

Assessing The Profitability And Risk Management Of Listed Banks In Vietnam

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Abstract

Instructions providing basic guidelines for preparing an abstract paper for the “ICECH2024 - The 12nd International Conference on Emerging challenges: Sustainable Strategies in the Data – Driven Economy” are presented. This document is itself an example of the desired layout for the abstracts. Therefore, please use it as a template while editing the manuscript. It is recommended that the abstract contains 200-250 words.

Research purpose:

This research explores bank risk management using quantitative and qualitative methods. It uses financial ratios, trend analysis, comparative analysis, and regression analysis to understand patterns and relationships with bank risk profiles. The study also reviews external forces affecting the banking sector using Porter's five forces model. The research also investigates profitability determinants for listed banks using financial data and regression analysis. The findings may help bank managers, regulators, investors, and policymakers make informed decisions.

Research motivation:

The banking sector is a key sector in economic development, yet it is one that is influenced by both the external environment and its own strategy. Rising global uncertainty, unexpected external shocks and internal weaknesses have raised concerns about commercial banks in Vietnam, especially their profits and risks – which may decide the fate of a bank. This study aims to examine how commercial banks in Vietnam manage their risks to make profits as well as offer some implications and recommendations for them.

Research design, approach, and method:

We employ both qualitative analysis and quantitative analysis of panel data from 20 listed banks in Vietnam by using Stata.

Main findings:

The Vietnamese banking sector is competitive, driven by numerous players, market saturation, low switching costs, and aggressive marketing tactics. Determinants of bank profitability include bank size, debt-to-equity ratio, deposit-to-asset ratio, and loan-to-deposit ratio. Scale, leverage, and asset-liability management are crucial in determining profitability. The increasing trend in loan-to-deposit and equity-to-asset ratios reflects an increased focus on risk management and growth aspirations.

Practical/managerial implications:

Banks must continuously innovate and optimize their operations to maintain their edge. The study highlights the importance of understanding bank profitability and risk-taking for policymakers, regulators, and bank managers. It emphasizes the need for strategic agility, technology, product diversification, and customer service to maintain a competitive advantage. The research also helps monitor financial ratio trends and advises banks to optimize asset-liability structures for profitability maximization. Policymakers should promote competition, capitalization, and risk-taking behavior to mitigate systemic risks and maintain financial stability.

Keywords: Profitability determinant factors, risk managements, risk ratio, competitive environment, Porter's five forces model.

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D. Nguyen Van et al. (eds.), *Proceedings of the International Conference on Emerging Challenges: Sustainable Strategies in the Data-driven Economy (ICECH 2024)*, Advances in Economics, Business and Management Research 320,

https://doi.org/10.2991/978-94-6463-694-9_31

1. INTRODUCTION

The banking sector is a key sector in economic development, yet it is one that is influenced by both the external environment and its own strategy. This thesis ventures into an analysis of this very complex sector, into the comparative environment, risk appetite, and profitability of listed banks in Vietnam—a dynamic developing economy. The importance of banks for economic growth is established, as they hold the pivotal role of mobilizing savings and channeling them into productive investments, thus fueling economic activity (Levine, 1997). Besides, a sound and efficient banking system is needed to maintain financial stability and mitigate systemic risks (Diamond & Dybvig, 1983). Vietnam, with its dynamic developing economy and reforming financial landscape, is an attractive case for studying the dynamics of the banking sector. The Vietnamese banking industry has experienced remarkable changes in recent years, fueled by regulatory reform, technological progress, and increasing competition (Vo, 2018).

This research, which starts with prior knowledge in accounting, auditing, and finance, plans to make a detailed analysis of the Vietnamese banking sector. In the context of listed banks, this study will explore the interaction between environmental factors and internal driving forces that shape the risk appetite of banks and their profitability in Vietnam. We will also look at how the internal characteristics of banks, such as size, ownership structure, and management practices, relate to their risk appetite and ultimately to their profitability (Berger & Mester, 1997).

In the past few years, Vietnam has had strong economic development driven primarily by its industrialization, export-oriented manufacturing, and foreign direct investment (Vu, 2020). The Vietnamese government's introduction of several structural changes to promote economic growth and attract investment has made Vietnam a more attractive location for enterprises and investors (Tran, 2019). Improvements in infrastructure, regulation, and investor engagement have all contributed to the changing face of Vietnam's financial markets (Phan, 2021). These changes are indicative of changes that mark the nation's transformation into an emerging market-typical, more developed financial system. Vietnam's status as an emerging market is also well reflected in its placement in many emerging market indexes. The banking system in Vietnam during the middle 2010s was marred by large volumes of Nonperforming Loan (NPLs). The bad debts accumulated due to lax lending and poor risk management in previous years. Smaller banks were on the verge of insolvency, threatening to drag down the financial system of the whole country. To put an end to this crisis, the State Bank of Vietnam (SBV) used a consolidation approach. Rather than let these sick banks down, which could have triggered a cascading effect throughout the entire financial system, the SBV orchestrated those banks' acquisitions by SCB, a larger bank and relatively less unhealthy opposite their acquired peers. Indeed, the price tag of 0 VND was more or less symbolic. SCB did not actually pay any cash for the acquired banks, just their liabilities and NPLs. The government then gave its financial support to SCB in order for the latter to be able to manage the acquired assets as well as to recapitalize.

These 0 VND bank acquisitions were, in themselves, unconventional and controversial as a solution to the banking crisis. While the action may have helped stabilize the sector and prevented further spillover into the economy as a whole, it has also created issues of moral hazard and the use of public resources. To what extent the acquisitions have affected the competitiveness, efficiency, or both of Vietnam's banking sector is a matter of further debate in the long term. The Vietnamese banking sector is not just an industry but forms the basis for economic development in a country. The health and performance of this sector have a direct impact on the good life and performance of the businesses, individuals, as well as the whole economy. The ratio of outstanding credit debt to GDP in Vietnam has shown a consistent upward trajectory from 89.7% in 2015 to over 125% in 2022. This indicates a substantial credit expansion within the economy, fueling economic activity but also raising concerns about debt sustainability and potential financial vulnerabilities (World Bank, 2024). As banks are fundamental but indispensable companions in economic growth and are destined to play their part in ensuring access to credit, mobilizing savings, and managing risks for Vietnam in achieving its prosperity. In this research, we will present an in-depth analysis of financial data and consider case studies to present the Vietnamese banking sector in sharper focus. Implications will be drawn for policymakers, regulators, and bank managers on the challenges and opportunities the banking sector faces in such a rapidly changing environment.

The remainder of the paper proceeds as follows: Section 2 provides a thorough review of the literature; Section 3 focuses on model specification, data description; Section 4 discusses the results and Section 5 concludes the paper with policy implications and recommendations.

2. LITERATURE REVIEW

2.1. Banks and their roles in an emerging market

Banks are one of the leading financial intermediaries that help borrowers find advantageous investments; this financial activity is crucial to maintaining the health of the financial system and the economy. Even though Vietnam has continuously pursued its foreign policy of independence, peace, cooperation, and development, emerging countries are more susceptible to financial instability because of their increased openness to outside influences, notably foreign capital flows (Mishkin & Eakins, 2016). As the “backbone” of the economy, the banking sector plays an essential role main.

2.1.1. The banking sector as a first line of defense against the threat of financial crises

The seeds of a financial crisis are frequently sown when a nation liberalizes its domestic financial systems by

removing restrictions on financial institutions and markets, opens its economy to capital flows and financial firms from other countries, or financial globalization in the case of an emerging market economy (Sufi & Taylor, 2022). When there is a huge disruption to the information flows in the financial markets and the financial markets stop operating, the financial frictions are significantly increased. This is known as a financial crisis. Even though these developing markets have experienced phenomenal growth in the last ten years, more recent data reveals that several of these nations' growth rates have slowed down (Parboteeah & Cullen, 2017). Those nations most vulnerable were emerging market nations, which in the 1990s opened their markets to the outside world in the hopes of reducing poverty and achieving fast economic development. Instead, a number of these countries went through crippling financial crises comparable to the American Great Depression (Mishkin & Eakins, 2006). Globalization has its positives and negatives. For example, globalization might help in the exchange of workers' talents in the place of work, reduce monopolistic profit, allow businesses to run business abroad, etc. However, when the market becomes more globalized, there is increased competition. The globalization of the economy has made companies vulnerable in the areas that require more managerial and technological capabilities. Therefore, there are quite a number of pros and cons to the globalization of the economy.

Severe and long-lived downturns in economic activity are associated with financial crises. It is thus no wonder that the causes of financial crises have been investigated quite extensively (United Nations, 2014). Though crises in financial markets are forecast to take place every three to five years, this aspect does not reduce the need to determine the precise immediate causes of the crisis. Prior to the crisis, the budget deficit was merely 0.7% of GDP, a deficit figure most developed nations would love to attain. Additionally, prior to their crises, the East Asian countries enjoyed budget surpluses (Mishkin & Eakins, 2016). To be more specific, developing nations are more susceptible to financial crises due to their vulnerability to external shocks and, at times, fragile economic institutions. This vulnerability is attributed to several variables, some of which could be understood to point out potential threats. At the event of a financial crisis, investors tend to shift their portfolios from riskier assets, such as those in developing markets, to safer alternatives (Fratzscher, 2012). This sudden capital flight may lead to a sharp depreciation of the local currency, thereby raising the import costs and increasing inflationary pressures. Most emerging economies rely on external financing to fund development projects and to sustain economic growth. However, too much borrowing can easily result in a high debt-to-GDP ratio (Kose et al., 2019). At times of crisis, it becomes more challenging to service this debt, more so if revenues have decreased due to currency devaluation or economic contraction (Manova, 2013). Most emerging nations rely on exports as an essential driver of their economic growth. During a time of global financial crisis, the economy usually slows down, and export receipts decline along with worldwide demand. This can cause disastrous impacts on the economies of developing markets, particularly those heavily reliant on the export of commodities or manufactured goods.

According to Claessens and Kodres (2014), financial institutions in emerging markets might lack robust frameworks of regulation and management of risk to compare with those in the advanced countries. This puts them in a position where they are likely to have bank runs and systemic failures in case a crisis looms, not just because of a lack of liquidity but because of bankruptcy. The currencies in emerging markets tend to be volatile relative to critical reserve currencies such as the US dollar or the euro (Dell'Ariccia et al., 2012). Such volatility may also become increased by a financial crisis, which may cause an exchange rate to suddenly fluctuate, thereby hindering investment and trade flows. Social dissatisfaction and political uncertainty may increase as a result of economic crises in the developing world (Geddes et al., 2014). Weak frameworks of governance and corruption may exacerbate these issues, thereby making it hard for governments to take appropriate policy actions.

