FACTORS AFFECTING THE PROFITABILITY OF VIETNAMESE STATE-OWNED COMMERCIAL BANKS

● VU NGOC DIEP - DANG THI LAN PHUONG - NGUYEN TRUNG KIEN

ABSTRACT:

This study examines the impact of internal and external factors on the profitability of Vietnamese state-owned commercial banks in the period of 2015 - 2020. The regression methods of fixed effects and random effects based on balanced panel data are used in this study. The study's results show that the profit margin and equity have positive and statistically significant influences on the profitability of Vietnamese state-owned commercial banks. In addition, the loan-to-deposit ratio, the ratio of bad debt, and tax have negative correlations with the profitability of Vietnamese state-owned commercial banks.

Keywords: profitability, commercial banks, state capital, profit margin.

1. Introduction

Each commercial bank is a business organization, so their ultimate goal is still profit. If there is any failure of one bank, it will affect the entire financial system. Therefore, analyzing the factors affecting the profitability of commercial banks, measuring the influence of each factor, thereby making recommendations for the managers of commercial banks is really necessary. current period.

2. Research Methods

2.1. Variables in the research model

The variables used in the study are described in Table 1 below:

2.2. Methods of data collection and analysis

In this study, the financial statements of the SOCBs for the period 2015 - 2020 were collected to calculate the marginal interest income and other financial factors of the model. In addition, the author uses regression models OLS, FEM (fixed effects model) and REM (random effects model) to find out the relationship between internal and external factors to the ratio. return on total assets. At the same time, Hausman (1978) test was used to select the appropriate model. In addition, the author also tested the phenomenon of variance variance, autocorrelation, multicollinearity for the model.

3. Research results

3.1. Descriptive statistical analysis

The data of the study were collected from 4 Vietnamese commercial banks in the period 2015-2020 with the statistical parameters shown in the following table:

Table 2, presents descriptive statistics of variables in the model on the influence of factors on ROA of Vietnamese commercial banks for the period 2015-2020. The data is collected by year, so the total observation is 24 observations.

ROA: This is a dependent variable reflecting the profitability of the bank's assets. This indicator reached an average of 0.3%, which means that for

Table 1: Variables in the research model

Variable names and symbols		Measure	Expectations of the sign
Dependent variable			
Return on assets	ROA	After-tax income/total assets	
Independent variables			
Marginal interest income	NIM	net interest income/total assets	+
Total asset growth rate	SIZE	Natural logarithm of total wealth growth	+
Bad debt ratio	TLNX	Bad debt balance/Total outstanding balance	-
Operating costs	OP	Operating expenses/Total assets	+
Non-interest expenses	NII	(Non-interest income-non-interest expenses)/Total assets	+
Loan to deposit size	LDR	Loan size/mobilized capital	-
Size of Owner's Equity	CAP	Equity/total assets	+
Tax	TAX	Tax/total assets	-
Deposit growth rate	TTHĐ	Funds raised in year n-capital raised in year n-1/capital raised in year n-1	+
Growth of GDP	GDP	The increase of GDP in year t compared to t-1	+
Inflation rate	INF	The increase of the consumer price index in year t compared to t-1	-

Table 2: Descriptive statistics among the variables in the model on the influence of factors on ROA of Vietnamese commercial banks in the period 2015 - 2020

Variable name	Number of observations	Mean value	Standard deviation	Minimum value	Maximum value
ROA	24	.8216667	.3552546	.29	1.61
NIM	24	2.831667	.2724393	2.07	3.43
Size	24	20.83189	.2277336	20.32933	21.17315
CAP	24	5.443533	.9748399	4.06177	7.198375
TLNX	24	1.504826	.5040387	.6227247	2.731444
OP	24	1.386851	.2360001	1.146182	1.877521
LDR		88.99422	9.055751	74.77761	104.7214
NII	24	.7632855	.1788988	.4276674	1.146767
TAX	24	.2049208	.01442	.1897953	.2546202
TTHD	24	1.131596	3.578362	-.6016619	16.52539
GDP	24	6.117595	1.493362	2.91	7.075789
INF	24	2.73086	1.016653	.6312009	3.539628

every VND spent in assets, the bank earns VND 0,821 in profit after tax. The standard deviation of the ROA variable is very large at 0.35%. The minimum value of ROA is 1.613% while the maximum value achieved is 2.09%. This shows that the profitability on assets of banks in the system is not uniform, there are banks with very good profitability while this ratio of some banks is very modest.

NIM: This is an independent variable that represents the rate of marginal interest income of commercial banks. This variable has a mean value of 2.97%, a fairly high standard deviation of 0.272%. The minimum and maximum values of the profit margin ratio are 2.07% and 3.43%, respectively. This figure shows the disparity in interest income between banks. In general, the marginal income of banks during this period was relatively low.

