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Article

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BANKING & FINANCE | RESEARCH ARTICLE

Impact of income diversification on the business performance of Vietnamese commercial banks

Duong Thuy Phan^{1*}, Trong Tai Nguyen² and Thi Thanh Hoang¹

Abstract: The article evaluates the impact of income diversification on business performance of Vietnamese commercial banks in the period 2010–2020. The study collected data from the financial statements of 29 commercial banks listed on both the Ho Chi Minh stock exchange and the Hanoi stock exchange in the period 2010–2020 from the FiinPro Database. GMM regression method is used to analyze the impact of income diversification on the business performance of Vietnamese commercial banks. The analysis results show that the business performance of commercial banks is influenced by many factors, the most influential factors are income diversification, the scale of credit activities, and the efficiency of management physical. Based on empirical results, the study proposes some recommendations to help banks improve business performance.

Subjects: Events Management; Leisure Management; Events; Marketing; Consumer Behaviour; Marketing Communications

Keywords: income; business performance; commercial banks

1. Introduction

The banking sector is significant to practitioners and regulators due to its influence on macro-economic factors such as economic growth, entrepreneurship, resource allocation, poverty alleviation, education, and agriculture (Githaiga & Yegon, 2019). Inefficient banking operations will derail economic growth by reducing capital investment to produce goods and services (Dietrich & Wanzenried, 2014). Commercial banks' financial services to customers are also revenue-generating services for them. Therefore, to increase business performance, commercial banks must strengthen their provision of financial services to consumers, thereby boosting bank income. However, expanding financial services offered to consumers to raise income does not imply that commercial banks would enhance their business efficiency. In contrast, it potentially impairs commercial bank efficiency, as shown in several worldwide research studies. The expansion of financial services supply not only helps commercial banks earn income, but also helps satisfy the demands of consumers in the economy. Therefore, the question is how can commercial banks extend their financial services to meet customers' needs and increase income while guaranteeing business efficiency is a realistic requirement that requires a viable solution.

Studies on the impact of income diversification on the performance of commercial banks lead to different conclusions. Resource base view theory and internal market hypothesis suggest that diversification can create firm performance, expand debt capacity and reduce taxes (Zahavi & Lavie, 2013). However, there may be potential costs that reduce resources allocated to better-performing segments or misalignment of incentives (Lee & Li, 2012). In the context of the COVID-19 epidemic, the operations of the banking system are affected by household income and business revenue both directly and indirectly (Feyen et al., 2021; Maghyereh & Yamani, 2022; McKibbin &

Fernando, 2021). Most studies on the banking sector showed that income diversification may improve bank profitability during this health crisis (Li et al., 2021). However, some experimental studies show opposite findings (Paltrinieri et al., 2021). Therefore, research on the impact of income diversification on the bank business performance is still necessary.

In recent years, the growth of financial services in Vietnam has grabbed the attention of commercial banks and produced extremely beneficial outcomes, allowing commercial banks to not only rapidly generate income but better satisfy the demands of clients in the economy. However, on efficiency, it has fallen short of expectations, as seen by the comparatively low ROA or ROE coefficients compared to commercial banks in other nations (Doan Trang, 2019). How to diversify financial services to boost income while also increasing company efficiency has been and continues to be an objective requirement. This paper provides empirical evidence on the impact of income diversification on the business performance of Vietnamese commercial banks from 2010 to 2020.

2. Literature review

There are some different viewpoints to approach bank performance. Banks are units of production according to the production approach (Benston, 1965), as financial intermediaries in the intermediary approach (Sealey & Lindley, 1977). According to the modern view, banks have both of these roles. Most researchers use the same metrics to measure the performance of banks such as return on assets (ROA) and return on equity (ROE).

The theoretical model of portfolio diversification was developed by Markowitz (1952). Diversification is an investment strategy designed to reduce risk by combining different investments. This combination creates a multi-directional portfolio, and it is not likely that all investments are in the same direction (Sanya & Wolfe, 2011). Diversification of banks has three trends: diversification of financial products, geographical diversity, and a combination of geographical and business diversification. Diversification is measured by building Herfindahl-Hirschman Index (HHI) for each bank (Mercieca et al., 2007). Income diversification in the bank leads to an increase in non-interest income in the total net income. In this study, the income diversification of banks is determined as the diversification of financial services to increase non-interest income. Commercial banks often diversify their income by shifting from traditional profit-making activities such as deposits and loans to fee-collecting activities. Then, based on stable fee income, banks continue to promote other non-traditional activities, such as investment activities to increase the proportion of non-interest income in total operating income (Elsas et al., 2010).

