class, have a crucial role to play. They possess passion, aspirations, and entrepreneurial ideas. To nurture, educate, and bring these ideas to fruition, universities are a vital component. By drawing insights from the experiences of other countries in establishing entrepreneurial models within universities and creative startup centers, Vietnamese universities are well-positioned to develop such models and foster entrepreneurship among young individuals in the context of the digital economy.

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INTERNATIONAL EXPERIENCES IN GREEN GROWTH POLICY SETTING FOR BUSINESSES AND LESSONS FOR VIETNAM

Dao Thi Huong* - Nguyen The Anh**

Abstract: ***Green growth is a sustainable economic development model with the primary goal of ensuring economic, social, and environmental development for the future. Green growth necessitates the efficient use of resources, a reduction in greenhouse gas emissions, enhanced environmental protection, and the promotion of equality and social development. Drawing from the lessons learned in various countries worldwide, including Indonesia, Malaysia, and South Korea, the author has derived several insights for Vietnam. To foster these initiatives, the government and management entities need to: Promote a competitive and equitable environment through regulations, concurrently with implementing guiding activities, monitoring, and auditing business operations; Develop supportive policies and incentives for specific sectors to drive green growth across the entire economy; Enforce stringent environmental resource taxation policies while implementing encouraging measures; Implement human resource training policies and establish bridges between businesses and research and technology organizations.***

• Keywords: *green growth, policies, international experience.*

JEL codes: N10, O44

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Tóm tắt: *Tăng trưởng xanh là mô hình phát triển kinh tế bền vững với mục tiêu hàng đầu là đảm bảo phát triển kinh tế - xã hội và môi trường cho tương lai. Tăng trưởng xanh đòi hỏi phải sử dụng hiệu quả các nguồn tài nguyên, giảm phát thải khí nhà kính, tăng cường bảo vệ môi trường, thúc đẩy bình đẳng và phát triển xã hội. Rút ra từ những bài học kinh nghiệm ở nhiều nước trên thế giới, trong đó có Indonesia, Malaysia và Hàn Quốc, tác giả đã rút ra một số nhận định sâu sắc cho Việt Nam. Để thúc đẩy các sáng kiến này, chính phủ và các cơ quan quản lý cần: Thúc đẩy môi trường cạnh tranh và bình đẳng thông qua các quy định, đồng thời triển khai các hoạt động hướng dẫn, giám sát và kiểm toán hoạt động kinh doanh; Xây dựng các chính sách hỗ trợ và ưu đãi cho các lĩnh vực cụ thể nhằm thúc đẩy tăng trưởng xanh trong toàn bộ nền kinh tế; Thực thi chính sách thuế tài nguyên môi trường chặt chẽ đồng thời thực hiện các biện pháp khuyến khích; Thực hiện chính sách đào tạo nguồn nhân lực và thiết lập cầu nối giữa doanh nghiệp với các tổ chức nghiên cứu, công nghệ.*

• Từ khóa: *tăng trưởng xanh, chính sách, kinh nghiệm quốc tế.*

1. Introduction

In the global context, as climate change is rapidly occurring and environmental conditions are increasingly unfavorable, the focus on green economic development is a significant priority for many countries worldwide. Ensuring sustainable development requires not only cooperation among the government, businesses, and society but also the formulation and implementation of specific green growth policies.

Green growth involves efficiently using resources and minimizing environmental impact. It's a process in which all components of the economy, including consumers, producers, the government, and organizations such as the World Bank (2012), contribute. This concept is similar to Vietnam's national strategy for green growth, which focuses on three critical strategic tasks: (i) reducing greenhouse gas emissions and promoting the use of clean and renewable energy; (ii) greening production; (iii) fostering a green lifestyle and promoting sustainable consumption.

Green growth refers to an efficient and flexible growth model that emphasizes smart utilization of natural resources, minimizing environmental

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pollution, creating resilience, and enhancing the ability to withstand natural disasters (World Bank, 2012). Green growth encourages economic growth and development while ensuring that natural resources can meet future human needs (OECD, 2011c). To achieve this, green growth includes promoting innovation, investment, and competition, creating new economic opportunities, and aiming for a "green" and stable economy. In Vietnam, the concept of green growth has been concretely integrated into the government's growth strategy, with the main goal of "Green growth, moving towards a low-carbon economy, enriching natural capital as the dominant trend in sustainable development, reducing emissions, and increasing carbon absorption capacity" (Government of Vietnam, 2012).

There are various concepts of green growth, but they generally encompass the following three aspects (Nguyen Quang Thuan et al, 2012):

- Building an environmentally-friendly economy, reducing greenhouse gas emissions, and using natural resources efficiently to mitigate climate change.

- Green growth is a form of growth that emphasizes depth, resource efficiency, and the creation of favorable conditions for eco-industries while promoting technological innovation.

- A green economy is a form of sustainable growth aimed at eradicating poverty, reducing inequality, and promoting equitable development.

Green growth offers many benefits and creates value for businesses, taking a corporate social responsibility approach (Mazurkiewicz Piotr, 2004). Green growth activities by businesses contribute to:

- Cost savings and increased productivity.
- Improved access to capital.
- Risk management and operational permits.
- Enhanced brand value and reputation.

Furthermore, the development of green products and services by businesses can help them:

- Easily access markets and increase revenue.
- Secure funding.
- Simplify risk management and facilitate permit acquisition.

In addition, a business's green growth activities are closely related to competitive advantages. Improvements in production help businesses enhance their productivity and competitiveness while contributing to short-term profitability (Michael Porter and colleagues, 1995a).

The OECD (2011a) has summarized the benefits that businesses gain when aligning with green growth as follows:

Figure 1. The role of green growth for businesses

Source: OECD (2011a)

2. International experience in green growth policies

In order to facilitate the advancement of Green growth for businesses, alongside the self-awareness and efforts of businesses, government participation is essential in the establishment of supportive mechanisms, incentives, and necessary regulations.

2.1. Experience of Indonesia

As a densely populated nation and the largest economy in Southeast Asia, with a GDP of 3.418 trillion dollars in 2022 (World Economics, 2023), Indonesia has achieved this success by employing a broad-based development model, heavily reliant on the exploitation of natural resources and labor-intensive sectors, which generate little added value. Therefore, after a period of rapid development, Indonesia is also facing serious environmental issues, such as resource depletion, deteriorating resource environments, and is one of the countries heavily affected by climate change (Nguyen Huy Hoang, 2015).

To overcome the consequences of unsustainable growth, Indonesia has implemented strong policies aimed at achieving sustainable green growth. The Indonesian government has formulated a long-term development plan (2005-2025) to build a green and sustainable nation and a mid-term plan for the period 2010-2014.

Concerning business development, starting in 2002, the Indonesian government initiated a program to evaluate and rank the environmental performance of companies. This program has assessed over 1000 companies nationwide based on criteria related to environmental protection and eco-friendly technologies. Consequently, companies with the worst pollution records are placed on a blacklist, while those complying with environmental regulations receive a gold star rating.

The Indonesian government has also implemented financial stimulus packages to support and encourage green-oriented programs for the economy. In the 2008 USD 6.3 billion economic stimulus package, the government allocated 7% for investments aimed at promoting energy conservation, aligning with an energy-saving strategy, and 17% for investments in environmentally-friendly transportation infrastructure in rural areas and cities, as well as the development of irrigation systems to encourage sustainable agricultural development.

Thanks to these government policies, businesses in the economy have experienced positive changes in the adoption of sustainable development initiatives based on principles of cleaner production and ecological improvement. Some companies consider sustainable development as a continuous progression rather than a profit-driven goal. Notable examples include:

- Vale Indonesia, a mining company, applied numerous effective environmental protection measures, increasing production by 17% in 2017. An exemplary measure they adopted was the use of ore dryers with lower energy consumption. By 2019, the company was expected to save more than 3,000 tons of fossil fuels.

- Golden Agri Resources, the world's largest palm oil producer, implemented technical improvements to increase palm oil production from 7.5 to 10.8 tons of crude palm oil per hectare without expanding plantations. They incorporated ecological cycles and simple methods to reduce the use of pesticides in palm oil cultivation, for instance, by raising 2,000 hawks to control pests.

- Semen Indonesia, the largest cement producer in Indonesia, adopted more efficient energy consumption by utilizing waste materials such as slag and gypsum, harnessing excess energy during production.

2.2. Experience of Malaysia

Similar to Indonesia, Malaysia experienced a period of rapid development in the 1970s. Due to this rapid development, they also faced environmental and social challenges. While Malaysia is considered one of the leading sustainable economies in the world, it has had to deal with similar difficulties. However, the difference lies in the fact that the government had early strategies and policies to address climate change and promote sustainable growth. The foundation of these policies is based on the National Green Technology Policy, the National Climate Change Policy (2009), and the Environmental Quality Act (1974). After the global economic crisis, the Malaysian government implemented specific policies to transition to a more sustainable economic model, incorporating green growth goals into various areas, especially in the new economic policies.

The Economic Transformation Program (ETP) and the New Economic Model have been executed and have proven effective for the economy. The economic model transition program was introduced in October 2010 with the goal of making Malaysia ~~a high-income country by~~ 2020, with specific targets: average GNI growth of 6% per year, GDP per capita increasing from \$6,700 to \$15,000. The economic structure transition towards sustainability included a focus on the service sector, with domestic consumption being a significant driver of growth, increasing from 54% (in 2010) to 59% by 2020. This program also emphasized the role of the private economic sector, and it was expected that this sector would account for 92% of the total of 12 key areas in the 2010-2020 period. Regarding labor and employment, this program aimed to create 3.3 million jobs, with 60% of those jobs being medium to high income, reducing the proportion of low-income employment from 57% to 40% by 2020. The 12 key economic areas included: (1) oil, gas, and energy; (2) palm oil; (3) financial services; (4) tourism; (5) business services; (6) electrical and electronics; (7) wholesale and retail; (8) education; (9) healthcare; (10) information and communication technology; (11) agriculture; and (12) the Greater Kuala Lumpur/Klang Valley metropolitan area. To achieve the development goals of these key economic areas, Malaysia introduced guidelines and solutions to develop the private economic sector, enhance the business environment, improve the quality of human resources, upgrade and build new infrastructure, and provide essential incentives for sectors and industries that create higher added value, use fewer resources, and have less environmental impact.

