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Bank Ownership vs Credit Growth: Empirical Evidence from Vietnamese Commercial Banks

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ABSTRACT

This paper is aimed at analyzing the relationship between bank ownership and credit growth of Vietnamese commercial banks. With the data of 20 commercial banks in period 2009-2018 period, the REM method is applied.

The key findings are: First, credit growth rate of state-owned commercial banks in Vietnam is higher than of private commercial banks, which is opposite to the expected signal. The main reasons are (i) decision making of state-owned commercial banks on lending are backed by the government, which is more straight-forward than private banks; (ii) State Bank of Vietnam considers credit policy as one of the important monetary policy tools, of which state-owned commercial banks are the key drivers; (iii) state-owned commercial banks have stable and cheap funding sources, which create the good base for expanding credit with cheap interest rates. Second, asset size does not have any impact on credit growth. Credit growth rates are determined by the bank's overall performance and maximum growth rate set by State Bank of Vietnam, not on assets. Third, the other bank-specific factors are statistically significant with credit growth, of which liquidity and ROA have the strongest influences.

Recommendations for better credit growth management of commercial banks include: (i) State Bank of Vietnam and the Government to ensure soundness of the banking system, including applying the Basel II requirements to all banks; and establish more support packages in order to boost the lending activities of privately-owned banks. (ii) Commercial banks to reduce its non-performing loans in order to stimulate the growth in lending.

Keywords: *bank liquidity, bank ownership, credit growth, non-performing loans, ROA*

1. INTRODUCTION

Banks play an important role as financial intermediaries in financial system. Their main activties is connecting the surplus funds to the deficit agents, therefore, lending is one of the most important elements that brings them revenue. Credit is an substantial part in the monetary circulation of an economy. Besides, if credit is not well managed, it can also lead to imbalance between money and goods, creating high inflation. All factors considered, on theory, one of the targets that is highly concerned by the monetary policy operators is credit growth. This reflects the percentage of credit outstanding of the whole economy at the present time compared to previous one.

State Bank of Vietnam announces credit growth yearly as one of the indicators for analyzing the banking sector (SBV, 2020a). Bank credit has contributed positively to maintaining economic growth at a high pace for many consecutive years. Based on past researches, there are various factors that have been proved to have effect on credit growth of banks such as liquidity position, non-performing loans or GDP. Banks' ownership is also one of the key

variables affecting bank credit growth. Many studies on this relationship have been conducted in the context of developed countries, or in different continents. However, Vietnam case is different, with low central bank independence and the state-owned commercial banks account for approximately 50% of total market (World Bank, 2015). This impact has not been analyzed in Vietnam case, which is the research gap for our paper.

2. LITERATURE REVIEW

Bank ownership

Bank ownership is classified into 3 types: state-owned, private-owned, and foreign-owned commercial banks, which depends on distribution of the share of bank's-chartered capital (Berger et al., 2018). However, in this paper, only two types of ownerships are analysed, as foreign-owned banks account for insignificant market share.

Credit growth

According to Wiranatakusuma and Apriyono (2016), credit growth is the percentage increase in the total lending of commercial banks in one period comparing to the previous one. This includes loans provided to individuals, firms and other organizations. Credit growth has always been a concern for both government and commercial banks because it relates to the potential of maximizing income for the banks but can also result in financial crisis if it gets out of control.

Bank ownership vs credit growth

Several studies have carried out in different countries on impact of bank ownership on credit growth. The literature evidences show two trends: the positive trend claims that state ownership provides more efficiency to growth of banks, while the negative trend refuses that statement and argues that banks with other types of ownership, foreign ownership for example, perform and manage their credit growth better.

First of all, for the positive relationship between ownership of banks and credit growth, Andrianova et al. (2009) discovered that with transparent operation and management, state-owned banks are more likely to achieve growth in credit than banks with other types of ownership. Beside one main indipendent variable that is ownership, the authors also include other variables to explain for the variation in credit growth, which are regulatory quality, FDI, GDP per capita and inflation. It is found out that the impact of FDI, GDP per capita and inflation was insignificant, while the regulatory quality negatively influenced on the growth of commercial banks' lendings. A study by Alejandro Micco, Ugo Panizza, and Monica Yanez (2007), which was published on Journal of Banking and Finance, used the sample of commercial banks from 179 countries from 1992 to 2002 and figured out that during crisis, state banks are the ones which had better management of credit growth and helped stabilize the system. These findings confirm the positive correlation between the state ownership of banks with the credit growth of commercial banks. Other explanatory factors that are also added to this research are real GDP growth and a dummy variable for election year. The results show that GDP growth rate has a significantly negative impact on credit growth, while that relationship is significantly positive for election year.

