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ANALYSIS OF INTERNAL FACTORS AFFECTING BANK PROFITABILITY: EVIDENCE FROM LISTED BANKS ON VIETNAM STOCK MARKET

Nguyen Thi Dieu Chi
Luong Thi Thu Hang
Nguyen Thi Thuy Trang
National Economics University
Hanoi, VIETNAM
ndchi226@gmail.com

Abstract

This study using the multivariate linear regression model based on the ordinary least squares method (OLS) to estimate the internal factors affecting profitability of 9 listed banks on Vietnam Stock Market for the period from 2008 to 2016. A sample with 81 observations was used in study model, and Return on assets (ROA) is used to measure banks' profitability in the study model. The results indicated that capital size and loan have a positive and significant effect on bank profitability, and asset size, deposits, liquidity risk and bad debts have a negative and significant impact on bank profitability. These findings suggest that banks can improve their profitability through increasing capital size and loan, remaining asset size, deposits, liquidity risk and bad debts reasonably. These findings allow authors to give some solutions to support Vietnam commercial banks increasing their profitability in integration era.

Keywords: Commercial Bank; Listed Bank; Profitability; Profit

Introduction

Commercial banks play an important role in linking capital sources and providing many different financial services in the economy. Therefore, this financial intermediary has impact on economic growth of every nation. Besides, banks' problems can result in systemic crisis. Economies that have a profitable banking sector are able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou et al., 2005). Besides, Suffian (2011) stated that banks are considered as dominant financial institutions, thus their performance will give effect to the general health of the economy. Therefore, it is necessary to understand factors influencing banks' profitability, especially internal factors, because they relate to banks themselves and organizations in the economy.

The objective of this paper is to examine the internal factors that affect the profitability of 9 listed banks on Vietnam stock market. This study chooses 6 internal factors variables to measure banks' profitability with the period of study from 2008 to 2016, Vietnam banking sector witnessed many challenges and difficulties internally and externally, especially financial crisis from 2008.

The paper includes 8 sections in which section 1 is introduction. The rest of the paper is organized as follows: Section 2 provides a background of literature, relating bank profitability and its internal determinants. Section 3 gives a glance of 9 listed banks on Vietnam stock market. Section 4 describes research methodology with data, variables, method and research model. While section 5 describes and analyses the empirical results. Conclusions and recommendations are offered in the final section.

Literature Review

In many previous studies, internal and external factors are used to measure their influence on profitability of banks. However, this study is concentrating on internal factors such as asset size, capital size, deposits, loan, liquidity and bad debt which affect profitability of listed bank on Vietnam stock market directly. The following studies could be a important source in supporting the results of this paper.

In empirical studies of Bourke (1989) identified the determinants of bank profitability in which internal variables are related to bank management. Mamatzakis et al. (2007) also indicated that internal determinants are termed micro or bank specific determinants of profitability. According to purpose of each study, researchers will choose internal determinants, there are some bank specific financial ratios representing capital size, asset size, loan, cost, debts, liquidity. Guru et al. (1999) studied on a sample of seventeen commercial bank of Malaysia from 1986 to 1995. This study indicated that the ratio of expense management is one of the most important factors affecting bank's profitability and high interest ratio is related to low bank's profitability.

The research in Pakistan, Javaid et al. (2011) found that higher total assets do not lead to higher profits due to the diseconomies of scale and higher loans contribute towards profitability but their impact is not significant. Also the result is also found that equity capital and deposits have significant impact on profitability. Moreover, in the study of Molyneux et al. (1992) examined the determinants of bank's interest margins and profitability for some European countries. It is found that well-capitalized banks have lower expected bankruptcy costs and better profitability. In many studies in Turkey, Ramlall (2009) showed that ratios of equity to assets, loans and liquidity affect ROA positively. Besides, the ratios of deposits to total assets and bad debts affect ROA negatively. In study of Atasoy (2007) examined relationship between profitability determinants and structure of expense – income. The results showed that ratio of equity capital and total assets affect ROA positively and ratios of fixed assets and costs to total assets affect ROA negatively. Study of Eljelly (2003) investigated the determinants of profitability of Islamic banks in Sudan, one of the few countries had total Islamic economic and banking systems. Using a sample of Sudanese banks, the study showed that only the internal factors to these banks have a significant impact on banks' profitability, as measured by return on assets (ROA) and return on equity (ROE).

