

Impact of Foreign Ownership on Liquidity Risk: Empirical Evidence in Vietnamese Commercial Banks

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ABSTRACT

This article is designed to assess the impact of foreign ownership on liquidity risk at 27 Vietnamese commercial banks in the period 2008-2021. With the research data as panel data, the article uses the estimation method for the regression model with balanced panel data including Pooled OLS model, FEM model, and REM model, then proceed to proceed. testing, selecting a suitable model, and testing and dealing with defects on the selected model. The results show that the foreign ownership ratio has a negative effect on liquidity risk at a higher level of ownership, liquidity risk decreases and vice versa. From the results of this study, the article has made recommendations on policies to limit liquidity risk at Vietnamese commercial banks.

KEYWORDS: *commercial banks, liquidity risk, foreign ownership*

1. INTRODUCTION

In the process of internationalization, foreign banks increase their presence in Vietnam. According to the annual report of the State Bank of Vietnam, the number of foreign banks and foreign branches in Vietnam has continuously increased from 27 banks in 2006 to 53 banks in March 2013. By 2022, Vietnam has 09 banks with 100% foreign capital, 62 foreign bank branches, and 62 representative offices of foreign credit institutions. Foreign commercial banks began to exploit a potential market, resulting in increased competition.

Banks with a large proportion of foreign investment capital not only have the opportunity to access capital but also have access to the technological level, and experience in organization, administration, and management of many large and well-established commercial banks. However, the foreign ownership ratio is still modest, and the role of foreign shareholders in the bank's operations has not been clearly assessed and is still relatively obscure.

Foreign ownership in commercial banks has received more interest and discussed. Which, the regulation of ownership limit of foreign investors in commercial banks is one of the most discussed contents. According to Decree No. 01/2014/ND-CP, the share ownership ratio of a foreign strategic investor must not exceed 20% of the charter capital of a Vietnamese credit institution. The total share ownership ratio of all foreign investors in a domestic credit institution must not exceed 30%. With the current regulations, many commercial banks have reached highest the foreign ownership. Foreign investors and some experts agree that this limit is still low, so the investment market is not attractive. Then, there have been many opinions that the percentage of foreign investors' ownership in credit institutions in Vietnam will be increased in the coming time to attract foreign investors. However, the increase in foreign ownership ratio in the banking industry is also being considered and studied more carefully, because there are opinions that foreign

ownership has a positive impact on liquidity risk, one of the major risks in commercial banks while there are opposite opinions, that foreign ownership increases liquidity risk at commercial banks.

Liquidity risk is one of the specific risks of the banking business, besides other risks such as credit risk, interest rate risk, market risk, operational risk, etc. Since the system is closely linked, a bank experiencing liquidity risks will affect the normal operations of other banks, and more broadly, threaten the safety of the banking system. Assessing the importance of liquidity risk control, the issue of foreign ownership is getting more and more attention, evaluated in many different aspects, not only the positive impacts but also negative effects. For the above reasons, this article is conducted to assess the impact of foreign ownership on liquidity risk at Vietnamese commercial banks.

2. METHODOLOGY

2.1 Foreign ownership

According to Decree No. 01/2014/ND-CP, foreign ownership is the percentage (%) of shares that total foreign investors are allowed to own. They are only allowed to buy the maximum number of issued shares according to the specified maximum percentage. According to this decree, the share ownership ratio of a foreign strategic investor must not exceed 20% of the charter capital of a Vietnamese credit institution. The total share ownership ratio of all foreign investors in a domestic credit institution must not exceed 30%.

2.2 Liquidity risk

According to Basel, liquidity is the ability of a bank to finance an increase in assets and meet its due obligations without incurring unacceptable losses (Basel Committee on Bank Supervision, 2008). Liquidity risk is the risk that a financial institution is not able to find sufficient capital to meet its due obligations without affecting its day-to-day operations and without causing any negative impact.