On the other hand, the new economic model (NEM), proposed in September 2009, aimed at improving the quality of life for the people, with three main goals: high income, sustainability, and comprehensiveness. Clearly, the government's development strategy has undergone a significant transformation, focusing on sustainable growth, placing people at the center, and gradually transitioning from growth to sustainable, comprehensive development. To achieve high and sustainable growth, it should start with high labor productivity, harnessing skills and innovation, improving collaboration between different sectors, building a reputable brand, complying with international standards, and protecting intellectual property rights. Moreover, this development requires consensus from various stakeholders in the economy, emphasizing the need to focus on green growth, which means generating greater productivity while having minimal environmental impact. The transition has been from industries related to extraction and manufacturing to higher value-added industries. The government's perception of growth has seen a significant shift, as evident in the following two approaches:

Table 1: A comparison of the approaches to development in Malaysia's new and old models

Old Approach	New Approach
Growth primarily through capital accumulation: focusing on low-capital and low-labor production and infrastructure development, resulting in low-value-added exports.	Growth through productivity/efficiency. Focusing on innovation and high technology, strongly supported by private investment to create high-value-added goods and services.
The state plays a major role. Large direct public investments in selected economic sectors.	Growth led by the private sector. Promoting parallel competition in various sectors to boost private investment and market dynamics.
Centralized strategic planning. Economic decisions are directed and approved by the federal government.	Enhanced decision-making at the local level. State and local governments propose and support growth initiatives, encouraging competition among regions.
Balanced regional growth. Allocating economic activities to all states, distributing benefits from development to all states.	Economic activities organized into clusters or corridors. Focusing on economic activities for economic balance and providing better support services.
Specialized incentives for specific companies and industries. Creating incentives and financial assistance for selected entities.	Incentives for technologically capable sectors. Providing incentives for technology innovation to create high-value-added goods and services.
Export to three major markets (USA, EU, and Japan). Part of the production and consumption chain for traditional markets.	Targeting Asian and Middle Eastern markets. Actively developing and integrating into regional production and financial networks to boost investment, trade, and innovation.
Restrictions on high-skilled foreign labor due to concerns that foreign skilled labor may replace domestic labor.	Attracting high-level experts both domestically and internationally to promote a highly innovative and value-added economy.

Source: Compilation by the author

Regarding green growth policies for businesses, Malaysia has established the Green Technology Group, with the coordination of various organizations, including the Ministry of Energy, Ministry of Technology, and Ministry of Clean Water. Green technology aims to achieve specific technological strategies:

- Promoting sustainable development and expanding the scope of the technology market.

- Advancing green industries at the local level.

- Boosting human capital and technological applications.

- Establishing support policies and financial frameworks for green technology growth.

- Encouraging and fostering awareness of green technology through four key projects: the Malaysian Green Plan, green production, green energy, and sustainable living in five sectors: energy, transportation, construction, waste, and water.

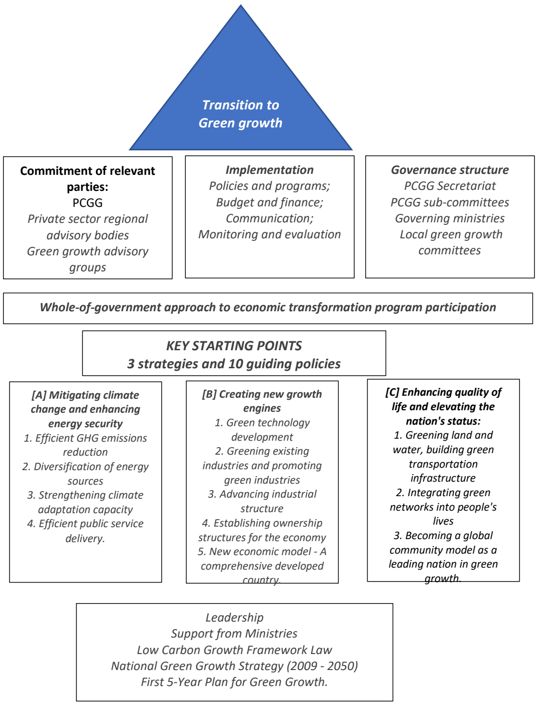
Annually, the government introduces substantial support packages for green growth programs and projects. It offers financial support to businesses for green technology development through the Green Technology Financing Scheme (GTFS), which began in 2010. In addition to reducing discounted interest rates, the government commits to supporting up to 60% of costs related to green expenses. However, different criteria are set for each sector: energy, water and waste, construction, and transportation. These programs are based on clear criteria assessment, allowing the government to have a well-defined evaluation for financial support policies and other related policies.

Through this program, many companies have gained access to favorable funding sources, and numerous banking institutions have participated in providing capital for the program. Many eco-friendly initiatives have been implemented to reduce 3.7 million tons of CO_2 and create around 5,200 green jobs. Numerous innovations have emerged across various industries, particularly in the palm oil industry, as the Malaysian government is committed to the development of this sector with a focus on the 3Ps: People, Planet, and Profit.

2.3. Experience of South Korea

Speaking of green growth, South Korea cannot be overlooked, a developed country with a development strategy significantly different from those solely reliant on resource and labor advantages. In the 1970s, despite starting from a low base with an average income per capita of only about $100, South Korea achieved remarkable progress by adopting a path of development centered on successful governance combined with a clean public administration apparatus. However, alongside these achievements, South Korea's economy also had to confront trade-offs related to resources and the environment during the transition phase. Specifically, GGGI (2015) identified three challenges that the South Korean economy had to face: (1) dependence on fossil fuels; (2) slower economic growth; and (3) climate change. In the context of global sustainable development initiatives involving the participation of numerous countries worldwide to collectively minimize environmental impacts during growth, South Korea has been at the forefront of constructing a unified policy framework with the involvement of relevant stakeholders to promote a green growth model in the country. In particular, the green growth model was developed relatively early.

Figure 2: The strong foundation of South Korea's green growth policy



Source: Global Green Growth Institute (2015), South Korea's Green Growth Experience.

Through the diagram, we can observe South Korea's stepwise approach to a clean strategy. South Korea is characterized by high-level centralized management and strong top-down leadership, with green growth becoming a national priority. This involves close coordination among objectives, collaboration between ministries, local governments, and the central government. Notably, the establishment of the Presidential Committee on Green Growth (PCGG) advising the government and providing direct leadership on green growth-related matters, as well as strong coordination among stakeholders, from the private sector to businesses. It is also from these three core strategies, including: Climate Change Mitigation and Energy Security; Creating New Growth Engines; Improving Quality of Life and Enhancing International Status, that South Korea has concentrated significant resources, with businesses playing a pivotal role in implementing the nation's green growth strategy. Besides raising public awareness, which is evident in the strategy C to enhance the quality of life and boost the national status, strategies A and B involve substantial investments in technology and new energy sources, creating a solid foundation for South Korea's industries to develop and lead in terms of expertise. The shift in growth perception has significantly contributed to the successful transformation of the growth model, as exemplified in the table below:

Table 2: A Comparison between brown growth and green growth

Brown Growth	Green Growth
Quantity-focused and GDP-weighted	Quality-focused (comprehensive - Economic, environmental, and social)
High resource usage	Efficient resource usage (low input = high output)
Relies on various factors of production (labor, capital, natural assets)	Innovative technologies (value-added)
Reliant on energy (fossil fuels)	Energy self-reliance (renewable energy)
Vulnerable to climate impacts (high risk, low adaptability)	Climate adaptation (high risk, high adaptability)
Unsustainable growth	Sustainable development

Source: Global Green Growth Institute (2015), The Green Growth Experience of South Korea

Regarding businesses, the Government has specific policies as follows: In addition to supporting large corporations, small and medium-sized enterprises (SMEs) are also prioritized and provided with specific orientations during their development. SMEs are considered as satellites that supply semi-finished products to large corporations. The Government has issued the Enterprise Promotion Act, which designates certain industries as well as some industrial products as supporting industries, requiring large corporations to purchase these designated products from local small and medium-sized businesses, rather than producing them on their own. Furthermore, the Government supports and focuses on improving the weaknesses of small and medium-sized businesses by encouraging them to innovate their structures, management, and operations. The government has also identified priority areas for the development of the manufacturing industry, forming the "Silicon Valley of Korea," with many support policies. These policies include a 50% reduction in equipment costs and reduced revenue taxes, as well as the use of assets and land to promote growth. They provide funding from the state to small and medium-sized enterprises for research and technology innovation appropriate to the industry and scope of operations while also receiving existing research achievements. The Korean government highly values the commercialization of products from research, fostering cooperation between businesses and universities. Several measures have been put in place to facilitate this cooperation: prioritizing internships for students at companies, adding courses on small and medium-sized businesses to the curriculum, and encouraging businesses to hire foreign experts.

In terms of finance, small and medium-sized enterprises receive support from the central banking system, other financial agencies under the government, and tax policies. The financial support system for businesses includes a credit guarantee system and tax refund policies.

Additionally, given the rapid development of various industries and the environmental consequences it brings, South Korea is at the forefront of establishing a green growth program from a corporate perspective, which helps businesses gradually transition their models, develop technology, green their production processes, and create new industries with significant economic impact. The three objectives set forth in this program include: (i) Green innovation of key industries; (ii) Industrial restructuring for low carbon development; and (iii) Greening the value chain (GGI, 2015). South Korea's success lies in its enforcement of environmental responsibilities on businesses, compelling them to enhance their awareness of the country's environmental concerns.