Although these past papers above all agree that banks with state ownership have advantages in their activities, there are some other researches that disagree with this statement and show negative relationship between these two variables. Enrica Detragiache and Pooman Gupta (2006) conducted a study on the differences between the performance of foreign-owned banks and local banks in Malaysia during the crisis period in Asia and found out that foreign banks in Malaysia were more competitive and performed significantly better than domestic banks in lending activities. A research of Allen et al. (2011)

also discovered that commercial banks with foreign ownership are more likely to diversify risks than domestic banks when they investigate the impact of cross-border banking in Europe, confirming that state ownership is negatively correlated with credit growth. Claessens van Horen (2013) shows evidence that foreign-owned banks granting more loans and funds in emerging market than local banks and also contributed more in the financial stabilization. Also doing a research in the context of emerging market, Schnabl (2012) showed that in the 2007-2008 Financial Crisis, foreign-owned banks successfully transfer the risks and losses from their parent countries, which are mostly developed economies, to the domestic economy by reducing the lending activities.

However, beside from the significant findings about the impact of bank ownership on credit growth, unclear result of this studied topic is found in the research by Guodong Chen and Yi Wu (2014). In this study, the authors conduct a regression analysis for three areas: Latin America, Eastern & Central Europe and Asia. The data sample is collected from more than 900 banks in 24 emerging markets from 2004 to 2011. The research finds out that ownership structure does have impact on credit growth, however, this effect cannot be concluded to be positive or negative because it varies from different areas. For example, while both foreign banks and state-owned banks are found to have negative relationship with credit growth in Latin America, there is a difference in the result of Asia and Europe. Guodong Chen and Yi Wu found that in these two areas, foreign ownership positively impacts on credit growth, while state ownership negatively impacts on credit growth.

Impact of other bank-specific factors on credit growth

In addition to bank ownership, other bank-specific factors affecting bank credit growth include:

Total assets

Total assets is one of the factors that is also included in many studies to find out about the impact on credit growth. Awdeh (2016) claimed that banks' credit growth is positively affected by the total assets. In contrast, Schnabl (2012) and Chen and Wu (2014) found out a negative relationship between these two variables, showing that with a large amount of assets, banks will not need to raise their lendings, hence the low credit growth. Agreeing with that point of view, Bustamante et al. (2019) also found that the higher assets that a bank holds, the smaller its credit growth will be.

Liquid Assets

Most researchers discovered a negative relationship between liquid assets of commercial banks and their growth in lendings (Ivashina and Scharfstein, 2010; Hernando and Martinez-Page, 2001; Cornett et al., 2011; King, 2013). Polizzi et al. (2020) also had the same findings in their research, explaining that with lower liquidity, banks have to raise their credit level in order to pass on the liquidity risk that they are facing. However, a positive relationship between liquid assets and credit growth is discovered by Ivanovic (2016), while Bustamante et al. (2019) cannot recognize any significant relationship.

Deposits

It is widely agreed that deposits positively impacts on banks' growth of lendings (Ivanovic, 2016; Ivashina and Scharfstein, 2010; Awdeh, 2016). In the research of Stepanyan (2011), the author also discovered this positive relationship and he explained that high level of deposits creates higher interest expense for the banks. Therefore, they have to raise the lendings to expand their income. On the other hand, Bustamante et al. (2019) claimed that there is unclear result about the impact of deposits on credit growth.

Returns on Assets (ROA)

Micco et al. (2007) and Schnabl (2012) both agree that the profitability of a bank, which is measured by ROA, positively affects the growth of credit level. The explanation for this is that when banks are confident with their operation and ability to make profit, it motivates them to lend more. Awdeh (2016) found out that the relationship should be opposite because with good profitability, banks will not want to take more risk by raising their lendings. An insignificant relationship between these two variables is discovered by Ivanovic (2016).

Equity

Detragiache and Gupta (2006) announced that they found positive relationship between equity of a bank and its credit growth. The outcome of the research of Chen and Wu (2014) also supports this statement. However, Hernando and Martinez-Page (2001) claimed that there was no connection between these two factors, so equity cannot be a determinant of growth of lendings. On the other hand, Awdeh (2016) discovered that equity had negative impact on credit growth.

