



THE INFLUENCE OF DIVERSIFYING INCOME SOURCES ON THE FINANCIAL PERFORMANCE: AN EMPIRICAL STUDY ON VIETNAMESE COMMERCIAL BANKS

Nguyen Minh Nhat^{1*}, Phan Ngọc Mai Anh¹

¹Ho Chi Minh University of Banking, Vietnam

ARTICLE INFO	ABSTRACT
<p>DOI: 10.52932/jfm.v15i5.511</p> <p><i>Received:</i> March 26, 2024</p> <p><i>Accepted:</i> June 17, 2024</p> <p><i>Published:</i> July 25, 2024</p> <p>Keywords: Financial performance; Generalized Method of Moments; Income diversification.</p> <p>JEL Codes: G21, G32, B26</p>	<p>This research investigates the impact of income diversification on the financial outcomes of commercial banks in Vietnam. The analysis utilizes financial reports from 26 Vietnamese commercial banks spanning from 2012 to 2022. A variety of analytical methods, including the Pooled Ordinary Least Squares (OLS) model, Fixed Effects Model (FEM), Random Effects Model (REM), and System Generalized Method of Moments (SGMM) models, were employed to evaluate the data. The findings suggest that diversifying income streams enhances the financial health of commercial banks. The case of Vietnamese banks indicates that bank growth and an increase in borrowing activities positively influence financial results. Additionally, it is recommended that banks manage the deposit ratios of customers and lower the ratio of loan loss provisions to optimize financial performance.</p>

**Corresponding author:*

Email: nhatnm@hub.edu.vn

1. Introduction

Traditional wisdom within the banking sector suggests that spreading out income sources enhances financial stability by lowering the unpredictability of earnings for commercial banks. This practice gained momentum in the early 2000s as banks worldwide began to diversify their operations, either in response to competitive pressures or lured by the potential gains from financial investments (DeYoung & Roland, 2001). The intense competition prompted banks to transition from relying predominantly on interest-based income to incorporating more non-interest income, aiming to preserve their market position and boost profitability.

The COVID-19 pandemic has had a profound impact on the global economy, disrupting the operations and business activities of many organizations, including banks. This disruption was particularly pronounced for Vietnamese banks, which primarily rely on in-person transactions, as the pandemic restrictions hampered their transactional activities and, consequently, their profitability. In addition, the post-COVID-19 impact has made the Vietnamese economy more difficult, with a decrease in the demand for loans from people and businesses, leading to a decrease in credit growth despite many efforts by Vietnamese banks. Thereby, income diversification has become an important factor for the performance of commercial banks; instead of focusing only on traditional loans (Lepetit et al., 2008).

Vietnamese commercial banks also face challenges due to regulatory barriers to bad debts and the risk of banks' bad debts increasing when debt restructuring regulations expire. Therefore, it is necessary to increase provisions and restructure income sources. In Vietnam, despite the increasing proportion of income from service activities in the total income, the growth rate remains slow and has

not met the targets set in the Vietnam Banking Sector Development Strategy for 2025 with an orientation to 2030. Implementing income diversification strategies to restructure income sources can minimize risks, especially liquidity risks (Le et al., 2022).

Currently, the academic and professional communities are divided over the effects of income diversification on bank financial performance. One perspective holds that income diversification not only boosts a bank's revenues but also reduces exposure to cyclical risks, thereby diminishing reliance on financial market swings. This viewpoint is supported by research from Elsas et al. (2010); Gurbuz et al. (2013); Meslier et al. (2014); Lee et al. (2014); Moudud-Ul-Huq et al. (2018); Hau and Quynh (2016); Sang and Tam (2020); Pham et al. (2021). On the contrary, another school of thought argues that diversifying income can diminish profitability and escalate risk levels for banks. This argument is backed by findings from DeYoung and Rice (2004); Stiroh and Rumble (2006); and Lepetit et al. (2008), which suggest that diversification efforts can lead to significant transition costs, increased risks, and lower profits. Recent researches from Vietnam Luu et al. (2019); Hoang et al. (2020); Nguyen et al. (2023) also have similar results that income diversification is negatively correlated with financial performance.