3. Lessons for Vietnam

To promote Green growth for businesses, besides awareness and efforts from businesses themselves, the government should also play a role in establishing the necessary support mechanisms and incentives. Therefore, based on research into the implementation of green growth strategies in several countries, we can draw some valuable lessons for governmental agencies:

- Along with recognizing businesses as the driving force for economic development, the government needs to execute accompanying supportive policies. Businesses face many challenges in mobilizing funds for production and accessing new technologies. Thus, in addition to policy enactment, the government needs to undertake specific activities and oversee policy implementation to create an equitable environment where businesses can access funding and stay updated with global technological advancements.

- In its role of providing direction and a conducive environment for operations, the government should primarily establish an equitable playing field through clear, rigorous, transparent, and administrative procedure simplifications and business-related policies. Furthermore, the government should provide necessary support to businesses operating in sectors that are encouraged, particularly those related to green growth: new technologies, eco-friendly industries, clean energy, and alternatives to fossil fuels.

- The government should enhance its environmental and resource tax policies. The goal of this enhancement is to encourage businesses to use resources and energy more efficiently. The revenue generated from these taxes and fees should be reinvested in key development and green investment projects. Adjusting tax rates and environmental fees is crucial to steer businesses towards more environmentally friendly and resource-efficient operations. Simultaneously, tight monitoring and supervision of companies' emissions and waste disposal should be maintained. A suitable support mechanism, aligned with the businesses' rights and efficiency, should also be developed.

- Human resources are essential for green growth. Therefore, alongside guiding and promoting preferred growth sectors, the government must establish policies to train high-quality human resources. This can be achieved through research organizations, universities, and policies that attract high-quality foreign human resources. Additionally, bridges between businesses and scientific and technological organizations should be built through programs such as exhibitions that introduce new technologies and disseminate scientific knowledge.

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IMPACTS OF ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) PERFORMANCE ON FIRM VALUE, PROFITABILITY AND CASH FLOWS: EVIDENCE IN SOUTHEAST ASIA

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Abstract: ***This study aimed to investigate the impact of ESG performance on the firm value, profitability, and cash flows of listed firms in Southeast Asia for the period 2014-2022. Panel data estimation, using the fixed-effects model with robust standard errors, was adopted to explore the relationships among the variables involved. The results indicate that ESG performance has a significant negative impact on firm value, profitability, and, especially, financing cash flows in Southeast Asian firms. Our findings provide practical insights for policymakers, managers, and other stakeholders in emerging markets to develop more realistic approaches to ESG integration. While ESG initiatives have gained worldwide recognition, firms should not solely rely on ESG performance to enhance their overall performance. Proper resource allocation and strategic implementation of ESG efforts are necessary for positive outcomes.***

• Keywords: *ESG, disclosure, tobin's Q, cash flows, emerging economies.*

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Tóm tắt: *Nghiên cứu này điều tra tác động của hiệu suất ESG đến giá trị công ty, khả năng sinh lời và dòng tiền của các công ty niêm yết ở Đông Nam Á giai đoạn 2014-2022. Hồi quy trên dữ liệu bảng, mô hình tác động cố định với sai số chuẩn mạnh được sử dụng khi điều tra mối liên hệ giữa các biến liên quan. Các kết quả chỉ ra rằng hiệu suất ESG có tác động tiêu cực đáng kể đến giá trị công ty, khả năng sinh lời và dòng tiền tài trợ của các công ty Đông Nam Á. Phát hiện của chúng tôi cung cấp những hiểu biết thực tiễn cho các nhà hoạch định chính sách, nhà quản lý và các bên liên quan khác ở các thị trường mới nổi để phát triển các phương pháp tiếp cận thực tế hơn cho các sáng kiến ESG. Mặc dù các sáng kiến ESG đã được công nhận trên toàn thế giới nhưng các công ty không nên chỉ dựa vào hiệu suất ESG để nâng cao hiệu suất hoạt động của mình. Việc phân bổ nguồn lực hợp lý và thực thi một cách có chiến lược cho các nỗ lực ESG là cần thiết để đạt được kết quả tích cực.*

• Từ khóa: *ESG, công bố thông tin, tobin's Q, dòng tiền, các nền kinh tế mới nổi.*

1. Introduction

With the growing public awareness of Environmental, Social, and Governance (ESG) issues, numerous studies have examined the relationship between ESG performance and firm performance in various contexts, primarily focusing on developed economies. Meanwhile, enterprises in the developing world face numerous challenges when investing in sustainability initiatives. One of the difficulties is accessing green capital, as investing in facilities to address sustainable development issues involves high costs and a long payback period. Adding to this challenge is the lack of clear criteria for accessing these capital flows, making it even more difficult for firms to secure the necessary funding (Ameli et al., 2021; Barua, 2020). This highlights the need for research that explores the potential financial benefits of ESG performance for firms to access green capital and implement sustainable development initiatives in a developing country context.

In this paper, we attempt to provide empirical evidence on the relationships between ESG and corporate financial performance in Southeast Asia. We use a large dataset of 630 listed firms with up-to-date ESG scores from Refinitiv Eikon for

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six countries, including Malaysia, Indonesia, the Philippines, Singapore, Thailand, and Vietnam. To the best of our knowledge, this is the first study to explore the nexus between ESG performance, firm value, profitability, and cash flows in separate models within the Southeast Asian research scope. The effects of ESG performance are examined in-depth when we set different models for ESG combined scores, environmental scores, social responsibility scores, and corporate governance scores separately. We argue that studying the impact of ESG performance on firm value, profitability, and cash flows jointly provides extensive conclusions about ESG activities and their influence in Southeast Asia over an extended period. It is also the first study to find a statistically significant relationship between financing cash flows and ESG performance, which is particularly essential for corporate managers in their strategic planning. The findings highlight the need for internal managers to carefully consider the allocation of resources towards ESG initiatives, while policymakers should develop balancing programs that support sustainability goals without jeopardizing firms' financial performance in the Southeast Asian context.

The remainder of this paper is structured as follows: Section 2 reviews the literature and develops research hypotheses. Section 3 describes the data and methodology. Section 4 reports the results and discussions. In closing, Section 5 draws the main conclusions, discusses the implications of the study, and suggests future research possibilities.

2. Literature review

Stakeholder theory

The stakeholder theory was a theory of organizational management and business ethics first introduced by Freeman (1984). The theory has provided a different perspective on creating corporate value by explaining how companies integrate their goal of maximizing value with the interests of various stakeholders to create a competitive advantage (Tsang et al., 2022). Companies were successful because they not only focused on maximizing shareholder value, but also cared about the interests of other stakeholders of the company, and thus they are more sustainable (Aydoğmuş et al., 2022). In addition, disclosing information about sustainability was a way of conveying the results of an organization's operations for the benefit of various stakeholders (Khan, 2022). As a new model for a company's vision for sustainable development strategies, ESG indicators could gauge a company's performance for stakeholders while financial indicators might estimate a company's performance for shareholders. Hence, for their own benefit, stakeholders would use these indicators to assess the organization's responsibility towards them (Kay et al., 2020). Stakeholder theory has been applied to explain the relationship between ESG and a company's operational effectiveness in many previous studies (Aydoğmuş et al., 2022; Flammer & Kacperczyk, 2019).

ESG performance and corporate financial performance (CFP)

The relationship between corporate sustainability and corporate finance success began to be studied around the 1970s, and in general, while the majority of findings were positive, the role of ESG was still subject to debate (Friede et al., 2015). Traditional perspectives suggested that ESG was costly because social responsibility activities created expenses. In conformity with Alexander and Buchholz (1978), these costs were believed to reduce profitability and lead to competitive disadvantage. There were many recent relevant studies reporting negative nexus as well (Duque-Grisales & Aguilera-Caracuel, 2019; Nollet et al., 2016; C.-W. Peng & Yang, 2014). Otherwise, early studies indicated that CSR had a positive impact on CFP (Burnett & Hansen, 2008; Rodgers et al., 2013). This opposite view was promoted by stakeholder theory. Any stakeholder dissatisfaction had the potential to affect economic rents and even jeopardize a company's prospects (M. E. Clarkson, 1995). CSR was thus required to preserve company profit (Epstein & Buhovac, 2014). Many other country-focused studies showed a positive ESG-CFP relationship as well (Chang & Lee, 2022; Cheng et al., 2023; Fatemi et al., 2018).

Contributing to the literature, research on ESG in Southeast Asia was inadequate. The results of these rare studies were still controversial due to a lack of empirical evidence. Handayani (2019) examined the effects of ESG performance on economic performance in Indonesia in 2015-2017 and found a mixed result. Similarly, the study of Atan et al. (2018) showed mixed results. Tarmuji et al. (2016) investigated the impact of ESG practices on economic performance using data from two countries Malaysia and Singapore from 2010 to

2014 and found that social and governance practices significantly influenced economic performance. Chairani and Siregar (2021) inspected listed firms in 5 ASEAN countries Indonesia, Malaysia, Philippines, Singapore, and Thailand from 2014 to 2018 and indicated that ESG improved the impact of enterprise risk management (ERM) on firm value and that ERM had a positive link with both firm value and profitability. Moreover, it was documented that ESG certification lowered a firm's cost of capital and significantly increased firm value in Malaysia (Wong et al., 2021).

