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# Factors Affecting the Financial Performance of Banks in the Era of Digital Transformation: A Perspective from Vietnam's Banking Industry

**Duong Nguyen Hoang***

Bachelor degree, School of Trade and International Economics, National Economics University, 207 Giai Phong, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam, https://orcid.org/0009-0000-2661-8704

**Anh Nguyen Hong**

Bachelor degree, School of Advanced Educational Programs, National Economics University, 207 Giai Phong, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam, https://orcid.org/0009-0006-2721-3622

**Dat Duong Tuan**

Bachelor degree, School of Advanced Educational Programs, National Economics University, 207 Giai Phong, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam, https://orcid.org/0009-0004-0617-5327

**Nhi Bui Uyen**

Bachelor degree, School of Advanced Educational Programs, National Economics University, 207 Giai Phong, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam, https://orcid.org/0009-0005-6959-6775

**My Tran Thi Tra**

Bachelor degree, School of Advanced Educational Programs, National Economics University, 207 Giai Phong, Dong Tam Ward, Hai Ba Trung District, Hanoi, Vietnam,

https://orcid.org/0009-0007-0433-7048

***Corresponding author**: *hoangduong257.neu@gmail.com.*

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**Abstract:** This study aims to explore the factors influencing the financial performance of banks in Vietnam amidst the on-going digital transformation. In today's dynamic economic landscape, characterised by digital transformation and heightened regulatory standards, banks are compelled to innovate in response to continuous macroeconomic fluctuations. While the importance of increasing financial performance was largely recognised, the development and empirical validation of a financial performance model in the banking digital transformation context is not yet completely addressed, especially in developing countries. Utilising foundational theories, this research employed SMARTPLS 4 software alongside a blend of quantitative and qualitative analyses to assess the influences on the financial performance of banks amid digital transformation. Data were collected from 400 bank employees from all genders across Vietnam by the quota sampling method. Most of the survey participants lived in big cities where many banks were concentrated. The research results showed that there were three main factors directly affecting bank financial performance including Deposit mobilisation, Bank profitability, and Loyalty respectively according to the level of impact. This result highlights the importance of effective deposit mobilisation in achieving the bank's financial goals. The results also indicated that the growth of banks' profits is closely tied to their capacity to maintain loyal customers. Additionally, the study revealed a strong correlation between nine other factors, such as Savings Interest rates, Bank technology, and Inflation, with three intermediary factors. Until now, there are very few studies that have comprehensively evaluated both financial and non-financial factors' effect on bank financial performance as this research. This study also offered compelling insights into the strategies of successful banks in Vietnam today, underscoring the importance of investing in bank technology and presenting valuable recommendations. Based on the findings, banks can specifically focus on managing the identified variables and deploying appropriate business strategies to enhance their financial performance for sustainable development in the digital age.

**Keywords**: banking industry, digital transformation, financial performance, loyalty.

## Introduction

During the course of socio-economic development, banks fulfil crucial roles as credit intermediaries and facilitators of payments, providing essential means of exchange for the economy. However, the rapid global progress of modern technology has led to the emergence of numerous non-banking financial entities, posing direct competition to traditional banks (Truc, 2023). The impact of this competitive pressure on banks partly depends on the financial efficiency of the respective bank in the era of digital transformation. Banks lacking competitive capabilities are at risk of being replaced by stronger banks (Murinde et al., 2022; Stulz, 2022). According to Malakolunthu and Rengasamy (2012), financial efficiency is a measure of an organisation's ability to use capital effectively to generate profits and achieve business objectives. Therefore, banks need to continuously adapt and enhance financial performance to maintain a competitive advantage in this volatile digital business environment.

Nowadays, the digital transformation context and rapid developments in technology, as well as the post-COVID-19 situation, have caused a change in the operating model of banks (Kelecic, 2020; Stalmachova et al., 2021). Fears regarding disease transmission amid the COVID-19 pandemic have paved the way for a rise in non-cash payments and digital banking services (Nam, 2023). The digital transformation race has become more intense, especially following Decision No. 749/QD-TTg on the "National Digital Transformation Program by 2025, orientation to 2030" (2020). According to the State Bank's Payment Department, digitisation helps banks save 60% - 70% of costs (Nguyen, 2023). Many banks also consider technology a key factor in reducing the cost-to-income ratio to below 35%, yielding positive results for the financial efficiency of commercial banks (Nguyen, 2023). However, digital transformation capabilities are often neglected when evaluating factors influencing the financial

efficiency of banks in the digital era. This emphasises the need for additional research about financial performance considering the technology factors.

Currently, the Vietnam banking industry is facing multiple financial difficulties in the context of a declining economic situation, which requires more research on the factors that affect bank financial performance. The increase in bad debt ratio, along with a sharp decline in credit growth due to low demand for investment loans, caused the profits of many banks to decrease. According to the Vietnam State Bank's report, the industry-wide bad debt ratio in 2023 was at 2.2%, the highest level since 2015 to date (Lan, 2024). Although by the fourth quarter of 2023, profits show signs of improvement, MB Securities Company (MBS) forecasts that profit after tax for the entire banking industry decreased by 2.5% compared to the same period last year. In studies on bank financial performance before 2010, data analysis methods typically included metrics such as return on equity (ROE) and return on assets (ROA), as well as statistical models like Data Envelopment Analysis (DEA) and Tobit analysis (Nguyen et al., 2023a). However, later studies employed different analysis methods such as DPDA models, focusing on different variables like inflation rates and market capitalisation-to-GDP ratios. These differences may stem from variations in the study periods, but they lead to different conclusions regarding factors influencing bank financial performance, making it difficult for economic decision-makers to identify existing issues and industry trends.

***Problem Statement***

There are several research gaps identified in prior studies on bank financial performance. For example, research by Pervan et al. (2015) shows that the inflation has a negative impact on financial performance, while Nguyen et al. (2022) proves that inflation has no impact. Meanwhile, some research concluded that external factors do not influence the financial performance of commercial banks (Fareso, 2023). This implies a lack of consensus in previous research on the determining factors of financial efficiency for commercial banks (Hazaea et al., 2020). Many studies on banking financial efficiency use small research samples, which lack representativeness for the entire banking industry or research area. For instance, in the study by Tuyishime et al. (2015) only a sample of 27 observations was used. Besides, most researchers consider only the factors affecting financial performance that belong to the same group of characteristics, such as financial factors (Gupta & Mahakud, 2020). Amidst on going innovations in the digital era, the authors observed a notable scarcity of comprehensive studies in Vietnam examining the factors influencing banks' financial performance, particularly regarding technological factors. This underscores several research gaps warranting exploration in future studies.

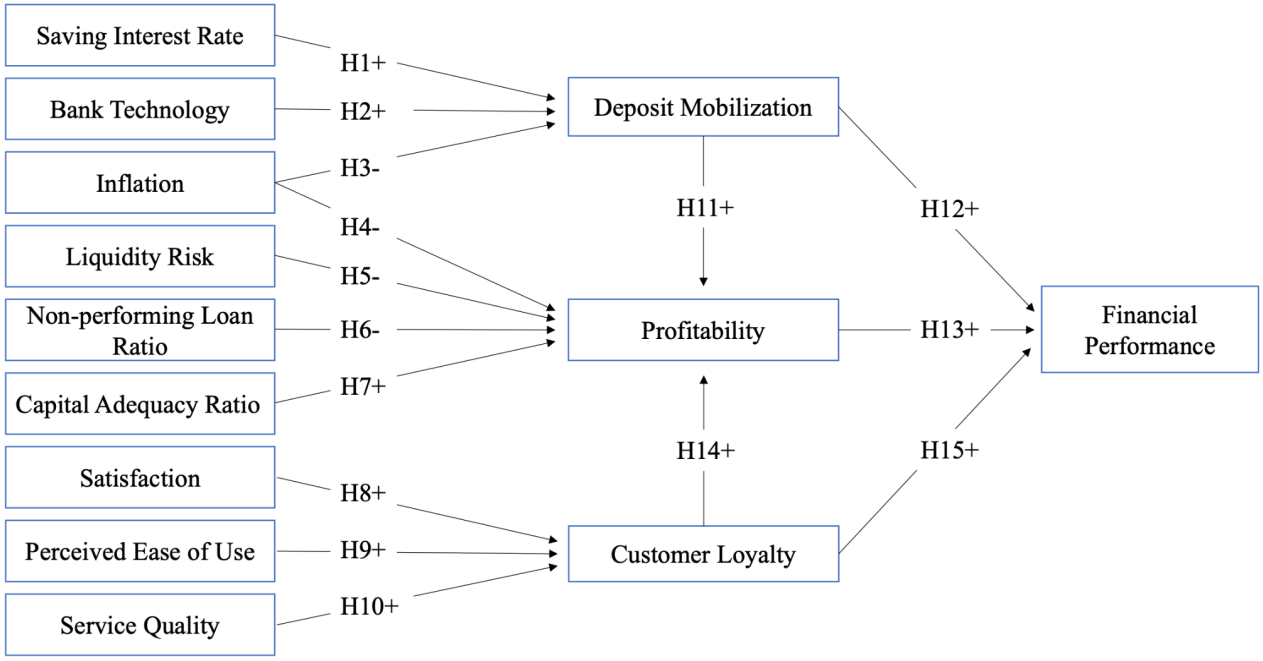
Given these constraints, this study aims to address previous gaps by constructing a comprehensive research model on financial performance that encompasses both financial and non-financial factors. This approach is expected to yield the most exhaustive and precise findings. Besides, the research sample is deployed nationwide to accurately reflect the economic context of Vietnam, which makes the findings highly applicable. The authors will objectively evaluate the factors of banking technology and loyalty, two factors that studies on banking financial efficiency in Vietnam still neglect, to provide appropriate implications for the most realistic context. This is extremely necessary in the context that the number of studies on factors affecting financial efficiency in the context of digital transformation remains limited in Vietnam. The study uses qualitative and quantitative research methods to investigate factors influencing financial efficiency of Vietnam's banks in the digital age. With this research method, the overall picture of the financial situation of banks in Vietnam will be clearly portrayed. From there, the authors develop recommendations for banks and governments to improve financial efficiency and promote digital transformation.

***Research Aim and Hypotheses***

This research aimed to examine the determining factors of financial performance for commercial banks in Vietnam in the digital transformation context, therefore providing vital information for bank management and leadership in making effective and accurate decisions. This study sought to address three key questions. What is the current state of financial performance in the current digital transformation situation of banks in Vietnam? What variables influence the performance of Vietnam's banks? Finally, what recommendations should be made to optimise the financial performance of banks in Vietnam in the context of digital transformation? To answer this, the following research hypothesis is proposed (Figure 1).

**Figure 1**

*Proposed Research Model*




*Source*: Author's development.