Non-Performing Loans

Non-Performing Loans is usually used to represent credit growth, which is closely related to credit growth. Bustamante ey al. (2019), Ivanovic (2016) and Cucinelli (2015) agree that the higher the credit risk is, the lower growth of credit is, therefore, the relationship should be negative. When the risk becomes too high, banks will not want to increase their lendings to prevent default. However, Stepanyan and Guo (2011) states that the relationship between non-performing loans and credit growth is unclear because it depends on many other external factors.

Table 1: Summary of literature review

Variables	Impact on Credit Growth		
	Positive (+)	**Negative (-)**	**Unclear**
Bank's Ownership	Alejandro Micco, Ugo Panizza, and Monica Yanez (2007); Andrianova et al. (2009)	Enrica Detragiache and Pooman Gupta (2006); Allen et al. (2011); Schnabl (2012); Claessens van Horen (2013)	Guodong Chen and Yi Wu (2014).
Total Assets	Awdeh (2016)	Schnabl (2012); Chen and Wu (2014); Bustamante et al. (2019)	
Liquid Assets	Ivanovic (2016)	Ivashina and Scharfstein (2010); Hernando and Martinez-Page (2001); Cornett et al. (2011); King (2013); Polizzi et al. (2020)	Bustamante et al. (2019)
Deposits	Ivanovic (2016); Ivashina and Scharfstein (2010); Awdeh (2016); Stepanyan (2011)		Bustamante et al. (2019)
Return on Assets (ROA)	Micco et al. (2007), Schnabl (2012)	Awdeh (2016)	Ivanovic (2016)
Equity	Detragiache and Gupta (2006) Chen and Wu (2014)	Awdeh (2016)	Hernando and Martinez-Page (2001)
Non-Performing Loans		Bustamante ey al. (2019); Ivanovic (2016); Cucinelli (2015)	Stepanyan and Guo (2011)

Source: Authors' compilation from literature review

3. METHODOLOGY AND RESEARCH MODEL

Data

The data used in this research is panel data, which is a combination of cross-sectional and time series data. There is a total of 220 observations, including 4 state-owned commercial banks and 18 non-state-owned commercial banks in 10 years, from 2009 to 2018. The data of individual banks is collected from annual financial reports of banks. Commercial banks in Vietnam update their reports frequently on their website, so financial data can be downloaded directly for analysis.

Hypotheses and research model

In this research, we use regression analysis with the model inspired from the original model in the research of Chen and

Wu (2014). These independent variables are chosen based on the inconsistency in the results from past researches. Because of panel data, there are two types of models that can be conducted: Fixed Effects model (FEM) and Random Effects model (REM), with the final decision from result of Hausman test.

Table 2: Hypotheses and variables in the regression model

Independent variable	Measurement	Hypothesis/ Expected sign	References
OWN	Dummy: 0= non-state-owned bank 1= state-owned bank	-	Enrica Detragiache and Pooman Gupta (2006); Allen et al. (2011); Schnabl (2012); Claessens van Horen (2013)
LnASSETS	Logarithm of total assets	-	Schnabl (2012); Chen and Wu (2014); Bustamante et al. (2019)
LIQUID	Liquid Assets divided by Total Assets (%)	-	Ivashina and Scharfstein (2010); Hernando and Martinez-Page (2001); Cornett et al. (2011); King (2013); Polizzi et al. (2020)
ROA	Net income divided by total assets (%)	+	Micco et al. (2007), Schnabl (2012)
DEP	Total deposits divided by total assets (%)	+	Acharya & Naqvi (2012); Dang (2019)
EQUITY	Equity to total assets (%)	-	Detragiache and Gupta (2006) Chen and Wu (2014)
NPL	Non-performing loans divided by total loans (%)	-	Bustamante ey al. (2019); Ivanovic (2016); Cucinelli (2015)

Source: Authors' compilation from literature review

Following is the regression equation of the model:

$$CRED = \beta_1 + \beta_2 OWN + \beta_3 lnASSETS + \beta_4 LIQUID + \beta_5 ROA + \beta_6 DEP + \beta_7 EQUITY + \beta_8 NPL + \epsilon$$

Of which, CRED is credit growth rate. All macro-economic factors into the model are not included in the model, but only bank-specific factors in this research is because the banks that are studied are all commerical banks in Vietnam and they all have the same external factors.