Following an extensive literature review, we find that there are several studies on ESG in Southeast Asia but they are mostly country-focused studies conducted in Indonesia, Thailand, or Malaysia. The topic is contemporary and uninvestigated in other Southeast Asian countries like Vietnam, Laos, Myanmar, and the Philippines. Additionally, the data used in previous studies are insufficient to provide generalized convincing evidence. These leave spaces for future research. Thus we propose research hypotheses H1 and H2 in agreement with the mainstream findings as follows:

H1. ESG performance is positively related to firm value

H2. ESG performance is positively correlated with firm profitability

Considering the ambiguity about the correlation between sustainable development and different types of cash flows within the business, it is necessary to explore the relationship in the overall literature. The effect of ESG activities on firm financing constraints has been studied by many scholars in previous published works (Bai et al., 2022; Ge et al., 2022; Liu et al., 2021; L. S. Peng & Isa, 2020; Tang, 2022). Liu et al. (2021) documented that Chinese firms with better corporate environmental performance endured significantly lower finance constraints. According to Bai et al. (2022), good ESG performance firms could reduce their financing constraints and encourage institutional investors to increase their shares. However, the influence of environmental, social and governance practices on firms' cash flows, especially cash flows from financing activities, has not been widely empirically explored (P. M. Clarkson et al., 2008; Okpa et al., 2019). According to A. Gregory et al. (2014), participating in CSR activities was a form of investment, that entailed initial costs for future financial benefits, hence it might have a positive impact on the long-run future cash flows, but short-run cash flows were negatively affected (Qiu et al., 2016). Islam et al. (2021) documented that increases in free cash flow were associated with increases in CSR expenditure, implying the prevalence of agency issues surrounding CSR spending between management and shareholders. In addition, Jia and Li (2022) investigated the link between corporate sustainability performance and future cash flow for Australian listed firms and confirmed a positive relationship. Similarly, R. P. Gregory (2022) stated that increasing ESG activities would tend to boost the cash flows of firms.

Overall, there is inadequate empirical literature regarding the relationship between ESG and a firm's cash flows for emerging economies. We argue that financing cash flow is specifically showing the point of view of investors and creditors on firm ESG activities better than other types of cash flows. Therefore, we propose to test the following hypothesis:

H3. ESG performance is positively related to financing cash flows

3. Methodology

Data collection

We conducted our research over nine years, from 2014 to 2022, as this period had the most recent and complete data, ensuring the robustness of the results. Concerning the number of nations, we collected data for the 11 potential Southeast Asian nations via Refinitiv Eikon. Ultimately, our final dataset included six countries: Malaysia, Thailand, Singapore, Indonesia, the Philippines, and Vietnam, with comprehensive data for all variables. Laos, Myanmar, and Cambodia were excluded from the study due to insufficient data for the variables, especially ESG variables. Additionally, East Timor and Brunei were not considered as they lack stock exchanges. As a result, we compiled data from 3,891 publicly listed companies on stock exchanges in Malaysia, Thailand, Singapore, Indonesia, the Philippines, and Vietnam for the period 2014 to 2022. We then filtered for companies with available ESG scores, resulting in a sample of 630 companies and 2,174 firm-year observations. Table 1 provides a summary of the dataset.

Table 1. Data sampling

Country	Exchange name	Number of total listed companies	Firms with ESG scores	Percentage of firms with ESG scores	Number of observations	Percentage of observations
1. Vietnam	Hochiminh stock exchange	396	23	3.65%	46	2.12%
2. Thailand	Stock exchange of Thailand	694	145	23.02%	512	23.55%
3. Singapore	Singapore exchange	633	85	13.49%	447	20.56%
4. Malaysia	Bursa Malaysia	1,009	293	46.51%	707	32.52%
5. Philippines	Philippine stock exchange, inc.	286	29	4.60%	164	7.54%
6. Indonesia	Indonesia stock exchange	873	55	8.73%	298	13.71%
	Total	3,891	630	100%	2,174	100%

Model specification

Table 2 presents the list of variables and their measurements employed in this study.

Table 2. Summary of variables

Variables	Definition	Sources
Dependent Variables		
TobinsQ	(Equity Market Value + Liabilities Market Value)/(Equity Book Value + Liabilities Book Value)	(Aydoğmuş *et al.*, 2022; Bhaskaran *et al.*, 2020; Giannopoulos *et al.*, 2022)
ROA	Return on Assets = Net Income/Total Assets	(Duque-Grisales & Aguilera-Caracuel, 2019; Giannopoulos *et al.*, 2022; Shakil, 2021)
FCF	Cash flows from financing activities/ (Long-term debts (LD) + total equities (TE))	(Ni *et al.*, 2020); (Itan & Riana, 2021)
Independent Variables		
ESGCS	ESG combined score	Refinitiv
ENV	Environmental score	Refinitiv
SOC	Social score	Refinitiv
GOV	Governance score	Refinitiv
Control Variables		
Firm Size (LogTA)	Logarithm of Total Assets	(Choi & Yoo, 2022; Giannopoulos *et al.*, 2022)
Leverage (TDTA)	Total Debt/Total Assets	(Choi & Yoo, 2022; Giannopoulos *et al.*, 2022)

In this paper, we utilized all ESG scores from the Refinitiv database. Refinitiv is one of the world's largest ESG rating agencies, which provided data going back to 2002. Many scholars have used ESG scores provided by Refinitiv in their research (Bodhanwala & Bodhanwala, 2022; Duque-Grisales & Aguilera-Caracuel, 2019; Giannopoulos et al., 2022). Table 3 delivers a description of the Refinitiv ESG score range.

Table 3. Refinitiv ESG ratings

Score Range	Description
From 0 till 25	Poor relative ESG performance and insufficient transparency in the public disclosure of relevant ESG data.
From 26 till 50	Satisfactory relative ESG performance and moderate transparency in the public disclosure of relevant ESG data.
From 51 till 75	Good relative ESG performance and above-average transparency in the public disclosure of relevant ESG data.
From 76 till 100	Excellent relative ESG performance and a high degree of transparency in the public disclosure of relevant ESG data

Source: Refinitive

We used 3 models to investigate the research objectives of the study, one for Tobin's Q, one for ROA, and one for FCF. Due to the correlation between variables, we designed a separate model for each independent variable (ESGCS, ENV, SOC, and GOV):

1. $TobinsQ_{it} = \beta_0 + \beta_1 ESGCS_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
2. $TobinsQ_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
3. $TobinsQ_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
4. $TobinsQ_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
5. $ROA_{it} = \beta_0 + \beta_1 ESGCS_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
6. $ROA_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
7. $ROA_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
8. $ROA_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
9. $FCF_{it} = \beta_0 + \beta_1 ESGCS_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
10. $FCF_{it} = \beta_0 + \beta_1 ENV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
11. $FCF_{it} = \beta_0 + \beta_1 SOC_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$
12. $FCF_{it} = \beta_0 + \beta_1 GOV_{it} + \beta_2 LogTA_{it} + \beta_3 TDTA_{it} + \varepsilon_{it}$

Where $TobinsQ_{it}$, ROA_{it}, FCF_{it}, were dependent variables, $ESGCS_{it}$, ENV_{it}, SOC_{it}, GOV_{it} were independent variables, $LogTA_{it}$, $TDTA_{it}$ were control variables and ε_{it} was the error term for firm i in period t.

4. Results

Descriptive statistics results

Table 4. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Dependent variables					
TobinsQ	2,174	1.95416	2.070627	0.3100606	22.23284
ROA	2,174	0.0514161	0.3827963	-17.31845	0.7934309
FCF	2,174	-0.042335	0.2034427	-1.866713	2.122351
Independent variables					
ESGCS	2,174	45.91919	18.90715	1.300686	92.0953
ENV	2,174	38.25591	24.96055	0	97.40022
SOC	2,174	49.73176	22.32755	0.7009424	97.48202
GOV	2,174	48.86412	21.94981	1.163522	98.73576
Control variables					
LogTA	2,174	9.320126	0.6654838	7.175876	10.9869
TDTA	2,174	0.5230052	0.4294123	0.0217017	18.26288

Descriptive statistics of the study sample were reported in Table 4. Correspondingly, the mean for Tobin's Q was 1.95, ROA was 5.14%, and FCF was -4.23% indicated that investors were highly interested in businesses in our dataset, and most of the companies in the dataset seemed to have normal efficiency in generating net income. ESG mean scores in the sample showed that the dataset had satisfactory relative ESG performance and moderate transparency in the public disclosure of ESG, with the most prominent disclosure being the Social score.

Correlation results

The Pearson correlation matrix for each variable was shown in Table 5. Noteworthily, ESG scores were highly correlated among themselves. It is no wonder that individual ENV, SOC, and GOV scores are used to calculate ESGCS in Refinitiv.

Table 5. Pearson correlation matrix

	TobinsQ	ROA	FCF	ESGCS	ENV	SOC	GOV	LogTA	TDTA
TobinsQ	1.0000								
ROA	-0.0326	1.0000							
FCF	-0.4468(*)	-0.1156(*)	1.0000						
ESGCS	0.0727(*)	0.0405	-0.1497(*)	1.0000					
ENV	0.0033	0.0133	-0.1142(*)	0.8446(*)	1.0000				
SOC	0.0752(*)	0.0517(*)	-0.1563(*)	0.9021(*)	0.7471(*)	1.0000			
GOV	0.0412	0.0219	-0.0706(*)	0.6648(*)	0.3353(*)	0.4190(*)	1.0000		
LogTA	-0.2603(*)	-0.0261	0.1235(*)	0.2499(*)	0.3587(*)	0.2241(*)	0.0593(*)	1.0000	
TDTA	0.1280(*)	-0.8896(*)	0.0135	0.0053	0.0273	-0.0109	0.0020	0.1437(*)	1.0000

(*) Pearson coefficients are statistically significant at 0.05 level

To check multicollinearity, we relied on the variance inflation factor (VIF). We certified that there was no multicollinearity after removing the highly correlated independent variables from the model, and certainly validated that all variables in the model had VIF ratios in the range of 1.02 - 1.11, significantly below 10.

Test results

We performed the Augmented Dickey-Fuller (ADF) test to decide whether the data was stationary or not. Based on p-value, we concluded that all dependent variables were stationary and usable in their original forms in the model without any transformation.

The Hausman test was performed to select the most suitable model. Table 6 reports the results of the Hausman test on model selection.

In order to check for serial correlation, we used the Breusch-Godfrey/Wooldridge test. While serial correlation could be a problem in macro panels with long time series, it was not a problem in micro panels with short time series like ours.

Eventually, we applied the Breusch-Pagan test to investigate heteroskedasticity and reported the results in Table 7. In summary, we had heteroskedasticity and some serial correlation in the research models. We invoked robust standard errors option into fixed effects models to fix these problems.