Because of the frequent role of banks as the key intermediaries between savers and borrowers and as crucial conduits for allocating capital throughout the economy, they often are implicated in financial crises in emerging countries. Sometimes, they are the trigger-pullers. Banks in emerging markets are sometimes responsible for fueling credit booms by lending too much money to people and companies, thereby piling up debt imbalances (Bruno & Shin, 2014). This can lead to the fragility of the financial system, especially if loans are made without sufficient risk assessment or collateralization. This could result in currency mismatch: that is, banks in emerging markets borrow foreign currencies and use them to grant domestic loans (Ostry et al., 2019). They may have to depend on external financing sources, such as foreign borrowing, to pay for such activities. Subsequently, they may become more vulnerable to sudden stops or reversals of capital inflow in times of stress, which could further exacerbate financial instability (Carvalho et al., 2016). Their exposure to exchange rate risk can also create a problem of shortage of liquidity and solvency, especially during times of currency devaluation (Jeanne & Korinek, 2010).

After financial crises, governments often try to stabilize the banking industry and restore confidence (Cull et al., 2014). Policy solutions may include deposit guarantees, capital injections, liquidity support, and regulatory reforms aimed at improving bank resilience and reducing systemic risks according to Demirgüç-Kunt et al. and their associates. Involvement of banks in financial crises could be exacerbated by lax supervision and governance of the regulatory framework. Risky practices of the banks, such as regulatory arbitrage and off-balance-sheet transactions, may pose a threat to financial stability (Barth et al., 2013). Contagion effects may lead to disturbances in an emerging market's banking sector, which in turn may spill over to other sectors of the economy. Lending may be reduced by banks, which in turn makes the economy contract and deepens the financial crisis (Claessens et al., 2010). Barth et al. (2013) argue that maintaining financial stability and preventing banking crises require sufficient supervision and regulation. Lax oversight, weak enforcement, and poor regulatory frameworks all create opportunities for vulnerabilities to build up and increase the

potential for financial instability (Cull & Martínez Pería, 2013).

Banks can be one of the most significant financial crisis prevention mechanisms in developing economies. Risk distribution, liquidity provision, and adherence to strict regulatory requirements make banks great financial system stabilizers and mitigate the potential for financial crises (Mohapatra & Singh, 2019). Afsar and Qayyum (2017) explored the contribution made by the banking industry to improving financial stability in emerging market economies. Their findings showed that the banks' capital and regulation play an essential role in moderating the impact of external shocks and preventing financial crises. Banks provide liquidity under adverse financial conditions, which helps stabilize financial markets. In the paper "Fear of Fire Sales and the Credit Freeze" by Diamond and Rajan's (2011) stresses how significant banks are to provide liquidity during crises, prevent asset fire sales, and mitigate the depth of financial crises.

Banks facilitate credit intermediation by facilitating savers and borrowers to transfer money, which boosts investment and economic growth. Claessens and Van Horen (2014) emphasize that banks effectively distribute credit, especially in developing countries where credit can be constrained. Banks perform a very important role in the management of risk by assessing and controlling liquidity, market, and credit risks. Indeed, several empirical studies from Beck et al. (2013) have shown that highly regulated and supervised banks are able to control risks and reduce the likelihood of financial crises. Banks spread risks around and stabilize the financial system, hence sustaining general financial stability. According to studies by Demirgüç-Kunt and Detragiache in 2002, deposit insurance programs can improve financial stability by lowering the risk of systemic banking crises and bank runs. A strong regulatory framework is necessarily required for banks to play the role of the first line of defense against financial crises. According to Levine in 2004, efficient regulation and oversight have particular significance for financial stability and growth. Finally, it is evident from the research that banks, particularly those backed by strong regulatory frameworks, are crucial in preventing financial crises in emerging markets, as they perform risk management and credit intermediation, provide for liquidity, and ensure overall financial stability.

2.2. The Impact of External Forces on Banks

Banks are susceptible to many external factors that greatly influence their good operations. Some economic factors include GDP growth and inflation, which affect demand for loans and default rates. There are regulatory requirements concerning additional capital requirements that affect the way banks conduct their business and profit from it. Technological changes, geopolitical influences, and market volatility are strongly associated with risk perception and the opportunities of banks. A public health emergency and natural disasters bring along other challenges of disrupting operations and increasing credit risk. Banks have to constantly monitor the external influences and adjust themselves to these complexities in order to remain stable and profitable.

2.2.1. Economic conditions

The emerging economic conditions could have profound effects on banks in a number of ways. The credit quality and default risks are affected by emerging economic conditions for banks. Economic downturns of those economies can potentially increase borrower defaults, possibly affecting the asset quality and profitability of banks (Cetorelli & Goldberg, 2012). Emerging economic conditions affect the demand for lending as well as interest rates. Economic growth in emerging markets would be expected to increase demand for loans, thus banks would be willing to lend more money. Nevertheless, weak economic conditions may be expected to reduce demand for loans as well as intensify the criteria for giving out loans (Beck et al., 2008). Emerging economic conditions would affect the profitability as well as bank performance; bank profitability in the emerging markets is positively affected by economic growth. However, the performance of the banks may be challenging due to economic instability and unpredictability (Agoraki et al., 2011). Bank operations and risk management procedures are influenced by the changing regulatory environment, often created in response to emerging economic situations. Even though changes in the regulatory environment seek to enhance the stability of the financial sector and strengthen the stability of banking systems in emerging economies, banks are likely to incur more expenditure in terms of compliance costs with these new regulations (Demirgüç-Kunt et al., 2018). Despite the general notion that the expansion of banking industries and rapid growth in many developing countries is an unequivocal blessing, studies by Claessens et al. (2010) have shown that during periods of rapid growth and risk-taking, economic booms in the developing world can be associated with increased systemic risk in the banking industry. On the contrary, recessions tend to increase systemic risk and financial instability. Various measures exist to assess the state of the economy.

2.2.2. Political stability and Regulatory environment

2.2.2.1. Political stability

Bank performance and operation rely greatly on political stability, especially within emergent countries where political unpredictability could have strong influences on investor confidence, economic conditions, and the setting of regulatory frameworks. Political stability would boost investor confidence and spur capital inflows into emerging countries. Gelb et al. (2014) established a positive relationship between political stability and foreign direct investment (FDI) inflows, portfolio investment, and total economic development. Political stability influences the nation's creditworthiness and sovereign risk, which influences the rate at which banks can borrow and their risk exposures. Systemic risk is increased by political unrest within the banking sector and leads to the erosion of customer trust. According to Laeven & Valencia (2013) and Cihak et al. (2013), political unrest is associated with heightened systemic risk, heightened banking sector volatility, and a greater potential for financial crises. Political stability decreases

uncertainty and thus bolsters firm confidence, which aids in adequate loan disbursement and increased economic growth.

Under the leadership of the Communist Party of Vietnam, the country has, to some extent, been able to maintain a modicum of political stability, which has helped create an enabling environment for economic growth. The predominance of CPV has created continuance and consistency in governance and forms the definition of political stability within Vietnam (World Bank, 2021). A centralized process of decision-making and the CPV's domination over essential institutions have enhanced the stability and predictability of the political climate within the country (Tran, 2018). The political stability has helped the Vietnamese banking industry due to the associated increase in investor confidence and support for economic growth. Political stability is conducive to greater inflows of Foreign Direct Investment (FDI) and could help further stimulate bank lending operations and fuel credit growth (Vu et al., 2016). For example, Vietnam's stable political environment has made it easier to implement prudent macroeconomic policies, regulatory reforms that enhance the banking sector, and implement innovations in the financial sector. The efforts by the government to enhance financial stability, promote governance, and address the challenges of non-performing loans are documented in various ADB studies. Financial stability and depositor confidence rely on political stability, which in turn sustains public trust in banking systems. Research done by Pham and Nguyen (2020) emphasizes how political stability is critical to the development of financial resilience and the mitigation of systemic risks in developing nations like Vietnam.

2.2.2.2. Regulatory environment

Banks in emerging economies are much affected by the regulatory environment, determining their operations, risk management strategies, and their general performance. Compliance costs might disproportionately be more significant for banks in developing nations due to less established regulatory frameworks and more uncertainty. Because of the immense administrative load, banks are subjected to higher regulatory compliance (Allen & Carletti, 2013). Prudential rules, especially capital adequacy standards, are the main determinant of the protection of banks' stability. Higher capital requirements increase financial stability in emerging economies by reducing the possibility of bank failures (Demirgüç-Kunt & Huizinga, 2010). Regulatory restrictions affect bank credit allocation decisions about lending practices. In developing countries, regulatory restrictions concerning the exchange of credit information make it difficult for SMEs to get loans to expand their businesses. Consumer protection regulatory frameworks are essential in maintaining the confidence of the public in the banking sector. By lowering the information asymmetries and ensuring equal treatment to customers, regulations fortify consumer protection in emerging nations and support financial inclusion and stability (Claessens & Van Horen, 2014).

Regulatory programs that guide financial inclusion positively affect the uptake of banks. Regulatory reforms encourage mobile and agent banking, making it easier to access financial services in emerging nations, particularly among marginalized groups (Beck et al., 2013). Efficient systems for oversight and governance keep the banking sector stable. Strong structures of regulation and oversight enhance financial stability by reducing bank fragility and systemic risk in developing nations (Barth et al., 2013). Ensuring the stability and resilience of banks, the SBV, the central bank of Vietnam, lays down prudential rules and capital adequacy standards. Some of these rules relate to minimum capital ratios, risk-weighted asset assessments, and liquidity restrictions. The SBV regulates lending practices and credit distribution to control credit growth, systemic risk, and build up vital sectors of the economy. The rules include loan-to-deposit ratios, sectoral lending limits, and guidelines for credit risk management influencing the bank's lending decisions and portfolio compositions. Vietnam's regulatory frameworks provide for consumer protection measures and norms on market conduct as a way of safeguarding the interests of bank clients. The SBV publishes rules on disclosure, fairness, and openness in order to improve trust in the financial system. In a bid to promote financial inclusion and increase banking penetration, the Vietnamese government has also promulgated regulatory policies aimed at targeting most deprived and rural areas. Policies promoting digital financial services, agent banking, and mobile banking will increase the accessibility of banking services to all sections of society (State Bank of Vietnam, 2021). The SBV keeps the banking sector under check using governance and oversight procedures, ensuring adherence to rules, assessment of risks, and maintenance of financial stability. Supervisory operations include the implementation of prudential requirements, off-site monitoring, and on-site inspections (State Bank of Vietnam, 2021). Generally, the regulatory framework of Vietnam is important in shaping the operations and behavior of banks towards realizing inclusive economic growth, consumer protection, and financial stability.