Despite numerous studies on the subject within Vietnamese commercial banks, a consensus on the impact of income diversification on financial performance has yet to be reached. Consequently, the benefits of income diversification for banks remain unclear. Furthermore, given the economic fluctuations and the dated nature of both the data and research scope in terms of geography and timeline, there is a need for updated empirical evidence. This study aims to fill that gap by offering fresh insights into how income diversification affects the financial

performance of Vietnamese commercial banks and identifying the factors that influence income diversification strategies within these institutions.

The subsequent sections of the article will be presented in the following order: (2) Literature Review, (3) Methodology and Data; (4) Empirical results; and (5) Conclusion.

2. Literature Review

2.1. Income diversification

Diversification, as a strategy in investment, aims to mitigate risk by assembling a varied portfolio of investments, under the premise that not all investments will move in the same direction, as noted by Sanya and Wolfe (2011). Hamdi et al. (2017) further elaborate that by amalgamating different types of assets to diminish the total risk of the portfolio, banks employ strategies of income diversification. This approach helps in eradicating information asymmetry, which, in turn, lowers the costs associated with financial intermediation and leads to an enhancement in financial outcomes. Ansoff (1957) contended that diversification typically signifies a shift in the composition of a company's product offerings and/or its markets, setting it apart from other strategies like market penetration, market development, and product innovation, which alter the product-market framework in different ways. Rose and Hudgin (2008) defined bank income diversification as the expansion of financial products and services aimed at boosting the share of non-interest revenue in a bank's total income. This perspective is echoed in the research by Vinh (2016) and Minh and Canh (2015), who agree that income diversification entails an increased share of earnings from non-interest-based activities, leading to a rise in non-interest income as banks diversify their revenue sources. Elsas et al. (2010) noted that commercial banks typically pursue income diversification

by moving away from traditional operations (like earning interest from deposits and loans) towards charging fees and engaging in other non-traditional activities such as investments to augment the share of non-interest income in their total revenue.

Therefore, income diversification in banking implies an enhancement of revenue from non-conventional business endeavors while reducing reliance on traditional operations. Today, commercial banks frequently engage in non-traditional sectors like import-export payments, foreign exchange, securities investment brokerage, electronic banking, and earning commission by partnering with insurance services (Bancassurance), among others.

2.2. Financial performance

Financial performance plays a critical role in both socio-economic studies and the financial governance of companies or individuals. Various angles can be used to assess financial performance. Farrell (1957) defines performance as a crucial metric for evaluating an organization's efficiency in enhancing its output relative to the input costs. Essentially, performance represents the gains derived from particular endeavors. Berger and Mester (1997) argue that the financial success of commercial banks is gauged by examining the balance between income and the expense of resource utilization, or the proficiency in converting inputs into optimal outputs. Rokhimah (2024) defines financial performance as the evaluation of the financial results of an entity or organization, such as a company, financial institution or individual, over a certain period of time.

The methodology for assessing a bank's financial performance is influenced by the researcher's perspective and the nature of the data collected. In this investigation, the researcher delineates the financial performance of banks by looking into the nexus between the

financial achievements of business operations and the expenditures related to the commercial activities of the banks.

2.3. Empirical evidence

Numerous global studies have shown a positive relationship between income diversification and financial success. Chiorazzo et al. (2008) examined the connection between income diversification and profitability in Italian banks from 1993 to 2003, revealing through regression analysis with Fixed and Random effects that diversification improves risk-adjusted returns and influences the relationship between income diversification and bank size. Lee et al. (2014) studied data from 967 banks in 22 Asia-Pacific countries from 1995 to 2009, finding that diversification into non-interest income, operational income, and other revenues enhances profits and reduces risks for banks, although commission and fee income do not significantly benefit bank operations. Moudud-Ul-Huq et al. (2018) concluded that revenue diversification positively affected bank performance and stability in Southeast Asian countries (Indonesia, Malaysia, Thailand, Philippines, and Vietnam) from 2011-2015. Research indicates that non-interest activities contribute to an increase in bank revenues, significantly affecting the financial achievements and risk-adjusted earnings of commercial banks, as observed in studies by Sanya and Wolfe (2011), Meslier et al. (2014), Vinh (2016), and Duong et al. (2022). Sang and Tam (2020) found that non-interest income increased the efficiency of Vietnamese banks during the period from 2008 to 2017, although the non-interest income ratio of Vietnamese banks remained very low compared to interest income. Pham et al. (2021) also showed similar results when conducting research and diversification in the banking industry was more effective during the Vietnam banking crisis period of 2011-2014. Furthermore, the strategy of diversifying income has been crucial

in enabling banks to navigate through the adverse impacts of the COVID-19 pandemic, as detailed by Maghyreh and Yamani (2022).

