

Impacts of Capital Structure on Business Efficiency of Listed Joint Stock Commercial Banks in Vietnam Stock Market

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Received: April 30, 2022 Revised: July 30, 2022 Accepted: August 08, 2022

Abstract

This study aims to examine the influence of capital structure on the business efficiency of joint stock commercial banks listed on the Vietnamese stock market. The article uses data collected from the financial statements of 15 prominent joint-stock commercial banks out of 27 joint-stock commercial banks listed in Vietnam from 2011 to 2021. The research uses E-view software in quantitative analysis to build regression models to determine the relationship and the impact of capital structure factors on the business efficiency of listed joint stock commercial banks. Research results show that ROA is affected by 2 variables of capital structure. It is the sum of customer deposits to total assets and total liabilities to total equity. Total debt to total equity and total customer deposits to total assets both have a negative effect on ROA. For the regression results of ROA with all control variables, the control variables have a positive relationship with the dependent variable. The article has provided recommendations based on the research findings to determine the proper capital structure. Managers must solve the outstanding amount of mobilized capital in previous years, combined with the bad debt handling activities that have arisen.

Keywords: Joint Stock Commercial Banks, Capital Structure, Business Efficiency, Stock Market

JEL Classification Code: G21, G30, G32

1. Introduction

Capital structure is a mix of financial methods, a trade-off between risk and return. Determining proper capital structure is essential because the main goal of a bank's operations is to maximize its profit value. This value is created by two factors: (1) I generate cash flow from the bank's assets; (2) Minimizing the cost of capital by developing the capital structure appropriately. The capital structure also changes

depending on the forming characteristics of each type of activity. With other businesses, investors will worry about the risk of bankruptcy, but banks rarely fall into this situation because banks operate under the management of the State Bank. Therefore, when issued on the stock exchange, stocks of the banking industry have more potential and higher safety (Markonah & Prasetyo, 2022). Thereby banks can maximize the value of the business and expand capital mobilization opportunities and scale of operations.

Business efficiency is measured by the rate of return on total assets, and return on equity. It reflects the ability to combine input resources, allowing the costs of the business to be minimized to achieve goals of profitability. In fact, the combination of financial resources in general and the use of capital structure, in particular, has significant importance. In recent years, the process of economic restructuring in Vietnam, the financial system restructuring, especially the banking system restructuring has been emphasized, in which joint stock commercial banks listed on the stock market is the highlight. Therefore, the assessment of the impact of capital structure on the bank's performance is an issue that needs to be studied to have an objective and reasonable view of the financial situation of banks. Based on this, the study

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proposes a number of policies related to capital structure to improve business efficiency for the joint stock commercial banking system listed on the stock market of Vietnam.

2. Literature Review and Hypotheses

2.1. Literature Review

Amidu (2007) mentioned the main factors affecting the capital of banks in Ghana. The author used a table data regression model to analyze the capital structure of these banks. The outstanding result of that study is that more than 87% of the assets in banks in Ghana are financed by short-term debts, which means that the capital structure of banks in Ghana considers short-term debts more important than Long-term liabilities.

Fazlan (2011) studied commercial banks in Korea from 1992 to 2003 using asymmetric panel data model and FEM and REM regression models. The total of banks in the study was 11 banks in 1992 and 29 banks in 2000. The total sample included 251 observations for the period 1992–2003. This study applies linear regression with the FEM fixed-effects model. The dependent variables are ROA and ROE; The independent variables are divided into two groups. Group I includes bank-specific variables such as asset size, deposit size, the book value of equity, debt size, provision for credit losses, total operating expenses, and non-profit income. Group II includes macro factors such as gross domestic product (GDP), inflation rate, the concentration ratio of 3 banks with the largest total assets, stock market capitalization rate, and dummy variables representing the period before, during, and after the Asian financial crisis in 1997. The results of the study show that credit risk and costs always have a negative impact on bank profitability. Meanwhile, the relationship between total asset size, equity size, and profitability of Korean commercial banks is positively presented by derivatives and fee-based services. The concentration of the domestic banking system and the stock market capitalization have a positive impact. The impact of GDP and inflation variables is unknown because it varies across models.

