

Factors Affecting Banking Performance: The Role of Market Power and Risk in the Context of Vietnamese Commercial Banks

Duong Thi Anh Tien^{1*} 

¹ *Industrial University of Ho Chi Minh City, Ho Chi Minh City, VIETNAM, ORCID ID: 0000-0002-1918-4829*

*Corresponding Author: duongthianhtien@iuh.edu.vn

Citation: Tien, D. T. A. (2025). Factors Affecting Banking Performance: The Role of Market Power and Risk in the Context of Vietnamese Commercial Banks, *Journal of Cultural Analysis and Social Change*, 10(2), 3426-3437. <https://doi.org/10.10.64753/jcasc.v10i2.2125>

Published: November 20, 2025

ABSTRACT

This study employs panel data from 35 Vietnamese commercial banks over the period 2014–2024 to analyze the determinants of bank performance, with particular emphasis on the effects of risk and market power. Risk is measured using indicators such as the Z-score and loan loss provisions (LLP), while market power is proxied by the Lerner index. In addition, the study incorporates several control variables representing bank-specific characteristics, industry-specific factors, and macroeconomic conditions. Bank performance is examined from three perspectives: return on assets (ROA), return on equity (ROE), and profit before tax (PBT). The empirical analysis is conducted using the two-step system Generalized Method of Moments (GMM). The findings indicate that both market power and risk significantly affect bank performance. Among the bank-specific variables, size, liquidity, ownership structure, operating costs, diversification, and listing status are found to have a substantial impact on performance. Moreover, industry-specific factors and macroeconomic conditions also influence bank efficiency. The author also find the evidence of other factors affecting bank efficiency.

Keywords: Efficiency, Market Power, Risk, Bank, Vietnam.

INTRODUCTION

As an important part of the financial system, the banking sector plays a more and more important role in the development of Vietnam's economy. International economic integration in the banking sector will create incentives to promote innovation, enhance transparency and self-responsibility of the banking system, thereby improving operating efficiency in the bank monetary field. However, competition and risk always affect the performance of banks. Developing a vision to increase competitiveness and reduce risk will be very important for the participants in the financial market. Therefore, power market and risk not well control will affect the efficiency and value of bank assets in the market. The studies largely focus on stock profit efficiency (Baele et al., 2015; Dietrich et al., 2014; Ogunleye et al., 2025), only a few studies on bank profitability. Therefore, this study was conducted to provide reliable empirical evidence on the impact of power market and risk on the efficiency of Vietnamese commercial banks, 2013-2024 period, thereby helping investors, managers and executives of banks, macro managers have more reference basis.

RELATED LITERATURE, EMPIRICAL EVIDENCE AND RESEARCH HYPOTHESES

Market Power and Efficiency

Market Power Hypothesis

The **market power hypothesis**, as part of the **Structure–Conduct–Performance (SCP)** framework, posits that banks operating in highly concentrated markets can leverage their dominant positions to mobilize deposits at relatively low interest rates while offering loans at significantly higher rates. This reflects their ability to exercise pricing power due to limited competition. In such market conditions, banks with strong competitive positions may attain quasi-monopoly status, enabling them to exert substantial control over the market and generate excessive (supernormal) profits. The high degree of market concentration thus amplifies their market power. A substantial body of empirical research provides support for this hypothesis (Berger and Hannan, 1998; Berger et al., 2004; Pietrzak, 2025; Zulian et al., 2025).

Besides, in the context of non-competitive market, hypothesis “Quiet Life” show that exclusive power allows managers to enjoy a part of low deposit rates. Besides, in the context of non-competitive market, hypothesis “Quiet Life” show that exclusive power allows managers to enjoy a part of low deposit rates to increase high competitiveness of banks. However, when high competitiveness often makes managers loosen control of costs and managers often focus on other goals rather than trying to keep and maximize profits. This reduces cost effectiveness, so that bank profits is decreased. Therefore, more bank competitiveness can create inefficiency. Supporting this hypothesis has evidence studies (Berger and Hannan, 1998; Homma et al., 2014; Dilla et al., 2025; Le et al., 2024).

Efficient Structure Hypothesis (ES)

The Efficient Structure Hypothesis, initially proposed by Demsetz (1973), posits that more efficient banks are able to gain greater market share and expand their scale of operations, thereby enhancing overall profitability. Berger (1995) further supports this hypothesis by asserting that improvements in efficiency lead to increased profitability, primarily through the expansion of market share. Operational efficiency in banks is largely determined by managerial competence and technological advancement. Institutions with superior management and advanced technological infrastructure tend to experience lower operating costs and, consequently, higher profit margins. Additionally, Berger (1995) emphasizes that economies of scale contribute to reduced average costs per unit of output, thereby improving unit-level profitability.

From the evidence theory above, the author give two hypotheses:

H1A: Market power has a significant positive relationship with bank efficiency.

H1B: Market power has a significant negative relationship with bank efficiency.

