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LE THANH HAI

ASSET STRUCTURE TRANSFORMATION AT JOINT STOCK COMMERCIAL BANK FOR INVETSMENT AND DEVELOPMENT OF VIETNAM (BIDV)

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INTRODUCTION

1. RATIONALE OF THE STUDY

Commercial banks (CBs) are special types of enterprises operating in the fields of money, credit, and banking services, playing a central role in the functioning of financial markets and macroeconomic stability. As banking activities inherently involve various types of risks, commercial banks must simultaneously pursue two key objectives: enhancing profitability and ensuring safety. This challenge is concretized through the allocation and utilization of capital to form an appropriate asset structure. The outcomes and quality of this allocation process are reflected in financial statements, enabling managers to assess efficiency, safety, and sustainability, and to adjust strategies over time.

In Vietnam, the system of credit institutions has undergone several restructuring phases, in which asset structure transformation toward higher efficiency, lower risk, and greater sustainability has been a consistent focus. In this context, the Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV)—a large state-owned commercial bank that has been equitized and plays a key role in the system—has implemented significant restructuring during the period 2018–2024, particularly in terms of asset structure transformation, achieving notable results in scale, market share, and operational efficiency.

However, asset structure transformation at BIDV still reveals certain limitations, such as the imbalance between retail and SME segments, suboptimal industry and maturity structures, concentration risks in large customers, a tendency for non-performing loans to rise again, and relatively low net interest margins (NIM). These issues highlight the need for a systematic study to clarify the theoretical basis, assess the current situation, and propose appropriate solutions. Therefore, the doctoral candidate has chosen the topic: **"Asset Structure Transformation at the Joint Stock Commercial Bank for Investment and Development of Vietnam (BIDV)"** for the doctoral dissertation.

2. LITERATURE REVIEW

2.1. Overview of studies related to the dissertation

2.1.1. International studies

2.1.1.1. Studies on asset structure and asset structure transformation in commercial banks

International studies on structural transformation in the banking and financial sector often adopt a comparative approach across periods and quantify the degree of transformation using quantitative tools such as vector methods/cosine coefficients and decomposition measures. Some representative works focus on optimizing asset structures, trends in portfolio

restructuring across economic cycles, and the roles of capital, technology, and industry consolidation, and the impact of credit growth on macroeconomic stability. These findings provide important insights for approaching asset structure transformation in connection with efficiency, risk appetite, and the policy environment.

2.1.1.2. Studies on the relationship between asset structure transformation of commercial banks and their operational objectives

This group of studies examines the impact of loan portfolio structure and diversification on performance (ROA, ROE, NIM), risk, and stability. It employs indicators such as the Herfindahl–Hirschman Index (HHI) and portfolio "distance" measures to assess the degree of concentration or diversification. Some studies indicate that diversification can improve performance and reduce risk within an optimal range; however, excessive diversification may incur higher monitoring and management costs. These findings provide an important basis for developing a framework to evaluate asset structure transformation toward a balance between efficiency and safety.

2.1.2. Domestic studies

2.1.2.1. Studies on asset structure and asset structure transformation in commercial banks

In Vietnam, many studies on structural transformation have applied linear algebra approaches (vector/cosine methods) and indicators such as proportions, deviations, and decomposition techniques to quantify the degree of transformation. These studies also emphasize the importance of portfolio diversification, reducing dependence on a single asset component, and strengthening Asset–Liability Management (ALM/ALCO), funds transfer pricing (FTP), and management information systems to support portfolio management.

2.1.2.2. Studies on the relationship between asset structure transformation of commercial banks and their operational objectives

Domestic studies confirm that restructuring credit portfolios by segment and industry can significantly affect NIM and overall performance, while also requiring control of concentration risk. However, many studies remain limited to a few analytical dimensions (mainly industry-based), and have not fully integrated multiple dimensions such as customer segments, maturity structure, geographical distribution, and capital/liquidity constraints under Basel standards.

2.1.2.3. Studies on BIDV

Several dissertations and research projects on BIDV have approached the bank from perspectives such as competitiveness, operational efficiency, strategic management, and retail development alongside digital transformation. These studies provide valuable references on

BIDV's context, strategy, and internal challenges; however, they generally do not delve deeply into quantifying and evaluating the optimality of asset structure transformation under an integrated analytical framework.

2.2. Synthesis of Main Findings from Previous Studies Related to the Dissertation Topic

- **Theoretical aspects:** Previous studies have established a foundational framework for bank asset structure based on portfolio theory, interest rate risk management, and credit portfolio management. They emphasize the relationship between business strategy, asset structure, and profitability.
- **Practical aspects:** Empirical studies highlight the importance of comprehensive restructuring, non-performing loan resolution, capital strengthening, portfolio limit setting, the development of ALM/ALCO frameworks, and technological investment. In terms of solutions, the general trend focuses on portfolio diversification, increasing holdings of safe and liquid assets, promoting digital banking, and enhancing risk management capacity and performance monitoring through indicators/KPIs.
- **Policy and managerial implications:** Studies recommend that commercial banks reduce reliance on traditional lending, increase investments in safe and highly liquid assets, and diversify credit portfolios. In governance, it is necessary to improve ALM/ALCO frameworks, develop KPI-based portfolio monitoring systems, and standardize risk assessment. At the same time, banks should strengthen risk management capacity and apply digital technologies, Big Data, AI, and stress testing to optimize asset structure.

2.3. Research Gaps in Related Studies

2.3.1. Theoretical gaps

Most existing studies remain largely descriptive and have not developed a comprehensive theoretical framework or methodology to evaluate the optimality of asset structure transformation under Basel II/III constraints. They also have not fully integrated emerging drivers such as green finance, digital transformation, and non-interest income. In addition, many studies fail to simultaneously link scale, structure, performance, and capital/liquidity safety within a unified evaluation framework.