**Saving Interest Rate.** The interest rates are considered a crucial factor in users' decision-making when choosing to deposit money in a bank (Herald & Heiko, 2009; Mohammad & Mahdi, 2010). This implies that the amount deposited in commercial banks will fluctuate with changes in interest rates. Philips (1968) further demonstrates that the offer of attractive interest rates for bank deposits can be viewed as a positive factor. Mujeri and Younus (2009) add that low savings interest rates reduce the incentive for savings mobilisation, highlighting the importance of market forces in balancing interest rates. Based on this, the following research hypothesis is proposed:

*H1*: Saving interest rates has a positive effect on bank deposit mobilisation.

**Bank Technology.** Technology has become an integral component of the banking sector, simplifying and rendering the development and delivery of financial services more cost-effective (Banson et al., 2012). There is a significant opportunity for banking technology to connect low-income citizens with reduced costs and bring millions of consumers into the formal financial market through electronic channels, including automated capital mobilisation (Belete, 2021). According to Kaushik and Rahman (2015), customers can access their bank accounts, transfer money, pay bills online, and perform savings transactions almost anytime and anywhere. Moreover, this efficiency can lead to increased customer satisfaction, and deposits can be automatically mobilised. Viswanadhan and Bonso (2014)

found a significant and positive correlation between the use of information technology and the deposit mobilisation. Based on this, the following research hypothesis is proposed:

*H2*: Bank technology has a positive effect on bank deposit mobilisation.

**Inflation.** The inflation is considered an economic issue in developed countries in the second half of the 20th century. The banking system, as a significant factor influencing economic performance, has also been affected by inflation (Abebe, 2020). According to Usman and Adejare (2013), inflation is the general increase in the prices of goods and services. Banke and Yitayaw (2022) indicate that the inflation affects bank deposits in two main ways. Firstly, it reduces the purchasing power of money, leading to high living costs and a potential decrease in deposits. Secondly, in hyperinflation scenarios, cash or savings become less valuable, prompting individuals to convert deposits into store-of-value goods. Namazi and Salehi (2010) agree that with an increase in inflation, the real interest rate decreases, making deposits less attractive. Based on this, the following research hypothesis is proposed:

*H3*: Inflation has a negative effect on bank deposit mobilisation.

Furthermore, the inflation increases the general prices of goods and services, leading to the depreciation of currency, and affecting the purchasing power of individuals and businesses, as described by Tarekegn (2018). This, along with the devaluation of savings and deposits, increases credit risk, making it challenging for banks to recover debts (Imbuga, 2014). Additionally, if interest rates do not keep pace with inflation, they may erode the real value of loans and financial obligations, putting pressure on the bank's profit margins. All these factors collectively pose a significant challenge for banks to maintain and enhance their profitability in an economic environment affected by inflation. Based on this, the following research hypothesis is proposed:

*H4*: Inflation has a negative effect on the bank profitability.

**Liquidity Risk.** The liquidity of a bank is its strength that reflects the ability to meet short-term financial obligations, manifested through the value of liquid assets that the bank holds and the ability to convert these assets into cash (Bibi & Amjad, 2017; Umobong & Agburuga, 2019). Liquidity risk is the risk that a financial institution (such as a bank) may not fully meet its upcoming financial obligations due to a lack of liquidity (Kong et al., 2019; Orshi, 2016). A bank with unmet financial obligations in a timely manner can significantly impact the bank's operations and, consequently, its reputation (Noor & Lodhi, 2015; Yusoff, 2017). Hermuningsih and Rahmawati (2022), Umobong and Agburuga (2019) argue that liquidity risk has a significant and adverse effect on the profitability of the bank. Based on this, the following research hypothesis is proposed:

*H5*: Liquidity risk has a negative effect on the bank profitability.

**Non-Performing Loan Ratio.** According to Kingu et al. (2018), non-performing loans can be defined as credit obligations where the repayment of principal and interest, as agreed, is not adhered to the requirements or conditions set by the bank, posing a risk of non-receipt of income and even the potential loss of capital. The non-performing loan ratio of a bank is a crucial indicator measuring the level of risk in their loan portfolio (Gabriel et al., 2019; Irawati et al., 2019). It is determined by contrasting the aggregate value of loans that borrowers are unable to repay with the total value of loans disbursed by the bank. A higher non-performing loan ratio will negatively impact financial efficiency as it causes damage to the bank itself (Chimkono et al., 2016; Hapsari, 2018; Sukmadewi, 2020). Therefore, the authors consider that the non-performing loan ratio significantly affects the bank profitability. Based on this, the following research hypothesis is proposed:

*H6*: The non-performing loan ratio has a negative effect on the bank profitability.

**Capital Adequacy Ratio.** Capital Adequacy Ratio (CAR) has been extensively studied worldwide as an indicator of a bank's capital adequacy, measured by the relationship between own funds and risk-

weighted assets. Several empirical studies have illustrated a beneficial effect of capital adequacy on bank profitability. Specifically, Berger et al. (1995) confirmed a positive correlation between CAR and both ROE and ROA in the US banking system. Similarly, Sebayang (2020) found evidence of CAR affecting ROE in Indonesia. According to Mendes and Abreu (2003), a larger equity base can lead to a lower cost of capital, thereby enhancing profitability. Moreover, it is estimated that banks with higher capital ratios are less reliant on external funding sources, which positively affects their returns. Based on this, the following research hypothesis is proposed:

*H7*: Capital adequacy ratio of the bank has a positive effect on the bank profitability.

**Satisfaction.** According to Haq and Awan (2020), satisfaction is an internal evaluative perception, a psychological state of the user. Customer satisfaction with a bank is defined by Ahmed et al. (2021) as users' perceptions of the extent to which a bank's services meet their requirements. Studies worldwide provide abundant experimental evidence to assert that customer satisfaction has a positive relationship with customer loyalty toward the bank (Hussien & Aziz, 2013; Rizwan et al., 2021; Supriyanto et al., 2021; Thaichon et al., 2014). It appears that satisfied customers are more inclined to maintain an on-going relationship with the bank in the future and demonstrate greater loyalty (Al-alak, 2014; Gounaris et al., 2010). Therefore, researching customer satisfaction to enhance customer loyalty to the bank is necessary.

*H8*: Customer Satisfaction has a positive effect on customer loyalty to banks.

**Perceived Ease of Use.** The perceived ease of use for banking services is defined as the customer's perception of the convenience or comprehensibility of the banking provided services (Shankar & Jebarajakirthy, 2019). It plays a significant role in customers' considerations when using banks in the context of digital transformation (Zohra, 2020). In the studies by Alalwan et al. (2017) and Ngan et al. (2021), the ease of use is a key factor influencing customers' intentions to accept or continue using an application. Additionally, the research by Olivia and Marchyta (2022), Phuong et al. (2020) also highlight the close relationship between the perceived ease of use and customers' tendencies to reuse services. Based on this, the following research hypothesis is proposed:

*H9*: The perceived Ease of Use has a positive effect on customer loyalty to banks.

**Service Quality.** According to Omoregie et al. (2019), service quality in banking refers to the ability to satisfy customer expectations regarding the provided services. Previous studies have demonstrated that service quality is a critical factor in customers' bank selection and in forming a robust relationship with loyalty (Alnaser et al., 2017; Goyal & Chanda, 2017; Sewaka et al., 2023). Hence, researching the impact of service quality to enhance customer loyalty is essential. Based on this, the following research hypothesis is proposed:

*H10*: The service Quality has a positive effect on customer loyalty to banks.

**Deposit Mobilization.** According to Banson et al. (2012), deposit mobilisation is the financial institution's collection of cash or capital from the public through current money, savings, fixed amounts, and other specialised programs. Banks that can effectively mobilise deposits are able to save capital mobilisation costs, therefore increasing the bank's profitability (Antwi, 2015). Besides, many studies suggest that the ability to mobilise deposits efficiently allows banks to have abundant operating capital to carry out financial activities and serve customers. Hence, it increases the sustainability and profitability of the banks. (Garo, 2015; Tuyishime et al., 2015). Based on this, the following research hypothesis is proposed:

*H11*: Deposit mobilization has a positive effect on bank profitability.

The deposit mobilisation helps banks achieving financial efficiency by increasing the cheap source of funds for banks to use for profitable activities, such as lending and investment (Naceur & Goiaed,

2001; Okun, 2012). Chikwem (2018) proves that there is a positive relationship between deposit mobilization and the financial performance of banks. However, there is research that suggests that annual deposit growth does not significantly affect profits because commercial banks may not be able to convert the amount of liabilities into significantly higher-earning assets. Therefore, more research is needed on the impact of deposit mobilisation on banks' financial performance. Based on this, the following research hypothesis is proposed:

*H12*: The deposit mobilisation has a positive effect on a bank's financial performance.

**Profitability.** The profitability of a bank is the financial performance derived from its business operations (Hasan et al., 2020). It is often measured by indicators such as Return on Equity (ROE), Return on Assets (ROA), or profit growth over time (Sofyan, 2019). High profitability ensures a source of capital for the bank to reinvest in projects with higher returns and business development (Robin et al., 2018; Xu et al., 2019). Stable and growing profits enhance stock value and attract new investors (Teshome et al., 2018). Ultimately, high profitability enables the bank to face challenges more flexibly while maintaining the trust of both customers and shareholders (Yao et al., 2018). Based on this, the authors propose the following research hypothesis:

*H13*: The bank profitability has a positive effect on a bank's financial performance.

**Customer Loyalty.** Research in the banking sector indicates that customer loyalty to a bank is manifested through strong commitment and a willingness to consistently choose to utilise its products or services over an extended period (Tweneboah-Koduah & Farley, 2015). According to Reichheld (2006), loyal customers will introduce acquaintances to use the bank's services, thereby increasing revenue and positively affecting the bank's profitability. Besides, loyal customers tend to use bank services for a long time and many times, thereby increasing revenue and improving bank profits (Belás & Gabčová, 2016; Boonlertvanich, 2019). Therefore, further research on the impact of loyalty on banks' profitability and financial performance is necessary. Based on this, the following research hypothesis is proposed:

*H14*: Loyalty has a positive effect on bank profitability.

Moreover, many studies have shown that customer loyalty has a favourable impact on a bank's financial performance and can be a strong indicator of a bank's future profitability (Golovkova et al., 2019; Hegner-Kakar et al., 2018; Larivière et al., 2016). Because, according to the widely accepted "satisfaction-loyalty-business performance" logic of Edvardsson et al. (2000), loyal customers will last longer and during this time will create more sales, revenue, and profits for the bank. However, there have been no studies in Vietnam that have examined the impact of loyalty on financial performance. Based on this, the following research hypothesis is proposed:

*H15*: Loyalty has a positive effect on a bank's financial performance.