Risk and Efficiency

The relationship between risk and efficiency of the bank was first studied by Berger and DeYoung (1997), associated with hypotheses called "bad luck management", "bad management", "skimping behavior" and "moral hazard". According to "bad luck management", it is assumed that risk increases costs and reduces bank efficiency. While the "bad management" hypothesis show that a low bank cost efficiency can be a sign of weak banking management and bank's high NPL ratio increase, so that bank risks will increase. According to the hypothesis "skimping behavior" increases bank risk can be derived from high cost efficiency. Finally, the "moral hazard" hypothesis suggests that low bank fund often is cause of inefficiency loans, which creates high risks in the future.

Testing their arguments, Berger and DeYoung (1997) collected data for US commercial banks, the period from 1985-1994 and used the Granger-causality method to examine risk and performance in banking. The results of Berger and DeYoung (1997) supported "bad luck" hypothesis. In terms of overall banks, research results are more "bad management" than "skimping behavior" hypothesis and support the "moral hazard" hypothesis in assessing the relationship between risk and bank efficiency.

Recently, in the Chinese banking market a country whose system is quite similar to that of Vietnam during the period 2003–2017, a study by Tan et al. (2021) concluded that higher credit risk is associated with greater efficiency, including cost efficiency, profit efficiency, and revenue efficiency. This finding is inconsistent with the 'bad luck' hypothesis proposed by Berger and DeYoung (1997).

Using a sample of 15 commercial and investment banks across North America, Europe, Asia, and the Middle East during the period 2019–2024, Hadi et al. (2025) chỉ ra rằng, demonstrate that improvements in the quality of internal controls significantly enhance financial stability in banks. This, in turn, contributes to increased bank efficiency and a reduction in risk exposure. Using data from 20 commercial banks in Iraq over the period 2011–2022, Faraj et al. (2025) find that higher technical efficiency (TE) is associated with greater involvement in high-risk activities. This increased risk-taking behavior leads to higher volatility-based risk, as reflected in measures such as the standard deviation of return on assets (SDROA) and the standard deviation of return on equity (SDROE).

However, Rossia et al. (2005) continued to develop the result research of Berger and DeYoung (1997) for the relationship between risk and bank efficiency (measuring risk with the ratio of loan loss provision over total

loans) for 287 banks in countries with economies in transition from 1995–2002. The research result supports the “bad luck” hypothesis, which means that increased risk will make the bank's cost efficiency and profitability decreased.

The “bad management” hypothesis has also been applied to the risk and efficiency relationship in the study of Saeed and Izzeldin (2016) conventional banks and for the Gulf Cooperation Countries such that a decrease in default risk is associated with lower efficiency level over the period 2002–2010. In the Vietnamese banking sector during the period 2015–2023, Ngo and Trinh (2025) provide empirical evidence of a clear negative impact of financial risks on bank profitability. Dang and Vo (2025) also affirmed that higher market risk and liquidity risk reduce the efficiency of Vietnamese commercial banks, period 2006–2022. Specifically, higher credit risk and operational risk are associated with lower financial performance. In the case of China, variations in efficiency reflect different dimensions of banking operations; hence, this accounts for the divergent findings reported in this study. Contrary to research by Tan et al. (2021), research by Tan and Floros (2019), find that over the period 2003–2013, liquidity risk and efficiency (pure efficiency and scale efficiency) have a negative relationship. Their findings support the validity of the efficient-structure hypothesis in the Chinese banking industry.

From the above analysis framework and through some previous studies on risks and efficiency as well as specificity of Vietnam, the author developed the hypothesis:

H2: Risk has a significant negative relationship with bank efficiency.

DATA AND METHODOLOGY

Empirical Model

Consistent with the study by Tan and Floros (2019), this research employs a dynamic model to empirically examine the Structure-Conduct-Performance (SCP) hypothesis, the Efficient Structure (ES) hypothesis, and the hypothesis proposed by Berger and DeYoung (1997) in the context of Vietnamese commercial banks. The model is specified as follows:

$$\pi_{it} = C + \delta\pi_{i,t-1} + \sum_{j=1}^j \beta_j X_{it}^j + \sum_{l=1}^l \beta_l X_{it}^l + \sum_{m=1}^m \beta_m X_{it}^m + \gamma \text{Year}_{2008} \varepsilon_{it} \quad (1)$$

where i and t denotes bank and year respectively. π denotes bank efficiency is evaluated from a profit perspective as the return on assets, return on equity and profit before tax on total assets. $\pi_{i,t-1}$ represents the lag of profitability. X_{jit} denotes bank power market. X_{lit} denotes bank risk and X_{mit} represents a vector of control variables. Year_{2008} dummy variable assessing the difference of the factors affecting profit before and after the 2008 financial crisis. ε_{it} is the disturbance.

The main goal of this paper is to test the impacts of risk and competition on bank profitability in Vietnam while controlling for comprehensive bank-specific, industry-specific and macroeconomic variables. There are three profitability indicators considered in the study: Return on Assets (ROA), Return on Equity (ROE) and Profit Margin (PBT) (see table 1).

