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Factors Impact on Profitability of Commercial Banks In Vietnam

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ABSTRACT

Background: Vietnam's banking system has its own characteristics and it is different from the banking system of developed countries such as: the US, the European countries. This difference is: the commercial banking system of Vietnam is very closely controlled by the Vietnam central bank. These differences are the factors that have impacted on the profitability of the commercial banking system. How do these factors impact on profitability of commercial banks? And which factors impact on profitability of commercial banks? Etc. **Objective:** The purpose of this research is to determine the factors that affect the profitability of commercial banks in Vietnam. Beside, the article has given the best solution to managers and investors to decide their business strategy and minimize financial risk. The data are used by the financial reports of 22 commercial banks in Vietnam during the period 2007-2013. **The results:** Bank profitability is measured by indicators such as: return on assets (ROA), return on equity (ROE), and net interest margin (NIM). The research applies the panel data regression models, including the Pooled Regression (Ordinary Least Squares = OLS) Model, the Fixed Effect Model (FEM) and the Random Effect Model (REM). Next, the research employs the Feasible Generalized Least Squares (FGLS) technique to ensure the viability and effectiveness of the research model. The research result shows that the equity to total assets ratio (CAP), the loans to total assets ratio (LOAN), the liquidity ratio (LA), and the economic growth rate (GDP) have an impact on the profitability of commercial banks in Vietnam. **Conclusion:** results of research are to help bank managers, investors and policy makers who have given the best business decision and they have high profits.

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INTRODUCTION

The banking sector is considered a key sector in order to ensure the effective performance of the economy. In times past, thanks to the economic reform policy, the Vietnamese banking sector has made tremendous changes and the banking system has become increasingly suitable for the market economy. However, in the process of economic integration, the Vietnamese banking sector faces many opportunities and challenges, which requires the banks to improve themselves constantly to be able to take advantage of these opportunities as well as to enhance the capacity to overcome the challenges. Profitability is one of the important criteria to determine the capacity of each bank (Albertazzi & Gambacorta, 2009). Profitability can help banks to improve the capacity and ability to withstand the financial crisis and to create more value of the economy (Aburime, 2009). However, in recent years, the profitability of the banks in Vietnam is still quite low, especially in the two years 2012 and

2013. The volatility of bank profitability may be influenced by many factors of bank-specific characteristics and external factors (Syafri, 2012). In order to determine the factors and the impact of these factors on the profitability of the commercial banks in Vietnam, the authors have conducted the empirical research with data collected from 22 commercial banks during the period 2007 - 2013.

Literature Review:

Bank profitability was studied by many authors in different economies and regions. Below is the content summary of a number of studies:

Bashir (2000) studied the factors affecting bank profitability (ROA, ROE, NIM) across eight Middle Eastern countries in the period 1993-1998. The result indicates that the equity ratio and ratio (LOAN) have a statistically significant impact on profitability.

According to Saunders and Schumacher (2000), the solvency of banks, the equity ratio and the bank service charges affect the profitability (NIM) of

banks in six European countries and the US in the period 1988-1995.

Meanwhile, James W. Scott & José Carlos Arias (2011) suggested that the equity ratio and the growth rate of GDP per capita have an impact on the profitability in the five major banks in the US.

Munther Al Nimer, *et al.* (2013) found the statistically significant impact of the liquidity ratio on the profitability (ROA) in 15 Jordanian banks during the period 2005-2011.

Recently, Muhammad Sajid Saeed (2014) studied the data of 73 commercial banks in the United Kingdom during the period 2006-2012. The research result shows that the equity ratio and the GDP growth rate have a statistically significant impact on profitability (ROA). Meanwhile, the equity-capital ratio and the deposit ratio have a statistically significant impact on profitability (ROE).

Overall, these studies propose that the factors affecting bank profitability can be divided into two groups: factors of bank-specific characteristics and external factors. These studies also specify that return on assets (ROA), return on equity (ROE), and net interest margin (NIM) is the dependent variables reflecting bank profitability.