2.2.3. The competitiveness of the environment

The banking industry in Vietnam is very competitive because of a multitude of variables, as it is affected by the regulatory environment, market structure, technology, and stability of the economy. In Vietnam, the banking industry is made of international, state-owned, and joint-stock commercial banks. Joint-stock and foreign banks have a better competitiveness because they offer a better variety of services and innovative products, although state-owned banks still hold dominance in the market by assets and deposits (Thanh et al., 2020). Luu (2020) presents the competitive strategies adopted by Vietnamese banks in harnessing technology and improving customer experiences. Technological innovation is one of the leading factors in the increasing competitiveness of Vietnam's banking industry, as banks invest in digitization, internet banking, and mobile payment solutions. Moreover, the Vietnamese government has identified increasing financial inclusion as one of its top goals, and banks are expanding their services to more disadvantaged communities and locations. Increasing competition and extending access to banking services, the paper pushes for more agent banking, mobile banking, and digital financial services (Nguyen et al., 2019). Increasing financial inclusion, technology developments, and

changed regulatory policies are driving the changing competitiveness of the banking industry in Vietnam. Industry competitiveness is further expected to increase, benefiting customers and supporting economic growth, although there are several challenges to be overcome, such as the management of non-performing loans and governance.

2.3. The internal dynamic of banks

The internal dynamics in banking organizations are the structures, procedures, culture, and tactics that define the performances and operations of banks. Understanding these internal dynamics should enable the assessment of a bank's overall efficacy, flaws, and strengths. This paper will consider two aspects: the financial performance and risk management.

2.3.1. Financial performance

The most critical determinant of the bank's internal dynamics is the financial performance. It embeds asset quality, efficiency, profitability, liquidity, and capital sufficiency measures. Analyzing the financial performance metrics helps in gauging how the bank has performed in terms of profitability, risk-bearing, and value generation for its shareholders. Rose and Marquis (2018) believes that assessment of financial performance criteria, such as capital adequacy, profitability, and liquidity, is required to render a bank a success. Numerous variables and indicators that evaluate banks' financial performance and profit-generating efficiency are used to determine how profitable a bank is. A selection of the more well-known ones is shown in Table 1.

Table 1: The profitability indicators

No.	Name of the indicator	Measurement	Brief description	Reference
1	ROA	$ROA = \text{Net Income} / \text{Average Total Assets}$	The effectiveness of generating profits from assets	(Brigham & Ehrhardt, 2017)
2	ROE	$ROE = \text{Net Income} / \text{Average Shareholders' Equity}$	The return generated for shareholders' equity, representing the profitability of the bank's equity investment.	(Brigham & Ehrhardt, 2017)
3	Bank Size	$SIZE = \text{Log (Total Assets)}$	The expansion, financial health, and performance over a specified period.	(Anggari & Dana, 2020)

Source: Authors' compilations

The two most common financial ratios used to analyze bank profitability include Return on Assets and Return on Equity. ROA reflects a bank's efficiency in using assets in generating profit, and ROE reflects the returns generated for shareholders' equity. These metrics can be easily extracted from the financial statements and can be used as a basis for easy comparison among banks and across time (Bhattarai, 2021). However, recent research points out a number of limitations of basing bank profitability analysis on ROA and ROE. Dietrich and Wanzenried (2014) record that these ratios can seriously be influenced by accounting choices and risk-taking behavior, which are not fully captured by the measures of these ratios. In addition, Demirgüç-Kunt et al. (2020) indicate that other factors include bank size, capitalization, and macroeconomic conditions. Therefore, despite the fact that both ROA and ROE are important measures of bank profitability, recent literature is adamant that these metrics should be used in conjunction with other financial and non-financial metrics if bank performance is to be thoroughly and effectively understood. After all, a holistic approach considering multi-dimensional measures is crucial for a better grasp of the complex dynamics involved in profitability within banks in the current financial landscape.

2.3.2. Risk management

When it comes to evaluating risks for banks, there are a few important things to consider. Risk ratios provide a systematic and quantitative way to keep track of the different types of risks that banks face, like operational, interest rate, liquidity, and credit risks. By regularly monitoring these ratios, stakeholders can spot potential risk exposures and take necessary steps to minimize them (Mishkin & Eakins, 2016). Before investing, shareholders and investors look at the risk management procedures and overall financial position of banks using these risk ratios. Strong risk ratios are seen as more reliable and stable, which can help banks raise capital and boost investor confidence (Ross, 2008). By evaluating these ratios, banks can figure out how to distribute their capital effectively across different business lines and activities. They can optimize their capital allocation to maximize profitability while keeping an acceptable level of risk, based on the risk-return profiles associated with each activity (Saunders & Cornett, 2017). Using risk ratios to evaluate risk is crucial for banks. It helps them monitor, manage, and reduce risks, stay compliant with regulations, increase investor confidence, allocate capital wisely, and plan strategically.

Table 2: The risk ratios

No.	Name of the indicator	Measurement	Brief description	Reference
1	Loan-to-Deposit Ratio (LDR)	$LDR = \frac{\text{Total Loan}}{\text{Total deposit}}$	the proportion of a bank's loans to its deposits, indicating the bank's reliance on deposits for funding its lending activities.	(Mishkin & Eakins, 2016)
2	Debt to Assets Ratio	$DAR = \frac{\text{Total Debt}}{\text{Total Assets}}$	Company's financial leverage and risk	(Brigham & Ehrhardt, 2017)
3	Debt to Equity Ratio	$DER = \frac{\text{Total Debt}}{\text{Total Equity}}$	Company's financial leverage and risk in equity holder's perspective	(Brigham & Ehrhardt, 2017)
4	Deposit to Assets ratio	$DEAR = \frac{\text{Total Deposit to Customer}}{\text{Total Assets}}$	Assessing a bank's funding structure, liquidity, and risk profile.	(Carbo Valverde et al., 2016)
5	Equity to Assets ratio	$EAR = \frac{\text{Total Equity}}{\text{Total Assets}}$	Assessing a company's financial health, leverage, and risk profile	(Brigham & Ehrhardt, 2017)

Source: Authors' compilations

Banks can effectively handle their risk exposures by using risk ratios. They can boost their risk profile and overall financial stability by implementing risk management techniques and pinpointing areas of weakness through comparing these ratios over time or against industry standards (Saunders & Cornett, 2017). To ensure financial stability and protect the interests of depositors, regulatory bodies often require banks to maintain specific risk ratios. By evaluating these ratios, banks can demonstrate their responsible risk management practices and compliance with regulatory requirements (Heffernan, S., 2016).

2.3.3. Monitoring the risk ratios

Among the most important functions of monitoring risk ratios in banks are the following reasons, supported by extensive research: Risk ratios such as the capital adequacy ratio and non-performing loan ratio can signal potential financial distress before it becomes critical. According to Ozili (2019), early detection allows for timely intervention to mitigate loss and protect depositors. Examples of ways through which the quality of the bank loan portfolio can be evaluated include keeping an eye on ratios like the ratio of loan loss provision to non-performing loan. According to Abbas et al. (2020), there is a large correlation between the two ratios and bank performance, underpinning the importance of these factors to credit risk assessment. Banks are bound to maintain some stipulated risk ratios for adherence to regulatory provisions—Basel III. Failure to do so incurs penalties and restrictions. Giudici and Pagano (2021) point out the role of risk ratios in regulatory compliance and their impact on bank stability. The risk ratios are one of the features investors look out for in assessing the financial health and risk exposure of a bank. According to Lepetit et al., research in 2008, indicated that a bank with higher capital adequacy ratios and a low ratio of non-performing loans is associated with high investor confidence and stock price. The aggregate risk ratios across the banking sector would also allow an understanding of the systemic risks and potential vulnerabilities in the financial system. Drehmann and Tarashev (2013) emphasize that monitoring such an aggregate is important for maintaining macroeconomic stability.

2.3.4. Assessing the risk ratios

Loan-to-deposit ratio (LDR) measures the share of bank deposits that have been given as loans. The higher the LDR, the higher is the credit risk since the bank might face problems in terms of liquidity if the depositors will demand their money. According to Vodova (2011), LDR has been positively correlated with bank risk, and therefore, this ratio should be monitored so that liquidity is properly managed. Debt to Assets Ratio measures the share of a bank's assets that are financed through debt. The higher the ratio of debt to assets, the more is the financial leverage, and the higher the risk of insolvency in case the value of assets of the bank goes down. According to Demircug-Kunt and Huizinga (2010), higher debt-to-asset ratios are associated with higher bank risk and vulnerability to financial crises. Debt to Equity Ratio measures the proportion of bank financing sourced from debt to equity. A high debt-equity ratio implies a greater reliance

on debt financing, and it increases the financial risk of a bank. According to Gropp and Heider (2010), the higher the bank's debt-to-equity ratio, the more likely it is to face financial distress during economic downturns.

Deposit to Assets Ratio measures the proportion of a bank's assets funded through deposits. The higher the deposit-to-asset ratio, the lower the reliance on wholesale funding of a bank, which decreases its liquidity risk. According to Berger and Udell (2009), banks with higher deposit-to-asset ratios are less likely to experience liquidity problems during financial crises. Equity to Assets Ratio: This ratio measures the proportion of bank assets that is financed through the shareholders' equity. The higher the equity-to-assets ratio, the stronger the capital base, enhancing the capacity of a bank to absorb the losses and reducing its overall risk profile. According to Flannery and Rangan (2008), banks with higher ratios of equity to assets are more resilient against adverse shocks and are less likely to fail. These are financial ratios through which regulators, investors, and bank managements can carefully monitor the bank's risk profile in order to uncover any vulnerability. Armed with this information, rational decisions can be taken regarding allocation of capital, risk management strategies, and regulatory interventions. Financial ratios provide valuable insights into a bank's risk management practices. Analyzing these ratios helps assess the bank's liquidity, leverage, and capital adequacy, which are crucial for understanding its financial health and potential vulnerabilities.