4. REGRESSION RESULTS

Testing for errors and choosing the model

Heteroskedasticity

Heteroskedasticity is a form of error that occurs when there is a non-constant trend in the Standard errors of the panel sample. Conditional and unconditional heteroskedasticity are two types of this error. If this error appears, it will not be able to assume the linear regression and will also affect the results of the regression analysis. Therefore, it is essential to test for this error. Following is the result of this test:

Table 3: Test for heteroskedasticity

```
Breusch and Pagan Lagrangian multiplier test for random effects

CRED[OBS,t] = Xb + u[OBS] + e[OBS,t]

Estimated results:
                    Var     sd = sqrt(Var)
        ---------------------------------
        CRED    181.3203        13.46552
        e       110.2452        10.49977
        u       9.04078         3.006789

Test:   Var(u) = 0
                     chibar2(01) =     1.49
                  Prob > chibar2 =   0.1113
```

Source: Authors' compilation from dataset with Stata

The chi-square is 0.1113, which is more than 0.05. From this finding, we can see that there is no heteroskedasticity in this model.

Correlation matrix:

Table 4: Correlation matrix

	OWN	lnASSETS	LIQUID	ROA	DEP	EQUITY	NPL
OWN	1.0000						
lnASSETS	0.6713	1.0000					
LIQUID	-0.0962	0.0577	1.0000				
ROA	0.0794	-0.0934	0.1029	1.0000			
DEP	0.2668	0.3522	-0.1722	-0.2267	1.0000		
EQUITY	-0.1940	-0.4156	0.0050	0.1067	-0.0441	1.0000	
NPL	-0.1784	-0.1572	0.1610	-0.0039	-0.0632	0.0734	1.0000

Source: Authors' compilation from dataset with Stata

The correlation matrix shows the possibility whether there is multicollinearity problem that may appear in the regression model. As refer to the results, there exists no correlation coefficient between two variables that is higher than 0.8. Therefore,

there is no multicollinearity error in this regression model.

Choosing model by Hausman Test

Table 5: Hausman Test Results

```
. hausman FE RE

                 ---- Coefficients ----
                 (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                  FE           RE         Difference          S.E.
-------------------------------------------------------------------------------
      lnASSETS     1.538788     1.051466      .4873219        1.293945
        LIQUID     -.004521    -1.048804      1.044283        .4556314
           ROA     6.159573     5.146452      1.013122         .618588
           DEP     .2323632       .14877      .0835932        .0369292
        EQUITY    -.1144828    -.1177806      .0032978        .0236012
           NPL    -1.431995     -1.65225      .2202551         .149067
-------------------------------------------------------------------------------
                b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =         9.25
              Prob>chi2 =       0.1602
```

Source: Authors' compilation from dataset with Stata

With this test, the null hypothesis is that the difference in coefficients is not systematic. In contrast, the alternative hypothesis shows that the difference in coefficients is systematic. Depending on the Hausman test result, the chi-square value is 0.1602, which is higher than 0.05. It means the null hypothesis cannot be rejected. The difference in coefficients is not systematic and Random Effects Model will be chosen.

Descriptive statistic results

The descriptive statistics result is listed in the table below, which has illustrated the quantitative characteristics of 200 observations in this model of panel data.

Table 6: Descriptive data of variables

Variable		Mean	Std. Dev.	Min	Max	Observations	
CRED	overall	16.96986	13.46552	-24.59425	65.25192	N =	200
	between		8.235319	3.740913	31.08027	n =	20
	within		10.79662	-17.7073	60.38376	T =	10
ASSETS	overall	2.32e+08	2.84e+08	3329941	1.31e+09	N =	200
	between		2.51e+08	1.69e+07	7.97e+08	n =	20
	within		1.44e+08	-2.04e+08	8.33e+08	T =	10
LIQUID	overall	1.327814	1.48085	.0790889	10.44888	N =	200
	between		1.021088	.5344416	4.388504	n =	20
	within		1.09428	-1.48953	8.249908	T =	10
ROA	overall	.8019576	.646511	.0082909	4.728901	N =	200
	between		.3260201	.2075353	1.339132	n =	20
	within		.5625783	-.2847685	4.27022	T =	10
DEP	overall	62.50801	15.65629	4.235551	88.60428	N =	200
	between		8.714219	45.31919	79.8834	n =	20
	within		13.13835	5.546379	89.91511	T =	10
EQUITY	overall	10.42337	11.42466	3.257181	143.2968	N =	200
	between		5.757915	4.958501	28.5296	n =	20
	within		9.943272	-10.86555	125.1905	T =	10
NPL	overall	2.16205	1.521702	0	8.8	N =	200
	between		.6404144	.976	3.759	n =	20
	within		1.387081	-.90695	8.06605	T =	10