2.3.2. Practical gaps

There is a lack of comprehensive research analyzing asset structure transformation at BIDV during the 2018–2024 period in an integrated manner across treasury, investment, and lending activities, while linking these to profitability, capital adequacy, and liquidity under Basel II/III standards. Moreover, the degree of optimality and the underlying root causes have not been systematically quantified and evaluated.

2.4. Issues to Be Addressed by the Dissertation

2.4.1. Theoretical aspects

The dissertation focuses on clarifying the concept of asset structure in commercial banks and asset structure transformation under a modern approach. It analyzes transformation both at the level of activity groups and within each activity, develops a set of evaluation criteria covering both scale and quality, linked to profitability, capital adequacy, liquidity, and concentration risk, and identifies influencing factors from both internal bank conditions and the external environment within the context of Basel II/III standards.

2.4.2. Practical aspects

The dissertation collects and processes data to objectively assess the asset structure transformation at BIDV during the period 2018–2024. The analysis goes beyond describing changes in proportions by evaluating transformation quality in terms of performance, capital, liquidity, and risk diversification, thereby drawing conclusions on the rationality and sustainability of the transformation process.

2.4.3. Policy and solution aspects

Based on the research findings, the dissertation proposes a comprehensive system of solutions aimed at achieving an optimal balance among profitability, capital safety, liquidity, and sustainability. The focus is on restructuring credit, investment, and treasury portfolios; enhancing ALM capacity and management of concentration and maturity risks; promoting green credit and digital transformation; increasing non-interest income and capital efficiency, along with a roadmap and implementation and monitoring mechanisms toward 2030.

3. RESEARCH OBJECTIVES AND SCOPE

3.1. Research subject

The dissertation studies theoretical and practical issues related to asset structure transformation in commercial banks.

3.2. Research scope

The study focuses on asset structure transformation across major asset-generating activities, including treasury, lending, and investment. In particular, it provides an in-depth analysis of credit structure transformation by customer segments, economic sectors, maturity structure, credit quality, and concentration levels, in connection with green credit and digital transformation. The research is conducted at BIDV for the period 2018–2024, with proposed orientations and solutions up to 2030 and a vision to 2040.

4. RESEARCH METHODOLOGY

The dissertation applies the methodology of dialectical and historical materialism, combined with synthesis, statistical and comparative methods, and qualitative and quantitative analyses. It uses the Decomposition Measure to assess the degree of structural transformation and applies linear algebra approaches (vector/cosine methods) to quantify the intensity of structural shifts. In addition, a comprehensive evaluation approach based on optimization under Basel II/III constraints is employed to examine the balance among risk-adjusted profitability, capital adequacy, liquidity, and cyclical resilience.

5. RESEARCH QUESTIONS

Question 1: What is the theoretical foundation of asset structure transformation in commercial banks, and what factors influence this transformation process?

Question 2: How has asset structure transformation at BIDV evolved during the period 2018–2024, and to what extent is it optimal when evaluated simultaneously in terms of profitability, capital adequacy, and liquidity under Basel II/III?

Question 3: What solutions are required for BIDV to successfully implement asset structure transformation in the period 2025–2030?

6. SCIENTIFIC AND PRACTICAL SIGNIFICANCE AND NEW CONTRIBUTIONS OF THE DISSERTATION

From a scientific perspective, the dissertation systematizes and extends the theoretical framework of asset structure transformation, clarifies its content and transformation mechanisms, and develops a set of evaluation criteria covering both scale and quality, while incorporating the context of green finance and digital transformation.

From a practical perspective, the dissertation provides a systematic analysis of the asset structure transformation at BIDV during 2018–2024, identifying key achievements, limitations, and underlying causes. Based on these findings, it proposes a comprehensive and feasible set of solutions to promote asset structure transformation toward greater efficiency, safety, and sustainability in the coming period.

7. STRUCTURE OF THE DISSERTATION

In addition to the Introduction, Conclusion, References, and Appendices, the dissertation consists of three main chapters:

Chapter 1: Theoretical foundations of asset structure transformation in commercial banks.

Chapter 2: Current status of asset structure transformation at BIDV.

Chapter 3: Solutions for asset structure transformation at BIDV.

CHAPTER 1
THEORETICAL FOUNDATIONS OF ASSET STRUCTURE TRANSFORMATION IN COMMERCIAL BANKS

1.1. OVERVIEW OF ASSET STRUCTURE IN COMMERCIAL BANKS

1.1.1. Assets of Commercial Banks

Commercial banks are special types of enterprises engaged in monetary business, conducting all banking activities for profit. The assets of commercial banks (earning assets) represent all economic resources controlled by the bank, formed from mobilized funds and equity, and capable of generating future economic benefits.

A commercial bank's asset portfolio consists of four main groups: (i) treasury assets; (ii) loans; (iii) securities investments and equity investments; and (iv) other assets. Among these, loans usually account for the largest proportion and serve as the primary source of income, but also carry high credit risk. Securities investments and liquid assets play a role in risk and liquidity management, while fixed assets and other assets support long-term operational capacity.

1.1.2. Asset Structure of Commercial Banks

Asset structure reflects the proportion of different asset items within total assets and represents the bank's capital allocation strategy. It is a portfolio constructed according to specific criteria, reflecting the balance among profitability, risk, and liquidity.

The asset structure of commercial banks has several key characteristics: (i) diversity of asset items; (ii) dominance of financial assets; (iii) inherent high risks, particularly credit and liquidity risks; (iv) strict regulation by legal frameworks; and (v) flexibility in response to economic cycles.

Asset structure can be classified into various categories, including treasury structure; loan structure (by maturity, industry, customer segment, concentration level, green credit orientation, and distribution channels—with digitalization as a key focus); investment structure; and other asset structures. Each classification serves different management and risk control purposes.

1.2. ASSET STRUCTURE TRANSFORMATION IN COMMERCIAL BANKS

1.2.1. Concept

Asset structure transformation refers to the process of adjusting the proportions of asset components within the overall portfolio over time, in line with profitability objectives, risk

appetite, and regulatory requirements. This is a proactive process that reflects the bank's portfolio management capability and adaptability to the business environment.