Table 1. Summary of the variables used in the current study and their expected effects on bank profitability

Variables	Symbols	Related studies	Measurement
Dependent variables			
Profitability	ROA	Ngo and Trinh (2025), Robin et al. (2018)	Net income/total assets
	ROE	Damanik (2025)	Net income/shareholder's equity Bank-scop
	PBT	ADEWOYIN (2025)	Profit before tax/total assets
Independent variables			
Market power	Lerner		Estimated from the cost function (see
Bank risk (Z_score)	Z_score	Hoxha et al. (2025)	$Z_{score} = \frac{ROA_{it} + E_{it}/TA_{it}}{\delta ROA_{it}}$
Bank risk (LLP)	LLP		Loan loss provision/total assets
Control variables			

<i>Bank-specific variables</i>			
Bank size	SIZE	Hoxha et al. (2025), Dang and Vo (2025)	Natural logarithm of total assets
Capitalization	CAP	Hoxha et al. (2025)	Shareholder's equity/total assets
Ownership dummy	STATE	Tan et al. (2021)	Equals 0: state ownership and equals 1: ownership of shareholders is not state
Overhead expend	OE	Hoxha et al. (2025)	Overhead/total assets
Diversification	DIV	Maudos and Nagore (2005)	Non-interest income/ total assets
Listed banks dummy	D_Listed	Author proposes	Equal 1: listed and equal 0: unlisted
<i>Industry-specific variables</i>			
Banking sector development	BSD	Tan et al. (2021)	Banking sector assets/GDP
Stock market development	SMD	Tan et al. (2021)	Market capitalization of listed companies/GDP
<i>Macro economics</i>			
Inflation	INF	Hoxha et al. (2025), Dang and Vo (2025)	Annual inflation rate
GDP growth rate	GDP	Hoxha et al. (2025), Dang and Vo (2025)	Annual GDP growth rate
Financial crisis 2008 dummy	Year₂₀₀₈	Author proposes	Equal 1: period after 2008 and equal 0: before 2008

Sources: Author's compilation

Estimating Power Market

The Lerner index is defined as the difference between a bank's price and the marginal cost, divided by the price (Tan et al., 2021). The index value ranges from a maximum of 1 to a minimum of zero, with higher numbers indicating greater market power and hence less competition. The Lerner index represents the extent to which a particular bank has market power to set its price above the marginal cost. The Lerner index is determined from estimating the parameters of the cost function and similar to the previous studies (Ariss, 2010; Fu et al., 2014; Berger et al., 2009). The estimated results of this study have a probability of squaring less than 5%, so the regression of cost functions is used with fixed effects.

METHODOLOGY

García-Herrero et al. (2009) argued that endogenous could be a problem when estimating bank profits. The GMM method of the two-step system is used in the current study due to the fact that a number of problems in estimating the determinants of bank profitability including endogeneity, unobserved heterogeneity, autocorrelation and profit persistence cannot be solved by fixed effects (Athanasoglou et al., 2008; Chronopoulos et al., 2015; Tan, 2016). The capitalization and ratio loan loss provision endogenous variable are instrumented using levels lagged by four years periods. The author using lag by three years period for all remaining independent variables to minimize possible endogenous problems between bank profits and other impact factors.

Data

This study utilizes annual bank-level data extracted from the accounting and financial information of 35 Vietnamese commercial banks over the period 2014–2024. The data is structured as an unbalanced panel. Descriptive statistics for the bank-level variables are presented in Table 2.

Table 2. Descriptive statistics for the bank-level variables

Variables	Obs	Mean	SD	Min	Max
ROA	338	0.011	0.009	0.000	0.085

ROE	331	0.103	0.079	0.000	0.521
PBT	334	0.015	0.015	0.000	0.158
Lerner	305	0.813	0.065	0.482	0.943
Z_score _{adj}	331	2.496	0.594	- 0.791	4.265
LLP	336	0.004	0.004	0.000	0.036
SIZE	346	17.149	1.626	11.883	20.347
LIQ	335	0.525	0.155	0.113	0.944
CAP	335	0.136	0.101	0.004	0.712
OE	334	0.016	0.009	0.000	0.093
DIV	317	0.034	0.016	0.000	0.139
BSD	346	0.036	0.055	0.000	0.290
SMD	335	0.002	0.003	0.000	0.015
INF	380	0.101	0.056	0.041	0.231
GDP	380	0.064	0.008	0.052	0.084

Note: The probability distribution of Z_score is skewed so the author uses the Z_score index adjusted calculated by logarithm Z_score.

Sources: own calculations.

Table 2 shows the competitive conditions of the Vietnamese banking industry during the period under study. It can be seen that the minimum value of the Lerner index is 0.48, while the maximum value is nearly 0.94. In the same study period, comparing these values with the Lerner index values from other countries shows that Vietnamese commercial banks have significantly higher market power. More specifically, research conducted by Khan and Amin (2023) shows that the value of the Lerner index for the Indian banking sector ranges from -0.12 to 0.99, for Pakistani banks ranges from -0.75 to 0.995, while for the Chinese market-a country with a banking system quite similar to Vietnam, the Lerner index ranges from 0.08 to 0.83 (Jia and Liu, 2024). These comparisons show that the level of competition in the Vietnamese banking industry is very low.

The Z_score of Vietnamese commercial banks ranges from -0.79 to 4.26, indicating a mixed level of financial stability across the sector. While some banks exhibit strong solvency, as reflected in relatively high Zscores, the presence of negative values signals potential insolvency risks in certain institutions. Compared to the Southeast Asian banking market, where Z_scores range from -2.14 to 6.05 (Abid et al., 2021), the Vietnamese banking system demonstrates moderate stability. Although it avoids the most extreme risk levels observed in the region, it also falls short of the highest resilience benchmarks, suggesting room for further strengthening of financial buffers and risk management practices.