Empirical studies have shown a strategic goal of income diversification. These may be internal capital market results, competitive advantage, shareholder value, management rights, economies of scale, resource utilization, copying subsidies, lower bank spreads, market strength, and improving performance (Githaiga & Yegon, 2019). According to the resource-based view theory, financial service expansion will increase the bank's operational efficiency because more resources will increase the bank's economies of scale (Fiordelisi et al., 2011; Klein & Saidenberg, 2010). Loan diversification effects positively a bank's financial strength (Shim, 2019). In the context of the negative impact of the COVID-19 shock, income diversification can play an essential role in helping banking systems deal with the COVID-19 pandemic (Maghyreh & Yamani, 2022).

In contrast, the corporate finance theory argues that banks should exploit their knowledge and expertise in a certain field or group, not diversifying their income (Jahn et al., 2013; Šeho et al., 2021; Tabak et al., 2011). Diversification can increase inefficiencies. Diversification increases agency costs because managers' devaluing activities reduce their risk (Amihud & Lev, 1981); reduces incentives for competition surveillance and diversification (Winton et al., 1999); increases income volatility (De Jonghe, 2010). In addition, insiders can strengthen their grasp of financial institution resources for private gain, thereby reducing the conglomerate market value (Laeven & Levine, 2007).

Some studies argue that income diversification shows positive and negative effects (Noor & Siddiqui, 2019; Sun et al., 2017). The costs associated with income diversification may outweigh the benefits. Those costs include inefficient resource allocation, accelerated information asymmetry, increased agency problems, and reduced comparative advantage. Bank managers are forced to operate beyond their core competencies (Luu et al., 2019). In addition, income diversification can increase bank risk because of the volatile nature of non-traditional activities (Baele et al., 2007; Lepetit et al., 2008). Non-traditional businesses provide more volatile income than traditional operations due to weaker relationships between customers and banks in the non-lending business. Expansion into non-interest activities accelerates fixed costs arising from investments in human resources and technology causing operating costs and income fluctuations (DeYoung & Roland, 2001). By empirical research, Sun et al. (2017) and Noor and Siddiqui (2019) demonstrated there is a nonlinear relationship between non-credit income and the business performance of banks.

Most reports on the effects of income diversification on performance have been studied in developed countries or non-financial contexts. Research in developing countries, especially in the banking sector, is limited (Brahmana et al., 2018). The banking sector in those countries has undergone some major restructuring and changes (Meslier et al., 2014; Wong & Deng, 2016) to accommodate the rapid development of the socio-economic environment. The aim of banks' income diversification may be similar in developed and developing countries, but the impact of diversification may differ due to differences in institutional characteristics. Many studies demonstrated that income diversification has a relationship with bank asset size (Berger et al., 2010; Curi et al., 2015; Demsetz & Strahan, 1997). However, the effect of bank size on efficiency is still controversial. McAllister and Douglas (1993) argued that large banks often have advantages of size and greater opportunity to diversify risk than small ones. Larger financial and banking costs will be lower and profits higher (Goddard et al., 2004). In contrast, Vallascas and Keasey (2012) argued that large banks may be less efficient than small banks because they are more motivated to make riskier investments.

Asset growth positively affects the risk because rapid asset growth may increase the portfolio risk of commercial banks; the faster growth, the more stable profits (Chiorazzo et al., 2008; Stiroh et al., 2004b). Provisions for loans are made to cover high expected losses during an economic downturn (Bikker & Metzmakers, 2005). A higher provisioning level reflects a higher potential credit risk (Fisher et al., 2002).

In Vietnam, the impact of income diversification on banks' business performance has been studied by several authors. Studies have been conducted during different periods, but all have concluded that income diversification increases the business performance of commercial banks (Doan Trang, 2019; Luu et al., 2019). However, there are many conclusions about the effect of income diversification on risk-adjusted business performance. Income diversification reduces the risk-adjusted profits of Vietnamese commercial banks from 2006 to 2013 (Vinh & Mai, 2015). In contrast, Quang Khai (2016) and Lê and Phạm (2017) concluded that profit diversification increases the risk-adjusted performance of banks. Changing business models and the impact of different economic and institutional environments are essential issues (Rossi et al., 2020). Therefore, it is necessary to consider the relationship between income diversification and business performance of Vietnamese commercial banks in the period 2010–2020.

3. Methods and data

3.1. Data

The data came from the financial statements of 29 Vietnamese commercial banks from the FiinPro Database between 2010 and 2020. The research sample is highly representative since it comprises all commercial banks that meet the criteria of having comprehensive financial statements for the period 2010–2020.

