CHAPTER 2
DEVELOPMENT OF FINANCE, ACCOUNTING AND AUDITING

FOREIGN OWNERSHIP AND BANK RISK-TAKING IN VIETNAM

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Abstract. *Foreign ownership of banks in Vietnam refers to the participation and ownership of banks by foreign entities in the country's financial sector. Over the years, Vietnam has gradually opened up its banking industry to foreign investors as part of its broader economic reforms and efforts to integrate with the global economy. Foreign ownership of banks in Vietnam was initially restricted, but the government has implemented various measures to encourage foreign investment in the sector. This balanced approach aims to harness the benefits of foreign ownership while safeguarding financial stability and the interests of the domestic economy. Therefore, it may make the banks more risky and perform the study on the relationship between foreign ownership and bank risk taking become more important. The objective of this study is to examine the influence of foreign ownership on the risks faced by commercial banks in Vietnam. By analyzing data collected from a survey conducted between 2010 and 2020, involving 28 commercial banks in Vietnam, the empirical findings demonstrate that foreign ownership in Vietnamese commercial banks is associated with a reduction in risks. Additionally, the research reveals that lower risks experienced by Vietnamese commercial banks in the past are correlated with lower risks in the present. These findings contribute to the ongoing discourse surrounding foreign ownership in Vietnamese commercial banks, emphasizing the need for policymakers to prioritize the effectiveness of joint-stock foreign ownership.*

Keywords: bank risk-taking, random effect, system GMM, foreign ownership

JEL Classification: G12, G18, G21

Formulas: 1; fig.: 0; tabl.: 4; bibl.: 45

Introduction. Foreign ownership of banks in Vietnam refers to the participation and ownership of banks by foreign entities in the country's financial sector. Over the years, Vietnam has gradually opened up its banking industry to foreign investors as part of its broader economic reforms and efforts to integrate with the global economy. Foreign ownership of banks in Vietnam was initially restricted, but the government has implemented various measures to encourage foreign investment in the sector. These measures include easing regulatory requirements, allowing higher ownership limits, and simplifying procedures for foreign banks to establish a presence in the country. In recent years, the Vietnamese government has continued to welcome foreign investment in the banking sector while maintaining prudential regulations and supervision. This balanced approach aims to harness the benefits of foreign

ownership while safeguarding financial stability and the interests of the domestic economy. Therefore, it may make the banks more risky and perform the study on the relationship between foreign ownership and bank risk taking become more important.

Previous research studies, including those conducted by Al-Tamimi and Al-Mazrooei (2007), Lee and Hsieh (2014); Nguyen (2021), Nguyen (2020), have established a connection between foreign ownership of banks and an increase in the level of risks. For instance, Nguyen (2022b) found through their empirical analysis that foreign-owned banks face higher operating risks compared to privately-owned banks. These risks are particularly influenced by electoral cycles and political considerations that prioritize the protection of the government. This protection stems from moral hazard, where the government's guarantees to foreign-owned banks weaken their ability to repay obligations. Abid et al. (2021) also support the notion of a lower ratio of foreign ownership in banks. Furthermore, research by Nguyen (2022c) demonstrates that credit risk is higher in foreign-owned banks compared to private banks. Similarly, AlAbbad et al. (2019) arrive at a conclusion consistent with Boubakri et al. (2020), highlighting that commercial banks controlled by the government are associated with elevated credit risk.

Conversely, several prior research studies, including those conducted by Cubillas and González (2014), Bruna et al. (2019), Bhuiyan et al. (2020), have provided empirical evidence indicating that bank foreign ownership is associated with a decrease in risks. Specifically, the empirical results suggest that default risk is lower for banks with foreign owners compared to privately-owned banks. This finding implies that banks with foreign ownership exhibit less sensitivity to macroeconomic shocks. Additionally, bank foreign ownership plays a crucial role in stabilizing credit during banking cycles and periods of financial instability. The research conducted by Younas et al. (2019) supports the notion that countries with strong government interventions in inefficient financial systems aim to protect foreign ownership in the banking sector.