**Literature Review**

In the context of digital transformation, financial efficiency is one of the top concerns for managers. It plays a foundational role in strategic planning, business performance evaluation, and banking operations (Gartenberg et al., 2019). There are two main methods commonly used to measure financial efficiency: objective measurement and subjective measurement (Gofwan, 2022). Objective measurement involves collecting data based on available figures such as stock market data or the existing accounting data of companies (Ichsan et al., 2021; Kimani, 2023; Rosmanidar et al., 2021). This approach guarantees high accuracy but may pose challenges in acquiring complete and comparable research samples, particularly in developed countries, due to the time and cost implications (Hult et al., 2008). Additionally, in cross-country studies, financial data may not be available for all banks under investigation, and when available, it may be difficult to compare if banks adhere to different reporting and accounting standards (Hult et al., 2008). To address these weaknesses, researchers have employed

subjective measures to assess financial efficiency in their studies (Singh et al., 2016; Vij & Bedi, 2016). Subjective measurement relies on comparisons with the previous year, competitors within the industry, or industry averages. For example, Kunze et al. (2013) evaluated the financial efficiency of businesses by using top managers' perceptions of financial conditions, growth, etc., compared to direct competitors in the industry. In Santos and Brito's (2012) study, financial efficiency was assessed based on managers' perceptions over three years compared to the industry average.

On the other hand, according to Bao (2016), researchers can use various indicators to measure the financial efficiency of banks. The first group includes indicators calculated from accounting data, with commonly used ratios such as return on assets (ROA), return on equity (ROE), and return on sales (ROS) (Amene & Alemu, 2019; Antoun et al., 2018; Fareso, 2023; Hidayat & Kurniasih, 2022). The second group includes indicators calculated based on popular market values, such as Tobin's Q, MBVR, P/E, and EPS (Nataraja et al., 2018). The choice of appropriate theory and model depends on the research objectives, available data, and research methods used. Some important theories and models applied in this field include the structure theory (including CAMEL model, PZB model), efficiency theory (including DEA model, SFA model), and stakeholder theory, among others (Al Zaidanin, 2020; Kamarudin et al., 2019; Ngan et al., 2021; Singh & Rastogi, 2023).

According to the results of previous studies, various factors influence the financial efficiency of banks, including internal and external factors, and financial and non-financial factors (Ichsan et al., 2021). Internal factors within banks include profitability, bank size, equity, liquidity, and deposit ratio, gathered from financial reports and annual reports. External factors outside banks include growth rate (GDP), and inflation (INF), collected from the General Statistics Office. However, the impact on financial efficiency is not consistent, and some factors strongly affect the financial efficiency of banks in some studies but lack statistical significance in other studies (Hannoon et al., 2021; Nguyen et al., 2023b). Some important factors, such as profitability, have been shown to positively influence the financial efficiency of banks in many studies, usually measured through indicators like return on assets (ROA), return on equity (ROE), ROS, ROI (Chimkono et al., 2016; Hapsari, 2018; Hasan et al., 2020; Sukmadewi, 2020). In contrast, inflation is a factor that has an opposite impact on the financial performance of banks in some studies currently but has a consistent impact in other studies at different times (Banke & Yitayaw, 2022).

The authors have identified several research gaps in the published studies. The most common limitation is the restriction in the selection of factors under scrutiny. Furthermore, another notable constraint lies in the discordant findings pertaining to the effects of individual factors on bank financial performance, where certain studies reveal contradictory impacts while others fail to discern any discernible effect. Additionally, there is a lack of studies utilising quantitative methodologies to examine factors affecting bank financial performance, along with a dependence on disparate methods without a concerted effort to integrate them to provide a comprehensive understanding of multifaceted dimensions. Thus, the imperative for studies delving into a diverse array of influencing factors, employing a blend of qualitative and quantitative approaches to clarify the interrelations among these factors within the economic and social milieu, becomes increasingly pronounced.

Financial performance is a pivotal concept in various socio-economic studies and financial management of both enterprises and individuals. As defined by Truc (2023), it encompasses two key components: "performance" and "finance," aiming to evaluate the financial effectiveness of socio-economic and business activities. Performance is generally determined by the ratio of achieved results to the initial costs incurred to attain those results. In the banking sector, the financial performance of a commercial bank typically pertains to its ability to utilize assets, equity, and shareholder liabilities to generate revenue (Jha & Hui, 2012). According to Olgu (2014), financial performance is defined as the ability to deliver top-quality financial services at minimal expense. Previous empirical research has utilized diverse estimation techniques to gauge and evaluate the factors influencing banks' financial

performance. According to Lin et al. (2006), to assess financial performance, firms often use the financial ratio method as it provides a straightforward depiction of a company's financial performance compared to previous periods.

Moreover, the utilisation of financial ratios in measurement also facilitates the comparison of a bank's financial standing with that of other banks (Jha & Hui, 2012). This study measures the financial performance of banks using five financial ratios: Return on Equity (ROE), Return on Assets (ROA), Net Profit Margin (NPM), Net Interest Margin (NIM), and Non-Performing Loan Ratio (NPL). According to Rose and Hudgins (2013), the formulas for measuring ROE, ROA, NPM, NIM, and NPL of banks are as follows: ROE = Net Profit after Tax / Equity; ROA = Net Profit after Tax / Total Assets; NPM = Net Profit after Tax / Revenue; NIM = (Interest Income - Interest Expense) / Total Assets; NPL = Non-Performing Loans / Total Loans.

Financial performance serves as a critical factor in gauging the operational efficiency and competitive edge of banks in the context of digital transformation; banks with higher financial performance enjoy a greater competitive advantage (Truc, 2023). Investigating the factors influencing financial performance aims to identify key factors affecting the banking system's operational efficiency, aiding bank managers in optimising capital utilisation and making sound financial decisions. Therefore, researching the factors affecting financial performance is essential in the current context.

## Materials and Methods

### *Data Collection*

The employee survey questionnaire consisted of three main parts. Part 1 assessed the employee's perception of the bank's financial performance. It included information about the bank where the employee worked and their seniority. Part 2 consisted of survey questions designed to identify the factors that influenced the bank's financial performance. Part 3 collected personal information about the respondents, including their gender, age, work location, education level, and income. The research team finalised the questionnaire and developed an official survey in the form of an online form. The survey was then distributed to participants through online platforms.

### *Sample*

The sample size played a crucial role in the accuracy of research results. Hair et al. (1998) suggested that the sample size should be at least five times the number of measured variables, while Trong and Ngoc (2008) recommended a ratio of 4 or 5. The sample size was chosen to ensure the significance of the multivariate regression model. With a total of 54 variables to be analyzed, the minimum required sample size was 270 observations.

To ensure the reliability of the research findings, the authors initially distributed 450 survey questionnaires nationwide. The target group consisted of bank employees, primarily in major cities with a significant presence of banks in Vietnam. The survey was conducted online, and participants were invited from the authors' network of acquaintances in the banking sector. Out of the 450 received responses, 50 were excluded due to incorrect or incomplete answers (failure to respond to all questions). After filtering out ineligible responses, 400 valid responses were included for data analysis.

To measure factors affecting banks' financial performance, the author uses a 5-point Likert scale, from 1 (strongly disagree) to 5 (strongly agree) for 12 related variables including Saving interest rate (IR), Bank technology (BT), Inflation (IF), Liquidity risk (LD), Non-performing loan (NL), Capital adequacy ratio (CAR), Satisfaction (SF), Perceived Ease of Use (PU), Service Quality (SQ), Deposit Mobilisation (DM), Profitability (PF) and Customer Loyalty (CL).

Based on the results obtained from the literature review, theoretical framework, and research hypotheses, the formal research model is proposed. To fit this model and research objectives, the scale

through the following sequential steps was constructed: (1) Literature review of related studies; (2) Qualitative research through interview questions; (3) Pilot quantitative study on 10 different bank experts in Vietnam, focusing on the factors affecting bank financial performance; (4) Refining the scale for use in the formal quantitative research process.

### *Data Analysis*

Upon receiving the responses, the research team processed the questionnaire, coded, and entered the data, and then proceeded to analyse the questionnaire data using the SMARTPLS 4 software through the following analytical steps: (1) Reliability test of the Cronbach's Alpha scale; (2) EFA - Exploratory Factor Analysis; (3) Discriminant analysis; (4) Assessment of impact relationships.

## Results

### *The Context of the Financial Performance of Banks in the Digital Transformation Era*

Digital transformation in banking, also known as Digibank, is the process of bringing technology and digitalisation into all areas of banking operations. Due to this, customers can perform banking transactions remotely using mobile applications, websites, and other online channels. The banking industry is the first industry to implement a digital transformation plan, with several clear goals as banking operations allow customers to use completely digital channels; have over 30% revenue from digital channels; and the number of transactions that customers make through digital channels is increasing, especially, 100% digital payment services, as well as loan disbursement by financial companies with small loans up to 70% (State Bank of Vietnam, 2022). According to 2022 statistics from the State Bank of Vietnam (SBV), up to 95% of banks plan to build a digital transformation strategy, and 39% of banks approve a separate or integrated digital transformation strategy. IT development strategy and 42% of banks are completing their digital transformation strategy (Table 1). Through statistics of 10 large commercial banks, the investment level for digital transformation is estimated at 15 trillion VND per year. The cost of investing in digital transformation accounts for 20 - 30% of the total operating investment costs, showing that the investment is quite large (Thanh, 2022).

**Table 1**

*Research and Implementation of Digital Transformation Strategies of Banks in Vietnam 2022*

| **Level of research and implementation of digital transformation strategy at the bank** | **Ratio (%)** |
|---|---|
| Not taking into account the formulation of the strategy | 5 |
| Not including strategy development (planning to implement) | 14 |
| Building a digital transformation strategy | 42 |
| Approved separate strategy on digital transformation/ integrated in business strategy | 39 |

*Source*: State Bank of Vietnam's (2022) statistics.

The trend of digital transformation brings positive impacts on the financial performance of banks. According to Tri (2021), the operational costs of digital banking are 67% lower compared to traditional services, and customers using digital banking can generate double revenue. Many large banks in the world have succeeded in digital transformation, recording clear growth in revenue and profits. In a survey by BDO company with C-level positions of 300 large companies in the banking and finance sector, after 3 years of applying digital transformation, 61% of banks had revenue growth of over 10%, and 32% had a growth rate of 1-9%. Thanks to this positive effect, more than 65% of banks are expected to increase their investment budget for digital transformation in the future.

### *Cronbach's Alpha Reliability*

The authors used Cronbach' Alpha reliability coefficient to check the reliability of the built scales. The results of analysing the Cronbach's Alpha coefficient of the scales used in the project are all greater than 0.7 and the total variable correlation coefficient is greater than 0.4 (Table 2). With this result, no observed variables are eliminated. Thus, the scale of all factors meets the required reliability to be used for subsequent analysis.

**Table 2**

*Summary of Results of Assessing the Scale Reliability of Research Concepts*

| Variable | Cronbach's Alpha | Cronbach's Alpha if Item Deleted |
|---|---|---|
| Saving Interest Rate – IR | 0.812 | 0.747 |
| Bank Technology – BT | 0.811 | 0.725 |
| Inflation – IF | 0.832 | 0.780 |
| Liquidity Risk – LD | 0.784 | 0.711 |
| Non-performing Loan Ratio – NL | 0.769 | 0.701 |
| Capital Adequacy Ratio – CAR | 0.818 | 0.772 |
| Satisfaction – SF | 0.813 | 0.761 |
| Perceived ease of use – PU | 0.793 | 0.716 |
| Service Quality – SQ | 0.832 | 0.785 |
| Deposit Mobilization – DM | 0.821 | - |
| Profitability – PF | 0.817 | - |
| Customer Loyalty – CL | 0.823 | 0.708 |
| Financial Performance – FP | 0.859 | 0.822 |

*Source*: Aggregated author group.