Goyal (2013) studied the relationship between capital structure and profitability of Indian banks based on a sample of 19 banks listed on national stock exchanges from 2008 to 2012 to find the relationship between the capital and profits of these banks. The study used a multiple regression model with 3 independent variables representing the decision to use the bank's capital structure. These are long-term debt / equity (LTDC), short-term debt / equity (STDC) and total debt / equity (TDC). The dependent variables used to measure business performance are ROA, ROE, and EPS. The two control variables are bank size (SIZE) and asset growth (AG). The results of the study show that STDC strongly

positively affects the variables ROA, ROE, and EPS. LTDC is negatively related to the dependent variables. The variable SIZE shows a positive association with ROA and EPS but in contrast to ROE, while variable AG shows a positive relationship with all variables ROA, ROE, and EPS.

Khoa and Thai (2021). This study aimed to test the existence of trade-off theory in capital structure, the case of Vietnam's real estate companies, which are growing very fast recently. Instead of considering constant optimal leverage to test the trade-off model, we take advantage of the dynamic capital structure determined by growth opportunities, profitability, tax incentives, tangibility, liquidity, and firm size. The dynamic panel data regression was estimated by the system Generalized Method of Moment (Sys-GMM). The empirical evidence showed that real estate companies listed in the Vietnamese stock market might change their leverage toward a target capital structure determined by influential factors in a long-term perspective. In particular, the debt-to-asset ratio will change by approximately 14 percent, positively in response to the difference between the current debt-to-asset ratio and the dynamic target debt-to-asset ratio.

Munyambonera (2013) used the REM regression model to examine the factors affecting 224 commercial banks from 42 African countries from 1999–2006. Research has focused on factors typical of African banks at that time, such as poor quality loans, bad debt, liquidity risk, low equity, and inefficient operating costs. The study used the dependent variables ROAA (Return on Average Assets) and NIM. The independent variables in the model are the logarithm of total assets, equity / total assets ratio, credit risk reserve ratio, cost / income ratio, loan balance / total assets, and annual GDP growth, inflation. Research results confirm that intrinsic factors such as size, operational efficiency, liquidity, capital adequacy, and macroeconomic factors affect the profitability of commercial banks.

Niresh (2012) studied 10 listed Sri Lankan banks for 8 years, from 2002 to 2009. The study uses the dependent variable as profit measured by the ratios of net profit NP, return on capital employed ROCE, return on equity ROE, and net interest margin NIM. The independent variable representing the model's capital use decision is calculated by the ratio of Debt/Equity and debt/Total Fund. The main finding of the research is that Total debt - is the main factor accounting for 50.5% of the proportion in creating net profit in the banking sector. It means when banks use a lot of debt, profits tend to decrease; Moreover, the increase in the use of debt ratio also increases the bank's risk. Therefore, banks need to pay more attention to external funding sources if they want to increase profits. According to the 2010 Banking Survey in Ghana, the types of bank assets are changing, competition is increasing, and ROE is still declining up to now.

Saeed et al. (2013) also studied the effect of capital structure on banking performance - the case in Pakistan.

An experimental study on banks listed on the Karachi stock exchange was conducted for 5 years, from 2007 to 2011. In the variables representing performance, instead of using the variable NIM, the study uses the variable earning per share (EPS), along with two control variables that are bank size (SIZE) and asset growth (AG). A total debt ratio and bank size have strong positive links with ROA, ROE, and EPS. On the other hand, the control variable AG had the opposite effect on ROA and ROE, but at the same time, it had a significant positive influence on EPS. The study has demonstrated a positive relationship between capital structure and the profitability of banks in Pakistan.