1.2.2. Significance

Asset structure transformation enables banks to:

(i) optimize the relationship between profitability and risk;

(ii) adapt to market and policy changes;

(iii) diversify portfolios and reduce concentration risk;

(iv) implement business strategies; and

(v) enhance capital efficiency and competitiveness.

1.2.3. Approaches to Asset Structure Transformation

Asset structure transformation is conducted through two approaches:

1.2.3.1. Passive transformation: arising from changes in the economic environment, policies, or customer behavior.

1.2.3.2. Active transformation: planned and implemented through a structured process including target-setting, execution, risk monitoring, and adjustment.

In modern banking models, institutions employ quantitative tools such as RAROC, ICAAP, stress testing, Asset–Liability Management (ALM), and Funds Transfer Pricing (FTP) to ensure that transformation follows the principle of optimizing risk-adjusted returns within capital and liquidity constraints under Basel II/III standards.

1.2.4. Content of Asset Structure Transformation

1.2.4.1. Overall Asset Structure Transformation under Basel II/III

Based on theoretical foundations and Basel II/III standards, asset structure transformation aims to optimize profitability and risk within capital and liquidity constraints. The theoretical framework includes three internal drivers and one external supervisory mechanism.

The three internal drivers include: (i) adjusting the asset portfolio among lending, investment, and liquidity to optimize RAROC; (ii) managing risk through internal rating systems and stress testing to improve asset quality; and (iii) reshaping customer strategy to reduce average risk weights and enhance capital efficiency.

Externally, the Basel II/III framework—with its pillars on capital adequacy, supervisory review, and market discipline, along with liquidity standards such as LCR and NSFR—guides banks to maintain high-quality assets and balance profitability, capital, and liquidity.

1.2.4.2. Asset Structure Transformation within Individual Activities

- Treasury structure transformation
- Loan structure transformation

  Within each activity, transformation occurs along several dimensions:

  (1) Customer segments

  (2) Economic sectors

  (3) Maturity structure

  (4) Capital concentration levels

  (5) Green credit orientation

  (6) Distribution channels (with digitalization as a central focus)
- Investment and equity participation structure transformation
- Other asset structure transformation

1.2.5. Criteria for Evaluating Asset Structure Transformation

The evaluation is conducted based on two groups of criteria:

1.2.5.1. Evaluation of Asset Structure Transformation by Scale

(1) Change in the proportion of each asset category in the portfolio

The formula is as follows:

$$\mathbf{G(T_i) = T_i(n) - T_i(o)}$$

Where:

- **$G(T_i)$:** the measure of the degree of structural change of asset item *i*;
- **$T_i(n)$:** the proportion of asset item *i* at the study period;
- **$T_i(o)$:** the proportion of asset item *i* at the base period.

If **$G(T_i) > 0$**, the proportion of asset item *i* has increased, implying that the bank is allocating more capital to this category.

If **$G(T_i) < 0$**, the proportion has decreased, indicating a reduction in capital allocation.

If **$G(T_i) = 0$**, the proportion remains unchanged.

(2) Ratio and coefficients of asset structure transformation

- **Asset structure transformation ratio using the vector method (Kts):**

The vector method provides a quantitative approach to measuring the similarity or difference in asset structure between two points in time.

Where:

- **$S_i(t)$:** proportion of asset *i* (%);
- **Φ:** the angle between two structure vectors $S(t_0)$ and $S(t_1)$.

The larger **cosΦ**, the more similar the asset structures; conversely, a smaller value indicates greater divergence.

To intuitively assess the magnitude of structural transformation, the angle Φ can be compared with its maximum deviation. The transformation ratio is calculated as:

$$\mathbf{Kts = \Phi \times 100 / 90°}$$

(Φ is converted from radians to degrees)

A higher **Kts** indicates a greater degree of structural transformation, and vice versa [37].

- **Decomposition-based structural transformation coefficient (Dm):**

This coefficient is used to evaluate the degree of structural transformation as follows:

$$\mathbf{Dm = \Sigma\, p_i(t_1) \times \log\,[p_i(t_1) / p_i(t_0)]}$$

Where:

- $\mathbf{p_i(t_1)}$**:** proportion of asset *i* at time t_1;
- $\mathbf{p_i(t_0)}$**:** proportion at time t_0.

A higher **Dm** indicates a greater level of transformation, while a lower value implies limited change.

The average transformation coefficient is denoted as **Xdm**, calculated by:

$$\mathbf{Xdm = (Dm_1 + Dm_2 + \ldots + Dm_n) / n}$$

Where:

- **Xdm:** average Dm;
- **n:** number of periods.

If **Dm > Xdm**, the asset structure has undergone significant transformation; otherwise, the change is relatively minor.

(3) Herfindahl–Hirschman Index (HHI)

HHI is used to measure the degree of concentration of an asset portfolio or a given object of analysis.

(i) **HHI based on portfolio value:**

For a portfolio consisting of *n* groups (industries, customers, regions, etc.):

$$\mathbf{HHI = \Sigma\, s_i^2}$$

Where:

- $\mathbf{s_i = x_i / X}$**:** proportion of group *i*;
- $\mathbf{x_i}$**:** size of group *i* (loan balance or investment value);
- $\mathbf{X = \Sigma\, x_i}$**:** total portfolio size.

(ii) **Risk-weighted HHI:**

This reflects risk concentration rather than purely value concentration:

$$\mathbf{HHI^{RWA} = \Sigma\, w_i^2}, \text{ where}$$

$$\mathbf{w_i = (s_i \times RW_i) / \Sigma(s_k \times RW_k)}$$

(iii) **Normalized HHI (NHHI):**

$$\mathbf{NHHI = (HHI - 1/n) / (1 - 1/n)}$$

This index allows for comparison across portfolios with different numbers of groups.