2.4. Research gaps and the purpose of this study

From investigating via prior research, some research gaps reveal. Most relevant research are focused on quantitative analysis. Inclusion of qualitative research methods would document understanding targeting the decision-making processes involved in risk management and strategies for profitability. While earlier literature might have been done to linearly relate the debt ratios to bank profitability/risk, there is a clear gap in the examination of the linear effects of the above ratios and thresholds beyond or below which their impact would change significantly. The current research attempts to portray an overall picture of bank risk management, incorporating quantitative and qualitative methodologies. The paper will examine major financial ratios, descriptive statistics, trend analysis, comparative analysis, and regression analysis will be used to depict patterns, trends, and relationships of these ratios with bank risk profiles. Besides the quantitative analysis, the study will qualitatively review the external forces affecting the banking sector using the Porter's five forces model. The pertinent literature review will be conducted to indicate core external factors and competition forces.

Lastly, the research will investigate the determinants of profitability for listed banks. Financial data will be collected on profitability indicators: return on assets and return on equity. Regression analysis will be done in determining the key determinants of bank profitability, while controlling for bank size and external factors. The findings of this research will contribute to the existing literature on bank risk management by providing a multi-dimensional view. Combining both quantitative and qualitative methods, this paper will contribute towards a more elaborate understanding of the complex factors that underpin bank performance. In turn, the results obtained will be useful to bank managers, regulators, investors, and policymakers in making informed decisions and formulating effective strategies to mitigate risk and increase profitability in the banking sector.

3. METHODOLOGY

3.1. Qualitative approach with Porter's five forces model.

Porter's Five Forces model is a strategic tool for understanding an industry's competitive landscape. It begins with defining the industry and examines each of the five forces: threat of new entrants, threat of substitutes, bargaining power of suppliers, bargaining power of buyers, and competitive rivalry. The threat of new entrants is determined by barriers like economies of scale, brand loyalty, and government regulations. The threat of substitutes is based on how easily customers can switch to alternatives. The bargaining power of suppliers is determined by factors like the number of suppliers and unique offerings. The bargaining power of buyers is determined by factors like the number of buyers, their purchase volume, and the availability of substitutes. Competitive rivalry is analyzed by considering the number of competitors, industry growth rate, and product differentiation. The analysis will be a summary of literature. These forces will be rated as high, medium, or low, indicating the industry's overall attractiveness. The insights gained can be used to develop strategies to mitigate threats or exploit opportunities, leading to more informed decision-making and a stronger competitive position in the market.

3.2. Data collection

To select the sample banks for the study, a list of banks that had been listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) was compiled. The selection criteria focused on ensuring a diverse representation of commercial banks operating within Vietnam's financial sector. The study comprises 20 commercial banks, chosen based on their consistent listing on these stock exchanges and their comprehensive financial data availability. Data for these banks were retrieved over a five-year period from 2019 to 2023 from the Vietstock finance website. The study

employs a panel data approach, enabling a robust analysis of both cross-sectional and time-series data. This method allows for examining variations within and between the banks over time, providing a nuanced understanding of the external environment's impact on their performance. Each bank constitutes one observation per year, resulting in a total of 100 observations. This longitudinal dataset facilitates the tracking of trends, identifying patterns, and making inferences about the banking sector's dynamics in Vietnam over the specified period. By utilizing this comprehensive dataset, the study aims to derive meaningful insights into the competitive forces at play and the broader economic factors influencing the banking industry.

In addition to bank-specific financial data, other macroeconomic indicators were also obtained from Vietstockfinance. These indicators include inflation rates and GDP growth rates. By integrating these macroeconomic indicators, the study can comprehensively assess how broader economic conditions influence the banking sector. This inclusion ensures that the analysis considers external economic factors, providing a well-rounded perspective on the competitive environment and helping to identify correlations between macroeconomic trends and bank performance. The combination of detailed bank-specific data and relevant macroeconomic indicators aims to derive meaningful insights into the competitive forces and economic dynamics impacting the Vietnamese banking industry over the study period.

3.3. Descriptive statistics

The table 3 shows the summary of the dataset:

Table 3: Descriptive statistics of the dataset

Variable	Observation	Mean	Standard deviation	Min	Max
ROA	100	1.47	0.81	-0.72	3.58
ROE	100	16.69	7.32	-12.33	30.33
BS	100	16.44	9.96	-11.62	44.69
DER	100	11.69	3.91	4.85	20.02
DAR	100	0.91	0.03	0.83	0.95
DEAR	100	0.66	0.11	0.44	0.88
LDR	100	73.58	8.79	46.46	87.40
EAR	100	8.74	3.05	4.69	17.10
IR	100	2.85	0.54	1.83	3.25
GDPGR	100	5.22	2.21	2.56	8.12

Source: Authors' calculations

The table presents summary statistics for a dataset containing 100 observations related to the banking sector. It includes a range of variables, including financial performance indicators (ROA, ROE), bank-specific factors (BS, DER, DAR, DEAR, LDR, EAR), and macroeconomic factors (IR, GDPGR). The variables exhibit a wide range of values, indicating diversity in the sample. For example, bank size (BS) ranges from -11.62 to 44.69, while return on equity (ROE) ranges from -12.33 to 30.33. This suggests that the sample includes banks of varying sizes and performance levels. The table provides a snapshot of the key variables used in the analysis of the banking sector. The information presented can be used to understand the distribution and range of values for each variable, as well as potential relationships between them. Further analysis, such as correlations or regressions, would be needed to draw more comprehensive conclusions.

3.4. Monitoring and assessment of the risk ratios

Out of the five ratios mentioned (i.e. Loan-to-Deposit Ratio, Debt to Assets ratio, Debt to Equity ratio, Deposit to Assets ratio, Equity to Assets ratio), the Loan-to-Deposit Ratio (LDR) and the Equity-to-Assets ratio, also known as the Capital Adequacy Ratio, stand out as the most useful in monitoring bank risk management. LDR is an important indicator of the liquidity risk experienced by a bank. It indicates the percentage of deposits that a bank has disbursed as loans. A high LDR has been associated with the raising of concerns over liquidity risk because it indicates that a significant amount of funds in the bank have been used in loan disbursement, leaving little for implementation in times of unanticipated

withdrawals or emerging financial obligations. The findings are in harmony with those of Ghosh (2023), as he points out the importance of an optimal LDR in order that banks are in a position to meet their liabilities while striving to generate profits. The Equity-to-Assets ratio (EAR), sometimes referred to as the Capital Adequacy Ratio (CAR), is one of the most essential measures in assessing the capital strength of a bank in insulating its capital against potential losses. The higher the EAR, the better the buffer of equity capital, and the more the bank is able to withstand shocks without falling into insolvency. This is in line with the regulatory framework of Basel III, which prescribes minimum capital requirements as a way to insulate banks from unexpected losses. The importance of CAR to financial stability and how it insulates the entire system from systemic risk was also realized by research conducted by Bouwman and Zhang (2023). Although the Debt-to-Assets Ratio, Debt-to-Equity Ratio, and Deposit-to-Assets Ratio provide valuable insights into a bank's financial structure and sources of funds, they do not directly delve into the core aspects of risk management like LDR and EAR. The former two ratios deal directly with the major aspects of leverage and financial risk. The latter is more about funding structure and liquidity risk. All these ratios are very significant in calculating risk to the bank, but LDR and EAR have a particular value in adding information about liquidity and capital adequacy—the two basic aspects of good risk management. Consequently, two ratios will be used to monitor and assess bank's risk management by horizontal analysis method.

3.5. Profitability determinant factor analysis

Following Yuan et al., (2022), we employ the panel data analysis procedure. To examine the profitability determining factors of the banking sector, the empirical model is specified as follows:

3.5.1. Model specification

To examine determinants of banks' profitability in Vietnam, the following models are estimated:

$$\text{Model - 1: } ROA_{it} = \alpha_i + \beta_1(BS)_{it} + \beta_2(DEAR)_{it} + \beta_3(DAR)_{it} + \beta_4(EAR)_{it} + \beta_5(DER)_{it} + \beta_6(LDR)_{it} + \beta_7(IR)_{it} + \beta_8(GDPGR)_{it} + u_{it}$$

$$\text{Model - 2: } ROE_{it} = \alpha_i + \beta_1(BS)_{it} + \beta_2(DEAR)_{it} + \beta_3(DAR)_{it} + \beta_4(EAR)_{it} + \beta_5(DER)_{it} + \beta_6(LDR)_{it} + \beta_7(IR)_{it} + \beta_8(GDPGR)_{it} + u_{it}$$

Where, α_i = Intercept of the model; i = Index of Banks; t = Time index; β_k = Regression Coefficient to be estimated; u_{it} = random error term; ROA, Return on Asset; ROE, Return on Equity; DEAR, Deposit to Asset Ratio; BS, Bank Size; DER, Debt to Equity Ratio; LDR: Loan to Deposit Ratio; DAR, Debt to Asset Ratio; EAR, Equity to Asset Ratio; IR, Inflation Rate (IR) and GDPGR for GDP Growth Rate.

3.5.2. Variable description

3.5.2.1. Dependent variables

This study set out to investigate the variables that control bank specifics and macroeconomics, as well as the effects of profit-making considerations on the banking industry in Bangladesh and India. As per Isayas (2022), the profitability of the banking sector is determined by two metrics: return on equity (ROE) and return on assets (ROA), which are regarded as dependent variables in this investigation. Return on Asset (ROA): In the banking industry, ROA is a profit ratio used to assess a bank's ability to generate revenue from all of its assets. One popular and crucial metric for assessing bank performance is return on assets (ROA) (Tan, 2016). Banks can use this ratio to assess how well they can allocate and invest their financial resources to turn a profit. Return on Equity (ROE): The return on an investor's equity is known as ROE. Return on Equity (ROE) downplays the risks that come with financial leverage, and laws usually forbid high leverage. According to Olorunniwo and Hsu (2006), it shows a bank's profit depending on the amount of money its shareholders have invested. Since ROE demonstrates how the bank's management manages shareholder capital, it is crucial to compute. The ability of a bank to use investment capital to increase profits is aided by ROE.

3.5.2.2. Independent variables

The two kinds of factors that determine bank profitability that were investigated in this study are: (i) variables/factors specific to the bank (internal factors) and (ii) industry and microeconomic factors/variables (external factors). The internal factors (bank-specific variables) that we use are DER, LDR, EAR, DER, BS, DEAR, and DAR. Inflation rate (IR) and GDP Growth Rate (GDPGR) were two examples of microeconomic drivers.