Table 6. Hausman test

Dependent Variables	Explanatory Variables	Test Result	Chi-Square Statistic	p value
TobinsQ	ESGCS	Fixed effects	71.62	0.0000
	ENV	Fixed effects	54.19	0.0000
	SOC	Fixed effects	67.04	0.0000
	GOV	Fixed effects	41.86	0.0000
ROA	ESGCS	Fixed effects	892.49	0.0000
	ENV	Fixed effects	896.34	0.0000
	SOC	Fixed effects	896.90	0.0000
	GOV	Fixed effects	877.98	0.0000
FCF	ESGCS	Fixed effects	62.54	0.0000
	ENV	Fixed effects	61.66	0.0000
	SOC	Fixed effects	63.14	0.0000
	GOV	Fixed effects	45.60	0.0000

Table 7. Heteroscedasticity test

Dependent Variables	Explanatory Variables	Test Result	Chi-square statistic	p-Value
Tobin's Q	ESGCS	Positive	5.4e+36	0.0000
	ENV	Positive	9.5e+36	0.0000
	SOC	Positive	5.0e+37	0.0000
	GOV	Positive	1.7e+37	0.0000
ROA	ESGCS	Positive	2.6e+37	0.0000
	ENV	Positive	1.8e+36	0.0000
	SOC	Positive	8.5e+36	0.0000
	GOV	Positive	9.6e+35	0.0000
FCF	ESGCS	Positive	2.4e+36	0.0000
	ENV	Positive	7.6e+35	0.0000
	SOC	Positive	3.3e+35	0.0000
	GOV	Positive	8.5e+40	0.0000

Regression results & discussions

The results of regression analysis are shown in Tables 8, 9, 10. We conduct all tests and regressions in Stata 16.

ESG performance and firm value

Table 8. Tobin's Q - Fixed effects regression results

Dependent Variable: Firm value proxied by Tobin's Q (Robust standard errors specified under variable Coefficients)				
	Model 1	Model 2	Model 3	Model 4
ESGCS	-.0115952 (***) (.0044312)			
ENV		-.00888 (***) (.0032628)		
SOC			-.0098073 (***) (.0034359)	
GOV				-.0039649 (.0033219)
LogTA	-1.532465 (***) (.4184676)	-1.509031 (***) (.4308024)	-1.551993(***) (.4189479)	-1.904738 (***) (.3707957)
TDTA	.1973474 (.8475168)	.2591215 (.834079)	.1943648 (.848714)	.2467039 (.8569311)
F(3,629)	12.31	13.3	13.77	10.45
P value	0.0000	0.0000	0.0000	0.0000
Observations	2,174	2,174	2,174	2,174

***p < 0.05; ***p < 0.01*

As shown in Table 8, the impact of ESG combined score, Environmental score, and Social score were nearly the same on firm value at the statistical significance of 1% level, while we could not see the effect of Governance score on firm value within our dataset at the statistical significance level. Our results suggested that listed firms in Southeast Asia with better ESG performance did not have greater market valuation. From the investors' point of view, being a socially responsible company means spending money, which affects stockholders' interests. According to these perspectives, there is a conflict of interest between stockholders and other stakeholders. Besides, the implementation of ESG activities may not be performed or informed in the correct manner, thus not ensuring prestige from shareholders. Based on that, we confirmed the model between the firm value and ESG performance as follows:

TobinsQ = -0.0116*ESGCS - 1.5325*LogTA

ESG performance and Firm profitability

Table 9. Return on assets - Fixed effects regression results

Dependent Variable: Profitability proxied by ROA (Robust standard errors specified under variable Coefficients)				
	Model 1	Model 2	Model 3	Model 4
ESGCS	-.0005962 (***) (.000205)			
ENV		-.0004103 (***) (.0001464)		
SOC			-.0005956 (***) (.0001711)	
GOV				-.000087 (.000158)
LogTA	.0572619 (.0394908)	.0559575 (.0386874)	.0603412 (.039395)	.0355997 (.0359713)
TDTA	-.2941142 (***) (.0509447)	-.2907554 (***) (.0499847)	-.2951972 (***) (.0505319)	-.2901781 (***) (.0505406)
F(3,629)	21.51	22.96	22.67	23.97
P value	0.0000	0.0000	0.0000	0.0000
Observations	2,174	2,174	2,174	2,174

***p < 0.05; ***p < 0.01*

As observed in Table 9, it can be concluded that the implementation of ESG practices by enterprises in Southeast Asia has not yielded the anticipated profitability. In other words, ESG performance negatively affects how a firm utilizes or manages its assets to generate profits or higher returns. Throughout our research, we found that the more resources an enterprise allocates to ESG initiatives, the poorer its business results tend to be. This outcome is understandable, considering that most Southeast Asian countries have recently embraced ESG practices, and actions in the early stages may not yield immediate profitability due to the relatively high costs associated with ESG implementation. Alternatively, when a company makes substantial investments in ESG activities, it may divert resources needed for regular operations, resulting in a decline in profit performance. Consistent with the result, we affirm the model between the firm profitability and ESG performance as below:

ROA = -0.0006*ESGCS - 0.2941*TDTA

ESG performance and Financing cash flows

Table 10. Financing cash flows - Fixed effects regression results

Dependent Variable: Financing cash flows **(Robust standard errors specified under variable Coefficients)**				
	Model 1	Model 2	Model 3	Model 4
ESGCS	-.0015972 (***) (.0005532)			
ENV		-.0013112 (***) (.0003863)		
SOC			-.0010306 (**) (.0004636)	
GOV				-.0006977 (.0004517)
LogTA	.2380531 (***) (.0809148)	.2460483 (***) (.0826893)	.2210452(***) (.0829998)	.1900444 (**) (.0740808)
TDTA	.1747542 (.1377)	.1829164 (.1360207)	.177603 (.1376131)	.1797389 (.1391412)
F(3,629)	8.38	8.28	6.26	7.92
P value	0.0000	0.0000	0.0003	0.0000
Observations	2,174	2,174	2,174	2,174

**p < 0.1; **p < 0.05; ***p < 0.01.*

Following the data presented in Table 11, the findings indicated that a company's financing cash flows were impacted by environmental activities, followed by social activities, and not at all by governance activities. Our findings imply that Southeast Asian companies prioritizing environmental, social, and governance factors and displaying strong ESG performance may encounter financial constraints or challenges in securing funds through financing activities. It indicates that investors, lenders, or capital markets may exercise greater caution or impose stricter requirements when providing financial resources to companies with higher ESG standards. This phenomenon may be attributed to the perception that companies with strong ESG performance may have higher operational costs or additional expenses related to sustainable practices, potentially affecting their earnings. Consequently, these companies have to face higher borrowing costs or more stringent lending terms, as investors and lenders are concerned about their ability to generate profits and repay debts. Upon the conclusion, we determine the model between financing cash flows and ESG score as follows:

FCF = -0.0016*ESGCS + 0.2381*LogTA

In summary, the regression results allowed us to reject all three Hypotheses 1, 2, and 3 on the existence of significant positive relationships between ESG performance and firm value, firm profitability, and financing cash flows in Southeast Asia.

Robustness test

First, we excluded the enterprises belonging to banks or financial institutions from the sample because the financial sector operated under distinct regulatory frameworks compared to other industries. The results for TobinsQ and ROA were found to be robust and consistent with the original model that used the full sample, even after excluding the financial sectors. In respect of financing cash flows, we observed a slight change in the significance level when the firms from financial sectors were excluded. While this change indicated a slightly weaker statistical association, it was important to note that the relationship between ESG performance and financing cash flows remained significant, at a 5% level.

Second, we omitted all businesses in Malaysia because this country had the highest percentage in the sample, accounting for 46.51% of the dataset. The statistical results for all dependent variables persisted robust, although the significance level slightly decreased. It was noteworthy that, with respect to the financing cash flows, the impact of the Social variable was no longer statistically significant after removing businesses in Malaysia.

5. Conclusions

Across all 12 research models, where the dependent variables are firm value, profitability, and financing cash flows, we consistently confirm that the ESG combined score exhibits a negative and highly significant relationship with the dependent variables. Specifically, both the Environmental and Social scores demonstrate highly significant negative relationships with all three variables. However, we find that there is no statistical relationship between the Governance score and the dependent variables Tobin's Q, ROA, and financing cash flows. From a theoretical standpoint, these results align with shareholder theory rather than stakeholder theory. Our findings support prior studies in the context of emerging markets (Duque-Grisales & Aguilera-Caracuel, 2019; Kalia & Aggarwal, 2023). However, we differ from Aydoğmuş et al. (2022), who claimed a positive association between the ESG combined score and Tobin's Q and ROA. These differing findings arise due to variations in study scope and data sources.

Due to geopolitical instability, industries underwent numerous changes during the research period from 2014 to 2022. In agreement with Whelan et al. (2021), who showed that engaging in ESG activities might pose several shortcomings and challenges, particularly during periods of socioeconomic crisis, our regression analysis reveals that investors do not expect or value the ESG performance of Southeast Asian companies. This can be explained by investors' concerns when the cost of implementing ESG activities is too expensive for businesses in the early stages of execution. On the other hand, the higher the ESG score, the lower the financial cash flow will decrease, implying that ESG implementation will be accompanied by positive financial cash flow signals such as the company increasing debt repayment, paying dividends, or buying back shares. However, capital markets may be more demanding when providing ESG companies with more sources of finance.

In conclusion, we recommend that businesses in Southeast Asia thoroughly examine and restructure their ESG implementation strategies and processes to maximize efficiency and ensure that ESG execution will soon be advantageous to all stakeholders. We conducted the study under the assumption that ESG firms will not undergo economic and social changes as much as non-ESG firms. Hence, the research scope from 2014 to 2022, which includes the global COVID-19 pandemic, a time when enterprises worldwide experienced significant disruptions, is selected. Future research should examine the pre- and post-pandemic periods individually to better understand the influence of COVID-19 on the observed relationships. Furthermore, the data used in this paper for assessing ESG performance is sourced solely from Refinitiv. The exclusivity of data from a single source may limit the broader representation of ESG practices across various rating methodologies. Future studies should diversify the data sources by using different rating agencies like Bloomberg, KLD, Sustainalytics, S&P Global, Moody's ESG Solutions Group, MSCI ESG Ratings. Finally, other proxies for variables and other estimation methods could be employed to strengthen the overall findings.