1.2.5.2. Evaluation of Asset Structure Transformation by Quality Criteria

- **Performance indicators**

The performance of commercial banks is commonly measured by key indicators such as Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity (ROE). These indicators are directly influenced by the structure of interest-earning assets and the level of risk associated with them. High-quality asset structure transformation is understood as the reallocation from low-yield but highly safe assets (primary reserves) to higher-yielding assets with controlled risk, while simultaneously diversifying income sources to reduce dependence on net interest income.

- **NIM (Net Interest Margin)**
- **ROA, ROE**
- **Non-interest income indicators:** including service fees, payments, guarantees, foreign exchange trading, card services, and digital banking

International studies indicate that increasing the share of non-interest income reduces profit sensitivity to interest rate and credit cycles, while providing more stable income with lower capital consumption under the risk management logic of Basel II and Basel III.

- **Asset quality and risk indicators**
- Non-performing loan (NPL) ratio
- Loss-given default ratio (or ratio of loss-capable debts)
- Investment quality (overdue or impaired bond investments/total investment value)
- **Capital adequacy and liquidity indicators**
- **Capital Adequacy Ratio (CAR):**

$$CAR = \frac{\text{Regulatory Capital}}{RWA + 12{,}5 \times (K_{OR} + K_{MR})} \times 100\%$$

Where:

- **RWA:** Risk-weighted assets;

- **KOR:** Capital requirement for operational risk;
- **KMR:** Capital requirement for market risk;
- **Regulatory Capital:** total capital available to absorb losses.

A higher CAR indicates a stronger ability of a commercial bank to withstand unexpected economic shocks, while a lower CAR may signal potential risks and require capital strengthening or reduction in risk-weighted assets.

- **Liquidity indicators**
- Treasury position indicators
- Liquidity reserve ratio
- NSFR (Net Stable Funding Ratio)
- IRRBB (Interest Rate Risk in the Banking Book)
- Counterparty risk concentration management
- **Framework for evaluating "optimal" asset structure transformation**

Based on Basel II/III standards and the regulatory framework of the State Bank of Vietnam, the theoretical framework for evaluating optimal asset structure transformation is built on three pillars: profitability, capital adequacy, and liquidity.

First, in terms of profitability, asset structure directly affects NIM, ROA, and ROE. An optimal transformation involves reallocating from low-yield assets to higher-yielding assets while maintaining risk control and not weakening liquidity indicators. At the same time, improving credit quality and increasing non-interest income enhances performance without excessively increasing risk assets.

Second, regarding capital adequacy, based on the CAR formula, credit expansion must be accompanied by controlling the growth of risk-weighted assets (RWA) and increasing low-risk assets to maintain capital stability.

Third, in terms of liquidity, under Basel III, asset structure must ensure compliance with LCR and NSFR requirements. Reducing primary reserves is only appropriate when replaced by high-quality liquid assets (HQLA) such as government bonds or central bank bills.

The optimal evaluation framework consists of three layers: compliance with State Bank regulations; alignment with Basel III standards; and achievement of risk-adjusted economic efficiency (RAROC, RWA density, liquidity cost).

Asset structure transformation is considered sustainably optimal when it simultaneously ensures capital and liquidity standards, improves NIM–ROA–ROE–RAROC, controls concentration risk, and maintains stability across economic cycles. Therefore, the

evaluation of optimality must answer three key questions: whether the new structure improves efficiency, maintains capital and liquidity safety, and ensures long-term sustainability.

1.2.6. Influencing Factors

1.2.6.1. External factors

- Regulatory framework and supervisory requirements
- Development of financial markets
- Macroeconomic policies
- Economic cycles
- Returns from alternative investment channels

Among these, the regulatory framework has the strongest systemic and mandatory impact.

1.2.6.2. Internal factors

- Business strategy and management capacity
- Financial strength
- Risk management systems and internal rating frameworks
- Technology and data capabilities
- ALM and FTP mechanisms

Among these factors, business strategy plays the most fundamental guiding role.

1.3. EXPERIENCE AND LESSONS FOR BIDV

Experience from Vietcombank, VietinBank, Techcombank, and Citibank shows several common trends:

Firstly, diversifying asset portfolios toward improving profitability with controlled risk.

Secondly, optimizing funding costs by enhancing CASA in conjunction with digital transformation.

Thirdly, developing non-interest income as a key pillar supporting sustainable growth.

Fourthly, modernizing risk management in line with Basel II/III standards. Fifthly, restructuring assets based on the principle of balancing profitability and safety.

Based on these experiences, key lessons for BIDV include: rebalancing the asset portfolio toward efficiency, safety, and sustainability; improving credit quality; optimizing capital based on RWA; increasing holdings of high-quality liquid assets; and modernizing risk management.

CONCLUSION OF CHAPTER 1

Chapter 1 has developed a comprehensive theoretical framework on asset structure and asset structure transformation in commercial banks under a modern approach aligned with Basel II/III. The dissertation has clarified key concepts, contents, approaches, evaluation criteria, and influencing factors, while also drawing lessons from both domestic and international practices.

This theoretical framework serves as the foundation for analyzing the current status of asset structure transformation at BIDV during the 2018–2024 period in the subsequent chapters of the dissertation.

CHAPTER 2
CURRENT STATUS OF ASSET STRUCTURE TRANSFORMATION AT THE JOINT STOCK COMMERCIAL BANK FOR INVESTMENT AND DEVELOPMENT OF VIETNAM

2.1. OVERVIEW OF THE JOINT STOCK COMMERCIAL BANK FOR INVESTMENT AND DEVELOPMENT OF VIETNAM

2.1.1. Formation and Development Process of BIDV

2.1.2. Organizational Structure and Management System of BIDV

2.1.3. Key Business Performance of BIDV

- Total assets
- Equity
- Mobilized funds
- Lending activities
- Operational efficiency

During the period 2018–2024, BIDV achieved significant progress, with strong growth in total assets, credit, and mobilized funds, and notable improvement in profitability driven by a safer credit structure, enhanced risk management, and income diversification.