Source: Authors' compilation from dataset with Stata

The value of means, min, max standard deviation of variables showed that: There is no outliers in the sample. The result that state-owned banks have higher credit

growth comparing to privately-owned banks is acceptable in the Vietnamese banking system. In Vietnam, banks have not diversified its business activities and still mainly depend on lendings to generate revenue. The positive relationship between state ownership and the growth in credit level discovered by this research proves that commercial banks which are owned by the government is more concerned about credit and they highly concentrate on their business activities. The State Bank of Vietnam, controlled by the government, still has power over the decision and operation of commercial banks, both private and state-owned. Moreover, state-owned banks will tend to be more confident in terms of managing risk, liquidity risk for example, because they are backed up by the government funds. The average non-performing loans ratio of commercial banks in Vietnam is 2.16205%, which is not a dangerous level. The lowest value of NPL is 0, which shows that at some time, one or more banks had absolutely no non-performing loan.

Regression results

Table 7: Random Effects regression results

Random-effects GLS regression — Number of obs = 200
Group variable: OBS — Number of groups = 20

R-sq:
within = 0.1583
between = 0.7256
overall = 0.3607

Obs per group:
min = 10
avg = 10.0
max = 10

Wald chi2(7) = 232.76
corr(u_i, X) = 0 (assumed) — Prob > chi2 = 0.0000

(Std. Err. adjusted for 20 clusters in OBS)

CRED	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
OWN	9.756801	2.95813	3.30	0.001	3.958973	15.55463
lnASSETS	1.051466	1.323652	0.79	0.427	-1.542844	3.645776
LIQUID	-1.048804	.3363886	-3.12	0.002	-1.708113	-.3894943
ROA	5.146452	1.646138	3.13	0.002	1.92008	8.372824
DEP	.14877	.0672697	2.21	0.027	.0169239	.2806162
EQUITY	-.1177806	.0597648	-1.97	0.049	-.2349174	-.0006437
NPL	-1.65225	.6444763	-2.56	0.010	-2.915401	-.3891003
_cons	-11.72944	22.83384	-0.51	0.607	-56.48293	33.02406
sigma_u	3.0067891					
sigma_e	10.499771					
rho	.0757908	(fraction of variance due to u_i)				

Source: Authors' compilation from dataset with Stata

P-value is 0, which is smaller than 0.01, meaning that the model of this research is statistically significant at 1%. Therefore, we can use the results of this model to explain the impact of bank's ownership on credit growth in Vietnam in period 2009- 2018. The R-squared value of 0.3607, showing the good combination of independent variables to explain the credit growth rate. However, the varibale lnASSETS is statistically insignificant. It is consistent with Vietnam case, as credit growth rates are determined by the bank's overall performance and maximum growth rate set by State Bank of Vietnam, not on assets. Therefore, we eliminate this variable and the regression results after the elimination is shown below:

Table 8: Random Effects regression result with significant variables only

```
Random-effects GLS regression                   Number of obs     =       200
Group variable: OBS                             Number of groups  =        20

R-sq:                                           Obs per group:
     within  = 0.1550                                         min =        10
     between = 0.7218                                         avg =      10.0
     overall = 0.3572                                         max =        10

                                                Wald chi2(6)      =    232.34
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000

                                  (Std. Err. adjusted for 20 clusters in OBS)
```

CRED	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf.	Interval]
OWN	11.72154	2.286922	5.13	0.000	7.239257	16.20383
LIQUID	-.9852801	.3295072	-2.99	0.003	-1.631102	-.3394579
ROA	5.004483	1.705174	2.93	0.003	1.662403	8.346562
DEP	.1617959	.0632191	2.56	0.010	.0378888	.2857031
EQUITY	-.1450538	.0691405	-2.10	0.036	-.2805666	-.0095409
NPL	-1.689519	.6459582	-2.62	0.009	-2.955574	-.423464
_cons	6.971666	4.093595	1.70	0.089	-1.051633	14.99496
sigma_u	2.7737479					
sigma_e	10.494387					
rho	.06529703	(fraction of variance due to u_i)				

Source: Authors' compilation from dataset with Stata

The model is statistically significant at 0.1% and it is able to explain 35.72% of the variation in credit growth of commercial banks in Vietnam, giving the overall R-square equals to 0.3572.