In research of Olson et al. (2011), larger bank size, greater dependence upon loans for revenue, and higher proportion of equity capital to asset have generally been associated with greater profitability. Higher liquidity, greater provisions for loan losses and more reliance on debt have been lower indicative of lower bank profits. Haron (1996) examined the determinants of profitability in Islamic banks. Researchers have managed to examine and identify various internal factors that have a significant influence on bank's profitability. The study found that internal factors such as liquidity, total expenditures, funds invested in securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds are highly correlated with the level of total income received by the banks.

There are many studies about factors affecting bank's profitability in the world. However, each study has different findings because of variation of studying environment

and collected data. And these studies results will be important base, especially for next studies.

Listed Banks On Vietnam Stock Market At A Glance

The main activity driving the banking sector in Vietnam is commercial banks. There are currently 6 SOCBs, 31 joint stock commercial banks (JSCBs), 5 joint venture banks and 61 wholly foreign-owned banks, banks' branches, and representatives. Although, there are 31 joint stock commercial banks, only 9 banks are listed on Vietnam stock market. This number is really so few comparing with total Vietnamese commercial banks.

Table 1. Total assets and charter capital of Vietnam Banking System at the end of 2016

Unit: Billions dong

Financial institution	Total Assets	%	Charter Captial	%
SOB	4.021.552	47,29	157.239	32,19
JSCBs	3.422.829	40,25	200.855	41,12
Joint venture & 100% foreign owned banks, branches	828.322	9,74	104.103	21,31
Finance and leasing company	114.370	1,34	19.701	4,03
Cooperative bank	26.385	0,31	3.025	0,62
Credit fund	90.112	1,06	3.502	0,72
Total	8.503.570	100	488.425	100

Source: Banking Report 2017 of Vietcombank Securities Company

Chart 1. Total assets of 9 listed banks on Vietnam Stock Market in 2016

Unit: Billions dong

Source: Banking Report 2017 of Vietcombank Securities Company

Currently, Vietnam has 31 JSCBs, however until December 2016, only 9 banks are listed on Vietnam stock market with an approximate of VND 3.999 trillion in total assets, which contribute to 47,03 percent of the total assets of Vietnam Banking System. The leading listed bank is Vietinbank with 37.234 billion dong in charter capital, followed by Vietcombank (VCB) and BIDV, with 35.978 billion dong and 34.305 billion dong. Moreover, total assets of these banks are 245.900, 255.742 and 193.402 billion dong. It can be seen

that three largest listed banks are banks having state capital (Vietinbank, BIDV and VCB). Besides, Saigon Thuong Tin Commercial Joint Stock Bank (STB), also known as Sacombank, is the fourth largest listed bank in terms of total assets size with more than 89.909 billion dong of assets. STB has operating network of about 417 branches and units, which includes 10 branch and sub-branch locations in neighboring Laos and Cambodia. The bank specializes in retail banking and about 40% of its loans go to individual borrowers. STB also offers asset management, equipment leasing, money remittance, and jewelry and precious metals trading services through its five subsidiaries.

Research Methodology

Data Collection And Analyzing Method

There are many banks and financial institutions in Vietnam. However, considering the issue of availability of financial data, we selected nine Vietnam commercial banks currently listing their stocks on Vietnam stock market. They are ACB, BIDV, EIB, MBB, NCB, SHB, STB, VCB and Vietinbank. The data is collected in a period of 9 years (2008 – 2016), besides the data that forms a panel data set covering in the same period with 9 selected Vietnam joint stock banks operating in Vietnam. The data was obtained from annual financial statements of the respective bank consisting of 81 observations.

To analyze the internal determinants, panel data regression techniques were used and tested via the STATA (Version 14) computer software. According to Klevmarken (1989) and Baltagi (1995), panel data contributes several benefits. First, panel data can control individual heterogeneity, which in consequence can cause misleading and biased results. It also reduces multi co linearity problems and provides more data information.