### *EFA – Exploratory Factor Analysis*

The research team decided to divide the model into 3 main groups to conduct analysis (Table 3)

- Group 1: Saving Interest Rate - IR, Bank Technology - BT, Inflation - IF, Liquidity Risk - LD, Non-performing Loan Ratio - NL, Capital Adequacy Ratio - CAR, Satisfaction - SF, Perceived ease of use - PU, Service Quality - SQ.
- Group 2: Deposit Mobilisation - DM, Profitability - PF, Customer Loyalty - CL.
- Group 3: Financial Performance - FP.

**Table 3**

*Results of EFA Exploratory Factor Analysis*

| Group | Factor | KMO | p-value | Eigenvalues | Total Variance Explained | The smallest Factor loading |
|---|---|---|---|---|---|---|
| 1 | IR | 0.815 | 0.000 | 6.475 | 61.761% | 0.726 |
| | BT | | | 3.474 | | 0.674 |
| | IF | | | 3.009 | | 0.654 |
| | LD | | | 2.686 | | 0.709 |
| | NL | | | 2.360 | | 0.730 |
| | CR | | | 2.024 | | 0.694 |
| | SF | | | 1.836 | | 0.662 |
| | PU | | | 1.593 | | 0.640 |
| | SQ | | | 1.248 | | 0.675 |
| 2 | DM | 0.623 | 0.000 | 2.491 | 80.203% | 0.908 |
| | PF | | | 1.854 | | 0.909 |
| | CL | | | 1.269 | | 0.815 |
| 3 | FP | 0.893 | 0.000 | 3.525 | 58.747% | 0.740 |

*Source*: Aggregated author group.

The results of the EFA factor analysis show that the KMO coefficients are all greater than 0.5, so EFA is consistent with the data. In addition, Factor Loading is > 0.5, so the observed variables are important in the research factors and have practical significance. Statistics Sig. (Bartlett's Test) = 0.000 < 0.05 shows that the observed variables are correlated with each other in the population.

The factors IR, BT, IF, LD, NL, CR, SF, PU, SQ, DM, PF, CL, and FP all have Eigenvalues greater than 1, so these factors are kept in the model analytical figure. The total value of the extracted variance is greater than 50%, which meets the requirements. The research model is well evaluated.

***Discriminant***

Fornell and Larcker (1981) state that it is recommended to ensure discriminant validity when the square root of the Average Variance Extracted (AVE) for each latent variable exceeds all correlations between the latent variables. However, Henseler et al. (2015) provide convincing evidence that the method proposed by Fornell and Larcker (1981) will not truly assess the "discriminant validity" of a scale (e.g., lacking statistical underpinnings inference). Therefore, the HTMT index is preferred. According to the results from the Table 4, all HTMT values are less than 0.85, so discrimination is guaranteed (Henseler et al., 2015).

**Table 4**

*Discriminant Validity – Heterotrait-Monotrait Ratio (HTMT)*

| | BT | CL | CR | DM | FP | IF | IR | LD | NL | PF | PU | SF | SQ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BT** | | | | | | | | | | | | | |
| **CL** | 0.126 | | | | | | | | | | | | |
| **CR** | 0.216 | 0.203 | | | | | | | | | | | |
| **DM** | 0.473 | 0.074 | 0.088 | | | | | | | | | | |
| **FP** | 0.357 | 0.440 | 0.193 | 0.675 | | | | | | | | | |
| **IF** | 0.072 | 0.055 | 0.328 | 0.258 | 0.245 | | | | | | | | |
| **IR** | 0.633 | 0.118 | 0.247 | 0.532 | 0.420 | 0.137 | | | | | | | |
| **LD** | 0.232 | 0.100 | 0.187 | 0.069 | 0.180 | 0.153 | 0.240 | | | | | | |
| **NL** | 0.257 | 0.088 | 0.120 | 0.157 | 0.163 | 0.122 | 0.105 | 0.182 | | | | | |
| **PF** | 0.221 | 0.208 | 0.299 | 0.286 | 0.608 | 0.345 | 0.233 | 0.399 | 0.313 | | | | |
| **PU** | 0.211 | 0.509 | 0.299 | 0.095 | 0.233 | 0.179 | 0.239 | 0.237 | 0.091 | 0.286 | | | |
| **SF** | 0.193 | 0.321 | 0.416 | 0.097 | 0.148 | 0.135 | 0.161 | 0.158 | 0.092 | 0.227 | 0.248 | | |
| **SQ** | 0.134 | 0.434 | 0.272 | 0.180 | 0.199 | 0.143 | 0.204 | 0.137 | 0.108 | 0.144 | 0.510 | 0.228 | |

*Source*: Aggregated author group.

### *Evaluate Impact Relationships*

To evaluate the impact relationships, the results of Bootstrap analysis were used (Table 5).

**Table 5**

*Path Coefficients – Mean, STDEV, T Statistics, p Values*

| | **Original sample (O)** | **Sample mean (M)** | **Standard deviation (STDEV)** | **T statistics (\|O/STDEV\|)** | **P values** |
|---|---|---|---|---|---|
| BT -> DM | 0.220 | 0.224 | 0.054 | 4.086 | 0.000 |
| CL -> FP | 0.284 | 0.283 | 0.042 | 6.694 | 0.000 |
| CL -> PF | 0.122 | 0.122 | 0.052 | 2.367 | 0.018 |
| CR -> PF | 0.118 | 0.121 | 0.050 | 2.344 | 0.019 |
| DM -> FP | 0.471 | 0.470 | 0.034 | 13.661 | 0.000 |
| DM -> PF | 0.141 | 0.139 | 0.046 | 3.054 | 0.002 |
| IF -> DM | -0.178 | -0.181 | 0.047 | 3.792 | 0.000 |
| IF -> PF | -0.187 | -0.187 | 0.041 | 4.528 | 0.000 |
| IR -> DM | 0.309 | 0.308 | 0.053 | 5.804 | 0.000 |
| LD -> PF | -0.234 | -0.235 | 0.052 | 4.461 | 0.000 |
| NL -> PF | -0.187 | -0.193 | 0.048 | 3.908 | 0.000 |

| | | | | | |
|---|---|---|---|---|---|
| PF -> FP | 0.352 | 0.355 | 0.037 | 9.571 | 0.000 |
| PU -> CL | 0.295 | 0.299 | 0.065 | 4.557 | 0.000 |
| SF -> CL | 0.163 | 0.170 | 0.053 | 3.089 | 0.002 |
| SQ -> CL | 0.214 | 0.215 | 0.048 | 4.417 | 0.000 |

*Source*: Aggregated author group.

The results above show that all P Values of the effects are < 0.05, so these effects are all statistically significant.

There are 3 variables that affect DM: IR, BT, and IF. The standardised impact coefficients of these three variables are 0.309, 0.220, 0.202, and -0.178, respectively. Among them, there are 2 variables that have a positive impact with the level of impact of these 2 variables on DM in order from strong to weak: IR and BT. There is one variable that has a negative impact: IF.

There are 6 variables that affect PF: CL, CR, DM, IF, LD, NL. The standardised impact coefficients of these 6 variables are 0.122, 0.118, 0.141, -0.187, -0.234 respectively: - 0.187. Among them, there are 3 variables that have a positive impact with the level of impact of these 3 variables on PF in order from strong to weak: DM, CL, CR. There are 3 variables that impact inversely with the level of impact of these 3 variables on PF in order from strong to weak: LD, IF, NL.

There are 3 variables that affect quality: PU, SF, SQ. The standardised impact coefficients of these three variables are 0.295, 0.163, 0.214 respectively. Thus, the level of impact of these three variables on quality in order from strong to weak is PU, SQ, SF.

There are 3 variables that affect FP: CL, DM, PF. The standardised impact coefficients of these three variables are 0.284, 0.471, 0.352 respectively. Among them, there are 3 variables that have a positive impact with the level of impact of these 3 variables on FP in order from strong to weak: DM, PF, CL.

**Discussion**

Based on the research findings, deposit mobilisation is a variable with a positive correlation and the greatest impact on the financial performance of banks, with a beta of 0.471. The deposit mobilisation is reflected through indicators such as CASA and the ratio of capital mobilization to total assets. Previous studies have likewise reached similar conclusions, underscoring the significance of this factor in bolstering banks' financial performance (Jayaraman et al., 2021; Upadhya, 2021). A high deposit mobilisation brings many benefits to banks, such as the capital mobilisation costs reduction with lower interest rates. In the era of digital transformation, banks need to focus on developing products, services, improving service quality, and building a reputable brand to attract depositors, increase profits, and achieve sustainable development. Furthermore, this research also confirms a positive correlation between profitability and banks financial performance, with a beta of 0.352. This is the ratio of profit that the bank obtains compared to total assets - ROA or equity - ROE, reflecting the efficiency of bank operations and development potential. Studies by AlFadhli and AlAli (2021), Khan et al. (2023) also demonstrate that banks with high profit growth will have abundant capital for investment, lending, and business expansion, thereby increasing financial performance. The high profitability not only helps banks enhancing their reputation, attracting customers, investors but also increases the stock value, thereby attracting new investments (Kanna et al., 2023). Especially in this study, the authors have demonstrated that the customer loyalty positively influenced the financial performance of banks with a beta impact coefficient of 0.284, at a significance level of 5%. This result is consistent with many previous studies by Nguyen et al. (2022), Tulcanaza-Prieto et al. (2021). Customer loyalty brings many

benefits to boost the financial performance of banks, such as the revenue increase when loyal customers use more products, services, reducing customer acquisition costs, or enhancing brand credibility when loyal customers refer the bank to their relatives, friends. Additionally, in the context of digital transformation, continuously innovating, developing convenient digital banking products, user-friendly interfaces will bring customer satisfaction, thereby retaining them, helping banks enhance financial performance and achieve sustainable development.

The authors find that bank savings interest rates are positively correlated with bank deposit mobilisation at the 5% significance level. This is the factor that has the greatest impact on deposit mobilisation, with a beta coefficient of 0.309. This finding is consistent with previous research results (Banke & Yitayaw, 2022; Legass et al., 2021). Due to the higher the interest rate on savings deposits, the more depositors the bank can attract, leading to an increase in mobilised capital. However, in 2023, although deposit interest rates at Vietnamese banks were only around 5.5%/year (Vov, 2023), deposits in banks still reached more than 13.5 million billion VND (Linh, 2024), as individuals lose confidence in alternative investment channels like stocks and real estate. High interest rates result in increased costs associated with capital mobilisation. Therefore, banks need to carefully consider when deciding on savings deposit interest rates. In the context of digital transformation, banking technology is positively correlated with bank deposit mobilization with the second highest beta coefficient of 0.220. This result is similar to some previous studies by Awoyemi et al. (2021), Maharjan (2022). In today's context, banks worldwide, including those in Vietnam, are embracing digital transformation and experiencing numerous favourable outcomes in deposit mobilisation. Banks that implement technological solutions like online banking, chat bots, AI, and Big Data offer convenient and readily accessible services, thereby attracting a larger number of depositors (Banke & Yitayaw, 2022). In addition, digital banking helps saving space and staff costs, while optimising processes, speeding up transactions, increasing customer satisfaction and deposits can be automatically mobilised (Belete, 2021).