In Vietnam, the government has been gradually divesting its capital from banks such as BIDV, Vietinbank, and Vietcombank. This research paper aims to investigate the impact of bank foreign ownership on bank risk in this context. The empirical findings indicate that bank foreign ownership is associated with a decrease in banks' risks. The study contributes to the ongoing academic discourse in the banking industry, providing empirical evidence from commercial banks in Vietnam, a developing country. These findings also have implications for policy-making decisions regarding the divestment of capital from foreign-owned banks.

The structure of the paper is as follows: The second section presents the theoretical and conceptual framework, followed by the methodology and data description in the third section. The fourth section presents the research results, followed by a consistency test in the fifth section. Finally, the paper concludes with key findings and implications.

Literature review. Bruna et al. (2019) conducted a study reviewing the impact of privatization on bank performance. They found that when the government relinquishes control and allows for the privatization of foreign-owned banks by

strategic investors, it leads to increased efficiency in banks. They also emphasized that banks' competition should not be restricted by government intervention. However, high government intervention, particularly with a significant proportion of foreign ownership, has been shown to decrease profits for foreign-owned banks (Dang et al., 2020; Dang & Nguyen, 2021b; Dang et al., 2022; Nguyen & Dang, 2020; Nguyen, 2022a). This situation hampers the financial development process, especially in developing countries (Nguyen, 2022a, 2022b). These findings align with the conclusions of Berger, Hasan, and Zhou (2009), who suggest that foreign-owned banks exhibit weaker efficiency. Additionally, Bhuiyan et al. (2020) propose the development of privately-owned banks in developed countries. Similarly, Liu and Sun (2021) argue that government protection creates higher risks for foreign bank owners.

Previous studies also argue that foreign ownership can have an impact on bank risk-taking due to several reasons.

First: diversification of risk: Foreign ownership often brings in additional capital, expertise, and resources that can enhance a bank's ability to diversify its risk. This can be achieved through international networks, access to global markets, and knowledge of diverse financial products. By spreading risk across different regions and industries, foreign-owned banks may reduce their exposure to specific risks, thus lowering overall bank risk (De Nicoló et al., 2006; Nguyen and Dang., 2023).

Second: improved corporate governance: Foreign-owned banks often adhere to higher corporate governance standards compared to local banks. They may implement robust risk management practices, internal control systems, and stricter regulatory compliance measures. This enhanced governance framework can help mitigate excessive risk-taking behaviors within the bank and foster a more prudent approach to managing risk.

Third, transfer of best practices: Foreign-owned banks often bring in best practices and risk management techniques from their home countries. They may have experience operating in different regulatory environments and face stricter regulations in their home countries. This knowledge transfer can lead to the adoption of better risk management strategies and a more risk-aware culture within the bank (Della Seta et al., 2020; Meles & Starita, 2013; Nguyen & Dang, 2022a).

Finally, market discipline and reputation: Foreign-owned banks are subject to scrutiny from both local and international stakeholders. They often have a reputation to uphold, and their actions are closely monitored by regulators, investors, and the public. This market discipline and the need to maintain a positive reputation can act as a deterrent against excessive risk-taking, as any significant risk failures could have severe consequences on their operations and market standing (Mateev et al., 2021; Yung & Chen, 2018).

Therefore, the H1 theory is posited, suggesting that bank foreign ownership increases banks' risks.

Aims. The objective of this study is to examine the influence of foreign ownership on the risks faced by commercial banks in Vietnam.

Methodology. Following Bertay et al. (2015), the research model is proposed as:

$LnZscorei,=\beta 0+\beta 1$ FOW$i,t+\Sigma\beta kXki,t-16k=2+\Sigma\gamma uMut-12u=1+\omega l$Year$+\varepsilon i,t$ (1)

which $LnZcorei,t=LnEAi,t+ROAi,t\delta ROAi,t$ *is the* ith*bank's risk at time* t*.*

The higher increase in $LnZscore$ leads to the more stability of the commercial bank, and the lower bank risk (Nguyen, 2022d; Nguyen & Dang, 2022b), is affected by the research variable:

- FOWi, is the foreign-owners' ratio of the commercial bank i at time t (Almustafa et al., 2023; Dang et al., 2022; Tran, 2019).