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THE IMPACT OF INFORMATION AND COMMUNICATION TECHNOLOGY ON TAXATION IN LAO PDR

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Abstract: ***This study focuses on the use of ICT in tax administrations and how to effectively apply it in tax administration. It is not simply a matter of specific individuals (tax administrators) using their knowledge of ICT or the common practice of people's knowledge. The study addresses the implementation of the tax development plan from the past 3 years (2021-2023) and the modernization of the tax revenue collection system aimed at improving the revenue collection mechanism. It is suggested that the government should place significant emphasis on digital tax through good governance practices in ICT, employing a comprehensive accounting platform. This approach would enhance the productivity of assigned tax authorities in a more accurate, effective, and accountable manner.***

• Keywords: *ICT, tax management, tax development, revenue mechanism.*

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Tóm tắt: *Nghiên cứu này tập trung vào việc ứng dụng CNTT trong quản lý thuế và cách áp dụng nó một cách hiệu quả trong quản lý thuế. Đó không chỉ đơn giản là vấn đề các cá nhân cụ thể (các nhà quản lý thuế) sử dụng kiến thức về CNTT của họ hay thực tiễn phổ biến về kiến thức của người dân. Nghiên cứu đề cập đến việc thực hiện kế hoạch phát triển thuế trong 3 năm qua (2021-2023) và hiện đại hóa hệ thống thu thuế nhằm cải tiến cơ chế thu. Có ý kiến đề xuất rằng chính phủ nên đặc biệt chú trọng đến thuế kỹ thuật số thông qua các biện pháp quản trị tốt trong lĩnh vực CNTT, sử dụng nền tảng kế toán toàn diện. Cách tiếp cận này sẽ nâng cao năng suất của cơ quan thuế được phân công một cách chính xác, hiệu quả và có trách nhiệm hơn.*

• Từ khóa: *ICT, quản lý thuế, phát triển thuế, cơ chế thu.*

1. Introduction

According to the analysis of the economic situation as outlined in the resolution of the 11th Congress of the Party, it indicates that the economy of the Lao PDR has faced numerous challenges, which have been affected by both internal and external factors. External factors have been influenced by competition, trade and investment barriers, fluctuations in the global capital market, and political unrest in some countries. These factors have had an impact on the economic situation in many countries, including the Lao PDR. Due to this situation, the government considers the resolution of economic and financial difficulties as necessary and urgent tasks, and it has prioritized them on the national agenda to implement solutions during the period 2021-2023. These solutions include effectively managing revenue collection into the state budget, preventing revenue leakage, and transitioning public financial management into a digital model.

Taxation is well-defined as the obligation imposed by the government on individuals and private organizations regarding their income, property, transactions, and commodities. Its primary purpose is to raise revenue for the execution and realization of government expenditures. Taxation serves various purposes such as employment generation, economic growth, infrastructure development, support for neglected areas, economic stability, and price stability.

Governments and organizations worldwide are increasingly recognizing the necessity to enhance access to community services through information exchange using ICT. The role of ICT has been expanding in the social and economic realms in the 21st century. It has become a tangible reality, as evidenced by developments in many countries showing that ICT significantly contributes to a country's GDP. Moreover, ICT has led to improvements in a country's

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market competitiveness in terms of products, output, and services (Uvaneswaran & Mellese, 2016). ICT can have a positive impact on governance and various aspects of the economy. It can effectively elevate living standards, promote global economic integration, bridge the digital divide, and enhance management and biodiversity utilization. According to Adamu (2001), ICT has played crucial roles in national growth and development.

The impact of ICT efforts can be observed in numerous ways, such as the reduced necessity for personnel, decreased costs of tax compliance, saved administrative time for taxpayers due to transparency in assessment and faster processing of collection and related procedures. Additionally, there are reduced costs of communication and swift access to information, ultimately leading to improvements in revenue collections and efficiency, including the prevention of revenue loss.

Currently, in Lao PDR, there is modernization in tax collection through the Tax Revenue Information System (TaxRis) and the Center for display and management, monitoring the Tax Revenue Information System (TaxRis Dashboard Monitoring). This system showcases tax revenue declarations, tax payments through banks, and manages databases in other related systems. There are also sub-systems such as Land Tax, Road Tax, Easy Tax, and others aimed at enhancing tax revenue management efficiency and effectiveness. Additionally, to prevent misunderstandings and ensure compliance with tax regulations, the government has mandated standards for all entrepreneurs, including individuals and legal entities residing in Lao PDR, to adopt the modern system. This move encourages taxpayers to adhere to discipline, follow the rules of modernized tax revenue management, and facilitate online tax payments from anywhere and at any time.

Therefore, in the study on 'The effect of ICT on taxation in the Lao People's Democratic Republic, one can observe the significance and importance of tax administration encompassing both theoretical understanding and practical implementation. This study aims to propose measures addressing various outstanding issues, intending to enhance tax administration by ensuring strictness and transparency, thereby progressing towards a modernized system across the country.

2. The theoretical basis of taxation and the use of ICT in tax administration

2.1. Taxation and tax administration

Gaston Jèze (1936) defined tax as 'a monetary deduction contributed by individual citizens through the power of the state, is mandatory and has no counterpart to cover the needs of the public spending demand'. According to Makkollhell and Bruy (1993), 'Tax is a mandatory transfer of money (or transfer of goods and services) from companies and households to the Government, wherein they do not directly receive any goods or services; that payment is not a fine imposed by the court for violating the law.' In general, it can be understood that 'Tax is a mandatory contribution from individuals and legal entities to the State according to the level and time limit prescribed by law for public purposes'.

The above concepts illustrate that taxes possess the following basic characteristics:

(i) Compulsory: To cater to public spending needs, the State employs its political power to compel taxpayers to transfer a portion of their income to the state budget in the form of taxes. When transferring income, taxpayers do not specifically benefit from the transferred income in the form of taxes. Additionally, no one voluntarily pays for consuming public goods and services. Therefore, the mandatory nature of the tax income transfer is objectively inevitable.

(ii) Non-price comparison, not direct refund: Public goods and services are provided by the state to everyone based on common interests, community benefits, and national interests, without consideration for each individual's interests or needs. Taxpayers use public goods and services to varying degrees regardless of the amount paid in taxes. This implies that the tax amount paid does not correspond to the respective interests and needs of each individual or organization, which constitutes non-price comparison. Prior to tax payment, no public goods or services are provided by the state. After tax payment, the state does not offer any direct compensation to taxpayers. Instead, they indirectly receive compensation through public services provided by the state, such as security, social order, and public welfare. Therefore, tax is not directly reimbursable.

(iii) High legality: The political power of the state is manifested through laws established by the state. Joseph E. Stiglitz mentioned about the forced income transfer from taxpayers to the state: 'This forced transfer is akin to theft, with the only significant difference being that while both transfers are not voluntary, the transfer to the Government carries the cloak of legitimacy and respect bestowed by political processes.' The relationship between tax collection and payment by the government and the populace must be conducted based on legality, which is tax law. Thus, taxes are upheld by law; in other words, taxes are highly legal.

Although the concept of administration encompasses different aspects, the underlying concepts are all consistent with common administration principles:

(i) Administration is an organized and planned activity that is oriented toward a defined goal.

(ii) Within administration activities, there are always two basic groups: the group of administration subjects and management objects. If there is only one group, administration does not exist. The administration subject is always the group that has the right to give orders, while the administration object is the group that has the obligation to obey the administration subject's orders.

(iii) Control is an indispensable activity in the administration process.

Tax administration is a specific field of management, representing a form of state economic management associated with state power. It is a specialized management activity within the field of state administrative management. State administrative management refers to state management in the executive field, conducted by at least one party with state administrative authority in executive and administrative relationships.

According to the Tax Management textbook of the Academy of Finance, tax administration is the impact and management activity of the state on the fulfillment of tax obligations (declaration, tax calculation, tax payment) by taxpayers. Some scholars opine that tax administration is the directional influence of tax authorities and officials on taxpayers, using methods and tools prescribed by law to achieve management goals. Another viewpoint describes tax administration as a process of organizing and implementing tax policy by influencing government agencies, organizations, and citizens to ensure and enhance full and automatic compliance with tax obligations.

From the above concepts, the connotation of tax administration includes:

Firstly, the institution of tax administration is the State, encompassing:

(i) The legislature, responsible for building and installing the tax legal system (National Assembly).

(ii) Executive agencies managing tax collection (Government).

(iii) Specialized agencies assisting the executive agency (Ministry of Finance, Tax and Customs Agency) acting on behalf of the State, directly tasked by the government to organize and implement tax administration.

Secondly, the subjects of tax administration are taxpayers, including organizations and individuals with tax payment obligations.

Thirdly, the system of judicial agencies (People's Courts, People's Procuracy) assumes the role of judging and handling acts that constitute crimes related to tax laws committed under tax administration.

Fourthly, tax administration is organized into a unified system among state administration agencies, comprising tax lawmaking advisory agencies and tax administration organizations.

Fifthly, the overarching goal of tax administration is to ensure compliance with tax laws by both tax administration agencies and taxpayers in an ever-changing environment. Tax administration can have multiple goals, contingent on the will, perspective, and requirements of tax administration in each period.

Hence, tax administration is the process through which the state organizes the implementation of tax policy, primarily by influencing government agencies using the content, methods, and techniques of tax administration according to tax regulations. This ensures and enhances compliance with tax obligations by organizations and citizens, who are taxpayers.