Model Specification

Research variables In the empirical study, in order to analyze the determinants of commercial bank profitability, we include seven variables, one of them is the dependent variable.

* Dependent variable

In the literature, bank profitability, typically measured by return on asset (ROA). ROA is defined as net profit divided by total assets and is expensed in percent.

$$\text{ROA} = \frac{\text{Net profit}}{\text{Total assets}}$$

ROA is general measured for bank profitability reflects bank ability to achieve return its sources of fund to generate profits. Moreover, Desa (2003) also indicated that ROA is preferred as measurement for bank performance since it shows bank management's efficiency in managing its capitals to acquire assets and make earnings from it. He added that assets also are part of equity capital since acquiring assets requires a blend of equity capital and debts.

* Independent variable

Asset size (SIZE): In many researches, asset size of commercial banks is used as a proxy

for bank profitability. However, to reduce difference among banks, asset size is assessed by natural logarithm of total asset of the bank. The effect of asset size on profitability is generally expected to be positive (Smirlock, 1985). According to Boyd et al. (1993), asset size will promote economies of scale and reduce the cost of gathering and processing information. Bank's asset size is large helping banks providing larger menu of financial services to their customers, and hence mobilize more funds (Bashir, 1999).

Capital size (CA): Rasidah et al. (2012) claimed that capital is better model as an internal determinant of bank profitability, as increase in profit may lead to an increase in capital. The capital size measures ratio of equity capital to asset. It signals the overall shock absorbing capacity of a bank for potential loan asset losses. According to Samad (2004) the higher the capital ratio, the stronger is the ability of the bank to withstand asset losses. Additionally, it could be the case that higher levels of equity would decrease the cost of capital, leading to a positive impact on profitability (Molyneux, 1993). In fact, most studies that use capital size as an explanatory variable of bank's profitability (Bourke et al., 1989; Molyneux et al., 1992; Goddard et al., 2004) observed a positive relationship with the dependent variable. The ratio of equity to total assets (CA) is considered one of the basic ratios for capital strength. It is expected that the higher this ratio, the lower the need for external funding and the higher the profitability of the bank.

Deposits (DP): Deposits are the main financial source and are the lowest cost of funds. The more deposits are transformed into loans, the higher interest margin and profit are. Therefore, deposits have a positive impact on profitability of the banks. Smirlock (1985) found that deposits were a cheaper source of funds and had a positive impact on bank profits.

Loan (LOAN): The loan indicator is considered as asset quality of commercial banks. Moreover, loans to total assets ratio is a measure of income source of banks, and it is expected to affect profitability positively unless bank takes on unacceptable level of risk. This ratio is one of the important measures of bank's asset quality and reflects changes in the health of bank's loan portfolio that affects performance of bank negatively (Aydogan, 1990).

Liquidity Risk (LQR): The liquidity ratio is measured by bank's current loan to total deposits, or this ratio is used in determining the amount of loans that a commercial bank has out versus the amount of current deposits on hand at that same time. It also indicates that this ratio is a partition between bank's loan and its total amount of deposits. Bourke (1989) found a positive significant link between bank liquidity and profitability. However, in times of instability, banks may chose to increase their cash holding to mitigate risk. Unlike Bourke (1989), Molyneux et al. (1992) concluded that there is a negative correlation between liquidity and profitability levels.

Bad debt (NPL): Bad debts or non-performance loans of bank is the money that the borrower is neither likely to pay any interest nor to repay the principal for commercial banks. Bad debts often have a negative effect on a bank's balance sheet and profitability.

Research model To test the relationship, we developed a linear model as follows:

Profitability (ROA) = βo + SIZE $\beta 1$ + CA $\beta 2$ + LOAN $\beta 3$ + DP $\beta 4$ + LQR $\beta 5$ +NPL $\beta 6$ + u

Profitability is the dependent variable of this research. Explanation of dependent and independent variables along with their proxies are specified in the following Table:

Table 2. Explanation of variables along with their proxies

Variables	Symbol	Equations	Research Hypothesis
Return on Assets Ratio	ROA	Net income/Total Assets	
Asset Size	SIZE	Natural logarithm of Total Assets	-
Capital Size	CA	Equity capital/Total Assets	+
Deposits	DP	Deposits/Total Assets	-
Loan	LOAN	Debts/Total Assets	+
Liquidity Risk	LQR	Debts/Deposits	-
Bad Debts	NPL	Debts(G3-G5)/Debts	-

Results

Descriptive Statistics

This part of the paper will indicate descriptive statistics and correlation analysis the relationship between dependent variable and independent variables as well as among independent variable with together.

