

# OWNERSHIP COMPLEXITY AND LOAN QUALITY: EVIDENCE FOR LISTED COMMERCIAL BANKS IN VIETNAM

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**Abstract** - This paper examines the relationship among aspects of bank ownership complexity, including ownership dispersion and type, and the quality of bank loan portfolio. The data used for analysis is an unbalanced panel consisting of 13 listed commercial banks in Vietnam for the period of 2010 - 2019. The non-performing loan (NPL) ratio is used as an indicator of loan quality. The results showed that ownership dispersion, calculation based on the Herfindahl–Hirschman Index of large shareholding, improves the loan quality. Foreign ownership is also found to have positive impact on the loan quality. However, there is no relationship established between government ownership and loan quality.

**Key words** - Bank ownership complexity; loan quality; government ownership; foreign ownership; Vietnam

## 1. Introduction

The ownership structure of a commercial bank, especially a publicly listed one, could be very complex. For example, a part of the bank could be owned by the government, other chunks by several foreign investors, some other blocks by a number of large domestic investors, and the rest by thousands of small individuals or passive institutions. The extant literature has documented that the ownership structure of the bank significantly influences its risk taking. Specifically, different types of ownership (i.e. government, foreign, or private) are found to have distinct impacts on the level of bank risk taking due to the diversity in goals and governance capability of these types of shareholder [1, 2, 3]. For example, the government ownership could encourage the bank to take on more risk because of potential government subsidization [1]. The dispersion of ownership (i.e. whether there are multiple influential stockholders or there is just one controlling one) is also documented to affect bank corporate governance, thus having a significant impact on risk taking [4, 5, 6].

The results of these studies, however, have been mixed. For example, Shehzad et al. [5] finds that ownership dispersion is positively related to bank risk taking while Bian and Deng [4] find the opposite. Also, Lassoued et al. [1] and Dong et al. [2] document different impacts of foreign ownership on risk taking. Another issue is that prior studies often examine the ownership type and dispersion separately even though bank ownership complexity arises from both factors (i.e. the ownership structure becomes more complex when there are more types of investors and more dispersion among their ownership). As a result, more investigations on this topic are needed. This paper aims to bridge the gap in the literature by providing additional empirical evidence on the relationship between bank

ownership complexity (reflected through both ownership type and dispersion) and risk taking. This is an important relationship because if banks take risk excessively, the stability of the financial system will be threatened [6, 7]. This paper is also the first study on ownership complexity and loan quality in Vietnam.

The analysis in this paper focuses on credit risk taking, measured by loan quality. The quality of bank loans is an important issue. Commercial lending provides the main source of income for commercial banks and bad loans is a major risk facing the banking system. This fact is even more relevant in the context of Vietnam as the amount of problematic loans reported to have surged 45% in the first quarter of 2020 alone, which could negatively affect the rating outlook of the banking sector [8]. Therefore, the topic of this research is critical and our results could bear pertinent implications for improving the loan quality of banks in Vietnam.

## 2. Literature review and hypothesis development

### 2.1. Bank ownership dispersion and loan quality

The extant literature suggests two opposite effects that ownership dispersion may face towards the loan quality. The agency theory proposes that bank management have the tendency to take on more risk in order to increase potential returns, which their compensations and promotions are based on [5, 9]. Shareholders, on the contrary, should support prudent risk taking in order to protect their investments in the bank. Thus, if the control of the bank is concentrated in the hand of one dominant shareholder (i.e. minimal ownership dispersion), this shareholder has the power to monitor and take disciplinary actions against the bank management if he feels that they are taking risk excessively [9]. In this case, less dispersed ownership increases lending oversight and improves the quality of the bank's portfolio of loans [5, 10].

On the other hand, the controlling shareholder may have other interests outside of the bank, such as stakes in other companies or personal relationships with their managers [5]. In such cases, the controlling shareholder may divert resources from the bank to bankroll his other interests. The absence of other influential shareholders can make it easier to do so [6]. For example, the controlling shareholder may pressure management, without much objection from other minority shareholders, to approve otherwise unqualified loans to firms connected to him [5, 6]. This line of argument suggests that higher ownership dispersion can help provide a check-and-balance system

among shareholders, thereby improving lending practices and reducing bad loans.

It is also argued that the banking sector, due to its importance to the economy, is heavily regulated by the government. As a result, the risk taking practice of bank managers will be closely monitored and disciplined by banking regulators [5]. In this respect, the monitoring role of shareholders is overshadowed by that of the government. This could lead to an insignificant relationship between ownership dispersion and loan quality.