Gul et al. (2011) studied the performance of 15 Pakistani commercial banks from 2005–2009 with an OLS regression model. These banks account for 80% of the total assets of Pakistani banks. The period 2005–2009 is the period when banks in Pakistan were in the process of privatization. Therefore, mergers and acquisitions activities took place strongly. The dependent variables of the study were ROA, ROE, NIM, and ROCE. The independent variables representing the intrinsic characteristics of the bank are the logarithm of total assets, equity / total assets, debt / total assets, the ratio of deposits / total assets, factors for macroeconomic factors including economic growth, inflation, and stock market capitalization. The study shows that asset size, deposit size, and inflation rate are positively correlated with profitability, while equity size shows a negative correlation. The remaining variables show positive/negative effects depending on the independent variable in the survey model.

Taani (2013) uses a multiple regression model to study how capital structure affects the business performance of 12 commercial banks listed on the Amman stock exchange in the period 2007–2011. The author discovered that total debt was the main factor that made a net profit and returns on capital employed - two of the variables representing business performance and determined that 89% of the total capital of banks is generated from debt. The results from the multiple regression model showed that the bank's performance as measured by net profit, return on capital employed, and net margin interest is positively related to total debt but the total debt was not a significant factor determining return on equity in the banking industry in Jordan.

Yusuf et al. (2021). This study employs panel data using Stochastic Frontier Analysis (SFA) as the data analysis technique. The data used is annual data from 13 conventional banks and 13 Islamic banks in Indonesia during the 2014–2019 period. The result shows no significant difference in the efficiency of conventional banks and Islamic banks. This result is presumably influenced by the small size of the bank and the total number of banks used in the study. The data used in the study is limited to the period from 2014 to 2019.

2.2. Hypotheses

The study proposes to measure the effects of capital structure on the bank's performance based on a number of criteria: Total debt to total assets (TDTA); total debt to total capital (TDTC); Total customer deposits on total assets (TDeTA); Total loans to credit institutions per total assets (TLTA). In addition, the study also uses two variables, bank size (Size) and asset growth rate (AG) as control variables.

Total debt to total assets

This ratio indicates how much a loan accounts for out of total assets, which in turn shows the financial autonomy of the commercial bank. This rate is too small, implying high financial capacity. However, when this rate is too large, it will lead to a decrease in the liquidity of commercial banks, thus affecting the profitability of the bank. Research results of John (2012) believed that debt is a factor that has a positive impact on profitability. This is similar to the research results of Saeed et al. (2013) and Taani (2013). However, Niresh (2012) showed the opposite.

H1: *Total debt over total assets affect the business performance of joint stock commercial banks listed on Vietnam's stock market.*

Total debt to equity

The debt-to-equity ratio compares total liabilities to shareholders' equity and is used to evaluate the degree of leverage used by a commercial bank. High leverage tends to indicate a stock is riskier for stockholders. The research results of Niresh (2012) showed that total debt on equity is inversely correlated with bank returns. Research by Saeed et al. (2013) showed that total debt is strongly correlated with ROA and ROE. From that result, it is necessary to re-examine the relationship between total debt on equity and the business performance of commercial banks.

H2: *Total debt to total equity affects the business performance of joint stock commercial banks.*

Total customer deposits on total assets

Deposits are the main source of funds for banks to operate as a financial intermediaries. The bank's profit is dependent on how they are looking for low-cost finance to provide loans for the customer, thereby generating a profit from the difference. According to research by Koranteng (2012), this ratio has a positive relationship with ROA and ROE. However, whether the relationship is positive or negative depends on cost capital mobilization and the ratio between

mobilization and lending. By raising more capital, you can not lend as much, and this also badly affects the operation of the banks. Therefore, this relationship also needs to be verified with commercial bank performance data.

H3: *Total deposits of customers over total assets affect the business performance of joint stock commercial banks listed on Vietnam's stock market.*

Total loans from credit institutions on total assets

Borrowing from credit institutions is a form of borrowing that takes place when banks lack reserve capital and will be partly financially supported by banks with high reserves to maintain their operations. Usually, the total amount of money borrowed from a credit institution over its total assets has a positive correlation with the business performance of a commercial bank.