On the other hand, the findings of Luu et al. (2019) indicate that for domestic banks not owned by the state, diversifying income sources negatively influences their financial outcomes, as demonstrated in a study of Vietnamese commercial banks covering the years 2007 to 2017. Hoang et al. (2020) also had similar results when analyzing data from 21 Vietnamese banks. Empirical research results showed that diversification activities reduce profits as well as negatively impact on financial performance of Vietnamese commercial banks, instead, the study supports the traditional business activities of banks in Vietnam. Nguyen et al. (2023) also have the same empirical results when analyzing data from Vietnam. Furthermore, Stiroh and Rumble (2006) and Stiroh (2004) also highlighted the negative effects of income diversification on the financial performance of banks. Stiroh (2004) examined the U.S. banking system from 1984 to 2001 and observed a reduction in operating income, attributing it to the greater fluctuations of non-interest income compared to interest income. He argued that income stability stems from the steadiness of net interest income rather than the advantages of income diversification, and that non-interest income negatively affects bank profitability. Hidayat et al. (2012) indicated that the effect of income diversification on increasing banks' revenues depends on bank size when researching in Indonesia banks. When conducting Vietnamese banks, Batten and Vo (2016) concluded that non-interest income activities may contribute to enhancing levels of risks. Additionally, Phuoc et al. (2023) did not find a relationship between income source diversification activities and financial performance when conducting a data survey of 15 banks in Vietnam from 2013 to 2022.

2.4. Hypothesis development

Scholarly discussions on income diversification often assess the advantages and disadvantages associated with a bank's expansion strategies. This approach not only enhances a bank's financial results, particularly as the bank grows in size and operational breadth, but it also mitigates the cyclical fluctuations in earnings, thereby intensifying competitive dynamics. This competition compels banks to boost their innovation and efficiency as they broaden their array of services (Lepetit et al., 2008). Chiorazzo et al. (2008) observed a beneficial link between income diversification and both the debt-to-assets ratio and overall financial performance. DeYoung and Roland (2001) found corroborating evidence in their study of 472 US joint stock commercial banks from 1988 to 1995. Lee et al. (2014), analyzing data from 967 banks across 22 Asia-Pacific countries between 1995 and 2009, discovered that diversification beyond interest income enhances profitability and lowers risks. On the other hand, Quyen et al. (2021), after reviewing data from Vietnamese commercial banks between 2005 and 2018, did not find direct statistical proof of income diversification's impact on the financial health of Vietnamese banks under normal economic conditions, although they noted a significant positive effect during financial crises. Using the latest data from Vietnamese joint-stock commercial banks, this study proposes the following research hypothesis:

Hypothesis H1: Diversification of income positively affects financial performance, implying that the coefficient β_1 in equation (1) holds a positive value.

3. Methodology and Data

3.1. Data analysis

The study gathered data from the audited financial reports of 26 Vietnamese

commercial banks covering the years 2012 to 2022. Additionally, information on control variables like the economic growth rate (GDP) and inflation (INF) was obtained from the International Monetary Fund (IMF)'s public datasets. Thus, the dataset for analysis comprises panel data from 26 banks, totaling 281 observations.

To analyze the data, the study employed the Pooled Ordinary Least Squares (OLS) technique, the Fixed Effects Model (FEM), and the Random Effects Model (REM) for regression analysis. The research methodology included conducting an F-test, the Hausman test (Hausman, 1978), and the Breusch and Pagan test (Breusch & Pagan, 1980) to determine the most fitting model. Once the most suitable model was identified, the study carried out Wald tests to examine group heterogeneity (Baum, 2001) and Wooldridge tests to check for autocorrelation issues (Wooldridge, 2010). Should the model exhibit heterogeneity and autocorrelation, the Feasible Generalized Least Squares (FGLS) model would be applied (Cotte Poveda, 2011). Furthermore, this research incorporated the two-step Generalized Method of Moments (GMM) technique, initially proposed by Hansen (1982) and further refined by Arellano and Bond (1991) and Arellano and Bover (1995), to address endogenous variables and reduce standard errors, offering an advantage over the one-step GMM approach.