3.2. Research method

The research model in this study is based on inheriting the research outcomes from the original model of Lee et al. (2014).

The study's model: $Y_{it} = \beta_0 + \beta_1 DIV_{it} + \beta_2 X_{it} + e_{it}$

The dependent variable measures the performance of commercial banks (ROA, ROE)

The independent variable is the bank's income diversification index (IDV).

Control variables include: bank size (SIZE), capital structure (ETA), asset growth rate (GR), size of credit operations (LTA), loan provision (LLP), deposit size (DTA), management efficiency (OTR), economic growth rate (GDP), inflation rate (INF)

The regression model was used to analyze the impact of income diversification on the performance of commercial banks. The model variables are shown in Table 1.

To analyze the impact of income diversification on the performance of Vietnamese commercial banks, the authors use descriptive statistical analysis, correlation matrix analysis, and GMM regression model estimation.

Under the condition that the endogeneity hypothesis is violated, the GMM method gives stable, unbiased, normally distributed, and efficient estimation coefficients. Antoniou et al. (2006) demonstrated that the GMM method is suitable for dynamic modeling. The authors recommend using the GMM method to eliminate endogeneity problems. And, this method also gives robust estimates in the presence of variable variance and autocorrelation. To ensure appropriation of the GMM estimates, the Sargan and/or Hansen tests are used, together with the test for second-order autocorrelation. The D-GMM estimate is suitable when the sample size is small, and vice versa.

Table 1. Description of variables

Variables	Symbols	Formula
Performance	ROA	Profit after tax/Average total assets
	ROE	Profit after tax/Average equity
Diversified income	DIV	$1 - \frac{INT^2 + NON^2}{INT + NON}$ INT = Net interest income/ Operating income NON = Non-interest income/ Operating income
Bank size	SIZE	Logarit (Total assets)
Capital structure	ETA	Equity/Assets
Asset growth rate	GR	$(GR_1 - GR_0) / GR_0$
Scale of credit	LTA	Customer Loans/Total assets
Loan provisions	LLP	Loan provisions/Total assets
Deposit size	DTA	Customers and Credit institutions provisions/Total assets
Management efficiency	OTR	Operating costs/Total operating income
Economic growth rate	GDP	Fund from IMF
Inflation rate	INF	Fund from IMF

(Source: Compiled by the authors)

The S-GMM estimator should be selected. Therefore, the authors choose regression according to the S-GMM estimate. Testing the research model if there is one of the defects in the phenomenon of variable variance, series correlation, and correlation between cross-unit residuals. To eliminate defects, the study uses the systematic GMM estimate—which helps to completely correct the defects in the research model (Hansen, 1982; Hausman, 1978; Schultz et al., 2010).

4. Results and discussion

Descriptive statistics include the mean, median, and standard deviation as well as the minimum and maximum values of the variables included in the model.

The descriptive statistical analysis presented in Table 2 reveals differences in income diversification, operational efficiency, and other factors influencing the performance of Vietnamese commercial banks. The average level of ROA and ROE for listed commercial banks is 0.0089 and 0.0969, respectively; the bank with the lowest ROA and ROE is −0.0599; −0.5633, and the highest is 0.0557; 0.2957. That demonstrates a significant disparity in commercial bank performance. The average income diversification index is 1,071, with commercial banks having the highest at 0.6533 and the lowest at 0.0098, indicating the significant difference in the income index diversification of Vietnamese commercial banks.

For the control variables, the size of Vietnamese commercial banks varies greatly. The average capital structure is 0.1045, indicating that Vietnamese commercial banks' equity is quite low, but there is a significant difference in Vietnamese commercial banks. There is also a significant disparity in the asset growth rate of Vietnamese commercial banks; in addition to banks with positive growth rates, there are banks with negative growth rates. Bank credit and deposit sizes also differ and fluctuate significantly between 2010 and 2020. Loan provisions and management efficiency at the bank have changed between 2010 and 2020.

Table 3 displays the correlation coefficients between the dependent variables and the independent variable, as well as between the independent variables with each other.