SIZE: This is an independent variable that reflects the size of the bank. This indicator has an average value of 28.83, a minimum value of 20.32, a maximum value of 21.17 and a standard deviation of 0.23

CAP: This is an independent variable reflecting the ratio of equity to total assets of the bank. CAP achieved an average value of 5.44%. The standard deviation of CAP is also relatively high at 0.97%. The minimum and maximum values of CAP are 4.06% and 7.20%, respectively.

TTLN: This is an independent variable representing the bad debt ratio of commercial banks. The average bad debt ratio is at 1.50%. The standard deviation of this variable is at a high 0.50%. The difference between the minimum value and the maximum value is very large. While the minimum value is 0.62%, the maximum value is up to 2.73%. From there, it can be seen that there are big differences in credit risk between banks.

LDR: This is the independent variable that shows the percentage of credit outstanding compared to mobilized capital. This index assesses the safety level of banks. LDR has an average value of 88.99%. The standard deviation is 9.06%. The minimum value is 74.78% while the maximum value is 104.72%.

OP: This is an independent variable that reflects the percentage of operating expenses compared to the total assets of the bank. The mean value of OP variable is 1.39%. The standard deviation of the variable is 0.24%. OP's minimum and maximum values are 1.15% and 1.88%, respectively.

NII: The independent variable represents the ratio of implicit interest expense or implicit interest expense of the bank to total assets. The mean value of the NII variable is 0.76%. The standard deviation of the variable is 0.18%. The minimum and maximum values of this variable are 0.43% and 1.15%, respectively.

TAX: This is an independent variable reflecting the tax rate on pre-tax profits of commercial banks. This variable has a mean of 0.20 with a standard deviation of 0.01. The minimum and maximum values of this variable are 0.19 and 0.25, respectively.

TTHD: This is the independent variable% reflecting the growth rate of capital mobilization of commercial banks. Credit growth has an average rate of 1.13% with a very large standard deviation of 3.5. The minimum value of this indicator is -0.60% while the maximum value is 16.52% .

GDP: This is an independent variable reflecting the growth rate of Vietnam's gross domestic product with the average value in 5 years reaching 6.76%/year. The low standard deviation is 0.31%. Thus, it can be seen that the GDP growth rate in Vietnam during this period was quite stable. The minimum value of this variable is 6.21% and the maximum value is 7.08%.

INFLATION: This is an independent variable reflecting the inflation rate of Vietnam over the years. This indicator reached the average value of 2,631%. This indicator has a large fluctuation with standard deviation of 1,073. The minimum and maximum values are 0.631% and 3.539%, respectively.

3.2. Correlation matrix between variables in the model

The correlation coefficient matrix is used to see the correlation relationship between the variables in the model. Two variables are correlated when the level of statistical significance is less than 5%. The coefficient r ranges from -1 to 1. The closer the coefficient is to +/- 1, the stronger the correlation

Table 3: Correlation matrix between variables in the model of factors affecting ROA
of Vietnamese commercial banks in the period 2015 - 2020

	Nim	LNSIZE	LDR	CAP	OP	IP	ROE	ROA	NPL	GWM	GDP	Inflation
ROA												
NIM	0.0280 *	1.0000										
SIZE	-0.0300	0.1317	1.0000									
CAP	0.74131.0000	* -0.3062	-0.3012									
TLNX	-0.8916*	0.0673	-0.1054	-0.7165*	1.0000							
LDR	-0.2074 *	-0.2612	0.1576	0.0220	-0.0693	1.0000						
OP	-0.5254	0.6773*	0.0143	-0.4640*	0.5034*	-0.1365	1.0000					
NII	0.1048	0.3389	0.4451*	-0.1418	0.0311	-0.6102*	0.1766					
TAX	-0.4708*	0.3753	-0.3518	-0.1416	0.5738*	-0.2051	0.6434*					
TTHD	-0.0136	-0.1827	-0.5440*	0.1920	0.2015	-0.2358	-0.1383					
GDP	-0.1633	0.1263	-0.3942	-0.1908	0.1708	0.0331	0.1237					
Inflation	0.0739*	0.0438	0.7033*	-0.2849	-0.2521	-0.0065	-0.1067					

between the two variables. The closer r is to 0, the weaker the correlation between the variables.

Based on the Pearson correlation coefficient on the correlation coefficient matrix table, it shows that ROA has a statistically significant positive relationship with CAP and NIM with values of 0.7413, 0.0280, respectively. However, ROA has a negative relationship with TLNX, LDR, INF, TAX with values respectively: 0.8916, 0.2074, 0.5252, 0.4708.