However, challenges remain in improving efficiency, managing restructured loans, and increasing CASA. In particular, improving NIM remains a key priority for BIDV to narrow the performance gap with leading banks, while maintaining its role as a pillar of Vietnam’s financial system.

2.2. CURRENT STATUS OF ASSET STRUCTURE TRANSFORMATION AT BIDV

2.2.1. Asset Structure Transformation at BIDV in Terms of Scale

2.2.1.1. Overall Asset Structure Transformation by Scale

During the 2018–2024 period, BIDV maintained asset growth with a structure primarily dominated by customer lending, while gradually increasing securities investment

and flexibly managing treasury activities in line with liquidity conditions. The proportion deviation indicators show that structural changes were implemented in a controlled manner. Indicators such as Dmts, Kts, and cosΦ suggest that the asset structure by activity did not experience significant fluctuations but was adjusted cautiously within the bank's safety framework and management capacity. Therefore, the rationality of asset structure transformation needs to be further evaluated through quality-based criteria, particularly the relationship among efficiency, risk, and liquidity.

In terms of overall performance, the restructuring of liabilities and the flexible implementation of FTP have contributed to reducing the cost of funds and improving risk-adjusted margins. NIM increased from approximately 2.65% to nearly 2.90%; ROA rose from 0.52–0.55% to around 1.0%; ROE improved from 12–13% to 18–19%, while CAR showed moderate improvement. This indicates that asset structure transformation at BIDV is not merely an expansion in scale but rather the result of capital allocation based on RAROC and Basel II/III-oriented management toward safety and sustainability.

2.2.1.2. Asset Structure Transformation at BIDV by Asset Categories

(1) Treasury Structure Transformation

During the period 2018–2024, treasury assets at BIDV fluctuated significantly, reflecting flexible liquidity management under the influence of reserve requirements and the centralized ALCO/ALM–FTP mechanism. The proportion of treasury assets increased sharply in 2019 (from 4.62% to 10.03%) to strengthen liquidity, then declined to 4.07% in 2020 as credit expansion was prioritized, and fluctuated between 3.7% and 6% during 2020–2024. Cash holdings remained low (approximately 1–1.3%), indicating effective centralized fund management. Indicators such as Dmnq, Knq, and cosΦ confirm controlled adjustments with internal structural shifts in a proactive direction consistent with Basel II/III.

In terms of income, interest from deposits at the central bank accounted for a negligible share, while interest from interbank deposits and lending played a dominant role, with total operating income increasing accordingly. However, the treasury income transformation coefficient remained low and cosΦ was close to 1, indicating a stable income structure oriented more toward liquidity assurance than profit maximization. Overall, the reduction of primary reserves, increase in secondary reserves, and centralized FTP/ALM operations have helped BIDV optimize funding costs, support NIM, and maintain liquidity safety.

(2) Transformation in Investment and Equity Participation Activities

During 2018–2024, BIDV's securities investment activities were flexibly adjusted to balance liquidity, yield, and capital safety within the Basel II/III framework. Indicators such

as Dmđt, Kđt, and cosΦđt show that the portfolio remained relatively stable for most of the period, with more significant adjustments during 2020–2021 in response to interest rate cycles.

The investment structure gradually shifted from government bonds to securities issued by reputable credit institutions to enhance yield while maintaining risk control. Interest income from securities increased significantly, confirming the growing importance of investment activities, with available-for-sale securities playing a dominant role, while securities issued by other economic organizations declined sharply after 2021.

Meanwhile, BIDV's investment portfolio during this period tended to prioritize safe and highly liquid assets rather than being designed as a strategic profit-generating component within the overall balance sheet.

Equity investments in subsidiaries and affiliates remained relatively stable, focusing mainly on entities within the bank's ecosystem, reflecting a long-term orientation and prudent capital allocation. Changes were largely technical rather than strategic, consistent with regulatory constraints and higher capital requirements under Basel. Overall, BIDV's investment and equity portfolio has been managed in a stable and selective manner, ensuring a balance among risk, capital, and profitability while supporting sustainable development.

(3) Loan Structure Transformation

During 2018–2024, BIDV maintained controlled credit growth within the Basel II/III framework, with outstanding loans increasing from VND 988 trillion to VND 2,018 trillion (CAGR of approximately 12.6%), alongside portfolio restructuring toward optimizing RWA, CAR, and NIM.

By customer segment, the bank reduced the share of wholesale lending (from 67% to 56%), significantly lowered exposure to large corporates, and increased retail and FDI lending. The HHI by customer segment decreased (from 0.292 to 0.266), and dependence on the top 20 customers declined to around 9%, indicating improved concentration risk management.

By industry, BIDV reduced exposure to real estate, BOT projects, and mining, while increasing lending to trade and services. The wholesale HHI declined but remained at a moderate level due to the still significant share of trade and industry. In retail lending, the structure shifted toward individual business activities and secured loans, with a decreasing HHI. By maturity, short-term loans increased to 65.1%, enhancing liquidity safety but limiting long-term margin optimization.

Credit quality improved significantly until 2021 (NPL ratio at 0.8%) before rising slightly to 1.27% in 2024, with retail lending performing better than wholesale/SME segments. Green credit expanded rapidly (VND 75.7 trillion; approximately 3.75% of total loans) with very low NPLs (~0.06%), supporting CAR, though still highly concentrated in the renewable energy sector.

Digitalization initiatives (RLOS, STP, iBank, SCF) have supported retail credit growth and improved operational efficiency. Non-interest income has become more diversified, with HHI decreasing from 0.33 to 0.24, reducing dependence on net interest income (approximately 72% in 2024).

However, the portfolio has not yet reached optimal diversification due to the continued dominance of wholesale lending and certain traditional sectors; the maturity structure remains skewed toward short-term lending; pressure from special mention loans and NPLs has increased since 2022; and green credit development and digitalization processes are not yet fully end-to-end.

For the period 2025–2030, BIDV needs to further reduce concentration, increase the proportion of medium- and long-term loans at an appropriate level, strengthen credit quality, and deepen digitalization and non-interest income generation to simultaneously optimize RWA, NIM, and CAR.