The results also show that the inflation is negatively correlated with the bank deposit mobilisation with a significance level of 5% and impact coefficient -0.178. Study by Banke and Yitayaw (2022) have shown similar results. This phenomenon can be elucidated by the fact that when inflation rates are high, the purchasing power of money declines, prompting individuals to curtail their savings in banks. Contrary to the world trend, in 2023, Vietnam's inflation index will reach the target set by the National Assembly, increasing by 3.25% on average (Khue, 2023). That is also explained why this variable has the lowest impact of all the factors on deposit mobilisation. In addition, inflation is also proven to have a negative impact on bank profitability with beta coefficient = -0.187. This result is consistent with some previous studies by Abebe (2020). When inflation increases, banks must raise deposit interest rates to attract deposits, while not being able to sharply increase lending interest rates correspondingly. The down economic context when high inflation causes businesses' demand for loans in production to decrease, reducing the bank credit growth (Msomi, 2022), which negatively affects bank profit margins.

The liquidity risk is a variable that has a significant and inverse impact on bank profitability, with beta coefficient = -0.234. This is also the conclusion of authors Abdelaziz et al. (2022). When a bank is unable to pay its due financial obligations, it must borrow capital at high interest rates in order to compensate for the liquidity shortage, which affects operating costs and profits. At the same time, high liquidity risk leads to reduced customer confidence, causing them to withdraw money from the bank. From the research results, the non-performing loan ratio has a negative impact on bank profitability, with a beta of -0.187. In the research of Sukmadewi (2020), the authors also pointed out that high non-performing loan ratio leads to banks not being able to recover previously disbursed capital and losing income from interest. The capital adequacy ratio - CAR has been proven by research to have a positive relationship with bank profitability, with beta coefficient = 0.118. Many previous studies have also shown that a high CAR helps banks less dependent on external capital, thereby increasing their ability to absorb losses and improve profits (Jreisat, & Bawazir, 2021; Ozili, & Ndah, 2021). According to

research results, deposit mobilisation positively affects bank profitability, with beta = 0.141. Research by Kalu et al. (2022) and Saif-Alyousfi (2022) also shows that deposit mobilisation has a positive relationship with profits of the bank, leading to the bank having more capital to lend and invest, thereby increasing profits. Moreover, banks with effective deposit mobilisation ability can save costs and increase the bank's profitability (Fatai & Alenoghena, 2024). This result is consistent with the Vietnamese banking industry context when an inevitable trend of Vietnamese commercial banks is to increase demand deposits (CASA) to reduce the cost of capital adequacy ratio.

The research findings indicate that as customer satisfaction increases, their loyalty towards the bank also increases, with a beta coefficient of 0.163. Similar observations were made by Indriastuti and Hidayat (2021) as well as Supriyanto et al. (2021). Consequently, if the bank successfully fulfils customer needs, there is a higher likelihood of customers maintaining a long-term relationship with the bank, availing themselves of its products and services, and recommending it to their family and friends. This underscores the significance of enhancing customer satisfaction for the bank's business operations. Furthermore, the study reveals that perceived ease of use (PU) positively influences customer loyalty to the bank with a beta coefficient of 0.295. This suggests that when customers perceive the bank's services as easy to use, they tend to foster a long-term relationship with the bank (Olivia & Marchyta, 2022; Prastiawan et al., 2021). The service quality, as per the research findings, is positively correlated with the customer loyalty to the bank, with an impact coefficient beta of 0.214. This implies that when customers experience respectable service at the bank, they are inclined to maintain a long-term relationship. In prior studies by Hasan et al. (2023), and Hidayat and Idrus (2023), the authors also highlighted the positive impact of service quality on bank selection decisions and customer loyalty. Particularly, the research illustrates a positive relationship between loyalty and bank profitability with a beta coefficient of 0.122. Many previous studies have also concluded that loyal customers tended to utilise bank services for the long term, thereby increasing the bank's revenue (Supriyanto et al., 2023).

Due to limitations in time and resources, this study has certain constraints as outlined below. Firstly, in the research were used data collected through a survey method in the form of a questionnaire, which may introduce respondent bias and potentially impact the study results. Secondly, the research focus was on a sample from a single developing country, Vietnam, and specifically concentrated on the banking sector. While this sample is suitable for testing the research objectives regarding the impact of factors on financial efficiency in the banking industry, findings may be limited in their generalizability to other contexts within Vietnam's banking sector. Thirdly, in the study financial efficiency was measured based on accounting values (profitability measures and specific financial ratios of the banking sector), without considering market values. Fourthly, the selected factors for investigation did not encompass some other crucial influences on the financial efficiency of banks, such as bank size, social responsibility, etc. This introduces research gaps and opens avenues for future research.

**Conclusions and Recommendations**

Given the limited number of studies on financial efficiency within Vietnam's banking sector, prior research has been encumbered by various limitations in terms of scope and model usage. Additionally, emerging factors like banking technology amidst comprehensive digital transformation have often been overlooked. In addition, there have not been many studies that comprehensively evaluate the macro and internal factors. Additionally, many critical factors like Liquidity Risk and Safety Ratio have not received adequate consideration in existing research. Therefore, in this study the research was conducted on 12 important factors including Saving Interest rate, Bank Technology, Inflation, Liquidity Risk, Non-performing Loan ratio, Capital Adequacy ratio, Satisfaction, Perceived Ease of Use, Service Quality, Deposit mobilization, Profitability, and Customer Loyalty impact the financial performance of the comprehensive research object, which are local banks across Vietnam. By applying widely recognised theories and scales, expanding on achievements, and filling in the gaps of previous research, this study provided a deeper perspective on the direct and indirect impact of important factors on the bank's

financial performance. The findings of this study could provide a useful scientific foundation for bank executives, experts, and governments, thereby promoting the development of the banking industry in general and enhancing the financial performance of banks in the context of digital transformation.

There is a need for the Government to focus on improving the legal framework and regulations related to digital banking in order to ensure safety and transparency. Additionally, the government should issue specific guidelines on digital banking activities to create equal competition conditions among banks. Furthermore, it is essential to enhance awareness among the public about the benefits of digital banking and encourage the use of digital banking services. This can enable the building of a positive digital banking user community during the digital transformation, thereby enhancing financial efficiency for the banking industry.

Given the global inflationary pressures and uncertainties, for the State Bank of Vietnam (SBV), proactive and flexible monetary policy management is crucial. The SBV should play a pivotal role in steering and maintaining the stability and safety of the credit institution system. It is also imperative to require banks to implement advanced cyber security measures in order to protect customer data, thereby fostering customer loyalty for smoother business operations, revenue assurance, and market share retention. Additionally, the SBV can support smaller banks by developing suitable products and creating favourable conditions for accessing capital, ultimately boosting revenue sources. Strengthening supervision activities by SBV over banks and payment systems is necessary to ensure safe and efficient operations, in compliance with legal regulations.

For commercial banks, prioritising training and improving digital skills among employees, modernising bank management systems, and implementing contemporary risk management practices in line with international standards are essential. To operate efficiently and maintain market share, banks need to identify their strengths, monitor competitors' digitalisation pace, and adhere to high-quality service standards and security measures for customer satisfaction and loyalty building. To improve financial situations, banks should further digitise document systems and automate manual processes to reduce capital costs. It is advisable to invest in advanced technologies such as AI and IoT to enhance customer convenience and boost service revenue. Additionally, the implementation of a rigorous credit process, emphasising post-disbursement control to minimise non-performing loan risks, and to improve credit quality is vital. Banks should also offer attractive interest rate packages tied to fixed-term deposits to increase capital mobilisation capacity. Consistently expanding credit, efficiently deploying mobilised capital, and aligning business strategies with digital transformation will assist Vietnamese banks in improving financial efficiency.

***Suggestions for Future Research***

In the future, researchers should explore integrating secondary data from companies' sustainability reports with actual financial performance indicators within the enterprise. This approach can help mitigate risks associated with subjective data collection methods (Likert scale). Studies should also explore cross-industry research in order to understand the industry's impact on financial efficiency and provide a more comprehensive view of Vietnam's overall economic context. Additionally, measuring financial efficiency based on both accounting and market values could yield more holistic results. Authors could compare the differences between banking models, both pre-and post-digital transformation, to propose solutions for improving the banking system and enhancing financial efficiency in the new context. Furthermore, the examination of financial efficiency from the perspective of all stakeholders rather than solely surveying bank employees would offer a more multidimensional view for future research. Lastly, in the era of digital transformation, in-depth studies concerning financial efficiency in banks with new influencing factors like digital adoption rates would theoretically and practically contribute to the development of the industry and financial efficiency in specifically banking.

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**References**

Abdelaziz, H., Rim, B., & Helmi, H. (2022). The interactional relationships between credit risk, liquidity risk and bank profitability in MENA region. *Global Business Review, 23*(3), 561–583. https://doi.org/10.1177/0972150919879304

Abebe, L. (2020). *Factors affecting deposit mobilization on private commercial banks in Ethiopia* [Unpublished doctoral dissertation]. St. Mary's University. http://repository.smuc.edu.et/handle/123456789/5671

Ahmed, R. R., Streimikiene, D., Channar, Z. A., Soomro, R. H., & Streimikis, J. (2021). E-banking customer satisfaction and loyalty: Evidence from serial mediation through modified ES-QUAL model and second-order PLS-SEM. *Engineering Economics, 32*(5), 407–421. https://doi.org/10.5755/j01.ee.32.5.28997

Al-alak, B. A. (2014). Impact of marketing activities on relationship quality in the Malaysian banking sector. *Journal of Retailing and Consumer Services, 21*(3), 347–356. https://doi.org/10.1016/j.jretconser.2013.07.001

Alalwan, A. A., Dwivedi, Y. K., & Rana, N. P. (2017). Factors influencing adoption of mobile banking by Jordanian bank customers: Extending UTAUT2 with trust. *International Journal of Information Management, 37*(3), 99–110. https://doi.org/10.1016/j.ijinfomgt.2017.01.002

AlFadhli, M. S., & AlAli, M. S. (2021). The effect of bank size on financial performance: a case study on Kuwaiti Banks. *Journal of Insurance and Financial Management, 4*(3), 11-15.

Alnaser, F. M., Ghani, M. A., Rahi, S., Mansour, M., & Abed, H. (2017). The influence of services marketing mix (7 ps. ) and subjective norms on customer's satisfaction in Islamic banks of Palestine. *European Journal of Business and Management, 9*(27), 20–25.