3.3. Regression results and tests of regression hypotheses

3.3.1. Checking for multicollinearity

To ensure the accuracy of the estimates in the model, the multicollinearity test was performed using the variance exaggeration factor VIF. Below are the results of the model's VIF calculation.

Calculation results of coefficient of variance exaggeration show that all variables in the model are satisfied with VIF less than 10. Therefore, these variables will be used to run the regression model.

3.3.2. Model selection test results

The OLS, FEM and REM Estimation results show different variables as well as different degrees of influence of the variables on the marginal interest income of commercial banks.

Table 4: Results of testing for multicollinearity

	VIF 1	VIF 2
TLNX	9.75	0.09988
CAP	8.34	0.119898
SIZE	6.46	0.154684
TAX	5.43	0.184273
INF	4.71	0.212363
NII	4.41	0.226554
NIM	3.96	0.252417
OP	3.86	0.259176
LDR	3.69	0.271173
TTHD	2.41	0.414665
GDP	1.56	0.642548

OLS regression results show:

The model's R-squared coefficient reached 88.3%, showing that the relevance of the variables in the model is relatively high. The F-statistic is significant at the 1% level, indicating that the OLS estimate might be a good one.

The regression results using the fixed effects model show that:

Table 5: Regression results of factors affecting ROA at Vietnamese state-owned commercial banks in the period 2015 - 2020

	Pool OLS	REM	FEM
NIM	.3566594* .1850796	3566594 * .1850796	.3346803 .1935347
SIZE	.2750213 .2828381	.2750213 .2828381	.5233954 .3894919
CAP	.1266084 .0750497	.1266084* .0750497	-.0315389 .1245812
TLNX	-.3184284* .1647532	-.3184284 * .1647532	-.2863527 .1828161
LDR	-.0152595* .0053721	-.0152595* .0053721	-.0218307 .0162861
OP	-.3178371 .2108524	-.3178371 .2108524	-.3654825 .6044026
NII	-.2480771 .2975055	.2480771 .2975055	.1660176 .3521118
TAX	-.238268* 4.092543	-.238268* 4.092543	-6.053494 4.003662
TTHD	-.0075527 .010994	-.0075527 .010994	-.0072362 .0108296
	.0082605 .0211627		-.0083624 .0247193
INF	-.0976098* .0540724	-.0976098* .0540724	INFLATION -.1692391 .0812445
Constant	0.338	3.670	0.335
	(2.955)	(7.627)	(2.910)
Observations	24	24	24
R-squared	0.883	0.8845	0.8244
Number of TEN		10	10
Prob>F/Prob>Wald			
Chi 2	0.0000	0.0000	0.0000
Hausman (Chi2)		0.9291	
Prob>chi2		0.0004	
Breusch and Pagan Lagrangian test Chi 2		263.62	
Prob>chi2		1.0000	
Wooldridge test			
F-stats		1.804	
Prob > F		0.0925	

($*p < 0.1$)

The results of the F-statistical test with p-value less than 0.05 show that there is a difference between the subjects (banks). In this case the fixed-effects model is more suitable than Pool OLS.

The results of the model estimation by the random effects method for the Wald value – chi squared with p-value less than 0.05 show that the random effects model is more suitable than the Pool OLS estimate.

Hausman test was carried out to choose between a fixed effect model and a random effect model. The test results show that the p value is 0.9291, thus, the hypothesis Ho is rejected, the random effect model is more suitable than the fixed effect model.

To check the phenomenon of variance, the Wald test was used, the Chi-squared statistic results with a p-value of 1,000 (greater than 0.05), so the equation does not have variance. change number.

To check the autocorrelation phenomenon in the model, Wooldridge test was used, the statistical result with p-value is 0.925 (greater than 0.05) so the equation does not exist autocorrelation.

Therefore, the regression results by the selected random effects model show that:

The variable NIM has a statistically significant positive effect on ROA of Vietnamese commercial banks in the period 2015 - 2020. When the net interest income of commercial banks increases, the total income of commercial banks will also increase (in Vietnam, net interest income is the main source of income of commercial banks). Earnings increase assuming operating expenses remain unchanged, or income growth is greater than cost growth, and the corporate income tax rate remains unchanged, ROA will increase. This result is consistent with the research results of Andreas Dietrich (2011).

LDR variable has a negative effect, statistically significant with ROA of SOCBs in the period 2015-2020. This shows that there is a positive correlation between liquidity risk and expected return. A commercial bank that uses too much mobilized capital for lending will reduce the size of the reduced budget. An increase in outstanding balance is one of the conditions for the bank to increase interest income, but the decrease in funds makes the bank face higher liquidity risk. This result is consistent with the research results of Kosmidou (2008), Brouke (1989).