Liquidity risk can arise from many different causes. The first reason comes from the balance sheet capital. The bank lacks funds to meet its depositors' payment needs, or to pay off short-term debts that the bank has borrowed. The second cause of liquidity risk comes from the asset side of the balance sheet, for example, the need to disburse committed lines of credit. The third reason is that the bank lacks funds to meet the needs of the bank's counterparties: creditors, and shareholders. Other reasons can be mentioned as banks do not have appropriate liquidity management strategies and methods. Liquidity risk can also be caused by changes in market interest rates. Finally, there are completely objective but extremely dangerous causes, which are the chain withdrawal effect in periods of the financial crisis and other unusual economic-political events (Truong Quang Thong, 2013).

The bank's net liquidity position for a given period, with details of the possible source and use of liquidity. Liquidity risk can be measured using the funding gap method. According to Vodova (2013), the liquidity gap is the difference between assets and capital for current and future times. Liquidity ratios are different coefficients calculated from bank balance sheets, often used to predict liquidity trends. Saunders & Cornett (2006) proposed using the concept of "Funding Gap" to measure liquidity risk.

$$\text{Funding Gap} = \text{Average total credit balance} - \text{Average total mobilized capital}$$

The funding gap represents a warning sign of a bank's future liquidity risk. If the funding gap is positive and the bank has a large financing gap, then the total credit balance is much higher than the total capital mobilized by the bank, then forcing the bank to reduce cash reserves. and reduce liquidity assets or additional borrowing in the money market, leading to high liquidity risk. The funding gap method is considered to be the most appropriate method in quantitative analysis, the funding gap index reflects the most basic of the bank's liquidity.

3. RESEARCH MODEL

To analyze the impact of foreign ownership on liquidity risk at Vietnamese commercial banks in the period 2008-2021, the selection and inclusion of variables in the research model are carried out based on two criteria. First, the factors included in the research model must be associated with economic theories and a review of previous empirical studies related to the topic. Second, the data of the factors representing the model can be collected relatively completely and reliably. The variables in the research model are summarized in Table 1. Thereby, based on economic theory and previous empirical

studies, the proposed research model is as follows:

Model 1: Impact of foreign ownership on liquidity risk in static tabular commercial banks

$$LIR_{it} = \beta_1 + \beta_2FO_{it} + \beta_3CR_{it} + \beta_4SIZE_{it} + \beta_5ROE_{it} + \beta_6EA_{it} + \beta_7GDP_t + \beta_8CPI_t + \alpha_i + u_{it}$$

Model 2: Impact of foreign ownership on liquidity risk at dynamic tabular commercial banks

$$LIR_{it} = \beta_1 + \beta_2LIR_{it-1} + \beta_3FO_{it} + \beta_4CR_{it} + \beta_5SIZE_{it} + \beta_6ROE_{it} + \beta_7EA_{it} + \beta_8GDP_t + \beta_9CPI_t + \alpha_i + u_{it}$$

Table 1 Summary of variables in the research model

Symbol	Variables	Measurement	Expected sign	Authors
Dependent variable				
LIR	Liquidity risk of commercial banks	(Total loan – Total mobilized capital)/ Total Asset		
Independent variables				
FO	Degree of foreign ownership	The ratio of shares of foreign shareholders to the total number of shares issued.	-	Nguyễn Thị Thùy Linh (2019)
CR	Credit risk	The ratio of provisions for credit risk to total assets.	-	Nguyễn Thị Thùy Linh (2019)
SIZE	Bank size	Log (Total asset)	-	Deléchat & cộng sự (2012)
ROE	Return on equity	Return on equity	-	Mohammad Atiqul Basher (2022)
EA	Ratio of equity	The ratio of equity to total assets.	-	Mohammad Atiqul Basher (2022)
GDP	Economic growth	Economic growth rate (%)	+	Nguyễn Thị Thùy Linh (2019)
CPI	Inflation rate	Annual consumer price index (%)	+	Mohammad Atiqul Basher (2022)

(Source: Compiled from previous studies)

4. RESEARCH METHOD

The data was taken from 27 commercial banks in Vietnam in the period from 2008 to 2021. The data was collected from Bankscope, data on macroeconomic factors are collected from the International Monetary Fund (IMF), and reports from the State Bank of Vietnam.