Al Zaidanin, J. (2020). A study on financial performance of the Jordanian commercial banks using the CAMEL model and panel data approach. *International Journal of Finance & Banking Studies (2147-4486), 9*(4), 111–130. https://doi.org/10.20525/ijfbs.v9i4.978

Amene, T. B., & Alemu, G. A. (2019). Determinants of financial performance in private banks: A case in Ethiopia. *African Journal of Business Management, 13*(9), 291–308. https://doi.org/10.5897/AJBM2019.8771

Antoun, R., Coskun, A., & Georgievski, B. (2018). Determinants of financial performance of banks in Central and Eastern Europe. *Business and Economic Horizons, 14*(3), 513–529. https://doi.org/10.15208/beh.2018.37

Antwi, B. A.-G. (2015). Mobilizing deposits: The role of commercial banks in Ghana. South American Journal of Management, 1(2), 2–13. https://www.texilajournal.com/thumbs/article/Management_Vol%201_Issue%202_Article_7.pdf

Awoyemi, S. O., Adejuwon, O. O., & Ogundari, I. O. (2021). An assessment of technological capabilities and deposit-mobilization technologies in selected micro-finance banks in Southwestern Nigeria.

*Journal of Banking and Financial Technology, 5*, 59–69. https://doi.org/10.1007/s42786-021-00028-3

Banke, N. K., & Yitayaw, M. K. (2022). Deposit mobilization and its determinants: Evidence from commercial banks in Ethiopia. *Future Business Journal, 8*(1), Article 32. https://doi.org/10.1186/s43093-022-00144-6

Banson, F. A. K., Sey, E., & Sakoe, J. (2012). The role of mobile deposit in deposit mobilization in Ghana. *Asian Journal of Business and Management Sciences, 3*(03) 1–18. https://www.researchgate.net/publication/301604850_The_Role_of_Mobile_Deposit_in_Deposit_Mobilization_in_Ghana

Bao, P. T. (2016). *Analyzing factors affecting the financial performance of Vietnamese joint stock commercial banks* [Unpublished master's thesis]. University of Economics. https://digital.lib.ueh.edu.vn/handle/UEH/49733

Belás, J., & Gabčová, L. (2016). The relationship among customer satisfaction, loyalty and financial performance of commercial banks. *E + M Ekonomie a Management, 19*(1), 132–147. https://doi.org/10.15240/tul/001/2016-1-010

Belete, L. (2021). Factors affecting deposit mobilization process in the case of Debub Global Bank S.C. [Unpublished doctoral dissertation]. St. Mary's University. http://repository.smuc.edu.et/handle/123456789/6068

Berger, A. N., Kashyap, A. K., Scalise, J. M., Gertler, M., & Friedman, B. M. (1995). The transformation of the US banking industry: What a long, strange trip it's been. *Brookings Papers on Economic Activity, 1995*(2), 55–218. https://www.brookings.edu/wp-content/uploads/1995/06/1995b_bpea_berger_kashyap_scalise_gertler_friedman.pdf

Bibi, N., & Amjad, S. (2017). The relationship between liquidity and firms' profitability: A case study of Karachi Stock Exchange. *Asian Journal of Finance & Accounting, 9*(1), 54–67. https://doi.org/10.5296/ajfa.v9i1.10600

Boonlertvanich, K. (2019). Service quality, satisfaction, trust, and loyalty: the moderating role of main-bank and wealth status. *International Journal of Bank Marketing, 37*(1), 278–302, https://doi.org/10.1108/IJBM-02-2018-0021

Chikwem, S. O. (2018). *Effects of deposits mobilization on the financial performance of microfinance Banks In Nigeria* [Unpublished other thesis]. Godfrey Okoye University. http://eprints.gouni.edu.ng/669/

Chimkono, E. E., Muturi, W., & Njeru, A. (2016). Effect of non-performing loans and other factors on performance of commercial banks in Malawi. *International Journal of Economics, Commerce and Management, 4*(2), 549–563. https://ijecm.co.uk/wp-content/uploads/2016/02/4231.pdf

Decision No. 749/QD-TTg of the Prime Minister: Approving the "National Digital Transformation Program to 2025, orientation to 2030". (2020). https://chinhphu.vn/default.aspx?pageid=27160&docid=200163

Edvardsson, B., Johnson, M. D., Gustafsson, A., & Strandvik, T. (2000). The effects of satisfaction and loyalty on profits and growth: Products versus services. *Total Quality Management, 11*(7), 917–927. https://doi.org/10.1080/09544120050135461

Fareso, D. D. (2023). *Determinants of financial performance of commercial banks in Ethiopia* [Unpublished doctoral dissertation].

Fatai, A. O., & Alenoghena, R. O. (2024). The role of deposit growth in the productivity of deposit money banks in Nigeria: case study of Union and Wema Banks in Lagos State. *International Journal of Research and Scientific Innovation, 10*(12), 234–246.

Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*, 382–388. http://dx.doi.org/10.2307/3150980

Gabriel, O., Victor, I. E., & Innocent, I. O. (2019). Effect of non-performing loans on the financial performance of commercial banks in Nigeria. *American International Journal of Business and Management Studies, 1*(2), 1–9. https://doi.org/10.46545/aijbms.v1i2.82

Garo, G. (2015). *Determinants of deposit mobilization and related costs of commercial banks in Ethiopia* [Unpublished research project paper]. Department of Management, College of Business and Economics.

Gartenberg, C., Prat, A., & Serafeim, G. (2019). Corporate purpose and financial performance. *Organization Science, 30*(1), 1–18. https://www.ecgi.global/sites/default/files/Corporate%20Purpose%20and%20Financial%20Performance-%20Paper.pdf

Gofwan, H. (2022). Effect of accounting information system on financial performance of firms: A review of literature. In *History of accounting thoughts: A methodological approach* (pp. 55–60). Bingham University. https://www.scribd.com/document/613661020/GOFWAH

Golovkova, A., Eklof, J., Malova, A., & Podkorytova, O. (2019). Customer satisfaction index and financial performance: A European cross country study. *International Journal of Bank Marketing, 37*(2), 479–491. https://doi.org/10.1108/IJBM-10-2017-0210

Gounaris, S., Dimitriadis, S., & Stathakopoulos, V. (2010). An examination of the effects of service quality and satisfaction on customers' behavioral intentions in e-shopping. *Journal of Services Marketing, 24*(2), 142–156. https://doi.org/10.1108/08876041011031118

Goyal, P., & Chanda, U. (2017). A Bayesian Network Model on the association between CSR, perceived service quality and customer loyalty in Indian Banking Industry. *Sustainable Production and Consumption, 10*, 50–65. https://doi.org/10.1016/j.spc.2016.12.001

Gupta, N., & Mahakud, J. (2020). Ownership, bank size, capitalization and bank performance: Evidence from India. *Cogent Economics & Finance, 8*(1), Article 1808282. https://doi.org/10.1080/23322039.2020.1808282

Hair, J. F., Tatham, R. L., Anderson, R. E., & Black, W. (1998). *Multivariate data analysis* (5th ed.). New Jersey: Prentice-Hall.

Hannoon, A., Al-Sartawi, A. M. M., & Khalid, A. A. (2021). Relationship between financial technology and financial performance. In *The big data-driven digital economy: Artificial and computational intelligence* (pp. 337–344). Cham: Springer. https://doi.org/10.1007/978-3-030-73057-4_26

Hapsari, I. (2018). Moderating role of size in the effect of loan to deposit ratio and non-performing loan toward banking financial performance. In *2018 3rd International conference on education, sports, arts and management engineering (ICESAME 2018)* (pp. 351–354). Atlantis Press. https://doi.org/10.2991/amca-18.2018.96

Haq, I. U., & Awan, T. M. (2020). Impact of e-banking service quality on e-loyalty in pandemic times through interplay of e-satisfaction. *Vilakshan-XIMB Journal of Management, 17*(1/2), 39–55. https://doi.org/10.1108/XJM-07-2020-0039

Hasan, M. S. A., Manurung, A. H., & Usman, B. (2020). Determinants of bank profitability with size as moderating variable. *Journal of Applied Finance and Banking, 10*(3), 153–166. https://ideas.repec.org/a/spt/apfiba/v10y2020i3f10_3_7.html

Hasan, M. M., Siam, S. A. J., & Haque, A. (2023). The significance of customer service in establishing trust and enhancing the reputation of the banking industry in Bangladesh. *Business and Economics in Developing Countries, 1*(2), 47–51. https://doi.org/10.26480/bedc.02.2023.47.51

Hazaea, S. A., Tabash, M. I., Khatib, S. F., Zhu, J., & Al-Kuhali, A. A. (2020). The impact of internal audit quality on financial performance of Yemeni commercial banks: An empirical investigation. *The Journal of Asian Finance, Economics and Business, 7*(11), 867–875. https://doi.org/10.13106/jafeb.2020.vol7.no11.867

Hegner-Kakar, A.-K., Richter, N. F., & Ringle, C. M. (2018). The customer loyalty Cascade and its impact on profitability in financial services. In N. K. Avkiran & C. M. Ringle (Eds.), *Partial least squares structural equation modeling: Recent advances in banking and finance* (pp. 53–75). Cham: Springer. https://doi.org/10.1007/978-3-319-71691-6_3

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43*(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Herald, F. & Heiko, H. (2009). *Lebanon-determinants of commercial banks deposits in a regional financial center* (Working paper WP/09/195). IMF. https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Lebanon-Determinants-of-Commercial-Bank-Deposits-in-a-Regional-Financial-Center-23256

Hermuningsih, S., & Rahmawati, A. D. (2022). Integrating bank size, liquidity, and financial performance into moderating financial technology: A case study of sharia commercial banks in Indonesia. *JAM: Jurnal Aplikasi Manajemen, 20*(4), 938–949. https://jurnaljam.ub.ac.id/index.php/jam/article/view/2863

Hidayat, F., & Kurniasih, A. (2022). Financial Performance Determinants of Financing Companies Listed on the Indonesia Stock Exchange. *Saudi Journal of Economics and Finance, 6*(4), 141–146. https://doi.org/10.36348/sjef.2022.v06i04.004

Hidayat, K., & Idrus, M. I. (2023). The effect of relationship marketing towards switching barrier, customer satisfaction, and customer trust on bank customers. *Journal of Innovation and Entrepreneurship, 12*(1), Article 29. https://doi.org/10.1186/s13731-023-00270-7

Hult, G. T. M., Ketchen, D. J., Griffith, D. A., Chabowski, B. R., Hamman, M. K., Dykes, B. J., ... & Cavusgil, S. T. (2008). An assessment of the measurement of performance in international business research. *Journal of International Business Studies, 39*, 1064–1080. https://doi.org/10.1057/palgrave.jibs.8400398

Hussien, M. I., & Aziz, R. a. E. (2013). Investigating e-banking service quality in one of Egypt's banks: A stakeholder analysis. *The TQM Journal, 25*(5), 557–576. https://doi.org/10.1108/TQM-11-2012-0086

Ichsan, R., Suparmin, S., Yusuf, M., Ismal, R., & Sitompul, S. (2021). Determinant of Sharia bank's financial performance during the Covid-19 pandemic. *Budapest International Research and Critics Institute-Journal (BIRCI-Journal), 4*(1), 298–309. https://doi.org/10.33258/birci.v4i1.1594

Imbuga, B. M. (2014). *An assessment of the effect of inflation on loan repayment among commercial banks in Kenya* [Unpublished doctoral dissertation]. University of Nairobi. http://erepository.uonbi.ac.ke/handle/11295/75097

Indriastuti, D., & Hidayat, A. (2021). The importance of service experience, trust, and satisfaction on banking customer loyalty. *European Journal of Business and Management Research, 6*(3), 92–98. https://doi.org/10.24018/ejbmr.2021.6.3.864

Irawati, N., Maksum, A., Sadalia, I., & Muda, I. (2019). Financial performance of Indonesian's banking industry: the role of good corporate governance, capital adequacy ratio, non performing loan and size. *International Journal of Scientific and Technology Research, 8*(4), 22–26.