3.2. The variables

Measure of financial performance

Asif and Akhter (2019) highlight that investigations into bank income diversification commonly evaluate banks' financial health through metrics such as ROE, ROA, or the CAMEL model. Research conducted by Chiorazzo et al. (2008), and Lee et al. (2014), among others, predominantly employs the ROE metric for assessing bank financial performance. The term financial performance is used to

evaluate the financial position of a company over a given time frame, taking into account management, capital adequacy ratios, liquidity, leverage, solvency and profitability, so financial performance is an indicator of a company's level of management and control over its resources (James & John, 2005). According to research (Mbekomize & Mapharing, 2017), ROE is considered an important financial indicator for evaluating the capital structure of many different organizations. Research from Lee et al. (2014), Minh and Canh (2015), and Hau and Quynh (2016) also consider ROE as a ratio that present the financial performance of the bank. Given the scope of this study and constraints related to data collection, this analysis will employ the ROE financial ratio as a means to gauge the financial performance of Vietnamese commercial banks and is calculated by the following equation:

$$ROE = \frac{\text{Profit after tax}}{\text{Total equity}} \times 100$$

The measure of income diversification

Asif and Akhter (2019) mention that bank income diversification is often measured using the ratio of non-interest income to total income and the Herfindahl-Hirschman Index (HHI). Their study indicates that 44% of the research utilized the non-interest income ratio, while 29% applied the Herfindahl-Hirschman Index to gauge income diversification. Previous studies, including those by Stiroh and Rumble (2006) and Chiorazzo et al. (2008), used the HHI to create an income diversification index (DIV), which assesses the level of diversification by subtracting the HHI value from 1 to avoid reverse explanatory logic. Consequently, a value of zero signifies a completely undiversified income structure, whereas a higher value indicates a greater degree of income diversification within the bank.

The evaluation of income diversification takes into account the composition of a bank's revenue, which comprises both interest and non-interest income. The level of diversification is determined using the formula provided below:

$$DIV = 1 - \left\{ \left(\frac{NET}{NETOP} \right)^2 + \frac{NOI}{NETOP} \right\}^2$$

In there:

NET: Net interest income.

NOI: Net non-interest income is determined by summing up the net income from fees and commissions, net profits or losses from foreign currency transactions, net results from trading securities, net outcomes from investments in securities, earnings from various other activities, and net revenue from contributions to capital and acquisitions of shares.

NETOP: Net income is calculated by adding together net interest income and net non-interest income:

The measure of control variables

Drawing inspiration from the research conducted by Chiorazzo et al. (2008), Lee et al. (2014), Gurbuz et al. (2013), among others, the researcher has incorporated several control variables into this study. The detailed formulas for these control variables are outlined in Table 1.

3.3. Research models

This research employs a panel data analysis to explore how income diversification affects bank financial performance, utilizing a dataset that spans multiple banks and periods.

Adapting from the foundational model presented by Lee et al. (2014), the framework for this study is structured as follows:

$$ROE_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 SIZE_{it} + \beta_3 CAP_{it} + \beta_4 DTA_{it} + \beta_5 LTA_{it} + \beta_6 LLP_{it} + \beta_7 GDP_t + \beta_8 INF_t + \varepsilon_{it} \quad (1)$$