2.2. Using ICT in tax administration

ICT is defined as computer-based tools adopted to work by people with the communication and information processing requests of an organization. It incorporates the network, computer software and hardware, and numerous other devices (such as photography, video, camera, audio) that translate information text, sound, images, and motion into digital form. According to Mary and Cox (2007), electronic and computerized devices associated with human interactive materials permit the user to use them for numerous deliveries of service and in addition to private use. ICT comprises devices, tools, and resources adopted to communicate, create, share, manage, and circulate information. These include hardware such as modems, cell phones, computers, software like computer programs, applications in mobile phones, and networks such as the Internet and wireless communications. They are principally concerned with processing, collecting, storing, and transmitting relevant information to aid the operations of management in an organization (Adewoye & Olaoye, 2014). This clearly suggests that ICT encompasses the involvement of electronic tools and devices that require command and input to operate. This also yields the advantages of delivering information through technological means. Collins (2005) defined ICT as equally a submission of applied science to commerce, technical method, industry, knowledge, and skills.

Assessing tax compliance risks of taxpayers as a basis for grouping taxpayers, classifying risks, and applying appropriate management measures according to the tax compliance model... it is necessary to apply ICT to support the process of collecting, processing, analyzing, and evaluating information. Processing vast amounts of data combined with a system of criteria and indicators to assess risks and classify tax compliance levels of taxpayers, the application of ICT can be said to be an objective reality and an indispensable requirement for achieving efficiency in tax administration. ICT application refers to the use of ICT in the field of socio-economics to improve the productivity, quality, and efficiency of these activities. Experts from the International Monetary Fund (IMF) have pointed out that a synchronized ICT system supporting tax administration according to each function is an important feature of tax system modernization.

To effectively apply ICT in tax administration, it is not merely a matter of specific individuals (tax administrators) utilizing their knowledge of ICT or the common practice of people's knowledge. The utilization of information technology by individuals in performing assigned tasks in tax administration must encompass the establishment and operation of a synchronized tax administration information system encompassing all basic tax administration functions. These functions include planning, organizing, leading, coordinating, controlling, and implementing specific measures to best achieve the purposes and requirements of tax administration. The study suggests that building a tax administration information system must meet several fundamental requirements:

Firstly, a strictly structured tax administration information system: In principle, any information system must maintain a strict structure, and the tax administration information system is no exception. However, due to the specific characteristics of tax administration, which experience frequent changes in administration requirements due to policy and cultural shifts, the need for a strict structure goes beyond ordinary requirements. The necessity for a strict structure is demonstrated through the establishment of clear, highly independent functional units (modules) and their ability to interconnect within the system.

Secondly, an open tax management information system: If an information system in general, or specifically a tax administration information system, can ensure a high level of structure as mentioned above, the study argues that a broader sense of structure encompasses flexible system operation. This flexibility means that the tax administration information system can be easily adjusted or modified in response to tax administration requirements without significantly impacting the system's operation. This adaptability enables the tax administration information system to accommodate changes in tax administration law, and this is what is meant by the system's openness.

The requirements of strict structure and openness in tax administration information systems are particularly crucial because the system's operation necessitates continuity and cannot afford interruptions. For instance, when there is a change in the tax declaration form or the addition of criteria for information about taxpayers, the entire system cannot pause to accommodate these changes.

Thirdly, requirements for the technical infrastructure of the tax administration information system: An information system can only be deemed effective when there is synchronization between administration application software and hardware infrastructure (information transmission network system, operating servers, and workstations). These two components constitute the technical infrastructure of the management information system. The tax administration information system must ensure this synchronization to be considered proficient in terms of technical infrastructure.

Fourthly, information security requirements of the tax administration information system: Information security involves organizing the processing, storage, and exchange of information in a way that guarantees confidentiality, integrity, availability, and reliability to the fullest extent. In the context of administrative information systems in general, and tax administration information systems in particular, with the aim of information security, the study suggests that aside from ensuring the design and physical technical infrastructure of hardware, tax management information system software needs to be designed and structured to enable clear and strict decentralization between required levels and administration needs. At the conceptual framework level, the study suggests the right decentralization to ensure information security, including: (i) System administration rights; (ii) Right to operate the system; (iii) Right to exploit system information.

Fifthly, human resource requirements for applying the tax administration information system: Regardless of how advanced the technical infrastructure of an administrative information system, especially a tax administration information system, is, without human influence, it remains inert. This system can only operate effectively when there are appropriate human resources fulfilling each requirement for administration, operation, and exploitation. Each requirement demands human resources with varying levels of ICT application. According to the ideology and viewpoints within this context: (i) For system administration requirements: individuals with comprehensive IT expertise are needed to ensure the physical operation of the system, including network administration and facility directory information management; (ii) For system operation requirements: Individuals are needed with a basic understanding of IT, especially in information technology application software and network communications, as they deal with common input information within the tax administration system; (iii) For system exploitation requirements: Individuals with a basic understanding of application exploitation are required, mainly focusing on office information exploitation levels and application software, as they handle information objects decentralized according to management functions.

3. Implementation of tax administration and tax administrative modernization in Lao PDR (2021-2023)

3.1. Tax administration

The implementation of the tax development plan in the past three years (2021-2023) aimed at aligning tax revenue collection with the economic and budget plans for each period. Simultaneously, a strategic plan has been outlined for the next five years (2021-2025). This plan involves the creation and enhancement of legislation, including two additional laws and several subordinate legislations, forming a robust foundation for taxation reform. Additionally, a focus on improving the organizational structure of the tax sector, enhancing the administration mechanism and taxpayer services for high efficiency, effective business management, and facilitating convenient, prompt, accurate, and fair taxpayer services. Awareness campaigns for taxpayers have been conducted to help them understand their obligations to comply with the law and establish a sustainable income base.

Efforts to improve taxation include personnel enhancements in both quantity and quality by utilizing modern tools in revenue collection, contributing significantly to economic and social development and fostering continuous growth. However, the taxation development plan for 2021-2025 faces various challenges. These challenges stem from global economic growth, domestic economic uncertainties, fluctuations in oil prices, exchange rates, and the impact of natural disasters. Particularly, the COVID-19 outbreak poses a substantial challenge. The government has responded by creating favorable conditions and offering preferential tariffs to businesses affected during the pandemic, especially in 2021. Nonetheless, the tax sector has also taken measures to ensure achieving revenue collection expectations.

During 2021-2023, there has been an increasing trend in tax income collection:

- In 2021: 11,290.6 billion kip was collected, representing 93.22% of the 2021 plan, a 14.5% increase compared to the previous year.

- In 2022: 14,031.47 billion kip was collected, equal to 97.3% of the annual plan, a 24.3% increase compared to the same period last year.

- In 2023: By April 30, tax income reached 5,258.9 billion kip, equal to 30.3% of the annual plan, a 29.3% increase compared to the same period last year.

Starting from 2022, the Tax Department began revenue collection from the state property and state-owned enterprise sectors, witnessing an increase in revenue. For instance:

- Property revenue collected 4,977.90 billion kip, equal to 128.1% of the annual plan.

- Revenue from the state enterprise sector totaled 1,850.07 billion kip, equal to 122.4% of the annual plan.

- By April 30, 2023, property income collected 1,878.3 billion kip, equal to 43.5% of the annual plan, showing a 116.4% increase compared to the previous year.

- State enterprise income collected 332.4 billion kip, equal to 28.4% of the annual plan, a 14.8% increase compared to the same period last year.

The tax sector development plan for 2021-2025 is a crucial foundation supporting and implementing the mission of tax revenue collection to ensure accurate and complete revenue collection into the budget, promoting the nation's development and economic growth.

The development plan for the tax sector for 2021-2025 revolves around five main development goals: (1) improving legislation, (2) enhancing taxpayer services, (3) effective taxpayer administration, (4) modernizing tax revenue administration, and (5) developing the capacity of officials and organizations.

3.2. Modernization of tax administrative reform

Another critical priority for the tax sector is the modernization framework, demanding serious attention to the financial strategic development plan aimed at reforming financial administration. Specifically, the modernization of the tax revenue collection system aims to enhance the efficiency, transparency, timeliness, and compliance with the law, creating more convenience for tax administration and those fulfilling obligations.

The implementation of TaxRIS is set to be completed nationwide, including in 12 special economic zones by 2023. Additionally, a mechanism is being developed to connect the TaxRIS system with the Automated System for Customs Data (ASYCUDA) to gather import data and monitor business unit activities. This involves connecting data from several ministries such as the Ministry of Interior, Ministry of Labor and Social Welfare, Ministry of Energy and Mines, Ministry of Natural Resources and Environment, Ministry of Planning and Investment, Ministry of Peace and Security, etc.

The government of the Lao PDR has outlined a goal to increase the utilization of electronic services. To achieve this, two overarching strategies, namely the master plan for digital transformation and the master plan for the digital economy, have been established. The Tax Department will continue its development to align with these services. Under the government's strategies, initiatives have been undertaken, such as the development of digital payment systems for micro-enterprise income tax to enhance convenience for businesses, avoiding the necessity of tax officials collecting taxes on behalf of taxpayers.

For individuals earning from freelance work or online shopping, the Tax Department has established the issuance of personal identification numbers through the PTIN system. This facilitates public requests for identification numbers and notification of their obligations through a mobile application. Additionally, the development of a system for collecting fees and service charges via IPOS equipment has been completed and officially launched at three points: Postal Department, Immigration Police Department, and Labor Recruitment Service Center. Recently, the development of the road toll collection system was completed and is being expanded locally.

The payment channel has collaborated to develop the M-money system as another channel for micro-enterprise income tax. Moreover, plans are in place to improve payments to the state budget through the central bank in 2023, acting as the central point for all banks to settle their obligations.

Recently, the Department of Financial Information Technology and Tax Department (Ministry of Finance) have concentrated on modernizing tax administration, developing ICT systems to serve effective tax administration and taxpayer services, aiming to increase tax compliance. Key efforts include:

** Establishing a centralized payment system for taxes, fees, and charges (FINLINK) through banks and mobile phones:*

- As a central system connected with the Bank of the Lao PDR's payment system.

- Signing a partnership agreement on October 6, 2022, between the Department of Financial Information Technology, Ministry of Finance, and the Department of Management of the Payment System, Bank of Lao PDR, to modernize revenue collection and disbursement through the FINLINK system.