5. DISCUSSION

Impact of bank ownership on credit growth

Bank ownership in Vietnam does have a positive influence on the variation in credit growth and this effect is found out to be significant (0.1%). The positive sign of the coefficient shows that state-own banks have higher credit growth rate than banks that who do not have state ownership.

This significantly positive impact of bank ownership on credit growth is opposite with the expected sign and the evidence provided by the researches of Enrica Detragiache and Pooman Gupta (2006), Allen et al. (2011), Schnabl (2012), Claessens van Horen (2013). While Enrica Detragiache and Poorman Gupta (2006) claimed that the negative of ownership of banks on credit growth came from the fact that private banks were more competitive and performed better than domestic banks in lending activities in Asian countries, Allen et al. (2011) proved that this inverse correlation also appeared among European banks. On the other hand, the positive findings in this research remains the consistency with Alejandro Micco, Ugo Panizza, and Monica Yanez (2007) and Andrianova et al. (2009). It is explained that state banks have more transparent operation and better quality of management, therefore, it can be understood that they are more likely to achieve higher credit growth (Andrianova et al., 2009). Agreeing on this outcome, Alejandro Micco, Ugo Panizza, and Monica Yanez (2007) confirm that banks which are owned by the government gain better growth in lendings in their multinational research.

They claimed that state-owned banks have more power in the market since they are backed by the government, therefore, their decision to raise the level of credit can be made more easily comparing to other private banks. Different approaches in using the direct monetary policy tool also bring different outcomes. For example, in Mexico, Argentina and Europe, where commercial banks are more independent from the government, the relationship is negative. However, in the countries like Vietnam, where the level of banks' independence of the central bank is known to be low (Do et al., 2012), this relationship will be positive.

Third, the preference of Vietnamese people when borrowing from banks. Usually, state-owned commercial banks have core deposit funding sources with

cheap cost. When making the decision of which bank to choose to deposit money, people in Vietnam heavily depend on the trust in the safety and development of banks. They believe that if one commercial bank belongs to the government, it cannot default, which is also known as "too big to fail", so their money will be ensured. In 2014, Moody's, an international credit rating agency, has upgraded the rating of long-term local and foreign currency deposit issuers for BIDV and Vietinbank from B3 to B2 as a proof to the good reputation that capital mobilization activities of state-owned commercial banks has greatly improved (Nguyen & Nguyen, 2017). Therefore, state-owned commercial banks can lend out with cheaper lending rates than private banks, which create the good conditions for expanding lending activities.

It also come from the fact that all state-owned commercial banks in Vietnam are the biggest banks (big 4) with total market share of more than 41% in term of total assets (SBV, 2020b). Therefore,

Therefore, it can be easily understood why banks with government ownership in Vietnam can raise their credit level higher than privately-owned banks.

Impact of other bank-specific factors on credit growth

Overall, most of bank-specific factors are statistically significant with credit growth, of which LIQUID and ROA have the strongest influences.

The impact of LIQUID, which is the proxy for the level of liquidity, on credit growth has been proved to be significant by many previous researches. In this model, the measurement for liquidity is the ratio of total liquid assets to total assets in percentage. The negative relationship between LIQUID and CRED is consistent with the expected sign and past researches. It is explained that as a requirement from the government, banks need to pay attention to the liquidity and keep it at a high level to prepare for potential liquidity risk. Therefore, they will also have to restrict the lending activities, hence the negative impact. This finding is consistent with the finding of in the researches of Cornett et al. (2011), King (2013) and Polizzi et al. (2020). The State Bank of Vietnam had made some adjustment in capital structure by term that affected both liquidity and credit growth of commercial banks during this period. In the report of the SBV (2010), capital mobilization of commercial banks is mainly short-term with a proportion of 74% of total mobilized capital, while medium and long term loans accounted for about 44% of total loans. This had increased the liquid assets held by banks, while credit growth was restricted because the ratio of short-term capital for medium and long-term loans had been shortened to 30% and loans from the second market was not allowed to lend in the first market.