H4: *Total loans from credit institutions over total assets have a positive impact on the business performance of joint stock commercial banks listed on Vietnam's stock market.*

Bank size

Koranteng (2012), in his research, found a positive relationship between bank size and indicators representing efficient performance, such as ROA and ROE. Research results of Saeed et al. (2013) in Pakistan also found a similar correlation. Research by Goyal (2013) shows that bank size has a strong positive association with ROA but a negative correlation with ROE. From those results, it is necessary to re-examine the relationship between size and business performance of commercial banks.

H5: *The size of the bank affects the business performance of joint stock commercial banks listed on the Vietnamese stock market.*

Growth rate of total assets

The growth rate of assets is reflected in the growth rate of assets in each year and shows the relative growth over the periods. Research by Goyal (2013) shows that the growth rate of total assets is positively correlated with bank returns. However, according to Saeed et al. (2013), the relationship is reversed. As can be seen, asset growth does not mean that the bank operates well because it also depends on many other factors, including the purpose of asset growth, what type of assets have growth, and capital sources. Therefore, it is necessary to re-examine the relationship between the growth rate of total assets and the performance of commercial banks.

H6: *Growth rate of assets has a positive impact on the business performance of joint stock commercial banks listed on the Vietnamese stock market.*

3. Research Methods

3.1. Research Model

The study uses quantitative methods, through the use of econometric models, to test the influence of capital structure on the business performance of joint stock commercial banks listed on Vietnam's stock market.

Overall regression model:

The regression model is as follows:

$$Y = \beta_0 + \beta_t X_n + u_i$$

In which:

Y : Is the dependent variable; X_n : Is the independent variable affecting the dependent variable; β_0 : Is the coefficient of freedom; β_t : Is the regression coefficient ($t = 1 \sim n$); u_i : Is the random error.

In the specific regression model of the study, the dependent variable is the business performance of commercial banks represented by ROA - determined by profit after tax on average total assets of commercial banks. The independent variables include: STDTA, LTDTA, TDTA, TDTE. In addition, the model also uses control variables such as SIZE, and GROWTH. Specifically:

ROA (Return on Assets): Return on Assets - TDTA (Total Debt Total Asset): Total Debt to Total Assets - TDTC (Total Debt Total Capital): Total Debt to Equity - TDeTA (Total Deposit Total Asset): Total customer deposits to total assets - TLTA (Total Loan Total Asset): Total loan amount to total assets - SIZE: Bank size – AG (Asset growth): Asset growth rate.

Building and testing the research model

The parameters of the regression model were estimated by E-view software.

Overall regression model:

$$ROA_i = \beta_0 + \beta_1 * TDTA + \beta_2 * TDTC + \beta_3 * TDeTA + \beta_4 * TLTA + \beta_5 * Size + AG + u_i *$$

Overall regression function:

$$ROA_i = \beta_0 + \beta_1 * TDTA + \beta_2 * TDTC + \beta_3 * TDeTA + \beta_4 * TLTA + \beta_5 * Size + \beta_6 * AG$$

In which:

1. Dependent variable in ROA model (ROA is calculated by profit after tax on average total assets of each commercial bank in 15 commercial banks listed on the Vietnam stock market in 2011–2021).
2. The group of independent variables in the model includes:
 - TDTA: The capital structure variable of bank i , measured by the ratio of debt to total assets of bank i .
 - TDTC: The capital structure variable of bank i , measured by the debt-equity ratio of bank i .
 - TD_eTA : The capital structure variable of bank i , measured by customer deposits over total assets of bank i .
 - TLTA: The capital structure variable of bank i , measured by loans from credit institutions to total assets of bank i .
 - SIZE: Variable size of bank i , measured by the logarithm of the asset value of bank i .
 - GRO: Variable growth rate of bank i , measured by the growth rate of total assets of bank i .
 - β_i : The partial regression coefficient measures the change in the mean of the dependent variable ROA when the independent variable changes by one unit and the other independent variable remain unchanged.
 - u_i : random error of the model

3.2. Scale Test

The statistics are presented in the table below (Table 1):

Table 1 shows the ratio of return after tax to total assets (ROA) and the ratio of return after tax to equity (ROE) of listed joint stock commercial banks in the period 2011–2021 times are 0.00951357293748 and 0.10817041844105, respectively. It means ROA and ROE have a positive mean value, representing 100 VND of equity put into the business;

the bank earned 10,817041844105. This figure shows that banks have relatively effectively used shareholders' capital.