2.2.2. Asset Structure Transformation by Quality Criteria

2.2.2.1. Profitability

During the period 2018–2024, BIDV gradually reduced its reliance on net interest income and increased non-interest income, with the NII/Total income ratio declining to approximately 72% in 2024. Profitability indicators improved significantly: NIM increased from 2.65% to 2.9%; ROA rose from 0.52% to 1%; and ROE increased from 12% to 19%. These results are associated with asset structure transformation toward reducing low-yield treasury assets and increasing retail/SME lending and high-quality securities investment, thereby enhancing overall profitability.

2.2.2.2. Asset Quality and Risk

The non-performing loan (NPL) ratio declined sharply during 2018–2021 (from 1.6% to 0.8%), then rose slightly to 1.27% in 2024 due to cyclical factors. Retail and green credit segments exhibit better asset quality compared to wholesale lending. Overall, BIDV's asset quality is maintained at a relatively good level within the banking system, though there remains room for further improvement.

2.2.2.3. Capital Adequacy and Liquidity

- **Capital Adequacy Ratio (CAR)**

BIDV has maintained CAR above regulatory requirements and complied with Circular 41 despite rapid asset growth. Equity increased through retained earnings and Tier 2 capital instruments. The asset structure prioritizes secured retail lending, FDI enterprises, and government bonds, helping to control RWA; however, CAR remains at a moderate level among large banks.

- **Liquidity**

Liquidity indicators consistently exceed State Bank of Vietnam (SBV) requirements, with LDR and the ratio of short-term funding for medium- and long-term lending remaining within control limits. The portfolio of government bonds and SBV bills, accounting for approximately 8–11% of total assets, serves as a secondary liquidity reserve. The shift toward income-generating liquid assets helps optimize both liquidity and capital efficiency.

2.2.2.4. Evaluation of Optimality in Asset Structure Transformation at BIDV

The "optimality" framework is assessed against two layers of standards: SBV regulations (liquidity ratios, LDR, short-term funding for medium- and long-term lending) and Basel III standards (CAR, LCR, NSFR, HQLA, IRRBB).

The results indicate that BIDV is approaching a state of "proactive safety": reducing low-yield primary reserves, increasing secondary reserves and HQLA, and reallocating toward income-generating assets while maintaining all indicators within control limits.

All SBV regulatory thresholds are met; LCR reached 100.1% and NSFR 106.3% in 2024, reflecting sound maturity matching and a solid HQLA base (13–20% of total assets, with securities investment accounting for 8–11%). However, CAR remains around 9.3–10.4%, indicating limited capital headroom. The increase in securities issued by credit institutions may raise interest rate sensitivity if IRRBB is not properly managed.

The structure of lending and the ratio of short-term funding for medium- and long-term lending (20–26%) are close to optimal in terms of maturity risk but still reflect a cautious stance. Non-interest income has become more diversified (HHI decreased from 0.33 to 0.24), supporting internal capital generation and reducing RWA consumption.

Overall, BIDV has achieved a "near-optimal" state; however, for sustainable optimization, it is necessary to increase Tier 1 capital, strengthen Level 1 HQLA, and enhance IRRBB and counterparty risk management.

2.3. ASSESSMENT OF ASSET STRUCTURE TRANSFORMATION AT BIDV

2.3.1. Achievements

Firstly, asset structure transformation has been implemented in depth.

Secondly, the policy and procedural framework supporting asset transformation has been developed in a comprehensive and consistent manner, closely linking risk discipline with profitability objectives.

Thirdly, risk management and credit management have improved significantly, approaching Basel standards.

Fourthly, the asset structure has been rebalanced toward simultaneously optimizing liquidity, profitability, and capital safety.

Fifthly, compliance with regulatory safety ratios has been strictly maintained.

2.3.2. Limitations and Causes

2.3.2.1. Key limitations

Firstly, concentration risk and portfolio optimality under the Basel logic of "return–risk–capital" still have room for improvement:

(i) Credit quality has been under pressure from increasing provisioning after 2022, with rising special mention loans and NPLs affecting RAROC and CAR;

(ii) The structure by customer segment and industry has not yet reached target levels, with some cyclical sectors still accounting for significant shares, implying concentration risks and the need for stricter stress testing and industry limits;

(iii) The maturity structure remains skewed toward liquidity safety, with medium- and long-term lending not yet optimized for yield, raising the challenge of balancing LCR/NSFR with NIM and IRRBB;

(iv) Exposure to related customer groups remains significant amid tightening regulatory limits, requiring more proactive management of credit limits, syndicated lending, and RWA allocation to avoid capital pressure.

Secondly, green credit still accounts for a small proportion, SME lending has not increased significantly, and ESG risk management frameworks need to be further aligned with Basel standards. At the same time, digitalization is not yet fully end-to-end in wholesale banking, with fragmented processes affecting productivity and the effectiveness of operational and data risk control.

Thirdly, the structure of capital utilization remains heavily reliant on traditional lending; the level of balance sheet and income diversification (particularly fee income, high-

quality liquid assets, and low-RWA activities) is not commensurate with the bank's scale, making profitability more sensitive to interest rate cycles and funding costs.

Fourthly, BIDV's NIM remains relatively low compared to banks with strong CASA and fee income advantages, narrowing profitability margins, reducing the buffer for absorbing risk costs, and limiting the economic effectiveness of the shift toward retail and SME segments .

Fifthly, BIDV's investment portfolio is still oriented toward safe and highly liquid assets rather than being designed as a strategic profit-generating component within the overall balance sheet .

2.3.2.2. Causes of the Limitations

The limitations in BIDV's asset structure transformation can be attributed to the **ineffective application of portfolio management approaches under Basel II/III**, leading to slow development of green credit, FDI lending, and medium- and long-term credit, while concentration risk persists and NIM improvement remains limited .