ROA is positively related to credit growth. When banks raise its level of lending, it can be able to achieve more profit This result is consistent with the expected sign and it also follows the result of Micco et al. (2007) and Schnabl (2012). According to these researches, the more money that can be generated from bank's assets, the higher the bank's lending will be.

EQUITY is also one of the important independent variable that is needed to explain for the variation in credit growth, based on the significance at 5%. The result is consistent with the expected sign, which is negative because as usual, if banks don't want to take too much risk, they will hold a large proportion of equity and will not try to lend out too much, which means that their credit growth will also be at a low rate.

Table 9: Summary of hypotheses testing

Independent variable	Hypothesis/ Expected sign	Actual signal	Conclusion for Vietnam empirical case
OWN	-	+	Support
LnASSETS	-	Insignificant	No conclusion
LIQUID	-	-	Support
ROA	+	+	Support
DEP	+	+	Support
EQUITY	-	-	Not support
NPL	-	-	Support

Source: Authors' compilation from literature review and regression result discussions

6. Recommendations

Basing on the findings and discussion of the research, the following recommendations are proposed for the policy makers in Vietnam to obtain better management of credit growth for both the State Bank of Vietnam and for individual commercial banks.

For State Bank of Vietnam and the Government:

The first policy recommendation for the authority of the banking system in Vietnam is to focus and boost the lending activities of the privately-owned commercial banks. This is given due to the fact that credit growth of the whole system is staying at a low rate at the moment and the joint stock banks are proved to have lower credit growth than state-owned banks. The government is already having plans to raise the capital of “Big 4” commercial banks. Decision No. 986 / QD-TTg of August 8, 2018, approving the "Strategy for Vietnam's banking industry development to 2025, orientation to 2030" requires: "By 2020, state-owned commercial banks holding over 50% of charter capital must meet the capital adequacy standards of Basel II ”. Since equity and credit growth have positive relationship, this will result in the growth in lendings of state-owned banks being even higher, while there is no change in the credit growth of privately-owned banks. Eventually, the gap between credit growth of state-owned and joint stock banks become larger and larger, which also means that it will be more difficult to control as a whole. Therefore, beside the support in state-owned banks activities, State Bank of Vietnam should establish more support packages in order to boost the lending activities of privately-owned banks.

Secondly, as liquidity has been proved to have negative impact on credit growth, means that banks might have intention to lower the total amount of liquid assets in order to raise the growth of lendings. Currently, the whole system liquidity is redundant. Therefore, it is likely that a part of the credit will flow out to the market again when commercial banks want to increase their credit growth, as well as to keep their customers. But the liquidity level is not equal between state-owned banks and private banks. Therefore, the recommendation for policy adjustment is that the State Bank of Vietnam should apply different system of supervision and management of liquidity on state-owned banks and joint stock banks. For example, the required liquidity coverage ratio of private banks should be higher than that of state-owned banks, since the risk of default of privae banks are higher. Moreover, all commercial banks in Vietnam are required to apply Basel II on January 1, 2020 as per Circular 41/2016/TT-NHNN. This is a good way to manage the bank's liquidity level when they apply Basel's liquidity coverage ratio requirement. However, at the end of 2019, only 17 banks which had adopt tier I of Basel II, while many banks, both state-owned and privately-owned, had not follow the regulation. This progress needs to be boosted and closely supervised by the State Bank of Vietnam in order to control the banks’ liquidity in case they want to lower this factor to raise credit growth.

For individual commercial banks

According to the inverse relationship between non-performing loans (NPL) and credit growth, combining with the real situation of decreasing credit growth of the whole banking system recently in Vietnam (Forbes Vietnam, 2019), it is important for the commercial banks to reduce its holding of non-performing loans in order to stimulate the growth in lending. First, banks should conduct better control and profile screening before lending out. When making loans, commercial banks need to clarify the purpose of using the loans of businesses and individuals, have clear loan documents, as well as maintain communication channels between banks and businesses. Secondly, banks could process its non-perfoming loans by selling them to Vietnam Asset Management Company (VAMC). The

establishment of VAMC in 2013 has brought positivity to the Vietnam banking system because non-performing loans are now able to be transferred from this sector to another without being eliminated out of the economy, Therefore, it is a good method for commercial banks to lower the amount of non-performing loans and enhance the level of credit growth in near future.

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