Total debt to total assets of joint stock commercial banks listed on Vietnam's stock market has the minimum value of 0, 830267770302; the maximum value is 0.959382295384, and the mean is 0.91893049780188 with a standard deviation of 0.026159441226969. This shows that joint stock commercial banks listed on the stock exchange use an average of 91.893049780188% debt to constitute assets for themselves. Some banks use 95.9382295384% of debt, and some banks use 83,0267770302% of debt constituting assets. This ratio is quite high compared to banks in Ghana; according to Amidu (2007), this ratio in banks in Ghana is about 87%.

Total debt to total equity of listed joint stock commercial banks listed on the Vietnam stock market, the minimum value is 4.891632966688, the maximum value is 23.619805807469, and the mean value is 12.51465594997689 with a standard deviation of 3.984598649790390. This also means that the total assets of the bank are formed mainly from debts.

Total customer deposits out of total assets of joint-stock commercial banks listed on Vietnam's stock market have a minimum value of 0.292278185333, the maximum value of 0.893717425570, and the average value of 0.893717425570. The mean is 0.66458310287949 with a standard deviation of 0.120130712546680. This shows that joint stock commercial banks use an average of 66,458310287949% of customer deposits as bank assets.

Total loan amount to total assets of listed joint stock commercial banks on the Vietnamese stock market, the minimum value is 0.00, the maximum value is 0.308961908945, and the mean was 0.05675766543075 with a standard deviation of 0.050876122857844. The above results show that, in addition to using customer deposits, which constitute 66.458310287949 % of assets, commercial banks listed on the stock exchange also use an average of

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TDTA	165	0.830267770302	0.959382295384	0.91893049780188	0.026159441226969
TDTC	165	4.891632966688	23.619805807469	12.51465594997689	3.984598649790390
TDETA	165	0.292278185333	0.893717425570	0.66458310287949	0.120130712546680
TLTA	165	0.000000000000	0.308961908945	0.05675766543075	0.050876122857844
SIZE	165	7.334156358693	9.245990856325	8.34724482875441	0.420755914587433
AG	165	-0.372613926945	0.830009405236	0.15917346209628	0.150030683524412
ROA	165	0.000013526599	0.032379892038	0.00951357293748	0.006828568943377
ROE	165	0.000284318831	0.268234494726	0.10817041844105	0.070637968715622
Valid N (listwise)	165				

5.675766543075% of loans from financial institutions. Credit institutions to form assets.

Bank size of joint stock commercial banks listed on the Vietnamese stock market has a minimum value of 7,334156358693, a maximum value of 9.245990856325, and a mean value of 8.34724482875441 with a standard deviation of 0.420755914587433.

Growth rate of assets of joint stock commercial banks listed on the Vietnam stock market has a minimum value of -0.372613926945 and a maximum value of 0.830009405236 and a mean value of 0.15917346209628 with a standard deviation of 0.150030683524412. This shows that the joint stock commercial banks listed on the stock market have an average asset growth rate of 15.917346209628%, and the highest growth rate is 83.0009405236%.

4. Research Results

The study runs the model using E-view software and uses the ordinary least squares method (OLS) to determine the regression coefficient β_i . Based on the obtained results, the authors write an equation affecting capital structure on business performance of listed commercial joint stock banks, then test the model's suitability. That is, test β_i to

know if the independent variable can explain the dependent variable or not. Evaluate the suitability of the model through the adjusted coefficient of determination R^2 (Adjusted R Square) to determine the explanatory ability of the model in practice.