And a set of control variables Xk to test the consistency of commercial banks' performance includes:

- $LnZscorei,-1$ is the logarithm $Zscore$ of the bank i at time $t-1$, to consider the change in $Zscore$ overtime;

- $LnTAi,t-1$ is the logarithm of total assets of bank i at time $t-1$ (Dang & Nguyen, 2021a, 2022; Younas et al., 2019; Zardkoohi et al., 2018), to consider that commercial banks scale is used to make the control of the theory of economic scale and the problem is too large to collapse;

- $NPLi,t-1$ is the ratio of non-performing loans and total loans of the bank i at time $t-1$ (Zhang et al., 2021), to affect the credit risk of commercial banks positively on general bank risk;

- $ROEi,t-1$ is a return on equity of bank i at time $t-1$ (Tran, 2019), to point out the relationship between equity-profit and risk, so $ROEi,t-1$ is used as a variable explanation for the impact of equity-profit negatively on bank risk;

- $LQUi,t-1$ is the ratio of liquid assets and total assets of the bank i at time $t-1$ (Battaglia & Gallo, 2017), to find out the effect of bank liquidity negatively on bank risk;

And a set of macroeconomic variables Mu to test the environment of the economy in Vietnam to respond to commercial banks' performance includes inflation rate $INTt-1$, and economic growth $GDPGRt-1$ at time $t-1$ (Dang et al., 2020; Dang & Nguyen, 2021b; Ho et al., 2023).

To estimate this model, we applied OLS, random effect and GMM estimation method. Ordinary Least Squares (OLS) is a widely used estimation method in econometrics to estimate the relationship between dependent and independent variables. OLS assumes that the error term has constant variance, is uncorrelated with the independent variables, and follows a normal distribution. By minimizing the sum of squared residuals, OLS provides the best linear unbiased estimates of the regression coefficients. OLS is particularly useful when the data is balanced, and there are no concerns about endogeneity or unobserved heterogeneity. However, OLS may produce biased estimates if these assumptions are violated, such as when there is heteroscedasticity, serial correlation, or omitted variable bias. Random effects estimation, also known as the random effects model or the Mundlak model, is a method used in panel data analysis. It accounts for unobserved heterogeneity by assuming that individual-specific effects are uncorrelated with the independent variables. The random effects model estimates both the fixed effects (common

across all individuals) and the individual-specific random effects. This method allows for capturing time-invariant heterogeneity and addressing endogeneity concerns.

However, the random effects model assumes that the individual-specific effects are uncorrelated with the independent variables, which may be unrealistic in some cases. Additionally, the random effects estimator can be less efficient than other estimators, such as fixed effects or generalized method of moments (GMM), when the individual-specific effects are correlated with the independent variables. Generalized Method of Moments (GMM) is an estimation technique that is particularly useful in dealing with endogeneity and other violations of classical assumptions. GMM allows for weakly specified models and can handle various forms of heteroscedasticity, serial correlation, and measurement errors. GMM relies on moment conditions, which are based on the orthogonality between the error term and certain instruments. These instruments are chosen to ensure that the moment conditions are satisfied. GMM estimation provides consistent and asymptotically efficient estimates under mild assumptions. It is commonly used in dynamic panel data models, instrumental variable regressions, and other situations where traditional OLS or fixed effects estimators may not be appropriate due to endogeneity or omitted variable bias. However, GMM estimation can be computationally intensive and requires careful consideration of instrument validity and overidentification restrictions to obtain reliable results.

Research data description. The research data consists of imbalanced tabular information derived from financial reports and annual reports of 28 commercial Vietnamese banks spanning the period between 2010 and 2020. Table 1 contains the primary details and contents of this dataset.