3.5.3. Hausman test

The Hausman test is a statistical tool in econometrics used to compare the efficiency of two estimators when one is known to be consistent under both correct and incorrect model specifications, and the other is efficient only under the

correct specification (Hausman, 1978). Model misspecification is indicated by a significant difference between the estimates produced by these two estimators because it suggests that the more efficient estimator is not reliable (Wooldridge, 2010). The Hausman test is applied in various ways, such as choosing between fixed and random effects models in panel data analysis (Baltagi, 2008), testing endogeneity in regression models (Wooldridge, 2010), and in model selection among any two consistent estimators (Green, 2003). This makes the Hausman test a robust and reliable tool in the field of econometrics. In this case, the Hausman test is used to decide whether the Random Effect model or a Fixed Effect model is more suitable for the dataset. The result shows that P-values to both Model-1 and Model-2 were larger than 0, therefore, the best fit model would be Random Effect.

4. RESULTS AND DISCUSSIONS

4.1. Porter's Five Forces Model to the Vietnamese Banking Sector

The Vietnamese banking sector is a dynamic landscape characterized by rapid growth and evolving competitive dynamics. Analyzing this sector through the lens of Porter's Five Forces model offers valuable insights into its attractiveness and potential profitability.

4.1.1. Threat of New Entrants

While the Vietnamese government has liberalized the banking industry to a certain extent, entry barriers are still relatively high on account of regulatory requirements, capital-intensive investment, and the need to establish a strong reputation and customer base. However, the emergence of fintech companies and the increasing use of digital banking solutions threaten traditional banks (Merkert & Guo, 2015). The threat of new entrants in the Vietnamese banking sector is moderate, considering strict regulatory requirements, capital requirements, established competition, and reputational barriers. Though the government has opened the sector in the name of liberalization, all these difficulties are time-consuming and costly, hence may deter new entrants (Vo, 2018). Establishing a new bank requires heavy initial investment, making it challenging for small players. The already saturated banking sector with established brands and strong distribution networks makes it difficult for new entrants to compete (Dao, 2021). However, the rise of fintech companies and the government efforts to further liberalize the sector might see new players in the future. This dynamic force of the threat of new entrants within the Vietnamese banking industry must always be monitored and adapted to current banks to maintain their competitive edge (Nguyen & Nguyen, 2019). Hence, though the threat of new entrants in the Vietnamese banking sector is moderate at present, it is dynamic and has to be constantly negotiated with or adapted by incumbent banks to ensure continuous competitive advantage.

4.1.2. Threat of Substitutes

The emergence of fintech companies, offering alternative financial services like mobile payments, peer-to-peer lending, and digital wallets, presents a growing threat of substitution for traditional banking products (Dinh, 2020). Additionally, the increasing popularity of cryptocurrencies and blockchain technology may further disrupt the traditional banking landscape. The Vietnamese banking industry faces a high threat of substitutes due to the rise of fintech companies offering alternative financial services, such as mobile payments and digital wallets. Fintech companies are gaining traction due to their agile nature and technology-driven solutions, but the evolving regulatory environment poses uncertainties and risks for traditional banks competing with these companies. (Dinh, 2020). Cryptocurrencies and blockchain technology's rise threatens traditional banking services, particularly in Vietnam, but their impact is inconsistent across all products and services, with traditional banking still dominating in complex areas. (Le & Nguyen, 2022). The threat of substitutes in the Vietnamese banking sector is moderate to high currently, but it remains an ever-evolving environment. Traditional banks have to be on their guard, adapt to changing customer preferences, and embrace technological innovation to reduce this threat and remain competitive.

4.1.3. Bargaining Power of Suppliers

The primary suppliers to the Vietnamese banking sector are depositors and investors. Given the large number of depositors and the competitive landscape, individual depositors have limited bargaining power. However, institutional investors may exert some influence on interest rates and investment terms (Vo, 2018). Vietnamese banks have a large pool of potential depositors, reducing their dependence on any single supplier, allowing them to easily source funds from various sources. This ensures low bargaining power among suppliers (Vo, 2018). Dao (2021) highlights the intense competition in Vietnam's banking industry, where banks can dictate terms and interest rates, even for institutional investors with large deposits due to standardization. The Vietnamese government's heavy regulatory environment reduces supplier bargaining power, while actively managing interest and monetary policies limits their influence on interest rates and pricing in the banking sector (Vo, 2018). In summary, due to the large number of suppliers, the high level of competition for deposits, product homogeneity, and government involvement, bargaining power has been low, which enables banks to be able to get funding at good terms, supporting the industry in a competitive and profitable way.

4.1.4. Bargaining Power of Buyers

While individual customers have limited bargaining power, corporate clients and high-net-worth individuals may

negotiate better terms due to their significant deposit volumes and borrowing needs. Moreover, the increasing awareness and sophistication of customers are driving banks to offer more competitive products and services (Nguyen & Nguyen, 2019). The bargaining power of buyers in the Vietnamese banking sector is moderate. Individual customers have limited influence because of their small transactions and the many banking options available to them (Nguyen & Nguyen, 2019; Dao, 2021). However, large clients and high-net-worth individuals have quite a strong bargaining power since they have large deposits and a high demand for borrowing. Besides, the increasing consumer sophistication and the development of the digital banking channel give customers more power to request better services and prices (Nguyen & Nguyen, 2019; Dinh, 2020). While it lessens individual influence, the presence of large clients and increased consumer awareness renders the buyer power moderate.

4.1.5. Competitive Rivalry

The Vietnamese banking sector is highly competitive, with numerous domestic and foreign banks vying for market share. Competition is particularly intense in the retail banking segment, where banks offer a wide range of products and services to attract customers. This intense rivalry has led to price wars, innovation in product offerings, and aggressive marketing campaigns (Dao, 2021). The sector is densely populated with a large number of both domestic and foreign banks vying for market share (Dao, 2021). This overcrowding intensifies competition, as each bank strives to differentiate itself and capture a larger customer base. The banking sector in Vietnam is relatively mature, with high penetration rates in urban areas. This saturation leads to limited growth opportunities, forcing banks to compete aggressively for existing customers (Nguyen & Nguyen, 2019). Customers in Vietnam can easily switch between banks with minimal hassle, due to the availability of online banking, mobile banking, and widespread ATM networks. This ease of switching intensifies competition, as banks need to constantly innovate and offer attractive products and services to retain customers (Dao, 2021). Many banking products and services offered by different banks in Vietnam are similar in nature, with limited differentiation. This homogeneity forces banks to compete on price, leading to price wars and further intensifying rivalry (Vo, 2018).

In conclusion, the Vietnamese banking sector is a competitive arena, driven by numerous competitors, market saturation, low switching costs, homogeneous products, and aggressive marketing tactics. This intense rivalry necessitates that banks continuously innovate, improve customer service, and optimize their operations to thrive in this challenging environment.

4.2. The trends and tendency of LDR and EAR

4.2.1. Overall analysis

The table 4 Present the descriptive statistic of LDR and EAR

Variable	Obs	Mean	Std. dev.	Min	Max
LDR	100	73.58	8.79	46.46	87.40
Equity to Assets Ratio	100	8.74	3.05	4.69	17.10

Source: Authors' calculations

Mean LDR of 73.58% suggests that, on average, Vietnamese banks lend out about 73.58% of their deposits. This indicates a moderate level of credit expansion in the sector, which can be seen as a positive sign for economic growth, but also raises concerns about potential credit risk if not managed carefully (Vo, 2018). Standard Deviation of LDR is 8.79, which indicates a moderate degree of variation in lending practices among Vietnamese banks. Some banks may be more aggressive in lending than others, reflecting different risk appetites and business strategies. Mean EAR of 8.74% suggests that, on average, Vietnamese banks have a relatively low level of capitalization compared to international standards. This could make them more vulnerable to financial shocks and economic downturns (Nguyen & Nguyen, 2020). Standard Deviation of EAR 3.05 indicates a moderate level of variation in capitalization among banks. Some banks may have stronger capital buffers than others, which could affect their resilience in a crisis. The average LDR suggests a moderate level of credit expansion and is indicative of active involvement by the Vietnamese banking sector in generating growth through lending activity. At the same time, this expansion calls for prudent risk management practices in order not to compromise stability and expose the system to financial vulnerabilities.

Despite this active involvement in the economy, the relatively low average EAR raises critical concerns

regarding the sector's capacity to bear or cope with financial shocks. Vietnamese banks must focus on strengthening their capital buffers to mitigate risks and enhance their ability to cope with economic downturns. The variation in LDR and EAR across banks underlines the very character of diversity in the Vietnamese banking landscape. This diversity in risk profiles, target markets, and strategy implies that banks are employing different strategies according to their distinct risk profiles and target markets, and calls for adaptive regulatory frameworks and individualized risk management measures in order to secure the overall stability and health of the sector.

4.2.2. Horizontal analysis and ranking

In the five-year time, the banks' LDR tends to increase, referring to the table 4:

Table 4: Change in LDR

Bank	2019	2023	Amount of increase (decrease)	Percentage of increase (decrease)
MSB	46.46	57.49	18.98	23.74
STB	71.49	79.85	12.07	11.69
VCB	65.84	72.35	12.04	9.89
SSB	68.91	71.52	8.93	3.79
VPB	79.76	82.99	7.27	4.05
MBB	71.66	73.62	5.32	2.73
LPB	76.86	79.53	5.23	3.47
OCB	71.49	71.83	4.04	0.47
EIB	76.54	76.26	3.85	-0.37
NVB	51.00	53.79	2.79	5.47
BID	81.99	82.89	2.18	1.10
ACB	77.13	77.94	0.93	1.05
TCB	74.45	75.69	0.44	1.67
TPB	64.66	60.76	0.14	-6.03
VIB	77.48	77.03	-0.45	-0.58
SHB	79.08	79.55	-1.12	0.59
BAB	75.07	76.57	-2.04	2.00
NAB	77.75	74.544	-2.48	-4.12
CTG	82.77	80.64	-3.23	-2.57
HDB	72.79	66.68	-8.46	-8.39

Source: Authors' calculations

Higher LDRs signify increased lending, which can stimulate investment, consumption, and overall economic activity. This could lead to higher GDP growth rates and job creation. Increased lending can lead to higher interest income for banks, potentially boosting their profitability. This could attract more investment in the sector and further fuel

economic growth. However, a widespread increase in LDRs could expose the banking sector to higher credit risk. If borrowers default on their loans, banks may face significant losses and liquidity problems. Aggressive lending practices can lead to a decline in asset quality if loans are not properly assessed and managed. This could undermine the stability of the banking sector and the broader economy. Higher LDRs can make banks more vulnerable to external shocks, such as interest rate fluctuations, economic downturns, or geopolitical events. This could lead to financial instability and even a banking crisis. By analyzing a broader set of data and considering various factors, researchers and policymakers can gain a deeper understanding of the Vietnamese banking sector and develop effective strategies to promote its stability and resilience. Similarly considering the EAR, table 4 presents the change in five-year period.