Jayaraman, G., Azad, I., & Ahmed, H. S. (2021). The impact of financial variables on firm profitability: an empirical study of commercial banks in Oman. *The Journal of Asian Finance, Economics and Business, 8*(5), 885–896. https://doi.org/10.13106/jafeb.2021.vol8.no5.0885

Jha, S., & Hui, X. (2012). A comparison of financial performance of commercial banks: A case study of Nepal. *African Journal of Business Management, 6*(25), Article 7601. https://doi.org/10.5897/AJBM11.3073

Jreisat, A., & Bawazir, H. (2021). Determinants of banks profitability in the middle east and north Africa region. *The Journal of Asian Finance, Economics and Business, 8*(6), 701–711. https://koreascience.kr/article/JAKO202115563416845.pdf

Kalu, E. U., Awa, K. I., Udemezue, N., Olisekebe, V. I., & Oko, P. O. (2022). Measuring the impact of bank deposit mobilization on the growth of the Nigerian economy. *Path of Science, 8*(6), 1028–1037. https://doi.org/10.22178/pos.82-10

Kamarudin, F., Sufian, F., Nassir, A. M., Anwar, N. A. M., & Hussain, H. I. (2019). Bank efficiency in Malaysia a DEA approach. *Journal of Central Banking Theory and Practice, 8*(1), 133–162. https://doi.org/10.2478/jcbtp-2019-0007

Kanna, H. R., Ruma, Z., & Sahabuddin, R. (2023). Profitability ratio analysis to measure financial performance at PT. Bank Sulselbar Makassar Main Branch. *International Journal of Social Science, Education, Communication and Economics (SINOMICS JOURNAL), 2*(3), 463–472. https://sinomicsjournal.com/index.php/SJ/article/view/149

Kaushik, A. K., & Rahman, Z. (2015). Innovation adoption across self-service banking technologies in India. *International Journal of Bank Marketing, 33*(2), 96–121. https://doi.org/10.1108/IJBM-01-2014-0006

Kelecic, P. (2020). Covid-19 crisis: Opportunity for banks to reshape service models and foster digital transformation. *International Journal of Contemporary Business and Entrepreneurship, 1*(1), 50–61. https://hrcak.srce.hr/file/356365

Khan, S., Polat, A., & Bashir, U. (2023). Factors affecting the financial performance of Islamic banks in Pakistan. *FWU Journal of Social Sciences, 17*(1), 58–70.

Khue, V. (2023, December 29). *CPI in 2023 increased by 3.25%, reaching the target set by the National Assembly*. VnEconomy. https://vneconomy.vn/cpi-nam-2023-tang-3-25-dat-muc-tieu-quoc-hoi-de-ra.htm

Kimani, P. G. (2023). Determinants of financial performance of general insurance companies in Kenya [Unpublished doctoral dissertation]. KCA University. https://repository.kcau.ac.ke/bitstream/handle/123456789/1483/Kimani-Determinants%20Of%20Financial%20Performance%20Of%20General%20Insurance%20Companies%20in%20Kenya.pdf?sequence=1&isAllowed=y

Kingu, P. S., Macha, S., & Gwahula, R. (2018). Impact of non-performing loans on bank's profitability: Empirical evidence from commercial banks in Tanzania. *International Journal of Scientific Research and Management, 6*(1), 71–79. https://doi.org/10.18535/ijsrm/v6i1.em11

Kong, Y., Musah, M., & Agyemang, A. O. (2019). Liquidity and financial performance: A correlational analysis of quoted non-financial firms in Ghana. *International Journal of Trend in Scientific Research and Development (IJTSRD), 3*(5), 133–143. https://doi.org/10.31142/ijtsrd25248

Kunze, F., Boehm, S., & Bruch, H. (2013). Organizational performance consequences of age diversity: Inspecting the role of diversity-friendly HR policies and top managers' negative age stereotypes. *Journal of Management Studies, 50*(3), 413–442. https://doi.org/10.1111/joms.12016

Lan, H. (2024, January 22). *Credit risk forecast in 2024*. Economic Life in Vietnam & the World. https://vneconomy.vn/du-bao-rui-ro-tin-dung-nam-2024.htm

Larivière, B., Keiningham, T.L., Aksoy, L., Yalçin, A., Morgeson, F.V. and Mithas, S. (2016). Modeling heterogeneity in the satisfaction, loyalty intention, and shareholder value linkage: A cross-industry analysis at the customer and firm levels. *Journal of Marketing Research, 53*(1), 91–109. https://doi.org/10.1509/jmr.12.0143

Legass, H. A., Shikur, A. A., & Ahmed, O. M. (2021). Determinants of commercial banks deposit growth evidence from Ethiopian commercial banks. *Journal of Finance and Accounting, 9*(6), 207–215. https://doi.org/10.11648/j.jfa.20210906.11

Lin, B. W., Lee, Y., & Hung, S. C. (2006). R&D intensity and commercialization orientation effects on financial performance. *Journal of Business Research, 59*(6), 679–685. https://doi.org/10.1016/j.jbusres.2006.01.002

Linh, V. (2024, January 9). *Interest rates hit bottom, bank deposits still increased to a record high*. Securities News. https://www.tinnhanhchungkhoan.vn/lai-suat-cham-day-tien-gui-vao-ngan-hang-van-tang-ky-luc-post337452.html

Maharjan, S. (2022). *Deposit mobilization of commercial banks in Nepal* [Unpublished doctoral dissertation]. Tribhuvan University.

Malakolunthu, S., & Rengasamy, N. C. (2012). Education policies and practices to address cultural diversity in Malaysia: Issues and challenges. *Prospects, 42*, 147–159. https://doi.org/10.1007/s11125-012-9227-9

Mendes, V., & Abreu, M. (2003). Do macro-financial variables matter for european bank interest margins and profitability?. In *EcoMod2003 International conference on policy modeling*. Global Economic Modeling Network. https://ecomod.net/sites/default/files/document-conference/ecomod2003/Abreu.pdf

Mohammad, N., & Mahdi, S. (2010). The role of inflation in financial repression: Evidence from Iran *World Applied Sciences Journal*, (11), 653–661. https://www.researchgate.net/publication/279885924_The_Role_of_Inflation_in_Financial_Repression_Evidence_from_Iran

Msomi, T. S. (2022). Factors affecting non-performing loans in commercial banks of selected West African countries. *Banks and Bank Systems, 17*(1), 1–12. http://dx.doi.org/10.21511/bbs.17(1).2022.01

Mujeri, M. K., & Younus, S. (2009). An analysis of interest rate spread in the banking sector in Bangladesh. *The Bangladesh Development Studies, 32*(4), 1–33. https://www.jstor.org/stable/40795734

Murinde, V., Rizopoulos, E., & Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. *International Review of Financial Analysis, 81*, Article 102103. https://doi.org/10.1016/j.irfa.2022.102103

Naceur, S. B., & Goaied, M. (2001), The determinants of the Tunisian deposit banks performance. *Applied Financial Economics, 11*(3), 317–319. https://doi.org/10.1080/096031001300138717

Namazi, M., & Salehi, M. (2010). The role of inflation in financial repression: Evidence of Iran. *World Applied Sciences Journal, 11*(6), 653–661. https://www.researchgate.net/publication/279885924_The_Role_of_Inflation_in_Financial_Repression_Evidence_from_Iran

Nataraja, N. S., Chilale, N. R., & Ganesh, L. (2018). Financial performance of private commercial banks in India: Multiple regression analysis. *Academy of Accounting and Financial Studies Journal, 22*(2), 1–12. https://www.abacademies.org/articles/Financial-Performance-of-Private-Commercial-Banks-in%20India-Multiple-Regression-Analysis-1528-2635-22-2-136.pdf

Ngan, N. B., Trung L. H., N. T. V., & Quynh, V. H. (2021). The impact of the minimum capital adequacy ratio on the profitability ratio and risk level of Vietnamese commercial banks. Journal of *Economics and Development, 294*, 2–12. https://js.ktpt.edu.vn/index.php/jed/article/view/151

Nguyen, T. (2023, October 13). *When customers are the focus in the race to digitally transform banking*. Urban Economic Newspaper. https://kinhtedothi.vn/khi-khach-hang-la-trong-tam-trong-cuoc-dua-chuyen-doi-so-ngan-hang.html

Nguyen, N. T. H., Kim-Duc, N., & Freiburghaus, T. L. (2022). Effect of digital banking-related customer experience on banks' financial performance during Covid-19: A perspective from Vietnam. *Journal of Asia Business Studies, 16*(1), 200–222. https://doi.org/10.1108/JABS-09-2020-0366

Nguyen, T. T. C., Le, A. T. H., & Nguyen, C. V. (2023a). Internal factors affect the financial performance of an organization's business processes. *Business Process Management Journal, 29*(5), 1408–1435. https://doi.org/10.1108/BPMJ-10-2022-0486

Nguyen, X. H., Nguyen, H. D., Le, B. T. H., Tran, T. T. M., & Nguyen, T. M. P. (2023b). Factors affecting mobile payment adoption: A systematic literature review and some future research directions. *International Journal of Research and Review, 10*(4), 385–398. https://doi.org/10.52403/ijrr.20230447

Noor, A., & Lodhi, S. (2015). Impact of liquidity ratio on profitability: An empirical study of automobile sector in Karachi. *International Journal of Scientific and Research Publications, 5*(11), 639–646.

Okun, D. M. (2012). *The effect of level of deposits on financial performance of commercial banks in Kenya* [Unpublished doctoral dissertation]. University of Nairobi. http://erepository.uonbi.ac.ke/handle/11295/12539

Olgu, Ö. (Ed.). (2014). *Handbook of research on strategic developments and regulatory practice in global finance*. IGI Global. https://doi.org/10.4018/978-1-4666-7288-8

Olivia, M., & Marchyta, N. K. (2022). *The influence of perceived ease of use and perceived usefulness on E-wallet continuance intention: Intervening role of customer satisfaction* [Unpublished doctoral dissertation]. Petra Christian University.