Table 1. Statistics describing variables

Variables	Definition	Obs	Mean	Standard deviation	Min	Max
$LnZscore$	$\boldsymbol{L}nZscore = Ln(ROA+EA)\sigma ROA$	298	2.13921	0.92109	-0.98109	8.18219
$LnTA$	Logarithm of Total Assets	298	11.21881	1.19887	8.89118	11.08788
NPL	Ratio of Non-Performing Loans and Total Loans	298	0.02222	0.01888	0.000	0.11809
ROE	Return on Equity	298	0.09202	0.08129	-0.82002	0.12189
LQU	Ratio of Liquid Assets and Total Assets	298	0.20711	0.11229	0.00018	0.87981
INF	Inflation Rate	298	0.08211	0.09228	0.0092	0.2297
$GDPGR$	Economic Growth	298	0.09111	0.00920	0.08217	0.07129
FOW	Foreign-Owners' Proportion in commercial bank	298	0.12881	0.22929	0.000	0.48213

Source: the researcher's data analysis

The statistical description in Table 1 is shown that the mean of $LnZscore$ is 2.14 with the maximum 8.18 and the minimum -0.98, and the mean of FOW is 0.13 in the banking system with the maximum 0.48 foreign-owner and the minimum 0 of local owners.

The result of the correlation matrix is presented in Table 2, using a tool of Spearson correlation to test pair variables and the result is used to test "sign" expectation of research variables' betas analyzed in the proposed research model:

the pair variables of $LnZscore$ and lag of $LnZscore$ has the correlative coefficient 0.4334 at 0.01 significant meaning, but the pair variables of $LnZscore$ and FOW do not correlate at 0.1 significant meaning.

Results. This section presents the impact of foreign-ownership on bank risk. The hypothesis H1 test for the relationship of foreign-ownership and risk in equation 1 is shown in Table 2.

Table 2. Correlation Matrix

Variables	$LnZscore$	$LnZscort-1$	$LnTAt-1$	$NPLt-1$	$ROEt-1$	$LQUt-1$	GOB	$INFt-1$
$nZscoret-1$	0.4334***	1						
$LnTAt-1$	0.0423*	0.0283	1					
$NPLt-1$	-0.0834	-0.1322**	0.1727***	1				
$ROEt-1$	0.1021* *	0.0713	0.2337*	-0.0043	1			
$LQUt-1$	-0.0014	-0.0073	-0.2832**	-0.2022***	0.2001***	1		
FOW	0.0333	0.0432	0.3442***	-0.2022**	0.2104***	-0.1701***		
$INFt-1$	-0.1373***	-0.1122*	-0.2837***	-0.0322	0.0343	0.2447**	0.0173	1
$GDPGRt-1$	-0.1373**	0.2227***	0.1183*	-0.0331 **	0.0378	-0.0734	0.0237	-0.2482**

Note: *** significance level 1%, ** significance level 5%, * significance level 10%

Source: The researcher's data analysis

The p-value of Hansen J inspections all five columns is greater than 5%, concluding the right tool for variables. And the Arellano-Bond test results in a non-self-correlation of Tier 2 at a meaningful level of 5% but correlated with Tier 1 at a meaningful level of 1%. The FOW variable of five columns is all affected positive sign (+) at statistically significant meanings at 1% and 5%. The result of multiple regressions is suitable for sign expectation of pair research variables by correlation T-Test in Table 2. It is shown that the element of bank-foreign ownership FOW leads to a decrease in banks' risks, then the research hypothesis H1 is rejected for the element of bank-foreign ownership increasing in banks' risks. Therefore, this result is supported by previous researches of same point (Angkinand & Wihlborg, 2010; Boubakri et al., 2013; Fungáčová & Solanko, 2009), but there are still some previous researches of opposite point (Ahamed & Mallick, 2017; Beck et al., 2013; Detragiache & Gupta, 2006; Fu et al., 2014; Nier, 2005; Uhde & Heimeshoff, 2009). The main problem has arisen that Vietnam is a developing country, and the banking industry has been intervened strongly by the Government, so the role of bank-owned banks has been confirmed for controlling banks' risks.