Table 3. Descriptive statistics for variables

Variable	Mean	Std. Dev.	Min	Max
ROA	0.9011	0.5087	0.0101	2.0992
SIZE	18.9382	1.0346	16.2047	20.7299
CA	0.0828	0.0337	0.04199	0.2662
DP	0.7566	0.1449	0.1775	0.9127
LOAN	0.55851	0.1043	0.3308	0.7189
LQR	0.5167963	0.1009499	0.3074608	0.6886764
NPL	0.0228986	0.0179306	-0.0274096	0.0922469

Source: Author's compilation and values obtained from Stata (Version 14)

The basic descriptive statistics of the variables are calculated in Table 3. For each variable, Table 3 shows mean, standard deviation, minimum and maximum value. On average, joint stock commercial banks on Vietnam stock market in our sample have a return on assets ROA of 0.9% over the entire period from 2008 to 2016. Moreover standard deviation of ROA is 0,5%, minimum and maximum values are 0.01 and 2.1% respectively. It indicates that there is a large difference between the bank having the largest ROA and the bank having the lowest ROA. Besides, mean of Asset Size (SIZE) is 18.94%, minimum value is 16.20% and maximum value is 20.73%. Averages of Capital Size (CA) is 0.08%, minimum value is 0.04% and maximum value is 0.27%. Basing on the Capital Size (ratio of equity capital/total assets), we see that generally equity capital of Vietnam commercial banks in total assets is so little, and it expresses the weakness in capital scale of Vietnam commercial banks. While, mean of deposits ratio (Deposits/Total Assets) which is one of important ratios affecting to bank's profitability is account for 75,67%, minimum value is 17.75%, and maximum value is 91.27%. There is a large difference between the bank having highest rate of deposits ratio and the bank having lowest deposits ratio. Average of Loan ratio

(Debt/Total Assets) is 55.85%, minimum value is 33.08% and maximum is 71.89%. Liquidity Risk ratio (LQR) 51.68% on average, while it varies between 30.75% and 68.87%. On the table, it also reports the mean of non-performing loan – bad debts (NPL). This ratio is measured by total debts of debt group 3 to debt group 5. This ratio is seemed to evaluate loan quality of commercial banks over the year 2008 through 2016. The average of NPL of nine banks is 2.28%, and the bank has the largest ratio to be 9.22%.

The following table 4 expresses the correlation relationship among independent variables. According to table 4, correlations among independent variables are not so high from -0.5143 to 0.6905. The correlation of 0.7 and above is considered as highly correlated. However, the above data with correlation values are less than 0.7, the low correlation coefficients show that there are have no multicolinearity problems in the researching model or there are have no multicolinearity problems among chosen financial variables.

Table 4. Correlations among Independent Variables

	SIZE	CA	DP	LOAN	LQR	NPL
SIZE	1.0000					
CA	-0.5143	1.0000				
DP	0.1217	-0.1150	1.0000			
LOAN	0.5404	-0.2027	0.1029	1.0000		
LQR	0.5947	-0.3318	0.1142	0.6905	1.0000	
NPL	-0.1351	0.1505	0.0725	0.0190	0.0014	1.0000

Source: Author's compliation and values obtained from Stata (Version 14)

Empirical Results from Panel Data Analysis

The result of table 5 indicates that there are positive correlation relationships among profitability of banks and two financial variables (equity capital – CA, debts of banks/total asset – LOAN). It means that an increase in equity capital and debts/total assets of banks will lead to higher profits of banks. Besides, banks profitability has negative correlation with four remaining financial variables (Total Assets - SIZE, Deposits - DP, Risk Liquidity - LQR, Non performance loan - NPL). As a result, all banks want to enhance their profits, they will have to remain their assets, deposits, risk liquidity and bad debts suitably.

Table 5. Correlations among Independent Variables and profitability variable (ROA).