Firstly, the transformation process remains largely reactive to market movements and short-term targets rather than based on scenario planning and portfolio optimization. This results in constraints on medium- and long-term lending due to complex procedures, risk aversion, and liquidity pressure; slow industry restructuring due to rigid limits; reduced competitiveness in FDI lending due to high USD FTP and suboptimal foreign currency funding under NSFR; slow development of green credit and SMEs due to the lack of risk-based pricing and incentives; slow CASA growth due to insufficient incentive mechanisms; and underdeveloped non-interest income and investment portfolios due to the absence of scenario-based management .

Secondly, the decentralized credit model, multi-layer approval processes, and lack of integrated technology systems reduce the effectiveness of digitalization, especially in wholesale banking, resulting in dual processes, fragmented data, and limited real-time portfolio management capabilities .

Thirdly, credit appraisal and customer management remain inadequate, relying heavily on customer disclosures and lacking data tools, thereby increasing concentration risk and weakening portfolio monitoring aligned with risk appetite .

Fourthly, the implementation of strategies across units is not fully synchronized and remains focused on short-term objectives, while forecasting and industry analysis capabilities are insufficient, slowing portfolio adjustment across economic cycles .

Fifthly, uneven human resource quality and data–technology capacity limit the application of Basel tools such as modeling, stress testing, and risk-based pricing .

Sixthly, weak coordination among units, with localized optimization by function, undermines overall portfolio management and prolongs concentration risks .

In addition, external factors such as global economic volatility, declining asset markets, credit growth caps, geopolitical risks, digital transformation pressures, and inconsistent macroeconomic policies increase funding costs, portfolio risks, and limit the bank's ability to proactively optimize its asset structure under Basel standards.

CONCLUSION OF CHAPTER 2

Based on the theoretical framework established in Chapter 1, Chapter 2 provides a comprehensive analysis of asset structure transformation at BIDV during the period 2018–2024 in the context of economic volatility and restructuring requirements under Basel II/III, aiming to assess the level of optimality when considering profitability, capital adequacy, and liquidity simultaneously.

The dissertation evaluates transformation in terms of scale and structure (treasury, credit, investment, etc.), identifying trends such as the reduction of low-yield assets, increased allocation to income-generating assets, and portfolio diversification associated with risk control. At the same time, indicators such as NIM, ROA, ROE, CAR, LCR, NSFR, and asset quality are analyzed in an integrated manner to assess optimality not only in terms of profitability but also capital safety and liquidity.

Based on this analysis, Chapter 2 identifies key achievements, limitations, and underlying causes stemming from both internal factors and the macroeconomic environment, thereby providing a practical foundation for Chapter 3 to propose orientations and solutions for asset structure transformation at BIDV in the period 2025–2030 toward efficiency, safety, and sustainability.

CHAPTER 3

SOLUTIONS FOR ASSET STRUCTURE TRANSFORMATION AT THE JOINT STOCK COMMERCIAL BANK FOR INVESTMENT AND DEVELOPMENT OF VIETNAM

3.1. SOCIO-ECONOMIC CONTEXT AND ORIENTATION FOR ASSET STRUCTURE TRANSFORMATION AT BIDV TO 2030, WITH A VISION TO 2040

The global and domestic environment is undergoing significant volatility, requiring BIDV to proactively adjust its asset structure, capital allocation, and risk management in line with Basel standards.

3.1.1. Socio-economic context

3.1.1.1. Global context:

High interest rates, trade protectionism, and geopolitical risks exert pressure on exchange rates and capital flows. At the same time, digitalization and green finance are dominant trends, requiring BIDV to strengthen ALM, ESG practices, and technological investment.

3.1.1.2. Domestic context:

Economic growth, FDI inflows, and infrastructure development create opportunities for credit expansion; however, real estate and interest rate cycles still pose risks. BIDV needs to prioritize manufacturing, FDI, and the digital economy while controlling exposure to sensitive sectors.

3.1.1.3. Trends in key economic sectors:

Renewable energy, manufacturing, digital technology, and consumer services are the main growth drivers, while real estate requires cautious management.

3.1.1.4. Banking sector outlook:

Digital banking, non-interest income, and sustainable finance will shape the sector during 2030–2040. BIDV must enhance Basel III compliance and expand green credit.

In summary, adaptation to digitalization, ESG, and global integration will determine the success of BIDV's sustainable asset structure transformation.

3.1.2. Orientation for asset structure transformation at BIDV

3.1.2.1. Overall orientation and perspective

For the period 2025–2030, with a vision to 2050, BIDV identifies asset restructuring as a central strategic priority, drawing lessons from 2018–2024 when certain high-risk sectors revealed the limits of rapid growth. The new orientation is based on the principles of safety, efficiency, and sustainability, aligned with Basel III and ESG standards, without sacrificing long-term stability for short-term growth. By 2030, BIDV aims to achieve a more balanced credit structure (retail/SME around 50%), enhance non-interest income and digital capabilities; in the long term, it targets becoming a smart digital bank with regional and international competitiveness.

3.1.2.2. Specific orientation

During 2025–2030, BIDV positions itself as a "gateway bank" for FDI and a key partner in infrastructure and renewable energy financing, aiming to lead green and digital credit ecosystems in Vietnam and rank among the top banks in Southeast Asia in terms of scale and efficiency. The focus is on increasing the share of retail, SME, FDI, and green credit annually; prioritizing high-tech industries, logistics, and industrial real estate; and strictly controlling high-risk sectors.

At the same time, the bank will optimize RWA and concentration limits in line with Basel III, and accelerate end-to-end digitalization (eKYC, STP ≥70% in retail) during 2025–2030, creating a foundation for modern governance and enhancing competitiveness toward 2040–2050.

3.2. SOLUTIONS TO PROMOTE ASSET STRUCTURE TRANSFORMATION AT BIDV

3.2.1. Solutions to Enhance Target-Setting Capacity and Governance of Asset Structure Transformation

This is the top-priority group, forming the foundation for the effectiveness of all other solutions. BIDV's main limitation lies in setting and quantifying targets and managing the transformation process from headquarters to branches, leading to fragmented implementation and short-term orientation.