Moreover, this paper is assumed to lag of banks' risk, but the coefficient result of $LnZscore$ lag from column (1) to (5) in Table 2 is also shown that the phenomenon of $LnZscore$ accumulation over time has decreased in banks' risks, suitable for the positive sign expectation of pair research variables at 0.01 significant meaning in Table 3.

The correlation between $LnZscore$ and $LnZscore$ lag is meaningful for decreasing in banks' risks.

The finding that foreign ownership reduces bank risk in Vietnam has significant implications for both banks and regulators. Here are three paragraphs highlighting these implications:

Table 3. Results regression of bank risk ($LnZscore$) by the gmm system

Variables	(1) $LnZscore$	(2) $LnZscore$	(2) $LnZscore$	(4) $LnZscore$	(5) $LnZscore$
$LnZscoret-1$	0.95827*** [0.10599]	0.70159*** [0.07929]	0.94791*** [0.10819]	0.57822*** [0.09911]	0.97242*** [0.10799]
$LnTAt-1$	-0.05577 [0.07072]		-0.07872 [0.07224]	-0.12225** [0.05772]	-0.02825 [0.07094]
$NPLt-1$	-1.22144 [2.12217]	-1.17249 [2.42591]		-1.08004 [1.82829]	0.09211 [2.19829]
$ROEt-1$	-1.58910 [1.21279]	-2.12992** [0.94978]	-1.27570 [1.19822]		-1.79192 [1.29051]
$LQUt-1$	0.99999 [0.49912]	0.52592 [0.45022]	0.29204 [0.45028]	0.79995 [0.52292]	
FOW	0.59574** [0.25282]	0.48212** [0.22120]	0.59579** [0.22419]	0.70127*** [0.25442]	0.48528** [0.22959]
Constant	1.90202** [0.85249]	1.29202*** [0.20721]	2.29979** [0.88071]	2.72509*** [0.84120]	0
Observations	298	298	298	298	298
AR1	-2.72 (0.000)	-2.98 (0.000)	-2.92 (0.000)	-2.57 (0.000)	-2.78 (0.000)
AR2	-1.80 (0.071)	-1.78 (0.075)	-1.54 (0.122)	-1.58 (0.095)	-1.80 (0.072)
Hansen J	7.22 (0.201)	7.95 (0.227)	9.7 (0.209)	9.58 (0.214)	9.98 (0.207)
Among the Pooled-OLS, FE, RE in regression of robust-variable test, the chosen estimation in columns (1), (2), (2), (4) and (5) are the suitable results in panel data. *** Is the level of significance 1%; ** Is the level of significance 5%; * Is the level of significance 10%.					

Source: Data analysis result of the research

- *Banks:* The results suggest that Vietnamese banks can benefit from increased foreign ownership as a means to reduce their overall risk exposure. Foreign-owned banks often bring in additional capital, expertise, and best practices in risk management. Domestic banks can leverage this opportunity by seeking partnerships or collaborations with foreign banks or attracting foreign investors. By doing so, they can enhance their risk management capabilities, diversify their portfolios, and improve overall financial stability. However, it is crucial for domestic banks to carefully assess potential partners and investors to ensure alignment in terms of long-term goals, values, and risk appetite.

- *Regulators:* The findings imply that regulators in Vietnam should encourage and facilitate foreign investment in the banking sector. This could be done by streamlining regulatory processes, reducing bureaucratic hurdles, and providing a transparent and predictable regulatory environment. Regulators should also focus on implementing strong corporate governance frameworks and risk management guidelines that align with international standards. Regular assessments and stress tests can help monitor and ensure the effectiveness of risk management practices in both domestic and foreign-owned banks. Additionally, regulators should continue to enhance cooperation and information sharing with foreign regulatory bodies to effectively oversee the activities of foreign-owned banks operating in Vietnam.