Previous empirical results on the relationship between ownership dispersion and loan quality have been inconclusive, supporting either a positive or negative relationship. Bian and Deng [4], Goucha et al. [11] show that a higher ownership dispersion is associated with a lower non-performing loan (NPL) ratio, a reverse indicator of loan quality. Bian and Deng [4] also provide evidence supporting the argument that banks with lower ownership dispersion tend to offer sizable loans to firms related to the controlling shareholders. These results support the check-and-balance effect of ownership dispersion. On the contrary, Shehzad et al. [5] document that a higher concentration of ownership reduces the NPL ratio. The authors suggest that more dispersion reduces the effectiveness of shareholders in monitoring lending practices. This evidence supports the positive role of the controlling shareholder. Based on these evidences, the following alternative hypotheses are proposed:

*H1a: Ownership dispersion improves loan quality.*

*H1b: Ownership dispersion deteriorates loan quality.*

## 2.2. Government ownership and loan quality

Most of the prior studies show that government ownership is associated with more credit risk taking. Iannotta et al. [3] find that large European banks with government ownership is associated with higher credit risk. Lassoued et al. [1] show that government ownership encourages banks to take on more credit risk. Dong et al. [2] document that government-owned banks in China have higher NPL ratios. Angkinand and Wihlborg [12] provide similar evidence for other emerging markets.

The literature suggests several reasons for the negative impact of the government as a shareholder on the bank's credit risk taking practice. First, the government is likely to protect government-owned banks from losses by providing financial subsidies or regulatory support [1, 13]. Thus, government-owned banks are induced to take on more risk since the cost will be bear by the government rather than by the bank shareholders [12]. Second, it is possible that managers of government - owned banks approve substandard loans in exchange for bribes [1]. Third, government-owned banks can be pressured by politicians to lend to high-risk projects that serve social or political purposes, or benefit the politician's own interests [2, 6]. In emerging markets, these effects could be more pronounced [2, 12]. Based on these arguments, the following hypothesis is formed:

*H2: Government ownership reduces loan quality.*

## 2.3. Foreign ownership and loan quality

The presence of foreign investors can improve the corporate governance of local banks. Specifically, foreign investors bring about better risk management practice, highly skilled banking professionals, and advanced information technologies [1, 14, 15]. As a result, foreign ownership can enhance the quality of loans. This argument is especially relevant to emerging countries where the local banking practice is under-developed.

On the other hand, foreign investors often face the "liabilities of foreignness" as they may have difficulty understanding and adopting to the local culture and practice [15, 16]. They also lack the local connection. As a result, foreign investors may not perform their monitoring role as effectively as local ones and they could impose credit policies that are unsuitable for the local market. This could negatively impact on loan quality.

In fact, previous empirical evidence on the effect of foreign ownership has on loan quality are mixed. Dong et al. [2], Angkinand and Wihlborg [12] find an insignificant relationship between foreign ownership and loan quality. On the other hand, Lassoued et al. [1], Haque [15], and Berger et al. [17] report that foreign ownership improves loan quality. These evidences lead to the following alternative hypotheses being proposed:

*H3a: Foreign ownership improves loan quality.*

*H3b: Foreign ownership reduces loan quality.*

## 3. Data and method

The panel regression model is as below:

$$\begin{aligned} NPL_{i,t} = & \beta_0 + \beta_1 Dispersion_{i,t} + \beta_2 GovOwn_{i,t} \\ & + \beta_3 ForOwn_{i,t} + \beta_4 Size_{i,t} + \beta_5 LDR_{i,t} \\ & + \beta_6 LoanGr_{i,t} + \beta_7 DepositGr_{i,t} \\ & + \beta_8 FemaleDir_{i,t} + \varepsilon_{i,t} \end{aligned}$$

Where,  $i$  denotes the bank and  $t$  the year. Following the literature, bank loan quality is reversely indicated by the NPL ratio ( $NPL$ ) [1, 2], calculated as the amount of non-performing loans divided by the amount of total outstanding loans. Bank ownership complexity is jointly indicated by ownership dispersion ( $Dispersion$ ), government ownership ( $GovOwn$ ) and foreign ownership ( $ForOwn$ ).  $Dispersion$  is calculated as one minus the Herfindahl–Hirschman Index of large shareholding. This is a popular measure of complexity [4]. Specifically:

$$Dispersion = 1 - \frac{(\sum_{j=1..n} share_j^2)}{(\sum_{j=1..n} share_j)^2}$$

Where,  $n$  is the number of influential shareholders whose ownership ( $share$ , calculated in percentage) exceeds 5% the bank's total outstanding shares. Related shareholders, i.e. family members or related institutional investors, are combined into one shareholder representing one group of interest. The value of  $Dispersion$  is 1 if there is no influential shareholder (i.e. the bank ownership is complex, being dispersed among numerous small shareholders), is 0 if there is only one controlling shareholder, and is between 0 and 1 when there are more than one large shareholder.