- ROA is a ratio determined by dividing the net income by total assets (Rose, 2002). ROA measures the profit earned per dollar of assets and reflects how well a bank uses assets to generate profits (Alkassim, 2005).

- ROE reflects the ratio of net income to equity. This indicator measures the profit generated from every unit of the equity of banks (Fraker, 2006; Rose, 2002).

- NIM is determined by dividing the net income by total interest-earning assets of banks (Berger, 1995). Interest-earning assets include deposits in state banks, deposits in other credit institutions, investment securities and lending to customers.

The factors affecting bank profitability can be divided into two groups: factors of bank-specific characteristics and external factors. The factors of bank-specific characteristics are often influenced by the decisions of bank managers and the goals to be achieved by the bank. The external factors are factors that are beyond the control of the bank. The factors of bank-specific characteristics of this research include: the equity to total assets ratio (CAP), the loans to total assets ratio (LOAN), the liquidity ratio (LA). The external factor included in the study is the economic growth rate (GDP).

- The equity to total assets ratio (CAP):

CAP is measured by dividing the equity of total assets. This indicator reflects the ability of the bank to withstand losses or financial risks. A bank with a high CAP ratio will have a strong ability to withstand the financial risks, lower the need for external funding when having difficulty and reduce the risk of insolvency. Husni Khrawish, *et al.* (2008) studying

the factors affecting the profitability of thirteen Jordanian commercial banks during the period 1992-2005 indicated that the CAP ratio has a positive impact on profitability (NIM). Demirgüç -Kunt & Huizinga (1999) also suggested that a bank with a high CAP ratio will lead to greater profitability (NIM). Ong Tze San & Teh Boon Heng (2012) studying the factors of bank-specific characteristics and macroeconomic factors affecting the profitability of Malaysian commercial banks in the period 2003-2009 found the positive impact of the CAP ratio on profitability (ROA). Faisal (2005) studying the factors affecting the profitability of commercial banks denoted that the CAP ratio has a positive impact on profitability (ROA). Syafri (2012) studying the factors affecting the profitability (ROA) of Indonesian banks in the period 2002-2011 also found the similar results.

However, Sehrish Gul, *et al.* (2011) studying the factors affecting the bank profitability (ROA, ROE, NIM) of 15 commercial banks in Pakistan in the period 2005-2009 found the negative impact of the CAP ratio on bank profitability. The research supports the notion that in difficult economic conditions, banks tend to increase the CAP ratio to ensure safety. Banks are operating over-cautiously and ignoring potentially profitable trading opportunities, which results in lower profitability. Hoffmann (2011) studying the factors affecting profitability (ROE) of the US banks during the period 1995-2007 found the negative relationship between CAP and profitability.

- The loans to total assets ratio (LOAN):

LOAN is measured by dividing loans of total assets. This indicator reflects the bank's main source of income. Faisal (2005) studying the factors affecting the profitability of commercial banks showed that LOAN has a positive impact on profitability (ROA, ROE, NIM). Sehrish Gul, *et al.* (2011) also found the positive and statistically significant impact of LOAN on the bank profitability (ROA, NIM) of 15 commercial banks in Pakistan in the period 2005-2009. Syafri (2012) suggested that LOAN has a positive impact on the profitability (ROA) of Indonesian banks in the period 2002-2011. This result was also found in the study of Khrawish Husni, *et al.* (2008) to determine the factors affecting the profitability (NIM) of thirteen Jordanian commercial banks during the period 1992-2005.