Run the model with E software - view according to Panel date; the results of the fixed effects model are as follows (Table 2):

The results of the random effects model are as follows (Table 3):

Use the Hausman test to select the model. The results of the Hausman test are as follows (Table 4):

Hypothesis testing:

H0: There is no correlation between the explanatory variables and the random component (choose Random Effect)

H1: There is a correlation between the explanatory variables and the random component (select Fixed Effect)

Prob. = 0.0001 < 0.05 rejecting H0. So we choose the Fixed Effect model.

Test removing 2 variables TDTA, TLTA from the original regression model, the results of the regression are as follows (Table 5):

Table 2: Regression with Fixed Effect

Variables	Coefficient	Std. Error	t-statistic	Prob
C	-0.059493	0.046013	-1.292978	0.1982
TDTA	-0.011662	0.032091	-0.363420	0.7169
TDTC	-0.000760	0.000243	-3.124939	0.0022
TDETA	-0.018668	0.005688	-3.282159	0.0013
TLTA	-0.002930	0.007447	-0.393464	0.6946
SIZE	0.012099	0.004305	2.810265	0.0057
AG	0.005089	0.002022	2.516886	0.0130
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.814324	Mean dependent var	0.009514	
Adjusted R-squared	0.772755	S.D. dependent var	0.006829	
S.E. of regression	0.003255	Akaike info criterion	-8.449479	
Sum squared resid	0.001420	Schwarz criterion	-7.865938	
Log-likelihood	728.0820	Hannan-Quinn criter	-8.212599	
F-statistic	19.58963	Durbin-Watson stat	1.024787	
Prob(F-statistic)	0.000000			

Table 3: Regression with Random Effect

Variables	Coefficient	Std. Error	t-statistic	Prob
C	-0.027249	0.028106	-0.969498	0.3338
TDTA	-0.050341	0.030776	-1.635750	0.1039
TDTC	-0.000562	0.000216	-2.601519	0.0102
TDETA	-0.022150	0.003220	-6.879669	0.0000
TLTA	-0.009758	0.007018	-1.390559	0.1663
SIZE	0.012519	0.001061	11.79580	0.0000
AG	0.005268	0.001938	2.717893	0.0073
Effects Specification			S.D.	Rho
Cross-section fixed (dummy variables)			0.002008	0.2613
Period fixed (dummy variables)			0.003376	0.7387
Weighted Statistics				
R-squared	0.598852	Mean dependent var		0.004302
Adjusted R-squared	0.583619	S.D. dependent var		0.005603
S.E. of regression	0.003615	Sum squared resid		0.002065
F-statistic	39.31162	Durbin-Watson sta		0.810835
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.558114	Mean dependent var		0.009514
Sum squared resid	0.003379	Durbin-Watson stat		0.495524

Table 4: Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f	Prob.	
Cross-section random	29.216264	6	0.0001	
Cross-section random effects test comparisons:				
Variables	Fixed	Random	Var (Diff.)	Prob
TDTA	-0.031433	-0.050341	0.000103	0.0627
TDTC	-0.000600	-0.000562	0.000000	0.6661
TDETA	-0.023031	-0.022150	0.000001	0.2495
TLTA	-0.007652	-0.009758	0.000003	0.2397
SIZE	0.015694	0.012519	0.000001	0.0001
AG	0.004259	0.005268	0.000000	0.0028

Hypothesis testing:

$$\begin{cases} H_0: \beta_1 = \beta_4 = 0 \\ H_1: \beta_j \neq 0 (j = 1, 4) \end{cases}$$

There are Probs. $F = 0.8493 > 0.05$ Not enough basis to reject H_0

So it is possible to remove 2 variables TDTA, TLTA from the model:

$$ROA = -0.073710 - 0.000844 \cdot TDTC - 0.017857 \cdot TDETA + 0.012559 \cdot SIZE + 0.005158 \cdot AG$$