EMPIRICAL RESULTS AND DISCUSSION

This study shows the correlation coefficient between variables in the model (see table 3 and table 4).

Table 3. Correlation matrix between independent variables and dependent variables

Variables	ROA	ROE	PBT
Lerner	0.106*	0.259***	0.069
Z_score _{adj}	0.461***	-0.224***	0.385***
LLP	-0.017	0.090*	0.023
SIZE	-0.420***	0.060	-0.360***
LIQ	0.141**	0.039	0.139**

CAP	0.361***	-0.295***	0.301***
STATE	0.168***	-0.096*	0.148***
OE	0.262***	0.024	0.241***
DIV	0.742***	0.310***	0.659***
D_listed	-0.036	0.135**	0.030
BSD	-0.159***	0.209***	-0.140**
SMD	-0.119**	0.199***	-0.095*
INF	0.103*	0.013	0.035
GDP	0.406***	0.481***	0.351***
Year ₂₀₀₈	-0.307***	-0.2582***	-0.252***

Note: ***, ** and * denotes significance at 1%, 5% and 10 %.

Sources: own calculations.

In terms of multicollinearity among the variables, a cursory look at the table 3 and the table 4 indicates that it is not possible to appear multicollinearity in the regression model between variables because most of the correlation coefficients are quite small.

Table 4. Correlation matrix between independent variables

Variables	Lerner	Z_score _{adj}	LLP	SIZE	LIQ	CAP	STATE
Lerner	1						
Z_score _{adj}	-0.100*	1					
LLP	-0.132**	-0.181***	1				
SIZE	-0.074	-0.714***	0.198***	1			
LIQ	-0.241***	0.006	0.306***	-0.065	1		
CAP	-0.209***	0.898***	-0.034	-0.671***	0.019	1	
STATE	0.010	0.406***	-0.356***	-0.462***	-0.206***	0.287***	1
OE	-0.634***	0.244***	0.163***	-0.187***	0.319***	0.270***	0.072
DIV	-0.290***	0.417***	0.213***	-0.269***	0.356***	0.388***	0.062
D_listed	-0.173***	-0.174***	-0.043	0.406***	0.038	-0.199***	-0.087*
BSD	-0.079	-0.552***	0.424***	0.696***	0.255***	-0.402***	-0.740***
SMD	-0.076	-0.395***	0.321***	0.730***	0.190***	-0.342***	-0.727***
INF	0.289***	0.102*	-0.113**	-0.035	-0.092*	0.073	-0.000
GDP	0.261***	0.075	0.043	-0.485***	0.185***	0.102*	0.000
Year ₂₀₀₈	-0.275***	-0.154***	-0.002	0.488***	-0.161***	-0.195***	-0.000

Variables	OE	DIV	D_listed	BSD	SMD	INF	GDP
OE	1						
DIV	0.601***	1					
D_listed	-0.001	-0.000	1				
BSD	-0.061	-0.013	0.272	1			
SMD	-0.089	0.009	0.395	0.918***	1		
INF	-0.016	0.051	-0.035	0.006	0.020	1	
GDP	-0.084	0.071	-0.205***	-0.022	-0.122**	-0.009	1
Year ₂₀₀₈	0.079	-0.078	0.238***	0.045	0.118**	-0.238	-0.730***
Variables	Year ₂₀₀₈						
Year ₂₀₀₈	1						

Note: ***, ** and * denotes significance at 1%, 5% and 10 %. Sources: own calculations.

Table 5 shows results that power market (Lerner index) has a positive relationship with bank profitability (ROE), with statistical significance at 10%. Higher degree power market leads to an increase in bank profitability. This is in line with studies as (Tan, 2016; Kouki and Al-Nasser, 2017).

Table 5. Empirical results (Z_score_{adj} as risk indicator and Lerner as power market indicator)

Variables	ROA (1)		ROE (2)		PBT (3)	
	coefficient	P value	coefficient	P value	coefficient	P value
<i>One period lag of dependent variable</i>	0.128**	0.036	0.189***	0.003	-0.056	0.430
Lerner	-0.002	0.412	0.168*	0.053	-0.009	0.432
Z_score_{adj}	0.005	0.422	-0.067	0.137	0.006	0.608
<i>Control variables</i>						
<i>Bank-specific variables</i>						
SIZE	-0.001	0.535	-0.024**	0.044	0.001	0.819
LIQ	-0.007*	0.057	-0.108***	0.003	0.004	0.688
CAP	-0.004	0.833	-0.129	0.522	0.010	0.837
STATE	0.001**	0.039	-0.001	0.946	0.001	0.828
OE	-0.687***	0.000	-0.5623	0.646	-1.158***	0.000
DIV	0.461***	0.000	2.955	0.002	0.637***	0.000
D_Listed	0.003***	0.008	0.021	0.068	0.009**	0.023
<i>Industry-specific variables</i>						