The research used Pooled OLS, Fixed effect (FEM), and REM to estimate linear static panel data models. For the dynamic tabular model, the research used Pooled OLS. Then, the GMM estimation method is considered a suitable alternative.

5. RESEARCH RESULTS

5.1 Descriptive statistics

Table 2. Descriptive statistics

Variables	Mean	Standard deviation	Min	Max
LIR	0.3294204	0.1322441	-0.1150929	0.7444106
FO	0.1190088	0.1372012	0	0.3
CR	0.0114939	0.0054607	0.0005004	0.0384722
SIZE	18.3785	1.277848	14.69872	21.28954
ROE	0.0948787	0.0844358	-0.8200214	0.3033
EA	0.995114	0.0546581	0.0346185	0.4624462
GDP	0.0574879	0.0136305	0.0258	0.0707
CPI	0.0563586	0.0563531	-0.01	0.21

(Source: Analysis results from Stata)

The results of descriptive statistics show that the level of liquidity risk through the average ratio of loans to total assets of the banks of commercial banks in the sample is 32.94%. Which, the commercial bank with the highest liquidity risk belongs to SeAbank, reaching 74.44% in 2011 and the bank with the lowest liquidity risk is Kien Long bank with only 11.5% in 2008. In addition, the average foreign ownership rate in the commercial banks in the sample is 11.90%, the commercial bank with the highest foreign ownership rate up to 30% is Saigon Thuong Tin Bank in 2010. and the commercial bank with the lowest foreign ownership ratio at 0% is An Binh bank in

2012. Thus, the descriptive statistics show the characteristics of the main research variables used in the model (Table 2)

5.2 Correlation analysis results

The results of the correlation analysis show the sign of the correlation coefficient between the level of foreign ownership, the rate of return on equity, the self-financing coefficient, and inflation and the liquidity risk of commercial banks in the model is consistent with expectations, remaining credit risk variables, total asset size has positive signs while expectations are negative signs (Table 3).

Table 3. Correlation coefficient matrix

	LIR	FO	CR	SIZE	ROE	EA	GDP	CPI
LIR	1							
FO	-0.2294	1						
CR	0.1922	-0.1438	1					
SIZE	-0.0029	0.2611	0.1673	1				
ROE	-0.0874	0.1342	-0.0541	0.3792	1			
EA	-0.2757	0.0791	-0.1481	-0.6554	-0.1410	1		
GDP	0.0724	-0.0727	0.0544	-0.1743	-0.1422	0.296	1	
CPI	0.1750	-0.0888	0.1854	-0.3135	-0.0013	0.2427	0.1800	1

(Source: Analysis results from Stata)

5.4 Multicollinearity test results

Table 4. Results of the multicollinearity test

Biến số	VIF	1/VIF
SIZE	2.78	0.359704
EA	2.06	0.485234
FO	1.27	0.789758
ROE	1.26	0.793880
CPI	1.25	0.800621
CR	1.18	0.846743
GDP	1.08	0.929192
VIF	1.55	

(Source: Analysis results from Stata)

The results of the multicollinearity test in Table 4 show that the VIF index of all the independent variables in the model is less than 10 and the average VIF index is only 1.55, so it can be confirmed that there is no multicollinearity among the independent variables in the research model.

5.4 Regression analysis results

The results in Table 4 show that: for the F-test, there is a p-value < the significance level α (1%), so the FEM model is more suitable than the Pooled OLS model, for the Breusch-test, Pagan Lagrangian has p-value

= 0.000 < significance level α (1%) so the REM model is more suitable than the Pooled OLS model. For the Hausman Test, there is p-value = 0.9993 > significance level α (1%) so the REM model is more suitable than the FEM model. Thus, the REM model is a more suitable model than the FEM model and Pooled OLS model.