	ROA	SIZE	CA	DP	LOAN	LQ	NPL
ROA	1.0000						
SIZE	-0.0082	1.0000					
CA	0.2684	-0.5143	1.0000				
DP	-0.1686	0.1217	-0.1150	1.0000			
LOAN	0.3205	0.5404	-0.2027	0.1029	1.0000		
LQR	-0.3452	0.5947	-0.3318	0.1142	0.6905	1.0000	
NPL	-0.1771	-0.1351	0.1505	0.0725	0.0190	0.0014	1.0000

Source: Author's compliation and values obtained from Stata (Version 14)

To evaluate clearly the relationship between ROA and independent financial variables, we construct and assess regression model with the dependent variable (ROA) and 6 independent variables (CA, SIZE, DP, LOAN. LQR, NPL). Regression result from researching model is statistically significant, Wald chi2(6) = 42.80, Prob > chi2 = 0.0000.

Table 6. Determinants of Return on Assets (ROA)

Random-effects GLS regression			Number of obs = 81			
Group variable: id			Number of groups = 9			
R-sq:			Obs per group:			
within = 0.4202			min = 9			
between = 0.0399			avg = 9.0			
overall = 0.3559			max = 9			
			Wald chi2(6) = 42.80			
corr(u_i, X) = 0 (assumed)			Prob > chi2 = 0.0000			
ROA	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
SIZE	-.0648497	.00843202	7.7	0.0442	-.1004148	.2301143
CA	.0401948	0.6145787	0.1	0.0995	-12.00533	12.08572
DP	-.1788825	.03202245	-5.6	0.0576	-.8065111	.448746
LOAN	13.69945	1.4.010433	9.7	0.0331	-13.94453	41.34342
LQR	-17.11593	1.524623	-11.2	0.0262	-46.99799	12.76613
NPL	-4.521948	.2483842	-18.2	0.0069	-9.39019	.3462936
_cons	1.103308	.1574434	7.0	0.483	-1.982526	4.189141
Sigma_u	.26870013					
	.33933271					
Sigma_e	.385381	(fraction of variance due to u_i)				
Rho						

Source: author's compilation and values obtained from Stata (Version 14)

Moreover, in table 6, the results for multivariable regression analysis show that NPL is negative at 1% level of significance. SIZE and LQR are negative at 5% level of significance. Besides, LOAN is still positive at 5% level of significance. However, CA and DP have positive and negative association with ROA at 10% level of significance. Also, the value of R2 overall is 0.3559. It explains that 35.59% variation in model is explained by all independent variables jointly. In addition, R2 is 0.4202 that indicates chosen variables in the model is suitable explaining for ROA in each commercial bank.

Asset Size (CA) has a negative influence on banks' ROA. The outcomes show that banks with higher asset size normally gain fewer profits. From regression result, if asset size of banks increases 1%, profitability of banks (ROA) will decrease 0.06%. The negative relationship also indicates that, when banks have larger assets, it is more difficult for management and performance of banks. It means that the larger banks are, the more difficult for the banks managing business activities is.

Equity capital has a positive relationship with banks' profitability. This result means that if the banks have enough capital scale, it is easy for them in expanding their business activities (opening new branches, approach funds with low cost, avoiding many financial risks…). A positive coefficient estimate for equity capital of banks is 0.04% affecting to ROA. It means that ratio of equity capital/total assets increase 1%, ROA maybe increase 0.04%. The outcome is in line with the findings of some studies (Hassan et al., 2005; Dietrich et al., 2009).

Besides two financial variables (Assets and Equity Capital), deposits as a measure of impact banks' profitability significant negatively. This result can be explained when banks focus on attracting funds, they often use methods to increase interest rate, this issue is reason to increase cost of mobilize funds. High cost of mobilizing capital will affect profit as well as profitability of banks. With above result, if banks' deposits increase 1%, the banks' profitability will decrease 0.17%.

The Loan show an positive impact banks' profitability. The more loans banks supply for customers, the more profits they can gain. The fact proved that many Vietnam banks had focused on developing new customer loan with hope increasing their profit. From above researching result, if loans of banks increase 1%, ROA will increase 13%. The result of this research are consistent with study of Sufian (2011).