Omoregie, O. K., Addae, J. A., Coffie, S., Ampong, G. O. A., & Ofori, K. S. (2019). Factors influencing consumer loyalty: evidence from the Ghanaian retail banking industry. *International Journal of Bank Marketing, 37*(3), 798–820. https://doi.org/10.1108/IJBM-04-2018-0099

Orshi, T. S. (2016). *Impact of liquidity management on the financial performance of listed food and beverages companies in Nigeria* [Unpublished master thesis]. Nigerian Defence Academy. https://doi.org/10.13140/RG.2.2.27672.80644

Ozili, P. K., & Ndah, H. (2021). Impact of financial development on bank profitability. *Journal of Economic and Administrative Sciences*. https://doi.org/10.1108/JEAS-07-2021-0140

Pervan, M., Pelivan, I., & Arnerić, J. (2015). Profit persistence and determinants of bank profitability in Croatia. *Economic Research, 28*(1), 284–298. https://doi.org/10.1080/1331677X.2015.1041778

Philips, G. E. (1968). Pension liabilities and assets. *The Accounting Review, 43*(1), 10–17. https://www.jstor.org/stable/244111

Phuong, N. T., Luan, L. T., Van Dong, V., & Khanh, N. L. N. (2020). Examining customers' continuance intentions towards e-wallet usage: The emergence of mobile payment acceptance in Vietnam. *The Journal of Asian Finance, Economics and Business, 7*(9), 505–516. https://doi.org/10.13106/jafeb.2020.vol7.no9.505

Prastiawan, D. I., Aisjah, S., & Rofiaty, R. (2021). The effect of perceived usefulness, perceived ease of use, and social influence on the use of mobile banking through the mediation of attitude toward use. *APMBA (Asia Pacific Management and Business Application), 9*(3), 243–260. https://doi.org/10.21776/ub.apmba.2021.009.03.4

Reichheld, F. (2006). The ultimate question: Driving good profits and true growth. *South Asian Journal of Management, 15*(1), 137–139. https://sajm-amdisa.org/sajm_journals/SAJM_15.1.pdf#page=135

Rizwan, M., Khan, W. A., Azhar, M. S., & Sarwar, S. (2021). The role of channel integration in customers' perceptions transfer from offline channel to online channel service quality. *Journal of Management Practices, Humanities and Social Sciences, 5*(2), 60–73. https://doi.org/10.33152/jmphss-5.2.7

Robin, I., Salim, R., & Bloch, H. (2018). Financial performance of commercial banks in the post-reform era: Further evidence from Bangladesh. *Economic Analysis and Policy, 58*, 43–54. https://doi.org/10.1016/j.eap.2018.01.001

Rose, P. S., & Hudgins, S. C. (2005). *Bank management & financial services* (7th ed.). Boston : McGraw-Hill/Irwin. http://library.isvnu.vn/cgi-bin/koha/opac-detail.pl?biblionumber=5987

Rosmanidar, E., Al Hadi, A. A., & Ahsan, M. (2021). Islamic banking performance measurement: A conceptual review of two decades. *International Journal of Islamic Banking and Finance Research, 5*(1), 16–33. https://doi.org/10.46281/ijibfr.v5i1.1056

Saif-Alyousfi, A. Y. (2022). Determinants of bank profitability: evidence from 47 Asian countries. *Journal of Economic Studies, 49*(1), 44–60. https://doi.org/10.1108/JES-05-2020-0215

Santos, J. B., & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *BAR-Brazilian Administration Review, 9*, 95–117. https://doi.org/10.1590/S1807-76922012000500007

Sebayang, P. (2020). The impact of the capital adequacy ratio, non-performing loan against to return on equity (Case study private bank in Indonesia). *SHS Web of Conferences, 76*, Article 01035. https://doi.org/10.1051/shsconf/20207601035

Sewaka, S., Anggraini, K., Mas'adi, M., Nurhadi, A., & Arianto, N. (2021). The effect of customer satisfaction and service quality of banking products on loyalty of bank customer in Tangerang. *International Journal of Artificial Intelligence Research, 6*(11). https://garuda.kemdikbud.go.id/documents/detail/2644768

Shankar, A., & Jebarajakirthy, C. (2019). The influence of e-banking service quality on customer loyalty. *International Journal of Bank Marketing, 37*(5), 1119–1142. https://doi.org/10.1108/IJBM-03-2018-0063

Singh, K., & Rastogi, S. (2023). Corporate governance and financial performance: evidence from listed SMEs in India. *Benchmarking: An International Journal, 30*(4), 1400–1423. https://doi.org/10.1108/BIJ-09-2021-0570

Singh, S., Darwish, T. K., & Potočnik, K. (2016). Measuring organizational performance: A case for subjective measures. *British Journal of Management, 27*(1), 214–224. https://doi.org/10.1111/1467-8551.12126

Sofyan, M. (2019). Analysis financial performance of rural banks in Indonesia. *International Journal of Economics, Business and Accounting Research (IJEBAR), 3*(03). https://doi.org/10.29040/ijebar.v3i03.588

Stalmachova, K., Chinoracky, R., & Strenitzerova, M. (2021). Changes in business models caused by digital transformation and the COVID-19 pandemic and possibilities of their measurement—case study. *Sustainability, 14*(1), Article 127. https://doi.org/10.3390/su14010127

State Bank of Vietnam. (2022, December 21). *Digital transformation of the banking industry contributes to the realization of the National Strategy on development of the digital economy and digital society*. https://tapchinganhang.gov.vn/chuyen-doi-so-nganh-ngan-hang-gop-phan-hien-thuc-hoa-muc-tieu-chien-luoc-quoc-gia-ve-phat-trien-kinh.htm

Stulz, R. M. (2022). FinTech, BigTech, and the future of banks. *Journal of Applied Corporate Finance, 34*(1), 106–117. https://doi.org/10.1111/jacf.12492

Sukmadewi, R. (2020). The effect of capital adequacy ratio, loan to deposit ratio, operating-income ratio, non-performing loans, net interest margin on banking financial performance. *eCo-Buss, 2*(2), 1–10. https://doi.org/10.32877/eb.v2i2.130

Supriyanto, A., Wiyono, B. B., & Burhanuddin, B. (2021). Effects of service quality and customer satisfaction on loyalty of bank customers. *Cogent Business & Management, 8*(1). https://doi.org/10.1080/23311975.2021.1937847

Tarekegn, G. (2018). Determinants of deposit mobilization in Ethiopian commercial banks. *Horn of African Journal of Business and Economics (HAJBE), 1*(1), 67–76. https://journals.ju.edu.et/index.php/jbeco/article/download/2424/1252

Teshome, E., Debela, K., & Sultan, M. (2018). Determinant of financial performance of commercial banks in Ethiopia: Special emphasis on private commercial banks. *African Journal of Business Management, 12*(1), 1–10. https://doi.org/10.5897/AJBM2017.8470

Thaichon, P., Lobo, A., & Mitsis, A. (2014). An empirical model of home internet services quality in Thailand. *Asia Pacific Journal of Marketing and Logistics, 26*(2), 190–210. https://doi.org/10.1108/APJML-05-2013-0059

Thanh, N.T.K. (2022). *Digital transformation for cooperative credit institutions – Current status and issues*. https://www.sbv.gov.vn/webcenter/portal/vi/menu/fm/ddnhnn/nctd/nctd_chitiet

Tri, D. Q. (2021). *Developing digital banking services in Vietnam*. CÔNG THƯƠNG. https://tapchicongthuong.vn/bai-viet/phat-trien-dich-vu-ngan-hang-so-o-viet-nam-78706.htm

Trong, H., & Ngoc, C. N. M. (2008). *Statistics applied in socio-economic*. Statistics, 537. https://sachvui.com/ebook/phan-tich-du-lieu-nghien-cuu-voi-spss-tap-1-hoang-trong-chu-nguyen-mong-ngoc.857.html

Truc, H. T. T. (2023). *Theoretical model of factors affecting the financial performance of listed banks*. Tài chính. https://tapchitaichinh.vn/mo-hinh-ly-thuyet-cac-yeu-to-anh-huong-den-hieu-qua-tai-chinh-cac-ngan-hang-niem-yet.html

Tulcanaza-Prieto, A. B., Aguilar-Rodríguez, I. E., & Lee, C. W. (2022). Customer perception and its influence on the financial performance in the Ecuadorian banking environment. *Sustainability, 14*(12), Article 6960. https://doi.org/10.3390/su14126960

Tuyishime, R., Memba, F., & Mbera, Z. (2015). The effects of deposit mobilization on financial performance in commercial banks in Rwanda. A case of equity bank Rwanda limited. *International Journal of small business and entrepreneurship research, 3*(6), 44–71.

Tweneboah-Koduah, E. Y., & Farley, A. Y. D. (2016). Relationship between customer satisfaction and customer loyalty in the retail banking sector of Ghana. *International Journal of Business and Management, 11*(1), Article 249. https://doi.org/10.5539/ijbm.v11n1p249

Umobong, A. A., & Agburuga, U. T. (2019). The nexus of asset composition with accounting and market performance of firms in Nigeria. *Nexus, 10*(22). https://doi.org/10.7176/JESD/10-22-01

Upadhya, B. R. (2021). *Deposit mobilization of commercial banks in Nepal* [Unpublished doctoral dissertation]. Tribhuvan University. https://elibrary.tucl.edu.np/bitstream/123456789/6337/1/final__VIVA__Bhoj%20%281%29%20%282%29.pdf

Usman, O. A., & Adejare, A.T. (2013) Inflation and capital market performance: The Nigerian outlook. *Journal of Emerging Trends in Economics and Management Sciences, 5*(1), 93–99. https://www.scholarlinkinstitute.org/jetems/articles/Inflation%20and%20Capital%20Market.pdf

Vij, S., & Bedi, H. S. (2016). Are subjective business performance measures justified?. *International Journal of Productivity and Performance Management, 65*(5), 603–621. https://doi.org/10.1108/IJPPM-12-2014-0196

Viswanadhan, P., Tadele, Y., Bonso, M. (2014), The effects of location and information technology on banks deposit mobilization status in Ethiopia: Empirical evidence on private commercial banks in Adama Town. *International Journal of Science and Research, 4*(12), 616–620. https://doi.org/10.21275/v4i12.nov152023

VOV. (2023). *By the end of 2023, deposit interest rates will decrease to "bottom."* https://vov.vn

Xu, M. T., Hu, K., & Das, M. U. S. (2019). *Bank profitability and financial stability*. International Monetary Fund. https://www.imf.org/en/Publications/WP/Issues/2019/01/11/Bank-Profitability-and-Financial-Stability-46470

Yao, H., Haris, M., & Tariq, G. (2018). Profitability determinants of financial institutions: Evidence from banks in Pakistan. *International Journal of Financial Studies, 6*(2), Article 53. https://doi.org/10.3390/ijfs6020053

Yusoff, H., B. (2017). *Effect of liquidity and solvency on profitability in public listed consumer product companies in Malaysia* [Unpublished MBA thesis]. University Tun Hussein Onn. http://eprints.uthm.edu.my/id/eprint/9865/

Zohra, B. F. (2020). Knowledge governance and its importance in activating knowledge: Case study of a group of banks sharing between organizations. *Strategy & Development Review, 10*(5). https://www.asjp.cerist.dz/en/downArticle/276/10/5/130479