Table 5: Changes in EAR

Bank	2019	2023	Amount of increase (decrease)	Percentage of increase (decrease)
VPB	11.19	17.10	5.91	52.82
SSB	6.94	11.38	4.44	63.98
SHB	5.07	7.95	2.88	56.80
LPB	6.23	8.91	2.68	43.02
ACB	7.24	9.87	2.63	36.33
VCB	6.62	8.97	2.35	35.50
MSB	9.47	11.72	2.25	23.76
OCB	9.74	11.88	2.14	21.97
NAB	5.24	7.26	2.02	38.55
VIB	7.28	9.26	1.98	27.20
EIB	9.40	11.14	1.74	18.51
TPB	7.95	9.18	1.23	15.47
STB	5.90	6.78	0.88	14.92
MBB	9.69	10.23	0.54	5.57
BID	5.21	5.34	0.13	2.50
CTG	6.23	6.19	-0.04	-0.64
NVB	5.36	5.29	-0.07	-1.31
BAB	7.24	7.14	-0.10	-1.38
TCB	16.18	15.49	-0.69	-4.26
HDB	8.88	7.70	-1.18	-13.29

Source: Authors' calculations

The equity-to-asset ratio is a significant indicator of a bank's financial strength, influencing its risk profile and stability. A higher ratio means higher capitalization, which means more resilience and contributes to the stability of the financial system. It also discourages too much risk-taking in pursuit of a more sustainable banking model. On the other hand, it will put profitability under pressure since equity is more expensive than debt. Thereby, striking the optimal balance between stability and profitability is a crucial challenge not only for bank managers but also for regulators,

particularly in developing economies such as Vietnam, where the banking sector is fundamental to growth and stability (Berger & Bouwman, 2013). Higher EARs also allow banks to extend lending activity without compromising their financial health, contributing to economic growth and attracting foreign investment. However, increasing equity may put downward pressure on bank profitability, necessitating banks to improve efficiency and diversify revenue streams to meet higher capital requirements. The process of raising capital and meeting regulatory changes is complex and expensive, requiring significant investment in risk management systems and compliance processes.

4.3. Profitability determinants analysis

From table 3 Descriptive statistics, the average ROA on the assets of the banks in the sample is 1.47%. However, the range is pretty big since for some banks there are losses on the assets (negative ROA), while others earned returns of up to 3.58%. The standard deviation of 0.81 suggests a moderate level of dispersion around the mean. The average return on equity for the sample is 16.69%, which is substantially greater than the average ROA. This implies that banks in the sample are using leverage to magnify the returns to their shareholders. The range of ROE values is also wider than that of ROA, with a higher standard deviation of 7.32, indicating more variability in the returns experienced by equity holders.

The table 4 is the correlation matrix of the variance

Table 6: Correlation matrix

	ROA	ROE	BS	DER	DAR	DEAR	LDR	EAR	IR	GDPGR
ROA	1.0000									
ROE	0.7902	1.0000								
BS	0.3979	0.4168	1.0000							
DE	-0.7513	-0.3264	-0.1445	1.0000						
DA	-0.7302	-0.2119	-0.1644	0.9322	1.0000					
DEA	-0.6573	-0.4386	-0.4342	0.6290	0.6062	1.0000				
LDR	0.1439	0.2359	-0.1356	-0.0124	-0.0743	0.2058	1.0000			
EAR	0.7297	0.2110	0.1636	-0.933	-1.0000	-0.6059	0.0738	1.0000		
IR	-0.0108	-0.0496	-0.0731	-0.0503	-0.0455	0.0205	0.0650	0.0449	1.0000	
GDPGR	0.0719	0.0610	-0.0584	-0.0850	-0.0696	-0.0630	0.0643	0.0683	0.4689	1.0000

Source: Authors' calculations

The 0.7902 result of the correlation coefficient implies a strong positive correlation between Return on Assets (ROA) and Return on Equity (ROE). This means that banks that are more profitable in terms of asset utilization also tend to extend higher returns to shareholders. This may be reflective of good management or good use of leverage. The level of debt ratios: DER, DAR, and DEAR appear to be negatively correlated with the profitability ratios: ROA, ROE. This is indicative that with a higher magnitude of debt, it may lead to poor profitability, perhaps due to interest expenses and resultant financial risk. The EAR has a moderately positive correlation with ROA but a weak correlation with ROE. This suggests that a greater proportion of equity financing could contribute to better asset utilization, although its impact on shareholder returns is less clear. LDR has a weak positive relationship with ROA and ROE. This possibly would mean that banks lending more of their deposits would reach higher profitability, but, on the other hand, this relation needs more studies since it could be influenced by other factors. Interest rates show weak negative correlations with most of the variables, suggesting that higher interest rates may somewhat dampen profitability and economic growth (GDPGR). GDP growth exhibits weak positive correlations with ROA and ROE, suggesting that a growing economy might contribute to higher bank profitability. To find the relationship between the variances, the table 4 presents the Random-effects GLS

regression, with ROA is the dependent variance.

Table 7: Random effect OLS regression of ROA

Random-effects GLS regression				Number of obs =	100	
Group variable: BANK				Number of groups =	20	
R-squared:				Obs per groups =		
Within = 0.3029				min =	5	
Between = 0.8015				avg =	5.0	
Overall = 0.7070				max =	5	
				Wald chi2(8) =	137.39	
corr(u_i, X) = 0 (assumed)				Prob> chi2 =	0	
ROA	Coefficient	Std. er r .	z	P> z	[95% conf. interval]	
BS	0.01231	0.00445	2.77	0.006	0.00359	0.02103
DER	-0.1033	0.03714	-2.78	0.005	-0.1761	-0.0305
DAR	-57.229	168.987	-0.34	0.735	-388.44	273.978
DEAR	-1.9323	0.70139	-2.75	0.006	-3.307	-0.5576
LDR	0.01715	0.00653	2.63	0.009	0.00436	0.02994
EAR	-0.5638	1.69195	-0.33	0.739	-3.8799	2.75236
IR	-0.0708	0.07732	-0.92	0.360	-0.2224	0.0807
GDPGR	0.01006	0.01923	8.52	0.601	-0.0276	0.04775
- cons	59.7962	169.038	8.35	0.724	-271.51	391.105
sigma_u	0.19343					
sigma_e	0.31932					
rho	0.26844	(Fraction of variance due to u_i)				

Source: Authors' calculations

Table reports results from a random-effects GLS (Generalized Least Squares) regression. The major purpose of the analysis is to investigate how various independent variables (BS, DER, DAR, DEAR, LDR, EAR, IR, GDPGR) determine the dependent variable, ROA, taking into account that observations within a bank might be correlated. The R-squared within is 0.3029 indicating 30.29% of the variation in ROA within each bank is explained by the independent variables. The between value is 0.8015 meaning 80.15% of the variation in ROA between banks is explained by the independent variables. Lastly, 0.7070 of overall value means 70.70% of the total variation in ROA is explained by the model (both within and between banks). The very low p-value (0.0000) tells me that the model is extremely significant, which means that at least one of the independent variables affects ROA (Verbeek, 2017). Among the independent variables, statistically insignificant independent variables are DAR, EAR, IR, and GDPGR. This is because their p-values are all greater than 0.05, the commonly used threshold for statistical significance (Verbeek, 2017). Similarly, the table 4 presents the Random-effects GLS regression, with ROE is the dependent variance.

Table 8: Random effect OLS regression of ROE

Random-effects GLS regression				Number of obs =	100	
Group variable: BANK				Number of groups =	20	
R-squared:				Obs per groups =		
Within = 0.2285				min =	5	
Between = 0.6429				avg =	5	
Overall = 0.5181				max =	5	
				Wald chi2(8) =	59.38	
corr(u_i, X) = 0 (assumed)				Prob> chi2 =	0	
ROE	Coefficient	Std. er r .	z	P> z	[95% conf. interval]	
BS	0.1519224	0.0483533	3.14	0.002	0.0571516	0.2466932
DER	-1.60621	0.418241	-3.84	0.000	-2.425947	-0.7864725
DAR	-1324.835	1838.186	-0.72	0.471	-49 27.614	2277.943
DEAR	-24.47257	8.006452	-3.06	0.002	-40.16493	-8.780213
LDR	0.2788522	0.0747755	3.73	0.000	0.1322949	0.4254095

EAR	-15.45085	18.40187	-0.84	0.401	-51.51786	20.61616
IR	-1.030128	0.8355168	-1.23	0.218	-2.667711	0.6074548
GDPGR	0.1549013	0.207881	0.75	0.456	-0.252538	0.5623406
- cons	1374.841	1838.608	0.75	0.455	-2228.764	4978.446
sigma_u	2.3325501					
sigma_e	3.3493051					
rho	0.3266048	(Fraction of variance due to u_i)				

Source: Authors' calculations

The within R-squared, 0.2285: 22.85% variance within the banks is explained by the model. The between R-squared, 0.6429: 64.29% variance between banks is accounted for. The overall R-squared is 0.5181, suggesting that 51.81% of the total variance in ROE could be explained by the model. The statistic for the Wald chi-square is 59.38, with a p-value of 0.0000, which tells me that this model is highly significant overall (Verbeek, 2017). Similar to this, DAR, EAR, IR, and GDPGR are independent variables that are statistically not significant. This is due to the fact that all of their p-values exceed the standard statistical significance level of 0.05 (Verbeek, 2017). In summary, both models indicate much insight into what controls bank profitability. They highlight the significance of BS, DER, DEAR, and LDR in determining both ROA and ROE. But the models also reveal that some factors might not have significant effects on profit, at least in the context of these models.

5. CONCLUSION

5.1. Findings and implications

The Vietnamese banking sector is competitive, driven by numerous players, market saturation, low switching costs, and many aggressive marketing tactics. With the fiercely competitive environment in the banking sector, firms have to continue implementing innovations in optimizing their processes. This thesis has sought to unravel the complexities of this sector by delving into the determinants of bank profitability, risk appetite, and the competitive dynamics that shape the industry. From our analysis, the Vietnamese banking sector can be portrayed as a high-intensity competitive market due to a large number of players in the industry, market saturation, low switching costs, and intensive marketing strategies. In this fiercely contested arena, banks are compelled to continuously innovate and optimize their operations to maintain their competitive edge. The relentless pursuit of efficiency and differentiation underscores strategic agility as paramount in navigating the Vietnamese banking landscape. Only the strategic-agile banks can sustain their competitive advantage in the banking sector by embracing technology, product diversification, and optimum customer service for the creation and delivery of value.