Table 5: Test Results Remove 2 Variables TDTA, TLTA From the Model

F-statistic	0.163535	Prob. F(2,134)	0.8493	
Log likelihood ratio	0.402244	Prob. Chi-Square(2)	0.8178	
Variables	Coefficient	Std. Error	t-statistic	Prob
C	-0.073710	0.036158	-2.038565	0.0434
TDTA	-0.000844	0.000115	-7.320895	0.0000
TDETA	-0.017857	0.005060	-3.528719	0.0006
SIZE	0.012559	0.004145	3.030005	0.0029
AG	0.005158	0.002004	2.573598	0.0111
Effects Specification				
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.813871	Mean dependent var	0.009514	
Adjusted R-squared	0.775551	S.D. dependent var	0.006829	
S.E. of regression	0.003235	Akaike info criterion	-8.471284	
Sum squared resid	0.001423	Schwarz criterion	-7.925390	
Log-likelihood	727.8809	Hannan–Quinn criter	-8.249686	
F-statistic	21.23846	Durbin–Watson stat	1.031979	
Prob(F-statistic)	0.000000			

With Prob(F-statistic) = 0.0000 < 0.05 The regression function is suitable.

The model of the influence of capital structure on the performance of a joint stock commercial bank listed on the stock market of Vietnam is:

- Regression model:

$$ROA_i = \alpha_0 - \alpha_1 TDTA - \alpha_2 TDETA + \alpha_3 SIZE + \alpha_4 AG$$

- Regression function:

$$ROA_i = -1.073710 - 0.000844 TDTA - 0.017857 TDETA + 0.012559 SIZE + 0.005158 AG$$

5. Discussion and Recommendations

5.1. Discussion

In Table 5, there is an R^2 of ROE of 0.813871, indicating that in the regression model, the two main variables TDTA and TDETA have a great influence on ROA, capable of explaining 81,3871% of ROA. In other words, the changes in ROA are mainly caused by the influence of the variable credit balance, TLTA, in which the customer's deposit on total assets has the greatest influence, followed by total debt to equity with coefficients of 0.017857 and 0.000844, respectively. Specifically:

$\alpha_1 = -0.000844$ reflects that total debt to equity has a negative effect on business performance through ROA. That

is when the debt ratio of banks decreases, the bank's business performance will be better and vice versa. Specifically, when financial credit decreased by 1%, ROA increased by 0.000844%. This regression result is consistent with the study of Saeed et al. (2013), Goyal (2013), and John (2012).

$\alpha_2 = -0.185571$ reflects that customer deposits on total assets have a negative effect on ROA. When the customer's deposit ratio increases by 1%, the bank's ROA decreases by 0.185571% and vice versa. This result is in contrast to Gul et al. (2011), and Koranteng (2012). However, this is true with the reality of the business situation of the Vietnamese banking industry recently. In recent years, many Vietnamese enterprises have fallen into crisis or bankruptcy... due to the impact of the Covid-19 pandemic, leading to a backlog of capital due to excessive mobilization of previous years but not yet disbursed or been disbursed. credit but converted into bad debt. Therefore, mobilized capital has not been effective to help the bank operate profitably. Since then, customers' deposits are still the main source of funds for the bank to act as its financial intermediary. Banks' profitability depends on how they find this financing at a low cost and provide effective loans to customers to generate profit from the spread.

The relationship between the control variable and ROA:

$\alpha_3 = 0.012559$ shows that bank size has a positive relationship with ROA. The research results of the model with the ROA variable are opposite to the research results of Amidu (2007) but are consistent with the results in the study

of Gul et al. (2011), Saeed et al. (2013) and Goyal (October 2013) when validating the efficiency of scale. This shows that the more listed joint stock commercial banks in Vietnam expand, the higher the profitability. This is very consistent with the reality of joint stock commercial banks listed in Vietnam when large-scale banks mostly have high profits and profitability, especially commercial banks. State-owned shares account for the majority. Therefore, the increase in bank size during this period through the increase in the number of new branches, transaction offices, and automatic teller machines... has a positive influence on the bank's business performance.

$\alpha_4 = 0.005158$ reflects the growth rate of total assets that has a positive influence on ROA. This is consistent with the research results of Goyal (2013).