BSD	0.039	0.237	-0.715	0.151	0.061	0.419
SMD	-0.321	0.626	17.723**	0.054	-1.606	0.209
<i>Macro economics</i>						
INF	0.003	0.476	-0.096**	0.059	0.016	0.251
GDP	0.103**	0.039	3.688***	0.000	0.1324	0.397
Year ₂₀₀₈	0.001	0.159	0.016**	0.062	0.002	0.462
Cons	0.004	0.918	0.257	0.398	-0.020	0.745
F test	1483.87	0.000	704.74	0.000	504.88***	0.000
Sargan		0.734		0.052		0.131
AR(1)	-1.89	0.059	-2.41	0.016	-2.23	0.026
AR(2)	1.19	0.234	0.59	0.555	-1.07	0.026
No. of observations	198		198		198	

Note: - The Sargan test is the test for over-identifying restrictions in GMM dynamic model estimation.
 - Arellano-Bond test that average autocovariance in residuals of order 1 is 0. (no autocorrelation)
 - Arellano-Bond test that average autocovariance in residuals of order 2 is 0. (no autocorrelation)
 - ***, ** and * denotes significance at 10%, 5% and 1%. Sources: own calculations.

Besides, risk ($Z_{score_{adj}}$ index) has not statistically significant for bank efficiency in all three models (1), (2) and (3).

Table 6 shows the results impact of the risk (LLP risk) and power market on bank efficiency. This study found no statistical evidence on the relationship between power market and bank efficiency. The sign of the coefficient of variable Lerner at models (4), (5) and (6) are not statistically. This is in line with studies of Casu and Girardone (2006), Fu and Heffernan (2009), and Al-Muharrami and Matthews (2009). However, most of the results in Table 5 allow the author to accept the hypothesis *H1A: Power market has a significant positive relationship with bank efficiency.*

In addition, in table 6, the author found statistical evidence about the negative relationship between risk and bank efficiency, the higher credit risk (higher loan loss provisions LLP) leads to an decrease in lower bank efficiency (ROA, ROE). This is in line with studies (Tan, 2016; Rossia et al., 2005; Fiordelisi et al., 2011). This result can be explained by the after-2008 crisis, the economic has shifted from hot growth to stagnation, along with the decline of the financial market, sudden changes in interest rates, instability of the exchange rate, high bank NPL has seriously affected to commercial banking system, leading to an decrease in banking efficiency. Thus, it can be affirmed that the increasing bank risk will make the profitability of banks decrease. This allows hypothesis *H2: Risk has a significant negative relationship with bank efficiency,* is conformity.

In the control variables included in the model, the scale factor (SIZE) has a significant negative relationship with bank efficiency (ROE) in the model (2) in Table 5, which is consistent with the research of (Tan, 2016). This can be interpreted as low bank profitability for larger banks, economies of scale that no longer exist, which in turn increase high cost pressures, require good management skills for bulky apparatus are barriers to the bank's profit decrease. In addition, the bank increased lending rates on total assets, if customer loans are not well controlled, banks face liquidity risks, declining loan quality and NPL increase leads to bank profits (ROA, ROE) decline. But in table 6, this relationship between SIZE and ROE is not statistical evidence.

In addition, in table 5 and table 6, The sign of liquidity variables (LIQ) is negative and this variable is significant at 10%, 1 % and 5%, level indicating there is a negative relationship between liquidity and bank profitability (both ROA and ROE). This result suggests that due to the period of 2005-2014 research, the consequences of hot credit growth, especially the global financial crisis in 2008, made the quality of loan assets decrease, NPL increased which will lead to decline bank efficiency. Concerning the impact of ownership dummy variable (STATE), it is positively related to profitability (ROA) of Vietnam banks both in model (1) and (4) in table 5 and table 6. Indicating a positive relationship between bank profitability and ownership. It is also a testimony that own shareholders who are not state tend to be more profitable than state-owned banks and this is the case in banks of developing countries (Micco et al., 2007; Demirgüç-Kunt and Huizinga, 1999; Bonin et al.,

2005) but not the case in banking industrial countries and Chinese banking industry (Tan, 2016; Vander Venet, 1996; Berger et al., 2000).

We find that overhead cost (OE) is significant and negative related to bank profitability with regards to ROA and PBT with significant 1 % in model (1), (3) and (6) in table 5 and table 6. This is in line with Bourke (1989), Jiang et al. (2003), and Tan (2016) for the Chinese banking sector. It is also a testimony that banks don't have the ability to pass the overhead expenses on customers through increasing lending rate and decreasing deposit rate.