Next, the author performed variable variance and autocorrelation defect testing on the selected REM model. The results of the defect test show that: for the Heteroskedasticity test, there is a p-value < the significance level α (1%) so the REM model suffers from the phenomenon of variance, for the Lagrange-Multiplier Test for Serial Correlation has a p-value < the significance level α (1%) so the REM model does not suffer from autocorrelation. Then, the author uses the method of generalized least squares (GLS - Generalized Least Squares) to handle the phenomenon of variable variance and autocorrelation.

For the dynamic tabular model, to handle both variable variance defects, autocorrelation, and endogenous phenomena of the model, the author uses the

Generalized Moments (GMM) estimation method. was proposed by Blundell and Bond (1998).

Table 5. Regression analysis results

	Pooled OLS	FEM	REM	GLS	System GMM
FO	-0.099* (0.051)	-0.102** (0.045)	-0.103** (0.043)	-0.099* (0.051)	-0.053** (0.053)
CR	2.634** (1.247)	1.870* (1.054)	1.952* (1.030)	2.634** (1.233)	1.397* (0.746)
SIZE	-0.021** (0.008)	-0.020** (0.009)	-0.020** (0.009)	-0.021*** (0.008)	-0.022*** (0.005)
ROE	-0.083 (0.083)	-0.110* (0.066)	-0.108* (0.065)	-0.083 (0.082)	-0.056 (0.045)
EA	-1.058*** (0.165)	-0.977*** (0.133)	-0.979*** (0.131)	-1.058*** (0.163)	-0.975*** (0.130)
GDP	-0.050 (0.491)	0.007 (0.361)	0.012 (0.357)	-0.050 (0.486)	-0.248 (0.237)
CPI	0.439*** (0.123)	0.444*** (0.095)	0.448*** (0.093)	0.439*** (0.122)	0.420*** (0.061)
R square	0.20	0.28	0.20	-	-
Wald test (p-value)	-	-	0.000	0.000	0.000
F test (p-level)	0.000	0.000	-	-	-
Hansen test (p-level)	-	-	-	-	0.000
AR(1) test (p-level)	-	-	-	-	0.000
AR(2) test (p-level)	-	-	-	-	0.883

*, **, *** represent the significance level of 10%, 5% and 1%.

(Source: Analysis results from Stata)

The estimation results in the static tabular models Pooled OLS, REM, the handling of variable variance defects by the GLS method, and the GMM estimation method for the dynamic tabular model all agree to confirm the regression coefficient of the model. All variables of foreign ownership are negative and significant at the 5% level. The negative regression coefficient shows that there exists a negative relationship between the level of foreign ownership and liquidity risk at the surveyed commercial banks. This result means that the higher the foreign ownership ratio, the lower the bank's liquidity risk, when commercial banks with a large foreign ownership ratio will have the opportunity to access large capital sources and at the same time have access to the level of technology, experience in organization, administration, and management from foreign banks owning capital with domestic banks, thereby the role of foreign ownership in banks This project is highly appreciated, bringing many positive changes not only in improving financial resources but also in improving human resources, science and technology level, increasing competitiveness, risk management. in banks

to reduce liquidity risk. This experimental result is completely consistent with the theory and also coincides with previous experimental studies of Mohammad Atiqul Basher (2022), Nguyen Thi Thuy Linh (2019), Micco, Panizza, U. & Yanez (2007), Detragiache and Gupta (2004), Freixas and Holthausen (2005).

Besides, the research results also show that banks with a high return on equity will have low liquidity risk. Banks with high profitability will tend to limit overheating credit growth to reduce the risk of default for banks and increase investment in more liquid assets.

In addition, a bank with a high self-financing ratio indicates a high level of financial self-sufficiency, and an increased level of financial independence, and will have a strong financial source to ensure the following indicators. regulatory capital adequacy leads to reduced liquidity risk. Especially with the research sample at commercial banks in Vietnam, empirical evidence proves that the inflation rate represents an important macroeconomic factor that affects the liquidity risk of commercial banks. The results of this

experimental study also coincide with previous studies by Mohammad Atiquil Basher (2022). The results of this study show that governments need to operate monetary policy in the direction of stabilizing inflation to create a favorable macroeconomic environment for commercial banks' operations, including liquidity risk management.