Table 1. Description of variables

Variables	Symbols	Formula	Sources	Expected Results
Financial performance	ROE	Profit after tax/Equity	Busch et al. (2009), Lee et al. (2014), Minh and Canh (2015), Hau and Quynh (2016).	
Income diversification	DIV	$1 - \left\{ \left(\frac{\text{NET}}{\text{NETOP}} \right)^2 + \frac{\text{NOI}}{\text{NETOP}} \right\}^2$	Chiorazzo et al. (2008), Gurbuz et al. (2013), Vinh (2016), Hoang et al. (2020).	+
Bank size	SIZE	Log (Total assets)	Gurbuz et al. (2013), Lee et al. (2014), Minh and Canh (2015), Sang and Tam (2020)	+
Equity to total assets ratio	CAP	Equity/Total assets	Chiorazzo et al. (2008), Stiroh (2004), Minh and Canh (2015).	+
Deposits to total assets ratio	DTA	Customer deposit/Total assets	Lee et al. (2014), Minh and Canh (2015), Tuan (2022), Sang and Tam (2020)	+
Loan to total assets ratio	LTA	Loans to customers/Total assets	Chiorazzo et al. (2008), Meslier et al. (2014), Tuan (2022), Sang and Tam (2020)	+
Provision for loans to customers to total assets ratio	LLP	Provision for loans to customers/ Total assets	Busch et al. (2009), Vinh (2016), Tuan (2022).	-
Economic growth rate	GDP	Collected from IMF	Meslier et al. (2014), Minh and Canh (2015), Tuan (2022).	+
Inflation rate	INF	Collected from IMF	Quyen et al. (2021), Trang (2021).	-

4. Empirical results

Descriptive statistics

Appendix 1 (*see Appendix 1 online*) presents the analysis of the ROE as the dependent variable across 281 observations, with an average rate of 10.58% and a standard deviation of 7.55%. The ROE values range from a

minimum of 0.3% to a maximum of 30.33%, indicating significant variation between the highest and lowest ROE among the banks. The mean value for income diversification (DIV) among the sampled Vietnamese commercial banks is 0.0168, with DIV values spanning from 0.0066 to 0.0329. This suggests that during the observation period, the Vietnamese

commercial banks exhibited a moderate level of diversification. The standard deviation for the DIV metric is 0.0050, indicating relatively minor diversification differences among the banks throughout the years.

Concerning other control variables, there is variation in the size among the Vietnamese joint stock commercial banks:

The SIZE variable, indicative of bank size, has an average of 18,7492, with the maximum at 21,4750 and the minimum at 16,5023, and a standard deviation of 1.1483. The average equity ratio (CAP) stands at 9.34%, with a standard deviation of 6.04%. The equity ratio peaks at 90.77% and bottoms at 4.06%. The ratio of deposits to total assets (DTA) averages at 66.54%, with a standard deviation of 11.34%, highlighting the banks' reliance on customer deposits. The loan to total assets ratio (LTA) is also significant, averaging 57.70% with a standard deviation of 11.55%, showing that a major portion of the banks' assets are customer loans. The ratio of loan loss provisions to total assets (LLP) has been relatively stable, averaging around 0.78%, with the highest rate for a bank at 2.17%. The average GDP growth rate recorded is 5.84%, with the lowest at 2.58% and the highest at 8.02%. The average inflation

rate (INF) is 3.79%, with the minimum at 0.63% and the maximum at 9.1%.

4.2. Correlation analysis

Gujarati (2004) suggests that when the correlation coefficient between independent variables exceeds 0.8, there is a heightened risk of multicollinearity emerging within the model. This could potentially alter the regression coefficients, resulting in skewed research outcomes. Appendix 2 (*see Appendix 2 online*) illustrates the correlation coefficient matrix between pairs of independent variables, demonstrating that all correlations are below 0.8. Therefore, there is no evidence of multicollinearity among the variables. Specifically, DIV, SIZE, LTA, and LLP show a positive correlation with the dependent variable, ROE, whereas CAP, DTA, GDP, and INF exhibit a negative correlation with ROE.

The analysis of regression results (Pooled-OLS, FEM, REM, FGLS)

The results in Table 2 show that all models (Pooled-OLS, FEM, REM, FGLS) are considered appropriate because F-value and Wald statistical indices all have statistical significance with Prob values = 0.0000 < 0.05.