- Liquidity Ratio (LA):

LA is measured by dividing liquid assets by total assets of the bank. Liquid assets include cash and equivalents at the fund, deposits at the state bank, deposits and gold at the other credit institutions, loans to other credit institutions (Étienne Bordeleau & Christopher Graham, 2010). According to Ong Tze San & Teh Boon Heng (2012), the nature of the banking business is to normally turn the customers'

short-term deposits into long-term lending. Therefore, the bank is required to hold sufficient liquid assets to ensure safety and to avoid insolvency problems. Munther Al Nimer, *et al.* (2013) found the negative impact of LA on the profitability (ROA) of 15 Jordanian banks during the period 2005-2011. This result can be explained that when the liquidity ratio of the bank increases, the bank may lose a number of profitable investment activities, which results in lower profitability. Heffernan & Fu (2008) also found the negative impact of LA on profitability (NIM), but this research suggested that LA has the positive impact on profitability (ROA and ROE). Ong Tze San & Teh Boon Heng (2012) studying the factors of bank-specific characteristics and macroeconomic factors affecting the profitability of Malaysian commercial banks in the period 2003-2009 also found the positive impact of LA on profitability (ROA, NIM). The reason for this result is that banks with a moderate liquidity ratio can both withstand financial risks and lower the cost of external borrowing to ensure liquidity, which results in higher profitability; or in other words, LA will improve bank profitability.

- The economic growth rate (GDP):

Gross domestic product (GDP) is the index of the market value of all the tangible and intangible goods produced within a country's borders in a certain period of time (usually a year). GDP is the most convenient criterion for calculating the

economic growth of a country and the growth rate of the economies. GDP growth is the GDP growth rate of the latter year compared to the previous year and is expressed in percentage. GDP is the most commonly used macroeconomic indicators in the studies. Sehrish Gul, *et al.* (2011) studying the data of 15 commercial banks in Pakistan in the period 2005-2009 found the positive impact of GDP on bank profitability (ROA and ROE); however, this research found the negative impact of GDP on NIM.

Methodology:

The research uses panel data through multivariate linear regression to quantify the impact of independent variables on the dependent variable in the models. First, the research tests the multicollinearity phenomenon between the independent variables in the model through variance inflation factor (VIF); if VIF is greater than or equal to 10, the multicollinearity phenomenon is considered to be serious (Gujrati, 2003).

Next, the research conducted the test for the autocorrelation and the heteroscedasticity. Without the autocorrelation and the heteroscedasticity, the research will use the normal panel data regression models. However, if there is the autocorrelation and the heteroscedasticity, the research will employ the Feasible Generalized Least Squares (FGLS) technique. Wooldridge (2002) suggested that this method is useful to control the autocorrelation and the heteroscedasticity.

From issues above, we have models as follows:

Model first has the equation:

$$ROA_{i,t} = \beta_0 + \beta_1 CAP_{i,t} + \beta_2 LOAN_{i,t} + \beta_3 LA_{i,t} + \beta_4 GDP_t + \varepsilon_{i,t}$$

Model second has the equation:

$$ROE_{i,t} = \beta_0 + \beta_1 CAP_{i,t} + \beta_2 LOAN_{i,t} + \beta_3 LA_{i,t} + \beta_4 GDP_t + \varepsilon_{i,t}$$

Model third has the equation:

$$NIM_{i,t} = \beta_0 + \beta_1 CAP_{i,t} + \beta_2 LOAN_{i,t} + \beta_3 LA_{i,t} + \beta_4 GDP_t + \varepsilon_{i,t}$$

In which:

Independent variables $ROA_{i,t}$, $ROE_{i,t}$, $NIM_{i,t}$: the profitability of bank i in year t

Dependent variables: the equity to total assets ratio for bank i in year t ($CAP_{i,t}$), the loans to total assets ratio for bank i in year t ($LOAN_{i,t}$), the liquidity ratio for bank i in year t ($LA_{i,t}$), and the economic growth rate in year t (GDP_t)

The research is used by the data from the audited financial reports that were posted on the websites of 22 commercial banks in Vietnam during the period 2007-2013. After the data were collected, the authors implemented the next step the variables are calculated, that is based on the data from the financial reports. Particularly, the variable of GDP was collected from the date in report of the World Bank website as follows:

Table 1: Descriptive Statistics of Variables

Variable	Observations	Mean	Standard Deviation (Std. Dev.)	Minimum	Maximum
$ROA_{i,t}$	154	0.0116	0.0071	0.0001	0.0473
$ROE_{i,t-1}$	154	0.1095	0.0611	0.0008	0.2846
$NIM_{i,t}$	154	0.0336	0.0151	0.0051	0.1049
$CAP_{i,t}$	154	0.1228	0.0831	0.0109	0.6141
$LOAN_{i,t}$	154	0.5206	0.1496	0.1561	0.9442
$LA_{i,t}$	154	0.2463	0.1044	0.0338	0.5059
GDP_t	154	0.0593	0.0064	0.0525	0.0713

Table 2: Correlation coefficient between variables in the research model 1

Factors	ROA _{i,t}	CAP _{i,t}	LOAN _{i,t}	LA _{t,t}	GDP _t
ROA _{i,t}	1.0000				
CAP _{i,t}	0.4492	1.0000			
LOAN _{i,t}	0.2753	0.2339	1.0000		
LA _{t,t}	0.0003	-0.1619	-0.6741	1.0000	
GDP _t	0.2280	-0.0334	-0.0814	0.2854	1.0000

Table 3: Correlation coefficient between variables in the research model 2

Factors	ROE _{i,t}	CAP _{i,t}	LOAN _{i,t}	LA _{t,t}	GDP _t
ROE _{i,t}	1.0000				
CAP _{i,t}	-0.3701	1.0000			
LOAN _{i,t}	0.0154	0.2339	1.0000		
LA _{t,t}	0.2121	-0.1619	-0.6741	1.0000	
GDP _t	0.2278	-0.0334	-0.0814	0.2854	1.0000

Table 4: Correlation coefficient between variables in the research model 3

Factors	NIM _{i,t}	CAP _{i,t}	LOAN _{i,t}	LA _{t,t}	GDP _t
NIM _{i,t}	1.0000				
CAP _{i,t}	0.6957	1.0000			
LOAN _{i,t}	0.4197	0.2339	1.0000		
LA _{t,t}	-0.3828	-0.1619	-0.6741	1.0000	
GDP _t	-0.1943	-0.0334	-0.0814	0.2854	1.0000

Based on tables 2, 3 and 4, we see: CAP impacts on ROA and NIM in the same direction, but impacts on ROE in the opposite direction; LOAN impacts on ROA, ROE and NIM in the same direction; LA and GDP impact on ROA and ROE in the same direction,

but impacts on NIM in the opposite direction. The above correlation analysis result is consistent with most of the previous studies in the world and consistent with the expectations of the authors in this research period in Vietnam.

Table 5: Result of VIF test, heteroscedasticity and autocorrelation in the research model 1:

VIF test			Heteroscedasticity test		Autocorrelation test
Variable	VIF	1/VIF	White's test		Wooldridge test
LA _{t,t}	2.03	0.492083	Chi2 (14) = 28.77		F (1, 21) = 6.412
LOAN _{i,t}	1.94	0.516551			
GDP _t	1.12	0.895835			
CAP _{i,t}	1.06	0.945077			
Mean = 1.54			Prob > chi2 = 0.0112**		Prob > F = 0.0194**

Note: *, ** and *** are significant at the 1%, 5% and 10% level respectively.

Table 6: Result of VIF test, heteroscedasticity and autocorrelation in the research model 2:

VIF test			Heteroscedasticity test		Autocorrelation test
Variable	VIF	1/VIF	White's test		Wooldridge test
LA _{t,t}	2.03	0.492083	Chi2 (14) = 20.54		F (1, 21) = 11.867
LOAN _{i,t}	1.94	0.516551			
GDP _t	1.12	0.895835			
CAP _{i,t}	1.06	0.945077			
Mean = 1.54			Prob > chi2 = 0.1141		Prob > F = 0.0024*

Note: *, ** and *** are significant at the 1%, 5% and 10% level respectively.