Under Basel II/III, this group directly addresses Pillar 2 (risk appetite, risk-based capital allocation, and portfolio monitoring), establishing an operational framework for CASA, credit, income diversification, liquidity, and supporting solutions.

BIDV needs to shift from reactive management to proactive scenario-based governance and risk-based capital allocation through four pillars:

(i) developing a target framework linked to CAR, RAROC, and risk-adjusted ROE;

(ii) designing target structures based on scenarios and updating them periodically;

(iii) standardizing portfolio policies and limits and strengthening internal rating systems;

(iv) building real-time portfolio dashboards integrated with stress testing.

The roadmap for 2025–2030 includes: foundation building (2025–2026), synchronized implementation (2027–2028), and full Basel III alignment (2029–2030).

3.2.2. Solutions to Enhance Loan Structure Transformation

The focus is on CASA development, segment-based lending, medium- and long-term credit, credit quality, green finance, and digitalization, aiming to optimize RWA and RAROC, control concentration risk, and increase non-interest income.

3.2.3. Solutions to Transform the Business Model under Basel II/III

BIDV should transition to a multi-pillar model: stable credit as a foundation and services/investment as growth drivers. By 2030, the target is to reduce NII to around 60% and increase non-interest income to 40%, through services such as cash management, guarantees, bancassurance, FX/hedging, and green finance.

3.2.4. Solutions to Improve Investment Structure Efficiency

Investment should be positioned as a key pillar in balance sheet management, consisting of:

(i) core HQLA (government bonds);

(ii) yield-adjustment layer;

(iii) strategic investments.

The medium-term goal is to increase the contribution of investment and subsidiaries to 15–20% of total income.

3.2.5. Solutions to Enhance Liquidity Management

BIDV should shift from compliance-based to proactive liquidity management using ALM/FTP, HQLA, LCR, and NSFR, supported by real-time monitoring and stress testing.

3.2.6. Supporting Solutions

Six key enabling pillars include:

(i) market analysis and forecasting;

(ii) capital strengthening (Tier 1, CASA, long-term funding);

(iii) risk-based pricing and capital allocation (RAROC);

(iv) improving income transparency;

(v) centralized governance (ALCO);

(vi) digital and data infrastructure modernization.

3.3. POLICY RECOMMENDATIONS

3.3.1. Recommendations to the Government

Reform SME support systems and policy institutions; develop a market-based debt trading framework; restructure VAMC to accelerate NPL resolution and capital reallocation.

3.3.2. Recommendations to the State Bank of Vietnam

Adjust monetary policy to reduce funding costs; stabilize exchange rates; accelerate restructuring of weak banks; promote green finance policies; and enable state-owned banks to increase capital.

CONCLUSION OF CHAPTER 3

Based on the theoretical framework in Chapter 1 and empirical findings in Chapter 2, Chapter 3 proposes a comprehensive solution system for asset structure transformation at BIDV for 2025–2030, with a vision to 2040.

The dissertation defines clear objectives and orientations for portfolio restructuring toward higher-quality income-generating assets, improved risk control, and capital optimization. Six key solution groups are proposed, emphasizing governance capacity, ALM, FTP, and RAROC-based performance evaluation.

At the same time, institutional recommendations are made to facilitate full Basel III implementation. These solutions provide a practical framework for enhancing capital efficiency, strengthening financial stability, and improving competitiveness.

GENERAL CONCLUSION

Asset structure transformation toward optimizing the risk–return relationship is a strategic requirement for commercial banks in the context of economic volatility and increasingly stringent Basel II/III standards. For BIDV, the period 2018–2024 required balancing its role as a systemically important bank with the need for portfolio restructuring to improve capital efficiency and risk resilience.

From a theoretical perspective, the dissertation systematizes an integrated framework for asset structure transformation, clarifying its concepts, approaches, and evaluation criteria across three pillars: profitability, capital adequacy, and liquidity.

From a practical perspective, the study provides a comprehensive analysis of BIDV's transformation during 2018–2024, highlighting achievements and remaining limitations in risk-adjusted efficiency and diversification.

Based on these findings, the dissertation proposes solutions for 2025–2030 with a vision to 2040, focusing on ALM improvement, risk-based capital allocation, concentration control, green finance, and digital transformation.

The research contributes both theoretically and practically to BIDV and other Vietnamese commercial banks in their transition toward Basel III standards.

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LIST OF THE AUTHOR'S RELATED SCIENTIFIC PUBLICATIONS

1. **Le Thanh Hai** (2025), *Shifting Investment Capital toward Green Credit at the Joint Stock Commercial Bank for Investment and Development of Vietnam*, Industry and Trade Journal, No. 10, February 2025.
2. **Le Thanh Hai** (2025), *Forecasting Development Trends in the Finance–Banking Sector and Recommendations for Loan Portfolio Restructuring at Vietnamese Commercial Banks*, Economic and Forecasting Review, No. 05, March 2025.
3. **Le Thanh Hai** (2025), *The Relationship between the Macroeconomic Environment and Credit Structure Transformation at BIDV*, Economic and Forecasting Review, February 2025 issue.
4. **Le Thanh Hai** (2025), *Credit Quality at the Vietnam Bank for Agriculture and Rural Development – Tu Liem Branch*, Journal of Finance and Accounting Research, No. 285, Issue 1, April 2025.
5. **Le Thanh Hai** (2022), *Proposing a Model to Assess Customer Satisfaction with E-Banking Service Quality*, Industry and Trade Journal, No. 4, March 2022.
6. **Le Thanh Hai** (2006), *On the Evaluation of Foreign Exchange Business Performance in Commercial Banks*, Financial and Monetary Market Review, No. 7, April 2006.
7. **Le Thanh Hai** (2005), *Evaluating the Effectiveness of the Exchange Rate Transmission Channel in Monetary Policy Management in Vietnam*, Banking Review, No. 12, December 2005.