This study also shows that the ratio of total debt to total assets has an effect on ROE but does not affect ROA and loans from other credit institutions have no statistical significance on the business performance of commercial banks listed on the Vietnamese stock market.

The research results are opposite to the research results of Nguyen (2022). The author has provided recommendations based on the research findings to expand the use of cost information, consequently helping to improve the performance.

5.2. Recommendations

Research results show that ROA is affected by 2 variables of capital structure. It is the sum of customer deposits to total assets and total liabilities to total equity. Total debt to total equity and total customer deposits to total assets both have a negative effect on ROA. Thereby, it shows that in this period, increasing the debt ratio, especially debt from customer deposits, is not beneficial to the bank's business performance. The problem is to well solve the outstanding amount of mobilized capital in previous years, combined with the bad debt handling activities that have arisen.

For the regression results of ROA with all control variables, the control variables have a positive relationship with the dependent variable. These results will be an important research basis to propose solutions related to capital structure to improve the business efficiency of joint stock commercial banks listed on Vietnam's stock market.

First, assess the availability of capital as well as a reasonable capital structure to optimize the capital structure, with emphasis on supplementing equity

In a newly developed capital market like Vietnam, when investment capital in the market is still scarce, the increase in charter capital through the issuance of additional shares to existing shareholders needs to take into account the potential financial resources of shareholders as well as ensure profitability to meet the requirements of shareholders. This

requires solutions to improve financial capacity, improve equity as well as calculate and give the dividend payout ratio in cash, the rest is converted into equity through paying dividends by issuing new shares or retaining profits, ensuring an optimal cost of equity.

Second, focus on solving the problem of bad debts

Research shows that in the debt structure of banks, deposits from customers account for a high proportion. When total customer deposits to total assets decrease, this will help banks limit the use of debt. At the same time, the strengthening of measures to improve the bank's operational efficiency, especially in resolving bad debts, will also reduce the debt repayment burden. To do so, it is necessary to:

Monitor bad debt effectively through analysis, and classification of debts periodically to handle bad debts in a timely and effective manner. Warning and early detection of bad debt arising are very important and decisive directly to the debt settlement process in the future. Maintain regular inspection, analysis, assess the situation and causes of bad debt, clarify the responsibilities of relevant individuals ... especially in units and individuals in charge with a rapidly increasing rate of bad debt, associated with a responsibility for bad debt recovery, handling risks with individual responsibilities in processing loan.

Strengthen mechanisms for agreement and negotiation in bad debt settlement between commercial banks (lenders) and enterprises (borrowers) to reach a consensus between the two parties in dealing with the consequences of bad debts. Both parties need to discuss to come up with a reasonable solution, such as proposing repayment plans, determining the time to repay the debt, changing the terms and content of the credit contract to suit the needs and actual situation of the parties, especially restructuring loans affected by Covid.

Third, Expand business activities

By expanding the network, and distribution channels and providing many new products and services, banks will save costs; at the same time, upgrading foreign branches into sub-banks, expanding the scope of market activities; promoting foreign exchange marketing activities for potential customers; focusing on large customers such as corporations or leading prestigious corporations; strengthen cross-selling of foreign currencies, credit, and trade finance deposits to expand the scale and increase the competitive position of the bank in the market, thereby increasing the profitability of listed joint stock commercial banks in particular and Vietnamese commercial banks in general.

6. Conclusion

The article studies the influence of capital structure on the business performance of joint stock commercial banks listed on the Vietnam stock market in the period 2011-2021. Through the data collected from 15 joint stock commercial

banks listed on the Vietnam stock market, the empirical model was built to show the correlation between the intrinsic factors and the business performance of the banks, including Total debt to equity, customer deposits to total assets are negatively correlated. Two observed variables are capital size and growth rate of total assets have a positive correlation. The regression model has reflected the actual activities of listed commercial joint stock banks in Vietnam over the past time, so the implementation of the above solutions is essential. It not only brings efficiency to the bank's business activities, but also helps businesses access capital sources, promote the efficiency of credit activities, promote economic development, and create a premise for the development of banks further in the future.

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