- *Policy Considerations:* The research findings call for policy considerations regarding foreign ownership restrictions in the banking sector. Policymakers should reassess any overly restrictive regulations that hinder foreign investment in

domestic banks. Relaxing these restrictions, while maintaining prudential measures, can encourage more foreign banks and investors to enter the market, leading to increased competition, knowledge transfer, and improved risk management practices. However, policymakers should strike a balance between promoting foreign ownership and safeguarding national interests, such as maintaining financial stability, preventing excessive concentration of power, and protecting the interests of domestic stakeholders.

In summary, the evidence that foreign ownership reduces bank risk in Vietnam suggests that both banks and regulators should embrace this opportunity. Banks can benefit from foreign investment to enhance their risk management capabilities, while regulators should create a conducive environment for foreign ownership and enforce robust governance standards. Policymakers should consider revisiting regulations to encourage foreign investment without compromising national interests. By leveraging the positive impact of foreign ownership on bank risk, Vietnam can strengthen its banking sector, improve financial stability, and support sustainable economic growth.

Discussion. To verify the stability, the estimation methods for table data such as Pool-OLS, FE, and RE are used. Check Hausman to select one of the three above methods. The results show that the regression coefficient of the FOW variable always carries a sign (+) and statistically significant at 1% and 5%. These methods strengthen the result that Foreign ownership helps commercial banks less risk.

Table 4. Regression results of bank risk (*LnZscore*) by Pooled-OLS and RE

Variables	(1) ***LnZscore***	(2) ***LnZscore***	(2) ***LnZscore***	(4) ***LnZscore***	(5) ***LnZscore***
$LnZscoret-1$	0.49108*** [0.05827]	0.47450*** [0.05727]	0.47128*** [0.05552]	0.45722*** [0.05724]	0.49599*** [0.05799]
$LnTAt-1$	-0.09999 [0.07949]		-0.09999 [0.07499]	-0.11144 [0.09817]	-0.09105 [0.07918]
$NPLt-1$	-1.97499 [2.94872]	-1.94598 [2.92922]		-2.01915 [2.94118]	-2.18107 [2.92749]
$ROEt-1$	-0.28929 [1.09587]	-1.04990 [0.91959]	-0.55505 [1.04199]		-0.40219 [1.09512]
$LQUt-1$	0.47749 [0.55252]	0.42215 [0.55221]	0.92502 [0.51599]	0.48118 [0.55242]	
FOW	0.58818** [0.22201]	0.28779** [0.19490]	0.57258** [0.22250]	0.90259*** [0.22898]	0.54571** [0.22792]
$LnZscoret-1$	-5.21582 [9.17992]	-0.20142 [8.21002]	-1.99890 [8.81188]	-9.22727 [8.80427]	-2.14778 [8.82414]
$LnTAt-1$	-22.00778 [50.49112]	-28.21498 [50.25279]	-22.9712 [47.979]	-22.2745 [50.29299]	-22.41879 [50.40791]
Constant	2.94994 [2.19212]	2.07999 [2.08428]	4.50259 [2.95789]	4.14545 [2.10952]	2.99489 [2.19129]
Observations	298	298	298	298	298
R^2	0.2299***	0.2228***	0.2299***	0.2299***	0.2249***
Chosen Estimation	Pool-OLS	Pool-OLS	RE	Pool-OLS	Pool-OLS

Among the Pooled-OLS, FE, RE in regression of robust-variable test, the chosen estimation in columns (1), (2), (2), (4) and (5) are the suitable results in panel data.

**** Is the level of significance 1%; ** Is the level of significance 5%; * Is the level of significance 10%.*

Source: Data analysis result of the research

Conclusions. Previous research on the relationship between foreign ownership and bank risks has yielded contradictory results. In parallel, the foreign investor has been increase its capital investment in Vietnamese commercial banks. This study aims to address the research gap by providing empirical evidence on the connection between foreign ownership and bank risk. The research focuses on 28 Vietnamese commercial banks over the period of 2010-2020. The findings suggest that an increase in foreign ownership contributes to a decrease in bank risk. This result underscores the significance of foreign ownership in reducing bank risk in Vietnamese commercial banks, while also providing policymakers with more consistent insights into bank efficiency within the context of foreign-owned banks.

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