Table 2. Results of Pooled-OLS, FEM, REM and FGLS

Dependent variable: ROE Variables	Regression			
	Pooled-OLS	FEM	REM	FGLS
DIV	4.0252*** [6.08]	2.5991*** [2.72]	2.6574*** [3.07]	3.4056*** [5.45]
SIZE	0.0468*** [13.57]	0.0847*** [12.20]	0.0656*** [12.26]	0.0498*** [12.80]
CAP	0.0620 [1.13]	0.0745* [1.66]	0.0658 [1.44]	0.0290 [1.10]
DTA	-0.2046*** [-6.78]	-0.1091*** [-3.34]	-0.1537*** [-4.95]	-0.1373*** [-5.22]
LTA	0.1371*** [4.12]	0.1607*** [4.06]	0.1787*** [4.88]	0.1033*** [3.43]

Dependent variable: ROE Variables	Regression			
	Pooled-OLS	FEM	REM	FGLS
LLP	-2.9170** [-2.13]	-5.1924*** [-4.50]	-4.7736*** [-4.07]	-2.5455** [-2.59]
GDP	-0.1331 [-0.68]	-0.0145 [-0.10]	-0.0732 [-0.49]	0.1191 [1.28]
INF	-0.1817 [-1.18]	0.4970*** [3.45]	0.2287* [1.67]	0.0739 [0.72]
Constant	-0.7498***	-1.5308***	-1.1435***	-0.8460***
R-squared	0.5446	0.5810	0.5695	
Model fit	F(8,272)	F(8,247)	Wald chi2(8)	Wald chi2(8)
F-value/Wald chi2	42.86***	42.82***	329.71***	248.24***
Model selection				
F-test	10.29***			
Hausman test		25.89***		

Notes: *, **, *** represent statistical significance levels at 10%, 5% and 1%, respectively.

In determining the most fitting model, the researcher utilizes an F-test to compare the OLS and FEM Pooled models. The statistical result shows that Prob value > F=0.0000 < 0.05, identifying FEM as the more suitable choice.

After that, the Hausman test is conducted to decide between the FEM and REM models, results from the Hausman test show that Prob>chi2 = 0.0000 < 0.05, revealing that the FEM model is preferable.

However, the Modified Wald test outcomes, indicating a Prob>chi2 value of 0.0000 which is less than the threshold of 0.05, suggest the presence of heteroscedasticity within the research model. Moreover, the results from the

Wooldridge test, showing a Prob > F value of 0.0000 also below 0.05, point to autocorrelation issues within the model. To address these concerns, the researcher adopts the Feasible Generalized Least Squares (FGLS) approach. While the application of the FGLS technique aids in managing unobserved variables and heteroscedasticity, issues related to endogeneity might still persist.

4.4. Discussions

Table 3 presents the regression outcomes utilizing the 2-step Generalized Method of Moments (SGMM) approach, evaluated through the F-test, Sargan test, and Arellano-Bond statistics.

Table 3. Regression results

ROE	Coef.	P > t
DIV	3.0332**	0.020
SIZE	0.0627***	0.000
CAP	0.0981	0.118
DTA	-0.6070***	0.003
LTA	0.2995*	0.059

ROE	Coef.	P > t
LLP	-4.5516*	0.098
GDP	-0.3341	0.265
INF	0.4081	0.571
_CONS	-0.8513***	0.008
Number of groups		26
Number of instruments		19
Arellano-Bond test for AR(2) in first differences		0.250
Sargan test of overid. restrictions		0.003
Hansen test of overid. restrictions		0.643

Notes: *, **, *** represent statistical significance levels at 10%, 5% and 1%, respectively.

The study places a particular emphasis on income diversification (DIV) as it is pivotal for elucidating the research objective. The empirical findings indicate a beneficial effect of the DIV variable on the profitability of Vietnamese commercial banks, marked at a 5% level of significance, thus accept the hypothesis posed. This suggests an enhancement in financial performance as banks broaden their income diversification strategies. These findings align with previous research by Vinh (2016), Hau and Quynh (2016) and Hoang et al. (2020) focusing on Vietnamese commercial banks, as well as international studies by Meslier et al. (2014), Moudud-Ul-Huq et al. (2018), differing from Stiroh (2004) American banks analysis and Mercieca et al. (2007) European banks study. Furthermore, revenue from fees represents a significant portion of banks' non-interest income, with investments in information technology for services like online banking and payment cards enhancing service-related income, thereby bolstering overall financial performance.