Table 7: Result of VIF test, heteroscedasticity and autocorrelation in the research model 3:

VIF test			Heteroscedasticity test		Autocorrelation test
Variance	VIF	1/VIF	White's test		Wooldridge test
LA _{t,t}	2.03	0.492083	Chi2 (14) = 37.80		F (1, 21) = 24.991
LOAN _{i,t}	1.94	0.516551			
GDP _t	1.12	0.895835			
CAP _{i,t}	1.06	0.945077			
Mean = 1.54			Prob > chi2 = 0.0006*		Prob > F = 0.0001*

Note: *, ** and *** are significant at the 1%, 5% and 10% level respectively.

The date is computed by three models above, we have the results and discussion below.

RESULTS AND DISCUSSION

- The equity per total assets ratio (CAP):

CAP has a significant impact on the profitability of commercial banks in Vietnam at the 1% significance level. CAP has a positive impact on ROA and NIM because the economy is struggling in

this period, commercial banks tend to increase the equity ratio to improve the strong ability to withstand the financial risks, and banks will be more active in the activities, which helps the profitability (ROA, NIM) of banks to increase. This result is consistent with the studies of Demirguc-Kunt & Huizingha (1999), Faisal (2005), Husni Khrawish, *et al.* (2008),

Ong Tze San & Teh Boon Heng (2012), Syafri (2012). However, CAP has a negative impact on ROE because in this period, commercial banks tend to increase the equity ratio, but the return ratio per unit of equity has not been improved much because the economy is still struggling. This result also finds the similarity in the studies of Hoffmann (2011), Sehrish Gul, *et al.* (2011).

- The loans to total assets ratio (LOAN):

LOAN has a positive and significant impact on the profitability (ROA, ROE, NIM) of commercial banks in Vietnam with the 1% significance level. This result shows that when the increase in the loans to total assets ratio will generate the income that increases the profitability of commercial banks. This also found the similarity in the studies of Faisal (2005), Husni Khrawish, *et al.* (2008), Syafri (2012).

- Liquidity Ratio (LA):

LA has a positive impact on the profitability (ROA and ROE) of commercial banks in Vietnam and is significant at the 1% significance level, but the significant impact of LA on NIM has not been found. This result can be explained: banks with a moderate liquidity ratio can both withstand financial risks and lower the cost of external borrowing to ensure liquidity, which results in higher profitability; or in other words, LA will improve bank profitability. This result also finds the similarity in the studies of Heffernan & Fu (2008), Ong Tze San & Teh Boon Heng (2012).

- The economic growth rate (GDP):

GDP has a positive and significant impact on the profitability (ROA and ROE) of commercial banks in Vietnam, but GDP has a negative and statistically significant impact on NIM. GDP has a positive impact on bank profitability (ROA and ROE) because: during this period, the economic growth rate in Vietnam decreased, the lending decreased, and the growth rate of bank profitability was not high (even declined sharply in the years 2012-2013). GDP has a negative impact on profitability NIM because: in the difficult economic period, the State Bank has implemented the more flexible monetary policy, including cutting interest rates. In addition, the government has launched economic stimulus packages; one part of this stimulus package was used in the lending interest rate support program. The net interest margin (NIM) is determined by dividing the net income by total interest-earning assets, these criteria are calculated as the difference of the interest income minus the interest expenses, then divided by the total interest-earning assets. Therefore, during this period, banks access cheaper sources of capital, which makes the net interest margin NIM increase (except that NIM decreased in 2013). This result is

consistent with the study of Sehrish Gul, *et al.* (2011).

Conclusion:

The research provided an empirical evidence of the factors affecting the profitability (ROA, ROE, NIM) of commercial banks in Vietnam during the period 2007-2013. After using the Feasible Generalized Least Squares (FGLS) technique to overcome the first-order autocorrelation and the heteroscedasticity in order to ensure that the obtained estimates are viable and effective, the research indicated that the factors of bank-specific characteristics and external factors affect the profitability of commercial banks in Vietnam.

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