Table 3 shows that the correlation coefficient between the independent variables is less than 0.8, indicating none of the multicollinearity between the variables (Cohen, 1988). The results of the

Table 2. Descriptive statistics of variables

Variables	Number of Observations	Average	Standard deviation	Minimum value	Maximum value
ROA	319	0.0089	0.0083	−0.0599	0.0557
ROE	319	0.0969	0.0823	−0.5633	0.2957
DIV	319	1.0710	0.0944	0.0098	0.6533
SIZE	319	32.073	1.3337	28.067	34.96
ETA	319	0.1045	0.0623	0.0406	0.4611
GR	319	0.2026	0.2476	−0.3924	1.4701
LTA	319	0.5447	0.1364	0.1473	0.8006
LLP	319	0.0071	0.0029	0.0011	0.0255
DTA	319	0.7215	0.1594	0.0472	0.9053
OTR	319	0.7940	0.1882	0.1435	1.5563
GDP	319	5.9368	1.2608	2.9	7.08
INF	319	5.7326	4.8934	0.63	18.58

Source : Results calculated by the authors

Table 3. Matrix of correlation coefficients between variables in the model

	DIV	SIZE	ETA	GR	LTA	LLP	DTA	OTR	GDP	INF
DIV	1.0000									
SIZE	-0.0497	1.0000								
ETA	-0.0347	-0.7507	1.0000							
GR	-0.0027	-0.0622	-0.0894	1.0000						
LTA	-0.1643	0.3985	-0.2541	-0.1974	1.0000					
LLP	-0.0884	0.2142	0.0356	-0.2607	0.4418	1.0000				
DTA	0.0144	0.4717	-0.6706	0.0223	0.4301	-0.0831	1.0000			
OTR	0.9994	-0.0583	-0.0363	-0.0049	-0.1648	-0.0945	0.0224	1.0000		
GDP	0.0136	-0.0519	0.0097	0.0878	0.0151	-0.1118	0.0185	0.0150	1.0000	
INF	0.1469	-0.2060	0.1671	0.1476	-0.3535	-0.0716	-0.1467	0.1425	0.0660	1.000

Source: : Results calculated by the authors

correlation analysis between the model's independent variables show that the possibility of multicollinearity between the model's independent variables is low.

Table 4 checks the appropriateness of the regression by GMM method using the F test, Sargan, and Arellano-Bond (AR) statistics.

The estimated results from the GMM method show that the model has no defects. The residual autocorrelation test reveals that there is first-order autocorrelation (the p-value coefficient of AR (1) is less than the 10% significance level). But no second-order autocorrelation (the p-value coefficient of AR (2) is greater than the 10% significance level). The Sargan test has a p-value greater than the 5% level of significance, indicating that the model and representative variables were chosen correctly.

Income diversification has a positive relationship with the performance of Vietnamese commercial banks at the 1% significance level, but the impact on ROE (0.081) is greater (0.0098). This result was consistent with Meslier et al. (2014), Vinh et al. (2015), and Lê and Phạm (2017), but differs from

Table 4. Regression results

Variables	ROE	ROA
DIV	0.0810***	0.00975***
SIZE	0.0230***	0.000916***
ETA	-0.0153	0.0374***
GR	0.0293***	0.00384***
LTA	0.0766***	0.00702***
LLP	-2.820***	-0.299***
DTA	-0.0384**	0.00391*
OTR	-0.242***	-0.0290***
GDP	0.00237*	-0.0000366
INF	0.00229***	0.000253***
AR1	0.058	0.010
AR2	0.105	0.339
Sargan	0.000	0.000

* p < 0,1 ** p < 0,05 *** p < 0,01

Source: Authors' calculation results

DeYoung and Rice (2004) and Mercieca et al. (2007). Diversification of bank income often leads to an increase in expenses as well as non-credit income in the operating income structure of commercial banks. This activity can increase the effectiveness of risk adjustment. With the expansion of non-traditional business activities, Vietnamese commercial banks have been competing in a broader market segment, and the income of credit institutions will be obtained from more and higher sources. Bank income diversification is gradually becoming a significant strategy for credit institutions.

At the 1% significance level, bank size has a positive correlation with the performance of Vietnamese commercial banks. It demonstrates that expanding the scope of business activities helps banks improve their business efficiency. Besides, the larger the bank, the higher the risk tolerance capacity (Lehar, 2005; Poghosyan & Čihak, 2011). This finding is consistent with Lee et al. (2014) and Vinh and Mai (2015) but differs from Meslier et al. (2014).

At the 1% significance level, capital structure has a positive impact on commercial bank performance as measured by ROA. It is explained that when a commercial bank has a high equity-to-total-assets ratio, the bank owns capital for business operations, which helps to increase commercial banks' operational performance. There is a significant difference in the equity scope of Vietnamese commercial banks now, but it is still limited in general. Which will make it difficult for most banks to deploy services. For new banks, this requires Vietnamese banks to continue on the roadmap to increase equity, but at present, it is relatively difficult for banks to meet this requirement.