Thus, from the research results obtained, the article has solved the research objectives set out. First, the degree of foreign ownership has a negative relationship with liquidity risk with a regression coefficient of -0.103 and a significance level of 5%. Second, return on equity has a negative relationship with liquidity risk with a regression coefficient of -0.108 and a significance level of 10%. Third, self-financing has a negative relationship with liquidity risk with a regression coefficient of -0.979 and a significance level of 1%. For the analysis of other macro factors affecting the liquidity risk of commercial banks, the research results only found empirical evidence of the positive impact of inflation on liquidity risk with the regression coefficient. is 0.448 and the significance level is 1%. Fourth, the size of the bank is inversely proportional to the liquidity risk, which means that the larger the bank's capital size, the lower the liquidity risk, this result is completely consistent with the theory. Fifth, credit risk has the same effect as liquidity risk, meaning that the higher the bank's credit risk, the higher the liquidity risk will be affected. In addition, other factors such as economic growth theoretically have an impact on the liquidity risk of commercial banks, but in this study, the author has not found empirical evidence of the impact of these factors on the liquidity risk of commercial banks.

6. RECOMMENDATIONS

From the research results and the reality of Vietnam's economy, the author believes that increasing the foreign ownership ratio at credit institutions in Vietnam is reasonable. However, the implementation of increasing

foreign ownership ratio should be advised by the State Bank to the Government on a cautious roadmap, specifically for each different group of credit institutions, that is, for weak banks. and banking groups operate normally and stably. For a group of weak banks that cannot afford to restructure as well as find strategic investors, instead of the current maximum rate of 30%, the foreign ownership ratio can be considered to raise the level of foreign ownership. maximum ceiling up to 100%. This is an opportunity for these banks to revive, avoid the risk of bankruptcy, increase the mobilization of resources in terms of capital, technology, and governance of foreign investors, comprehensively restructure, and at the same time encourage investors to foreign leaders participate in handling weak credit institutions. In addition, the management experience of foreign banks will greatly support these banks' growth and sustainable development in the context of increasing competitive pressure. Since then, it has had a positive impact on the financial market and the Vietnamese banking system.

Research results show that profitability or return on equity has a negative relationship with liquidity risk at commercial banks. High profits, leading to high profitability ratios, will facilitate banks to accumulate capital and improve financial capacity. However, for Vietnamese commercial banks today, profits are still mainly based on credit activities, accounting for 70-80% of revenue or more, even some banks account for a higher percentage, based on the difference in lending and deposit interest rates. Banks must consider the trade-off between liquidity risk and bank profitability, increasing the loan ratio, and keeping less liquid assets will increase profits, and vice versa, keeping more liquid assets will increase profits. will decrease. Therefore, when the difference between deposits and liquid assets is large, which means that banks use most of their short-term deposits for long-term lending purposes, the liquidity risk will increase. This implies that the bank

managers need to calculate and have specific strategies in each case and each different period to balance the profit target while still ensuring the liquidity risk at the bank.

The research results show the important role of equity, demonstrating the financial autonomy and internal strength to stabilize the liquidity of Vietnamese commercial banks. negative impact on liquidity risk. However, the ratio of equity to total assets of Vietnamese commercial banks is relatively low, in which the group of large-scale commercial banks has a lower self-financing coefficient than the group of large-scale banks. small. The results of this study imply that Vietnamese commercial banks need to increase their self-financing coefficient by increasing equity capital to ensure financial soundness and maintain liquidity stability the bank.

The model test results show that the inflation rate has a positive impact on liquidity risk. Thereby setting out the role of the Government and the State Bank in setting, cautiously, and consistently implementing policies, creating a trust for the public. The central bank must be a reliable management and supervision agency, especially through signals and messages about economic policies and solutions. Once the central bank proves its consistency in implementing the announced inflation-targeting policy, the market's confidence can be strengthened, and Vietnamese commercial banks will use asset resources effectively and safely. liquidity while ensuring profitability.

Declaration by Authors

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