Liquidity or risk liquidity has a negative relationship on joint stock banks on Vietnam stock market over the period 2008 to 2016. If liquidity increases 1%, ratio of ROA will decrease 17,12%. It is large impact of liquidity on banks' profit, therefore, the banks show have policies to manage liquidity reasonably.

Bad Debts or Non Performance Loan also affect to profitability of banks. It has an negative relationship with banks' profitability. The higher bad debts is, the lower ROA of banks is. In this research, if bad debts decrease 1%, banks' profitability will increase 4.52%. This result is same with the findings of Vong et al. (2009).

Conclusions And Recommendations

Conclusions

Banks with larger asset size can cause the banks to be less profitable implying management's inefficiency to properly utilize the resources and arrange all business activities. Besides, the ratio of equity capital/total assets impact positively on banks' profitability. These findings indicates that if banks want to increase their profitability, they should focus on enhancing their own capital, as a result of being ensure survival and development of banks. Although, many people think that deposits will help banks increasing their profitability, this statistic result is different. The fact is that if a bank tries to attract deposits by every ways, one of which is using interest rate, it will affect directly to mobilizing capital cost. As a result, banks' profitability will be down. With three remaining variables are loans, liquidity risk and bad debts, the result indicates that the larger loans banks have, the more profitability they can gain. However, the study still shows that bad debts and liquidity risk (debts/deposits) have negative relationship, it means that if banks supply so much debts over deposits which they mobilize, they will face with liquidity risk and it will affect to banks' profitability. It is obviously that bad debts will have negative relationship with banks' profitability, because if debts can be repaid on time, banks will

have to use different resources to solve debt problems, it will cause a decrease in banks' profit.

These findings provide some crucial implications for the profitability improvement of joint stock banks on Vietnam stock market. The empirical analysis is assumed to add valuable information to the literature about the Vietnam banking sector in a different context especially after the world financial crisis. The results of study also confirm some previous findings while showing disagreement with others.

Recommendations

From research results, we suggest some following policies for listed banks on Vietnam stock market:

First, improving the quality of human resource; Human resources, particularly high quality human resources is considered one of the most important resources for development of the country and all enterprises in the economy. Improving the quality of human resources is being paid more attention by policy makers as well as organizations. Vietnam commercial banks should focus on improving quality of human resource to enhance business efficiency and profits. Vietnam commercial banks should have long time strategies to train and retrain human resources. Besides, banks should enhance cooperation with international financial organizations to exchange staffs to study experiences and new technologies. Moreover, one of methods to improve quality of human resources is increasing welfare for staffs especially in salary, reward and remuneration policy.

Second, increasing foreign ownership in Vietnam joint stock banks in order to raise capital, resolve bad debts, and speed up restructuring. There are many Vietnam banks having sold shares to foreign investors. These are mainly banks going through restructuring, such as Saigon Bank, BacA Bank or VietA Bank. Under the current rules, foreign ownership in Vietnamese banks is limited to a maximum of 30 per cent, and each foreign investor is restricted to own a maximum of 20 per cent. This number is so low with real capital demand of Vietnam banks. Nowadays, many commercial banks have already hit the foreign ownership limit. Therefore, they have expressed the desire for bigger "room" for foreign investment in order to raise capital, resolve bad debts, and speed up restructuring. Therefore, State Banks and authorities should permit large banks to buy 35 - 40 per cent, whereas smaller banks can sell 49 or 51 per cent. Until now, the State Bank of Vietnam has restructured the nine weakest banks, but it is still difficult for foreign investors to wholly own a domestic bank.

Third, building strategies to mobilize capital with reasonable expenses; Banks should build mobilization policies basing demand and capital market. Besides, banks should exploit and enhance to cooperate with international finance institutions to mobilize capital source with low expense. Moreover, banks should restructure their organizations to use capital effectively, ensure to avoid dilapidating mobilized capital sources.

The findings of this study reflect the current situation of nine listed banks on Vietnam stock market. In Vietnam, there have not been so many empirical researches investigating the impact of internal factors on profitability of Vietnam listed banks. The result of this study will be the base for Vietnam commercial banks having solutions to increase their profit in the future.

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