Table 6. Empirical results (LLP as risk indicator and Lerner as power market indicator)

Variables	ROA (4)		ROE (5)		PBT (6)	
	coefficient	P value	coefficient	P value	coefficient	P value
<i>One period lag of dependent variable</i>	0.002	0.966	.0157	0.191	-1.360	0.354
Lerner	0.001	0.704	0.056	0.539	-0.144	0.227
LLP	-0.684***	0.000	-4.582***	0.000	-2.023	0.436
<i>Control variables</i>						
<i>Bank-specific variables</i>						
SIZE	0.000	0.636	0.005	0.565	-0.003	0.916
LIQ	-0.002	0.447	-0.064**	0.032	-0.083	0.338
CAP	0.007	0.199	-0.231	0.112	-0.041	0.877
STATE	0.001**	0.012	-0.006	0.724	0.012	0.469
OE	-0.864	0.000	-4.866	0.015	-3.909**	0.021
DIV	0.740	0.000	4.760	0.000	3.032**	0.020
D_Listed	0.007	0.098	0.019	0.110	0.069	0.102
<i>Industry-specific variables</i>						
BSD	0.024*	0.094	0.325	0.321	1.120	0.297
SMD	-0.313	0.247	-3.914	0.533	-19.834	0.244
<i>Macro economics</i>						
INF	-0.005	0.250	-0.058	0.214	0.033	0.636
GDP growth rate	-0.018	0.475	1.395*	0.092	-1.838	0.069
Year ₂₀₀₈	-0.001	0.211	0.001	0.929	-0.027	0.245
Conts	-0.001	0.888	-0.127	0.322	0.348	0.579
F test	1132.59	0.000	1116.76	0.000	16.74	0.000
Sargan		0.843	0.673			0.052
AR(1)	-1.39	0.163	-1.53	0.126	-0.98	0.328
AR(2)	-0.40	0.692	-0.53	0.593	-0.44	0.660

No. of observations	198		198		198	
---------------------	-----	--	-----	--	-----	--

Note: - The Sargan test is the test for over-identifying restrictions in GMM dynamic model estimation.
 - Arellano-Bond test that average autocovariance in residuals of order 1 is 0. (no autocorrelation)
 - Arellano-Bond test that average autocovariance in residuals of order 2 is 0. (no autocorrelation)
 - ***, ** and * denotes significance at 10%, 5% and 1%. Sources: own calculation.

Turning to other explanatory variables, the significant and positively impact of diversification (DIV) on bank profitability (both ROA and PBT) suggests that as banks

increase their non-interest income generating activities precedes a increase in bank profitability. This finding is not in line with the study of (Tan, 2016; Tan and Floros, 2012) but line with (Gurbuz et al., 2013; Elsas et al., 2010; Chiorazzo et al., 2008). This result is quite consistent with the reality of Vietnamese commercial banks. Because of the 2014-2024 period, the number of Vietnamese commercial banks increased rapidly, which increased the level of competition of the banking market, in addition to generating income from lending activities, banks diversify products to improve the financial situation and increase profits.

With regards to the listed banks dummy variable (D_Listed), table 5 shows that listed banks operate more effectively than unlisted banks, as evidenced by the coefficient of bank D_Listed is significant and positive for the dependent variable. ROA and PBT with 1% and 5% respectively. While this variable is not significant in table 6.

In table 5, we find not statistical evidence about impact of the banking sector development (BSD) on bank profitability but the banking sector development is found to be significantly and positively related to ROA of Vietnam commercial banks at table 6. This result is explained, in a highly developed banking industry the demand services for banking increases, which will attract many potential competitors to enter the banking market. However, it is still difficult for new banks to enter the market, which will reduce the supply of banking services while the increase in customer demand leads to the increase in service prices and increased profits at exist banks. This is in line with Tan and Floros (2012), and Tan (2016) for the Chinese banking sector. The sign of stock market development (SMD) is positive and this variable is significant, indicating that there is a positive relationship between stock market development and bank profitability (ROE), but the results in Table 6 do not provide evidence for this relationship.

Turing to the macroeconomic variables impact on bank profits is dissimilar. Inflation (INF) is found to be significantly and negative related to bank profitability (ROE) at table 5. This result shows that Vietnamese banks cannot predict inflation or inflation rate is not fully anticipated, banks can not adjust the interest rates or manage the operating expenses accordingly to make the costs increase and revenues decrease, the loan losses will be accumulated, which leads to a decrease in bank profitability. This results in Table 6 do not provide evidence for this relationship.

The findings further suggest that GDP has a significant and positive impact on ROA of Vietnam commercial banks (see table 5) and ROE (see table 5 and 6); this result can be explained by the fact that the demand for lending increases during the periods of economic boom, which leads to an improvement in bank profitability. This finding is in line with Kosmidou (2008), and Tan (2016).

Finally, this paper only found the difference between the factors (Year2008 dummy) impact ROE (see table 5) of the period before and after the crisis in 2008.

CONCLUSION

This study employs panel data from 35 Vietnamese commercial banks over the period 2014–2024 to analyze the determinants of bank performance, with particular emphasis on the effects of risk and market power. Risk is measured using indicators such as the Z-score and loan loss provisions (LLP), while market power is proxied by the Lerner index. In addition, the study incorporates several control variables representing bank-specific characteristics, industry-specific factors, and macroeconomic conditions. Bank performance is examined from three perspectives: return on assets (ROA), return on equity (ROE), and profit before tax (PBT). The empirical analysis is conducted using the two-step system Generalized Method of Moments (GMM).

The findings indicate that both market power and risk significantly affect bank performance. Among the bank-specific variables, size, liquidity, ownership structure, operating costs, diversification, and listing status are found to have a substantial impact on performance. Moreover, industry-specific factors and macroeconomic conditions also influence bank efficiency.