The results from our empirical analysis bring out the determinants of bank profitability, as measured by the return on assets (ROA) and return on equity (ROE). Notably, bank size, debt-to-equity ratio, deposit-to-asset ratio, and loan-to-deposit ratio emerge as significant predictors of both ROA and ROE. The positive relationship of these variables with profitability proves the relevance of scale, leverage, and asset-liability management in determining bank profitability. Moreover, the increasing trend in loan-to-deposit and equity-to-asset ratios observed for the majority of Vietnamese banks reflects an increase in consideration for both risk management and growth aspirations. While a higher loan-to-deposit ratio may signal an increased lending activity and potential for more significant returns, it also increases credit risk exposures for banks. Similarly, higher equity-to-asset ratios indicate stronger financial stability and resilience but may come at the cost of lower profitability due to the higher cost of equity capital. Although higher loan-to-deposit ratios drive profitability, banks need to take care of credit risk to maintain the deteriorating quality of assets. Similarly, increasing equity-to-asset ratios, while enhancing stability, might need adjustments in pricing strategies to maintain profitability.

Knowing the determinants of bank profitability will help banks strategize on loan-to-deposit and debt ratios in order to enhance returns while at the same time mitigating their associated risks. It enables regulators to formulate targeted policies to ensure financial stability, investors to make informed investment decisions, and it fuels academic research. This contributes to the elaboration of new theoretical frameworks and policy recommendations for a sound and resilient banking sector that underpins economic growth. This study adds to the existing literature on the Vietnamese banking sector because it brings out a real analysis by combining theoretical frameworks with empirical evidence. The policy implication of the findings is very important, relevant, and timely to policymakers, regulators, and bank managers. For policymakers, an understanding of the determinants of bank profitability and risk-taking would help design effective regulatory policies, ensuring a sound and stable banking system. For regulators, this research would assist in monitoring the emerging trends of key financial ratios, which might signal potential risks and vulnerability within this sector. For bank managers, these findings will assist in strategic decision-making so as to navigate the competitive environment, manage risks effectively, and maximize profitability. The findings from these studies encourage banks to ensure optimal scale, manage leverage prudently, and optimize their asset-liability structures for profitability maximization. Therefore, policymakers should pay heed to promoting competition, ensuring adequate capitalization, and monitoring risk-taking behavior to mitigate systemic risks and uphold financial stability. Banks should invest in strong systems for risk

identification and risk monitoring, diversify the loan portfolio, and develop capital buffers to build resilience and long-term sustainability.

In conclusion, this dissertation has aimed at showing the multi-faceted nature of the Vietnamese banking sector, with all the upcoming opportunities and challenges. While it is full of opportunities and potential, it also contains serious risks and uncertainties. This sector is at a threshold where on the one side it sees perpetual growth, and on the other side, risk and uncertainty. Proper analysis of the competition dynamics, risk appetites, and profitability will enable stakeholders to make informed decisions that should shape the future of the vital sector, contributing toward the country's broader economic development.

5.2. Limitations and future research directions

This study unveils valuable insights for the Vietnamese banking sector, but it comes with a number of shortcomings that should be considered in the interpretation of the findings and in setting future research directions. The paper is limited by the small sample sizes available for analysis because it only focused on a few selected listed banks in Vietnam. This means the findings may not be generalizable to a larger population of banks within the Vietnamese banking sector, which is quite diverse in nature and in risk profile. In the future, a broadening of the samples to include a larger variety of bank types, listed and unlisted, would increase the representativeness and the generalization of the findings. Although some important and key determinants of bank profitability and risk-taking are analyzed, the research has only focused on quantitative financial data and paid no attention to a profound analysis of the underlying qualitative factors that determine bank behavior. Future studies, while examining the same issues of bank profitability and risk-taking in Vietnam, could include qualitative methods, such as interviews or case studies, in order to deeply understand the strategic decision-making and risk management practices of banks.

Some of the independent variables included in the regression models turned out to be statistically insignificant. Among the reasons are the insufficient sample size, measurement error, and model misspecification, among others. Future research could focus on alternative model specifications or utilize other statistical techniques to handle these limitations and get a better understanding of how these factors affect bank profitability and risk-taking. The study utilized data that was mainly from the publicly available financial statements and regulatory reports. Although these data sources are very resourceful, they lack precision on very complicated issues of bank operations and risk behaviors. Further research could consider including data from other sources: internal bank data, survey data, or qualitative data from industry experts in order to enhance the analysis in a broader view.

REFERENCES

Abbas, F., Iqbal, J., & Aziz, B. (2020). Impact of non-performing loans on profitability of Islamic banking of Pakistan. *Journal of Islamic Banking and Finance*, 10(2), 114-125.

- Afsar, R., & Qayyum, A. (2017). Role of Banking Sector in Financial Stability: Evidence from Emerging Market Economies. *Journal of South Asian Development*.
- Agoraki, M. E., Delis, M. D., & Pasiouras, F. (2011). Regulations, competition, and bank risk-taking in transition countries. *Journal of Financial Stability*, 7(1), 38-48.
- Allen, F., & Carletti, E. (2013). The systemic risk from global financial regulatory reform: A practical guide for policymakers. Centre for Economic Policy Research.
- Anggari, N. L. S., & Dana, I. M. (2020). The effect of capital adequacy ratio, third party funds, loan to deposit ratio, bank size on profitability in banking companies on IDX. *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 4(12), 334-338.
- Asian Development Bank. (2018). Vietnam: Financial Sector Assessment Program - Detailed Assessment of Observance - Basel Core Principles for Effective Banking Supervision. Retrieved from <https://www.adb.org/sites/default/files/publication/460491/fsap-vie-dobs-basel-core-principles-banking-supervision.pdf>
- Baltagi, B. H. (2008). *Econometric Analysis of Panel Data* (4th ed.). John Wiley & Sons.
- Barth, J. R., Caprio Jr, G., & Levine, R. (2013). Bank regulation and supervision in 180 countries from 1999 to 2011. *Journal of Financial Economic Policy*.
- Barth, J. R., Caprio, G., & Levine, R. (2013). *Guardians of Finance: Making regulators work for us*. MIT Press.
- Beck, T., Crivelli, J. M., & Summerhill, W. (2013). Macroprudential regulation and supervision: Lessons from the global financial crisis. VoxEU.org.
- Beck, T., De Jonghe, O., & Schepens, G. (2013). Banking sector stability, efficiency, and outreach in Kenya. *Journal of Money, Credit and Banking*, 45(1), 185-219.
- Beck, T., Demirgüç-Kunt, A., & Honohan, P. (2008). *Finance for all?: Policies and pitfalls in expanding access*. World Bank Publications.
- Beck, T., Demirgüç-Kunt, A., & Levine, R. (2000). A new database on financial development and structure. *World Bank Economic Review*, 14(3), 597-605.
- Berger, A. N., & Bouwman, C. H. (2013). How does capital affect bank performance during financial crises? *Journal of Financial Economics*, 109(1), 146-176.
- Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. *The Review of Financial Studies*, 22(9), 3779-3837.
- Berger, A. N., & Mester, L. J. (1997). Inside the black box: What explains differences in the efficiencies of financial institutions? *Journal of Banking & Finance*, 21(7), 895-947.
- Bhattacharai, Y. R. (2021). Determinants of profitability of commercial banks in Nepal: An empirical analysis. *Journal of Business and Management Research*, 13(2), 91-99.
- Bouwman, C. H. S., & Zhang, L. (2023). The impact of capital requirements on bank lending and risk-taking: Evidence from a natural experiment. *Journal of Financial Economics*, 149(2), 561-586.
- Brigham, E., & Ehrhardt, M. (2017). *Financial Management - Theory and Practice*, 15e. In Cengage Learning.
- Bruno, V., & Shin, H. S. (2014). Cross-border banking and global liquidity. *Review of Economic Studies*, 81(2), 545-580.
- Carbo Valverde, S., Rodriguez Fernandez, F., & Udell, G. F. (2016). Bank profitability and the European sovereign debt crisis. *Journal of Financial Stability*, 26, 130-144.

- Carbo-Valverde, S., Rodriguez-Fernandez, F., & Udell, G. F. (2016). Bank profitability and the European sovereign debt crisis. *Journal of Financial Stability*, 26, 130-144.
- Carvalho, D., Ferrero, A., & Nechio, F. (2016). Demographics and real interest rates: Inspecting the mechanism. *American Economic Review*, 106(5), 561-65.
- Cetorelli, N., & Goldberg, L. S. (2012). Banking globalization and monetary transmission. *Journal of Finance*, 67(5), 1811-1843.
- Claessens, S., & Kodres, L. (2014). The regulatory responses to the global financial crisis: Some uncomfortable questions. *IMF Economic Review*, 62(4), 629-670.
- Claessens, S., & Van Horen, N. (2014). The impact of the global financial crisis on banking globalization. *International Monetary Fund Working Paper*, No. 14/197.
- Claessens, S., & Van Horen, N. (2014). The impact of the global financial crisis on banking globalization. *Journal of Money, Credit and Banking*, 46(S1), 127-158.
- Claessens, S., Coleman, N., & Donnelly, M. (2010). "'Low-for-long' interest rates and net interest margins of banks in emerging market economies: 'low-for-long' interest rates and net interest margins of banks in emerging market economies." *BIS Quarterly Review*, 59-72.
- Claessens, S., Coleman, N., & Donnelly, M. (2010). "Low for Long" interest rates and banks' interest margins and profitability: Cross-country evidence. *World Bank Policy Research Working Paper*, (6450).
- Cull, R., & Martínez Pería, M. S. (2013). Bank ownership and lending patterns during the 2008-2009 financial crisis: Evidence from Latin America and Eastern Europe. *Journal of Banking & Finance*, 37(12), 4861-78.
- Dao, N. T. (2021). Competitive dynamics and performance in the Vietnamese banking industry. *Journal of Asian Business and Economic Studies*, 28(1), 1-16.
- Dell'Ariccia, G., Laeven, L., & Marquez, R. (2012). Real interest rates, leverage, and bank risk-taking. *Journal of Economic Theory*, 147(3), 986-1010.
- Demirgüç-Kunt, A., & Detragiache, E. (2002). Does deposit insurance increase banking system stability? An empirical investigation. *Journal of Monetary Economics*, 49(7), 1373-1406.
- Demirguc-Kunt, A., & Huizinga, H. (2010). Bank activity and funding strategies: The impact on risk and returns. *Journal of Financial Economics*, 98(3), 626-650.
- Demirgüç-Kunt, A., & Huizinga, H. (2010). Bank activity and funding strategies: The impact on risk and returns. *Journal of Financial Economics*, 98(3), 626-650.
- Demirgüç-Kunt, A., Detragiache, E., & Merrouche, O. (2019). Bank capital: Lessons from the financial crisis. *Journal of Money, Credit and Banking*, 51(2-3), 347-79.
- Demirgüç-Kunt, A., Detragiache, E., & Merrouche, O. (2020). Bank profitability in emerging markets: Lessons from the global financial crisis. *World Bank Policy Research Working Paper*, 9106.
- Demirgüç-Kunt, A., Huizinga, H., & Sulla, O. (2018). What are the benefits of prudent fiscal policy for emerging economies? *World Bank Economic Review*, 32(3), 529-547.
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3), 401-419.