The size of the bank (SIZE) positively correlates with its financial performance, suggesting that larger banks exhibit superior financial outcomes. This observation concurs with the findings by Lee et al. (2014) and Vinh

(2016) but diverges from Meslier et al. (2014) and Sang and Tam (2020). According to economies of scale and scope theories, larger banks achieve higher profits due to cost efficiencies over their smaller counterparts (Berger et al., 1987; Berger and Humphrey, 1997). After 5 years of restructuring credit institutions (2016 - 2021), bank profits have shown positive signs. During the Covid-19 period, although Vietnam's economic growth was low, bank profits still grew, and the total assets of commercial banks continued to expand. Thereby, it is possible to see some economic benefits when taking advantage of the scale and scope of Vietnamese commercial banks in their business operations.

The loan to total assets ratio (LTA) positively influences the financial performance of Vietnamese commercial banks at a 10% significance level, in agreement with the study's hypotheses and similar to findings by Chiorazo et al. (2008), Sanya and Wolfe (2011) and Sang and Tam (2020). Although Vietnamese commercial banks are expanding their operations into areas that generate non-interest income to meet customer needs as well as maintain their position in the competitive environment of the industry, lending is still a major source of income for the bank. Furthermore, since 2014, Vietnamese credit institutions have focused on

promoting retail, especially focusing on market share in personal lending and commercial banks still is a traditional capital mobilization channel for Vietnamese enterprises.

Conversely, the deposit to total assets ratio (DTA) adversely affects the financial performance of Vietnam's commercial banks at a 1% significance level. The empirical result is similar with Sang and Tam (2020), and contrasts with the expectations but aligns with Hau and Quynh (2016). A higher DTA ratio implies increased interest expenses and inefficiencies in loan utilization, potentially diminishing profitability and thus financial performance.

The provision for loans to customers to total assets ratio (LLP) negatively correlates with the financial performance of Vietnamese commercial banks between 2012 and 2022 at the 10% significance level, which corroborates the study's initial hypothesis. This result matches the research by Vinh (2016) and yet contrasts with Lee et al. (2014). Vietnamese enterprises are facing a shortage of capital, leading to late debt repayment and even loss of liquidity due to economic difficulties. This increases credit risk for banks, forcing banks to spend more money to overcome the consequences of debt. Furthermore, monitoring, debt recovery, managing non-performing loan, debt trading, etc. increase costs and thereby contribute to reducing the financial efficiency of banks.

In this analysis, macroeconomic variables (GDP, INF) and the equity to total assets ratio (CAP) did not exhibit statistical significance, indicating no measurable impact on the study's focus.

5. Conclusion

Based on the findings regarding the influence of income diversification on the financial performance of Vietnamese commercial banks between 2012 and 2022, the researcher offers the following recommendations for commercial banks and regulatory bodies:

First, to bolster the financial health of Vietnamese commercial banks, it is advised to enhance income diversification through the development and expansion of products and services utilizing information technology. This approach aims to swiftly and efficiently satisfy customer needs. Moreover, these banks must innovate and refine their product offerings by understanding market needs, thereby introducing a diverse range of services such as currency trading, bond issuance, and corporate equitization. Equally important is the innovation in microfinance products, designed to be accessible and straightforward, catering particularly to the needs of rural populations. Additionally, banks should focus on integrating and cross-selling services in collaboration with other entities.

Second, the strategy of diversifying income of banks should be promoted, specifically: (i) reducing the proportion of income from fee-based activities and services, especially payment activities, to create competitive advantages for banks and attract customers to use other services; (ii) considering the proportion from securities and foreign exchange investment income to avoid losses caused by macroeconomic fluctuations such as policy changes and political instability; (iii) developing products and services based on technology platforms to keep up with customer needs and Vietnam's digital transformation stage.

Third, there is an emphasis on growing the scale of banking operations. Through mergers, consolidations, and acquisitions, larger banks can cost-effectively enhance their market presence, whereas smaller banks can leverage such strategies to widen their market reach and solidify their industry standing.

Fourth, Vietnamese commercial banks are encouraged to sustain and refine their loan offerings and credit quality. This includes revisiting and enhancing lending processes and procedures, boosting assessment competencies

to expedite loan processing, and facilitating easier capital access for customers without compromising loan security. Moreover, managing the balance between loan and deposit

rates is vital to maintain an equilibrium between capital collection and usage. Banks are urged to devise strategies to ensure adequate capital flow and liquidity, preventing any capital shortfall.

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