- Issuance of agreement No. 3912/MOF, dated December 12, 2022, by the Ministry of Finance concerning the administration and use of the modern tax payment system, fees, and charges (FINLINK).

- Completing the consolidation of the tax sector's payment center (Easy Tax) into a unified channel supporting the payment of all revenue obligations.

* *Lao Financial Integrated Database and Analysis System:* The design and development are completed. Currently, the system is fully connected to databases within the Ministry of Finance, such as the ASYCUDA database, TaxRIS system, AMIS system, GFIS system. Additionally, a dashboard has been developed for statistical reports and income collection summaries, including imports and exports.

* *Tax Revenue Information System (TaxRIS):* Expansion of the TaxRIS system: Presently, there are 94 points operational (including Tax Departments, Vientiane Capital, 17 provinces, 3 cities, and 72 districts). Expansion plans include adding 54 cities and 6 special economic zones by the beginning of 2023. Among the 135,789 total business units in the country, 119,046 (87.7%) are registered in TaxRIS, with 64,563 units (47.6%) having submitted tax declarations through this system, totaling 12,224 billion kips, accounting for 67.9% of the capital.

* *Connection to the land management system:* The API creation for direct connection to the LaoLandReg V6 and V7 databases is complete. Efforts are underway to expand the payment channel at the village level, consulting with the Land Department and the developer company to create a system for collecting land taxes, transfer-related taxes (2%), fees, and other charges, payable through the FINLINK system.

* *Road toll collection system:* Testing is finished for connectivity to the TaxRIS system. Stickers have been printed for cash payments, linked to the RTIS system of the Treasury. Integration with the vehicle management system of the Ministry of Public Works and Transport has also been established.

* *Development of the IPOS fee and service collection system at budget units:* Currently operational in 7 units, including the Consulate General, Ministry of Foreign Affairs, Labor Management Department, Ministry of Labor and Social Welfare, Wat Thai Airport, Friendship Bridge 1, Vehicle Management Department, and Lao Thai Railway Station.

* *Asset Management Information System (AMIS):* Development and training for the system's use among officers and institutions surrounding the Ministry of Finance, as well as other ministries and similar organizations, are completed. The database now includes information on 6614 vehicles from all ministries (5987 with stickers attached), 74 contracts for electricity projects, 240 contracts for minerals, among others. Communication between TaxRIS and AMIS has been successfully established, allowing access to Taxpayer Identification Number (TIN) and electricity number information.

* *Tax payment system through mobile (M-Money):* Development in collaboration with Lao Telecom Corporation has concluded. According to agreement No. 1624/MOF dated June 6, 2022, tax payment through this system has commenced in 9 districts in Vientiane, and it's connected to the National Treasury system.

* *Completion of the display center, management and monitoring of the modern tax management system (TaxRIS Dashboard Monitoring).*

* *With the adoption of the modern system for tax revenue collection in 2022, revenue has increased by 25.30% compared to the previous year, amounting to an increase of 2,856.59 billion kip.*

* *Evaluate the weaknesses and shortcomings of modernizing tax administration*

- The development of the information system within the public financial sector remains scattered and decentralized, posing challenges for coordination in connecting and retrieving information for research and analysis, making it time-consuming.

- The administration system developed for tax revenue collection aims solely at facilitating online reporting and payments by businesses. However, there's a lack of communication with relevant sectors and comprehensive data analysis for effective management of the up-to-date tax revenue base.

- ICT infrastructure development within the financial sector, including database systems, computer equipment, Internet speed signals, and data communication networks, is yet to be centralized, adequately stable, and secure.

- The knowledge of financial sector staff in utilizing ICT tools, particularly at the local level, remains limited. Consequently, the system's usage does not align completely with the intended design and the bank's needs. The development, management, and maintenance of the system require specific knowledge and training to adapt to technological changes, restricting civil servants' deeper understanding of specific subjects as per the situation.

- Despite campaigns urging individuals, legal entities, and organizations to fulfill their self-notification obligations through the TaxRIS system as mandated by law, the actual compliance rate falls short of expectations.

- Moreover, the development and expansion of modern tools for revenue collection management are experiencing delays. Consequently, the implementation of a modern system for revenue base management hasn't covered all areas as intended.

- The overall use of POS sales recorders and services indicates that business units have not fully understood their purpose. Serious cooperation, comparison, and prolonged installation are lacking. Additionally, the system fails to meet the needs of all user business units, leading to a lack of user confidence. Tax officials have yet to master the use of appropriate measures.

4. Proposing Measures to improve tax administration modernization

The expansion of economic transactions amplifies the demands on tax administration. In line with this trend, Laos' tax administration model is gradually transitioning towards a mixed model that combines functional management with object-based management, integrating compliance management. Consequently, assessing and evaluating the risks associated with managed objects serves as a foundation for grouping taxpayers and categorizing risk elements to implement suitable management measures based on the tax compliance model. The utilization of ICT becomes imperative to aid the process of collecting, processing, and analyzing information. Hence, the application of ICT is not just inevitable but also imperative at a profound and extensive level. Extensive application refers to its widespread implementation across all facets of tax administration, while deep application signifies the integration of ICT in each aspect of tax administration. In this context, the study proposes the application of ICT in tax administration, encompassing the following key components:

Increase the use of information technology in the tax administration

The implementation of the TaxRis system marks a significant advancement in ICT applications as it replaces the former discrete applications. However, at its initial stages, TaxRis allows only basic tax information administration, such as lookup functions and support for preparing tax administration reports based on predetermined structures. Although it supports dynamic reporting functions, these functions are limited to a few information items and have restricted customization options for the set of input information fields from taxpayers' tax declaration records. Essentially, TaxRis's current dynamic reporting function is primarily focused on arranging the sequence of information and formatting output data.

Moreover, there is a necessity for a strategy to construct a data warehouse serving as an input database for smart data analysis functions. It's important to note that the term 'data warehouse' doesn't solely imply a server with extensive storage capacity for usual data storage purposes. In a broader context, a data warehouse encompasses not only a repository for storing vast amounts of data but also incorporates intelligent tools to transform and load data into the warehouse. Additionally, it involves the application of server and workstation virtualization technology to more efficiently harness system resources.

Increase the use of technology in the service of taxpayers

Tax organizations offer Level 4 online public services to taxpayers. Online public services encompass administrative and state agency services provided to both organizations and individuals within a network environment. There are four levels of online public service provision:

(i) Level 1 online public service: This level ensures complete information provision regarding administrative procedures and related documents governing those procedures.

(ii) Level 2 online public service: Building upon Level 1, this level allows users to download document and declaration forms to fulfill dossier requirements. Completed dossiers are then submitted directly or via post to the respective agency or organization.

(iii) Level 3 online public service: Extending Level 2, users can fill out and submit document forms online to the concerned agencies or organizations. Transactions in the process of document processing and service provision occur within the network environment. Payments (if applicable) and receipt of results take place directly at the agency or organization providing the service.

(iv) Level 4 online public service: Advancing from Level 3, this level enables users to make online fee payments. Results can be obtained online or delivered directly or via mail to the user.

Tax administrative procedures should concentrate on providing and enhancing service quality. This includes support for electronic tax declaration, electronic tax payment, electronic tax refund, and electronic invoices.

Promote the application of electronic invoices with authentication codes from tax authorities

The use of electronic invoices with tax authority authentication codes has become a widespread trend, experiencing rapid growth in numerous countries in recent years. As the pilot phase concludes, it's crucial to focus on addressing limitations and shortcomings early on, aiming to expand the implementation to involve a larger number of participating businesses.

The study highlights that to tackle this issue, one fundamental solution requiring attention is reform in the invoice authentication stage. Presently, invoice authentication is executed by authentication code issuers through two options: (i) a centralized system at the Tax Department or (ii) a dedicated device at the enterprise for issuing authentication codes.

The centralized model at the Tax Department suffers from limitations such as extended waiting times for authentication, which may compromise timeliness and disrupt taxpayer operations-especially in cases where numerous taxpayers issue invoices concurrently or continuously in substantial quantities.

Conversely, the device model for issuing authentication codes specifically at the enterprise demands employees to purchase this device. Notably, the authentication code generated from the device needs synchronization with the Tax Authorities. Any changes in Tax Organization authentication data input standards, be it due to technology upgrades or management requirements, necessitate officials to either replace the equipment entirely or incur additional costs for equipment upgrades from the manufacturer. This obstacle is currently a deterrent for taxpayers interested in authenticated electronic invoices.

Accordingly, instead of using physical authentication devices as currently, we should research towards developing software applications that allow creating authentication codes. Accordingly, this authentication code is of type OTP (One Time Password), which is a one-time password created by the authentication code generation system sent to the taxpayer via an electronic device connected to the internet such as an electronic computer, mobile phone. The taxpayer uses this in combination with the official password to authenticate the issuance of electronic invoices. In fact, OTP is currently widely used in electronic banking payment transactions. The response time of the OTP-type authentication code is very fast, usually only a few seconds after using and requesting a transaction, the authentication code is received from the system to continue completing the transaction.

5. Conclusion

It is concluded that ICT has a significantly positive and statistical impact on tax revenue generation in Lao PDR. The integration of ICT in tax collection has notably enhanced tax revenue in Laos. The increased revenue demonstrates the effectiveness of improved administration, made possible only through the adoption of ICT. According to this study, ICT emerges as a highly effective tool that amplifies tax income collection, effectively addressing revenue loss and boosting the efficiency and performance of tax revenue collections.

Additionally, the economic impact of implementing a digital tax system is considered favorable. It is important to remember that, regardless of the country's level of prosperity, without effective ICT implementation, the revenue obtained from taxation will merely vanish without reflecting in collections, ending up in the wrong hands.

Therefore, it is recommended that the government places significant emphasis on digital tax implementation by promoting good governance practices in ICT. A comprehensive accounting platform is essential to enhance the productivity of assigned tax authorities, enabling them to operate in a more accurate, effective, and accountable manner.

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