The variable TAX has a statistically significant negative effect on ROA of SOCBs in the period 2015-2020. This shows that when the income tax payable increases with the assumption that income before tax does not change or the growth rate of corporate income tax is greater than the growth rate of income before tax, the ROA of commercial banks will decrease. This result is consistent with the research results of Toloma Marshal Obamuyi (2013).

The variable CAP has a statistically significant positive effect on ROA of Vietnamese commercial banks in the period 2015 - 2020. This shows that the larger the size of the bank's equity, the greater the bank's profitability. This is consistent with the actual operation of banks because equity has the function of regulating the size of the bank's operations. When equity increases, banks have a basis to increase the scale of mobilized capital, increase the scale of outstanding loans, and increase investment activities to increase income. This result is consistent with the research results of Athanasoglou (2008), Samy Ben Naceur (2003), Alper and Anbar (2011), Paolo Saona (2011).

The variable CBT has a statistically significant negative effect on ROA of Vietnamese commercial banks in the period 2015 - 2020. Obviously, when credit risk increases, the credit risk provision of commercial banks also increases. The increase in provision expense for credit risks reduces profit, leading to a decrease in ROA. The results of running the model are consistent with the actual operation of commercial banks. This result is consistent with the research results of Halil (2012), Suflan (2009).

4. Conclusion and some recommendations

From the regression results, it shows that profitability is positively correlated with bank's asset size, equity size, liquidity risk, interest income and non-interest income. Meanwhile, bank profitability is negatively correlated with administrative costs, credit risk and taxes. The above results are the basis for proposing the following recommendations:

4.1. Recommendations for commercial banks

Firstly, commercial banks with Vietnamese capital continue to increase their own capital. Increasing the size of own capital is a condition for commercial banks to increase the size of their credit balances, increase the size of their profitable assets, thereby increasing their incomes. from profit. This is also an important goal of commercial banks in 2021 to ensure the minimum capital adequacy ratio (CAR) according to Circular 41/2016/TT-NHNN.

Second, SOCBs need to improve their profit margin (NIM) to increase the bank's profitability. Although, in recent years, the proportion of revenue from credit activities in total income of the bank has decreased compared to previous years, but this activity provides the main source of income for the bank. The increase in NIM can come from the good management of lending rates and deposit rates.

Thirdly, commercial banks need to balance the need to use capital with mobilized capital. The higher the ratio of loans to mobilized capital, the more likely it is that credit and liquidity risks arise for the bank's operations, leading to a decrease in the profitability of the SOCBs.

Fourth, commercial banks strengthen credit risk management. NPL ratio represents credit risk which has a negative impact on profitability of SOCBs. This is completely consistent with the reality in Vietnam because lending accounts for most of the bank's assets, but the control of the loan portfolio is not good, leading to the formation of bad debts in recent years ∎

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Author's information:
1. Ph.D. VU NGOC DIEP[1]
2. Ph.D. DANG THI LAN PHUONG[1]
3. NGUYEN TRUNG KIEN[2]
[1] **Faculty Banking and Finance, University of Commerce**
[2] **CH26BQLKT.N1, University of Commerce**

CÁC NHÂN TỐ ẢNH HƯỞNG ĐẾN KHẢ NĂNG SINH LỜI CỦA CÁC NGÂN HÀNG THƯƠNG MẠI CÓ VỐN NHÀ NƯỚC TẠI VIỆT NAM

● TS. **VŨ NGỌC DIỆP**[1]
● TS. **ĐẶNG THỊ LAN PHƯƠNG**[1]
● **NGUYỄN TRUNG KIÊN**[2]
[1] Khoa Tài chính Ngân hàng, Trường Đại học Thương mại
[2] CH26BQLKT.N1, Trường Đại học Thương mại

TÓM TẮT:

Nghiên cứu này đánh giá tác động của các yếu tố bên trong và bên ngoài đến khả năng sinh lời của các ngân hàng thương mại có vốn nhà nước tại Việt Nam trong giai đoạn từ năm 2015 đến năm 2020. Phương pháp hồi quy với các ảnh hưởng cố định và phương pháp hồi quy với các ảnh hưởng ngẫu nhiên dựa trên dữ liệu bảng cân bằng đã được sử dụng để thực hiện nghiên cứu này. Kết quả nghiên cứu cho thấy biên lợi nhuận và vốn chủ sở hữu có ảnh hưởng tích cực và có ý nghĩa thống kê đến khả năng sinh lời của các ngân hàng thương mại có vốn nhà nước tại Việt Nam. Ngoài ra, tỷ lệ cho vay trên tiền gửi, tỷ lệ nợ xấu và thuế có mối quan hệ ngược chiều với khả năng sinh lời của các ngân hàng này.

Từ khóa: khả năng sinh lời, ngân hàng thương mại, vốn nhà nước, biên lợi nhuận.