Based on these findings, the study proposes several recommendations to support the sustainable and stable development of the banking system. It highlights key managerial implications, calling for substantial innovation in risk management practices and the formulation of strategic solutions to enhance competitiveness and ensure

long-term efficiency. Bank managers are advised to carefully control loan portfolios to mitigate liquidity risk and to consider diversification strategies as alternatives to traditional loan-based approaches for improving operational performance.

Furthermore, the study offers policy implications for regulators, emphasizing the need to maintain stable inflation, promote and develop capital markets, enhance institutional transparency, and ensure balanced macroeconomic governance. These measures are essential to fostering an efficient market environment, reinforcing market discipline, and enabling banks to better cope with risks, thereby improving overall performance.

REFERENCES

- Abid, A., Gull, A. A., Hussain, N., & Nguyen, D. K. (2021). Risk governance and bank risk-taking behavior: Evidence from Asian banks. *Journal of International Financial Markets, Institutions and Money*, 75, 101466.
- Adewoyin, A. O. (2025). Effect of information and communication technology on service delivery and profitability of banks in Nigeria. *African Banking and Finance Review Journal*, 20(7), 121-141.
- Al-Muharrami, S., & Matthews, K. (2009). Market power versus efficient-structure in Arab GCC banking. *Applied Financial Economics*, 19(18), 1487-1496.
- Ariss, R. T. (2010). On the implications of market power in banking: Evidence from developing countries. *Journal of Banking & Finance*, 34(4), 765-775.
- Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121-136.
- Baele, L., De Bruyckere, V., De Jonghe, O., & Vander Vennet, R. (2015). Model uncertainty and systematic risk in US banking. *Journal of Banking & Finance*, 53, 49-66.
- Berger, A. N. (1995). The relationship between capital and earnings in banking. *Journal of money, credit and Banking*, 27(2), 432-456.
- Berger, A. N., Buch, C. M., DeLong, G., & DeYoung, R. (2004). Exporting financial institutions management via foreign direct investment mergers and acquisitions. *Journal of International Money and Finance*, 23(3), 333-366.
- Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, 21(6), 849-870.
- Berger, A. N., DeYoung, R., Genay, H., & Udell, G. F. (2000). Globalization of financial institutions: Evidence from cross-border banking performance. *Brookings-Wharton papers on financial services*, 2000(1), 23-120.
- Berger, A. N., & Hannan, T. H. (1998). The efficiency cost of market power in the banking industry: A test of the "quiet life" and related hypotheses. *Review of Economics and Statistics*, 80(3), 454-465.
- Berger, A. N., Klapper, L. F., & Turk-Ariss, R. (2009). Bank competition and financial stability. *Journal of Financial Services Research*, 35(2), 99-118.
- Bonin, J. P., Hasan, I., & Wachtel, P. (2005). Bank performance, efficiency and ownership in transition countries. *Journal of Banking & Finance*, 29(1), 31-53.
- Bourke, P. (1989). Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking & Finance*, 13(1), 65-79.
- Casu, B., & Girardone, C. (2006). Bank competition, concentration and efficiency in the single European market. *The Manchester School*, 74(4), 441-468.
- Chiorazzo, V., Milani, C., & Salvini, F. (2008). Income diversification and bank performance: Evidence from Italian banks. *Journal of Financial Services Research*, 33(3), 181-203.
- Chronopoulos, D. K., Liu, H., McMillan, F. J., & Wilson, J. O. (2015). The dynamics of US bank profitability. *The European Journal of Finance*, 21(5), 426-443.
- Damanik, J. H. (2025). The Influence of Credit Risk Level, Liquidity Risk on Profitability with Operational Efficiency Level as an Intervening Variable (Case Study on Conventional Commercial Banks KBMI 3 and KBMI 4 Listed on the IDX in 2021-2024). *Formosa Journal of Multidisciplinary Research*, 4(4), 1893-1912.
- Dang, B. K., & Vo, D. T. (2025). Bank efficiency and shareholder value in Vietnam Banking. *Economic Journal of Emerging Markets*, 17(1).
- Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: some international evidence. *The World Bank Economic Review*, 13(2), 379-408.
- Demsetz, H. (1973). Industry structure, market rivalry, and public policy. *The Journal of Law and Economics*, 16(1), 1-9.