- Diamond, D. W., & Rajan, R. G. (2011). Fear of fire sales and the credit freeze. *Journal of Financial Economics*, 97(3), 503–516.
- Dietrich, A., & Wanzenried, G. (2014). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money*, 33, 307-327.
- Dinh, T. H. (2020). The impact of fintech on the banking sector in Vietnam. *Asian Economic and Financial Review*, 10(5), 622-633.
- Drehmann, M., & Tarashev, N. (2013). Measuring systemic importance. *BIS Quarterly Review*, March, 37-55.
- Fiordelisi, F., & Ricci, O. (2019). The drivers of bank profitability during the post-crisis period: Evidence from the euro area. *Journal of Banking & Finance*, 106, 256-272.
- Flannery, M. J., & Rangan, K. P. (2008). Market forces and bank capital structure. *Journal of Financial Economics*, 87(2), 421-444.
- Fratzscher, M. (2012). Capital flows, push versus pull factors and the global financial crisis. *Journal of International Economics*, 88(2), 341-356.
- Geddes, B., Frantz, E., & Wright, J. (2014). Autocratic breakdown and regime transitions: A new data set. *Perspectives on Politics*, 12(2), 313-331.
- Gelb, A., Ismail, K., & Ramachandran, V. (2014). Political stability and economic growth: Lessons from Sub-Saharan Africa. *World Development*, 63, 22-32.
- Ghosh, A. (2023). Loan to deposit ratio and bank risk: Evidence from Indian banks. *Journal of Risk and Financial Management*, 16(4), 197.
- Giudici, P., & Pagano, M. (2021). Bank capital regulation and lending. *Journal of Financial Intermediation*, 46, 100854.
- Green, W. H. (2003). *Econometric Analysis* (5th ed.). Prentice Hall.
- Gropp, R., & Heider, F. (2010). The determinants of bank capital structure. *Review of Finance*, 14(4), 587-622.
- Hausman, J. A. (1978). Specification Tests in Econometrics. *Econometrica*, 46(6), 1251-1271.
- Heffernan, S. (2016). *Modern Banking*. John Wiley & Sons
- IMF. (2020). Vietnam: 2020 Article IV Consultation. Retrieved from <https://www.imf.org/en/Publications/CR/Issues/2020/03/13/Vietnam-2020-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-49136>
- Jeanne, O., & Korinek, A. (2010). Excessive volatility in capital flows: A Pigouvian taxation approach. *American Economic Review*, 100(2), 403-407
- Kose, M. A., Nagle, P., Ohnsorge, F., & Sugawara, N. (2019). Global waves of debt: Causes and consequences. *Journal of International Economics*, 118, 1-23.
- Laeven, L., & Valencia, F. (2013). Systemic banking crises database: An update. *IMF Working Paper*, (13/163).
- Le, T. M., & Nguyen, T. T. (2022). Cryptocurrency adoption in Vietnam: An empirical study. *Journal of Asian Finance, Economics and Business*, 9(3), 85-94.
- Lepetit, L., Nys, E., Rous, P., & Tarazi, A. (2008). Bank income structure and risk: An empirical analysis of European banks. *Journal of Banking & Finance*, 32(8), 1452-1467.

- Levine, R. (1997). Financial development and economic growth: Views and agenda. *Journal of Economic Literature*, 35(2), 688-726.
- Levine, R. (2004). Finance and growth: Theory and evidence. *Handbook of Economic Growth*, 1, 865–934.
- Luu, L. T. (2020). Competitive strategies of Vietnamese commercial banks in the context of globalization. *International Journal of Economics, Commerce and Management*, 8(2), 145-159.
- Manova, K. (2013). Credit constraints, heterogeneous firms, and international trade. *The Review of Economic Studies*, 80(2), 711-744.
- Merkert, R., & Guo, P. (2015). Fintech in Asia: Drivers, business models and regulatory frameworks. *FinTech Book*, 123-142.
- Mishkin, F. S., & Eakins, S. G. (2016). *Financial markets and institutions*. Pearson Education.
- Mohapatra, S., & Singh, B. (2019). The Role of Banks in Mitigating Systemic Risk in Emerging Markets. *International Journal of Financial Studies*.
- Nguyen, H. Q., Pham, T. H., & Vo, L. H. (2019). The determinants of bank competitiveness: Evidence from Vietnam. *International Journal of Economics, Commerce and Management*, 7(3), 27-41.
- Nguyen, T. Nga, T. Loan Vu, and H. Linh Dinh. 2019. Measuring banking efficiency in Vietnam: Parametric and non parametric methods. *Banks and Bank Systems* 14: 55–64.
- Nguyen, T. T. H., & Nguyen, T. C. (2019). Customer satisfaction in Vietnamese commercial banks: A comparative study. *International Journal of Bank Marketing*, 37(5), 1183-1204.
- Olorunniwo, F., and Hsu, M. K. (2006). A typology analysis of service quality, customer satisfaction and behavioral intentions in mass services. *Manag. Serv. Quality* 16, 106–123.
- Ostry, J. D., Ghosh, A. R., Kim, J. I., Qureshi, M. S., & M. Sánchez, F. (2019). Fiscal space. *Journal of International Money and Finance*, 94, 182-202.
- Ozili, P. K. (2019). Bank soundness and stability: A review of the literature and directions for future research. *Cogent Economics & Finance*, 7(1), 1674100.
- Parboteeah, K. P., & Cullen, J. B. (2017). *International Business: Perspectives from developed and emerging markets*. Routledge.
- Pham, H., & Nguyen, T. B. (2020). Political Stability and Financial Stability in Emerging Markets: Evidence from Vietnam. *Journal of Risk and Financial Management*, 13(7), 143. <https://doi.org/10.3390/jrfm13070143>
- Phan, D. (2021). Stock Market Development and Economic Growth in Vietnam: An Empirical Analysis. *Journal of Risk and Financial Management*, 14(3), 1-18.
- Porter, M. E. (2008). “The five competitive forces that shape strategy”. Harvard Business Review Press.
- Rose, P. S., & Hudgins, S. C. (2008). *Bank Management & Financial Services*. McGraw-Hill/Irwin.
- Rose, P. S., & Marquis, M. H. (2018). *Money and capital markets: Financial institutions and instruments in a global marketplace*. McGraw-Hill Education.
- Ross, S. A., Westerfield, R. W., Jordan, B. D., Lim, J., & Tan, R. (2015). *Introduction to corporate finance*. Jakarta: Salemba Empat.

- Saunders, A., Cornett, M. M., & McGraw, P. A. (2016). *Financial Institutions Management: A Risk Management Approach*. McGraw-Hill Education.
- State Bank of Vietnam. (2021). *Regulatory Framework*. Retrieved from <https://www.sbv.gov.vn/webcenter/portal/en/home/sbv/res/regulatory%20framework>
- Sufi, A., & Taylor, A. M. (2022). Financial crises: A survey. *Handbook of international economics*, 6, 291-340.
- Tan, A. Y., Floros, C., and Anchor, J. R. (2016). The Profitability of Chinese banks: Impacts of risk, competition and efficiency. *Rev. Account. Finan.* 16, 86–105.
- Thanh, V. D., Anh, T. N. H., & Thanh, P. D. (2020). Factors affecting the competitiveness of Vietnamese commercial banks: A case study at banks in Ho Chi Minh City. *International Journal of Scientific & Technology Research*, 9(1), 2706-2713.
- Tran, T. Q. (2019). Trade, Institutions, and Economic Growth: Evidence from Vietnam. *International Journal of Economics and Finance*, 11(8), 38-51.
- Tran, T. T. H. (2018). *Vietnam's Political Economy in Transition*. Springer.
- The World Bank. (2024). Data - Domestic credit to private sector (% of GDP) - Vietnam. Retrieved June 13, 2024, from <https://data.worldbank.org/indicator/FS.AST.PRVT.GD.ZS?locations=VN>
- United Nations. (2014). *The World Economic Situation and Prospects (WESP): Country classification*.
- Verbeek, M. (2017). *A guide to modern econometrics*. John Wiley & Sons.
- Vietnam Economic Times. (2021). Vietnam's Capital Market: Institutional Reform towards Emerging Market. Retrieved from <https://vneconomictimes.com/article/business/vietnam-s-capital-market-institutional-reform-towards-emerging-market>
- Vo, X. V. (2018). Determinants of bank profitability in Vietnam. *Journal of Economics and Development*, 20(1), 69-85.
- Vo, X. V. (2018). The impact of Basel II on bank risk-taking and performance: Evidence from Vietnam. *Journal of Financial Stability*, 39, 140-150.
- Vodova, P. (2011). Loan-to-deposit ratio and bank risk. *Journal of Economics and Finance*, 35(3), 399-420.
- Vu, D. H. (2020). Economic Growth and Structural Change in Vietnam: Evidence from Input-Output Analysis. *Journal of Asian Economics*, 73, 101.102.
- Vu, T. T., Vo, X. V., & Tran, T. D. (2016). Political instability and FDI inflows: Evidence from five selected Asian countries. *Economic Change and Restructuring*, 49(2), 239-263. <https://doi.org/10.1007/s10644-015-9167-3>
- Wooldridge, J. M. (2010). *Econometric Analysis of Cross Section and Panel Data* (2nd ed.). MIT press.
- Yuan, D., Gazi, M. A. I., Harymawan, I., Dhar, B. K., & Hossain, A. I. (2022). Profitability determining factors of banking sector: Panel data analysis of commercial banks in South Asian countries. *Frontiers in psychology*, 13, 1000412.

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