Asset growth has a positive impact on commercial bank performance, with the dependent variables ROE and ROA both having a 1% significance level. Commercial banks with high asset growth rates have a competitive advantage in business operations and contribute to higher profits.

At a 1% significance level, the size of credit activities has a positive impact on commercial bank performance. This demonstrates that as the scale of credit activities grows in combination with the guaranteed credit quality, commercial banks' operational efficiency will improve. Credit activities include capital mobilization, lending, and bank guarantee activities, these activities are closely related to each other and if they are focused at the same time, the efficiency of resource use financial resources of the economy will increase. During periods of economic recession, the demand for credit capital declines, and banks tend to be less interested in capital mobilization, reflected in the behavior of a series of banks simultaneously lowering deposit interest rates. This leads to a disorienting flow of savings in the economy and often flows into speculative channels such as securities, real estate, gold, and foreign currencies in periods when the State Bank does not strictly control markets.

Loan provision has a negative relationship with commercial bank performance with a significance level of 1%, and the degree of impact is quite large, particularly for the model of the dependent variable ROE, the coefficient of return. 2.82 is the rule.

Deposit size has an inconsistent relationship with the dependent variables ROE and ROA in both models. This result is consistent with Meslier et al. (2014) and Lee et al.'s (2014) research findings that deposit size has a positive relationship with bank performance with the dependent variable ROA (2017). Deposit size has a negative relationship with bank performance with the dependent variable ROE, which is consistent with the findings of Sanya and Wolfe's (2011).

At the 1% significance level, management efficiency has a negative relationship with the performance of Vietnamese commercial banks. It is explained when the bank's management efficiency is poor or when cost increases reduce the operational efficiency of Vietnamese commercial banks.

The model includes two macro variables: the rate of economic growth and the rate of inflation. Economic growth has a positive impact on commercial bank efficiency with the dependent variable ROE, and the inflation rate has a positive impact on commercial bank performance with a significance level of 1%.

5. Conclusions and recommendations

GMM regression method is used to analyze the impact of income diversification on the business performance of 29 Vietnamese commercial banks in the period 2010–2020. Regression results show that the business performance of commercial banks is influenced by many factors, of which the most influential factors are income diversification, the scale of credit activities and the efficiency of management. From there we have the following recommendations:

First, to increase equity. Equity size is a decisive factor in the deployment and expansion of banking operations, thereby helping to diversify income—One of the variables that have the strongest impact on the business performance of Vietnamese commercial banks. Commercial banks need to focus on solutions to increase equity such as perfecting appropriate profit distribution policies in each period, balancing profit distribution, and paying dividends for common and strategic shareholders. For retained earnings, Vietnamese banks should add to the bank's equity to increase the scale for reinvestment, and reduce risks and financial burdens on the bank's shareholders.

Second, to extend credit. Credit is also a variable that strongly affects the business performance of Vietnamese banks after income diversification. Not only has a direct impact on the bank's business performance, but bank credit has also always been of special importance in Vietnam's socio-economic activities. Due to limited internal accumulation conditions, while Vietnam's economic growth ambition is always very high in the condition that the economy is still mainly capital and labor-intensive, bank credit capital always supports Vietnam's economic growth strategies in the context of unstable foreign capital. Expanded credit activities will help banks increase performance efficiency and meet capital needs for socio-economic activities. But this is only achieved when banks control credit well through strengthening credit appraisal in line with international practices with special emphasis on transparency and market discipline. It must be complied with internally by each bank as well as increasing the credit supervision of the State Bank of Vietnam. The current credit control of the State Bank of Vietnam is still mainly by the "room" credit which is favorable for the State Bank—as a monetary policy enforcement agency. It seems to be unfavorable for socio-economic activities because credit capital is significant to socio-economic activities in Vietnam.

Third, to improve management efficiency. Currently, Vietnamese banks have stepped up the implementation of e-banking activities and are on the roadmap to digitize their operating systems. The traditional network system needs to be considered by banks to cut ties with the digitization route. In addition, some banks should also study to eliminate administrative paperwork in banking transactions. Due to some transactions can be automated, Vietnamese banks should consider standardization. It which will not only help banks reduce salary costs, but also better serve customers. Vietnamese banks have stepped up the implementation of e-banking activities and are on the roadmap to digitize their operating systems. The traditional network system needs to be considered by banks to cut ties with the digitization route. In addition, some banks should also study to eliminate administrative paperwork in banking transactions. Due to some transactions can be automated, Vietnamese banks should consider standardization. It which will not only help banks reduce salary costs, but also better serve customers.

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