- Dietrich, A., Hess, K., & Wanzenried, G. (2014). The good and bad news about the new liquidity rules of Basel III in Western European countries. *Journal of Banking & Finance*, 44, 13-25.
- Dilla, S., Zainir, F., & Shahrin, A. R. (2025). Does FinTech lending moderate the competition-efficiency nexus in banking? *Journal of Chinese Economic and Foreign Trade Studies*, 18(2), 200-225.
- Elsas, R., Hackethal, A., & Holzhäuser, M. (2010). The anatomy of bank diversification. *Journal of Banking & Finance*, 34(6), 1274-1287.
- Faraj, B. A. A., Danish, M. H., & Nisar, E. (2025). Risk Dynamics in Iraqi Banking Sector: Role of Bank Capital and Efficiency. *FWU Journal of Social Sciences*, 19(3).
- Fiordelisi, F., Marques-Ibanez, D., & Molyneux, P. (2011). Efficiency and risk in European banking. *Journal of Banking & Finance*, 35(5), 1315-1326.
- Fu, X. M., & Heffernan, S. (2009). The effects of reform on China's bank structure and performance. *Journal of Banking & Finance*, 33(1), 39-52.
- Fu, X. M., Lin, Y. R., & Molyneux, P. (2014). Bank competition and financial stability in Asia Pacific. *Journal of Banking & Finance*, 38, 64-77.
- García-Herrero, A., Gavilá, S., & Santabábara, D. (2009). What explains the low profitability of Chinese banks? *Journal of Banking & Finance*, 33(11), 2080-2092.
- Gurbuz, A. O., Yanik, S., & Ayturk, Y. (2013). Income diversification and bank performance: Evidence from Turkish banking sector. *Journal of BRSA Banking and Financial markets*, 7(1), 9-29.
- Hadi, M. H., Abdulzahra, A. K., & Hazen, M. A. (2025). The Effectiveness of Internal Control Standards in Enhancing Financial Risk Management Efficiency in the Banking Sector. *European Journal of Management, Economics and Business*, 2(5), 66-83.
- Homma, T., Tsutsui, Y., & Uchida, H. (2014). Firm growth and efficiency in the banking industry: A new test of the efficient structure hypothesis. *Journal of Banking & Finance*, 40, 143-153.
- Hoxha, A., Bajrami, R., & Prekazi, Y. (2025). The impact of internal and macroeconomic factors on the profitability of the banking sector. A case study of the Western Balkan countries. *Business: Theory and Practice*, 26(1), 28-47-28-47.
- Jia, K., & Liu, X. (2024). Bank digital transformation, bank competitiveness and systemic risk. *Frontiers in Physics*, 11, 1297912.
- Jiang, G., Tang, N., Law, E., & Sze, A. (2003). The profitability of the banking sector in Hong Kong. *Hong Kong Monetary Authority Quarterly Bulletin*, 3(36), 5-14.
- Khan, M., & Amin, M. S. (2023). Does market competition contribute to the banking stability of South Asian emerging economies? *Bulletin of Business and Economics (BBE)*, 12(4), 119-125.
- Kosmidou, K. (2008). The determinants of banks' profits in Greece during the period of EU financial integration. *Managerial Finance*, 34(3), 146-159.
- Kouki, I., & Al-Nasser, A. (2017). The implication of banking competition: Evidence from African countries. *Research in International Business and Finance*, 39, 878-895.
- Le, T. D., Nguyen, D. T., & Ngo, T. (2024). Revisiting the quiet-life hypothesis in the banking sector: do CEOs' personalities matter? *International Journal of Financial Studies*, 12(1), 28.
- Maudos, J., & Nagore, A. (2005). *Explaining market power differences in banking: a cross-country study*. Instituto Valenciano de Investigaciones Económicas.
- Micco, A., Panizza, U., & Yanez, M. (2007). Bank ownership and performance. Does politics matter? *Journal of Banking & Finance*, 31(1), 219-241.
- Ngo, H. K., & Trinh, H. T. T. (2025). The impact of financial risks on bank performance: evidence from Bayesian analysis in Vietnam's commercial banks. *Discover Sustainability*, 6(1), 515.
- Ogunleye, A., Kehinde, A., Ogundeji, A., & Orimogunje, R. (2025). Does microcredit have any impact on profit efficiency? Evidence from smallholder poultry farmers in Nigeria. *Environment, Development and Sustainability*, 27(6), 13611-13637.
- Pietrzak, M. (2025). Economic and Social Aspects of the Space Sector Development Based on the Modified Structure-Conduct-Performance Framework. *World*, 6(2), 79.
- 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.
- Rossia, S. P., Schwaigerb, M., & Winklerc, G. (2005). Managerial behavior and cost/profit efficiency in the banking sectors of Central and Eastern European countries. *Working paper, No.96*.
- Saeed, M., & Izzeldin, M. (2016). Examining the relationship between default risk and efficiency in Islamic and conventional banks. *Journal of Economic Behavior & Organization*, 132, 127-154.
- Tan, Y. (2016). The impacts of risk and competition on bank profitability in China. *Journal of International Financial Markets, Institutions and Money*, 40, 85-110.

- Tan, Y., Charles, V., Belimam, D., & Dastgir, S. (2021). Risk, competition, efficiency and its interrelationships: evidence from the Chinese banking industry. *Asian Review of Accounting*, 29(4), 579-598.
- Tan, Y., & Floros, C. (2012). Bank profitability and inflation: the case of China. *Journal of Economic Studies*, 39(6), 675-696.
- Tan, Y., & Floros, C. (2019). Risk, competition and cost efficiency in the Chinese banking industry. *International Journal of Banking, Accounting and Finance*, 10(2), 144-161.
- Vander Vennet, R. (1996). The effect of mergers and acquisitions on the efficiency and profitability of EC credit institutions. *Journal of Banking & Finance*, 20(9), 1531-1558.
- Zulian, R., Martiana, R., & Aliyuddin, M. (2025). *Unveiling the performance drivers of Indonesia's state-owned banks: a structure–conduct–performance perspective using panel data analysis*. Paper presented at the Proceeding of International Students Conference of Economics and Business Excellence.