*GovOwn* is a dummy variable that takes the value of 1 if the government owns an influential share of the bank and 0 otherwise. *ForOwn* is a dummy variable that takes the value of 1 if there is an influential foreign shareholder and 0 otherwise.

The control variables include the size of the bank (*Size*), calculated as the natural logarithm of total asset (in billion VND), the loan-to-deposit ratio (*LDR*), the loan growth rate (*LoanGr*), and deposit growth rate (*DepositGr*). I also control for the number of female directors (*FemaleDir*) as a proxy of bank governance, since Dong et al. [2] show that female directors on the board reduce bank risk taking. Year fixed effects are included to account for time-variant factors. Bank fixed effects are not included. The reason is that the bank ownership complexity indicators do not vary much over time. As a result, adding bank fixed effects can lead to imprecise estimates [18].

To empirically test the model, I collect data for all 13 listed commercial banks in Vietnam for the period of 2010-2019. Listed banks are chosen for this analysis since they have more available, and also more reliable data than unlisted ones because of the reporting requirements by the exchanges (most of the banks in the sample are audited by Big4 audit firms). Furthermore, the ownership of unlisted banks is normally concentrated in the hand of the government or a private family. Financial data is collected from FiiPro, a large financial data provider in Vietnam. The detailed ownership structure is extracted from Reuter Refinitiv, an international research data provider, and is cross checked with the banks' financial statements. The final unbalanced panel data consists of 93 bank-year observations. Table 1 presents the descriptive statistics of the data. There are some sizable loan/deposit growth rates (around 100%) due to the mergers of banks (for example, in 2012 SHB Bank merged with Habubank, thus the 93.4% loan growth and 95.9% deposit growth rates). This does not present a problem to my analysis because the results remain qualitatively similar when I exclude *LoanGr* and *DepositGr* from the control variables.

**Table 1.** Data description

Variable	N	Mean	Std. Dev.	Min	Max
<i>NPL</i>	93	0.020	0.014	0.003	0.088
<i>Dispersion</i>	93	0.326	0.310	0	1
<i>GovOwn</i>	93	0.387	0.490	0	1
<i>ForOwn</i>	93	0.430	0.498	0	1
<i>Size</i>	93	12.429	0.957	9.904	14.214
<i>LDR</i>	93	0.884	0.160	0.594	1.380
<i>LoanGr</i>	93	0.197	0.156	-0.027	0.934
<i>DepositGr</i>	93	0.192	0.209	-0.327	1.199
<i>FemaleDir</i>	93	1.763	1.228	0	5

Table 2 shows the pairwise correlation matrix of the variables. No correlation between any two variables is higher than 0.8, alleviating the concern about multicollinearity. The VIF result (untabulated) further confirms this.

**Table 2.** Correlation matrix

	<i>NPL</i>	<i>Dispersion</i>	<i>GovOwn</i>	<i>ForOwn</i>	<i>Size</i>	<i>LDR</i>	<i>LoanGr</i>	<i>DepositGr</i>	<i>FemaleDir</i>
<i>NPL</i>	1								
<i>Dispersion</i>	-0.375**	1							
<i>GovOwn</i>	-0.382**	0.147	1						
<i>ForOwn</i>	-0.391**	0.428**	0.112	1					
<i>Size</i>	-0.308**	0.078	0.610**	0.319**	1				
<i>LDR</i>	0.101	-0.125	0.046	0.145	0.443**	1			
<i>LoanGr</i>	0.192	-0.091	0.074	-0.229*	0.069	-0.169	1		
<i>DepositGr</i>	0.176	-0.119	-0.014	-0.118	-0.124	-0.319**	0.670**	1	
<i>FemaleDir</i>	-0.281**	-0.03	0.443**	-0.027	0.214*	-0.089	-0.046	0.015	1

\*, \*\*, \*\*\*:  $p < 5\%$ ,  $1\%$

#### 4. Results and discussion

Table 3 presents the regression results. Column 1 to 3 show the results without controls and column 4 illustrates the result for the full model. I discuss the full model result in column 2. The coefficient for *Dispersion* is -0.010 and is statistically significant at the 5% level. This indicates that higher ownership dispersion is associated with better loan quality (lower *NPL*). Thus, hypothesis H1a is confirmed. This result supports Bian and Deng's [4] notion that in emerging countries where shareholder protection is weak, the controlling shareholders may tunnel resources away from minority shareholders. This is often disguised in the form of low quality loans to related firms. To demonstrate the economic significance, one standard deviation increase in *Dispersion* (0.326, see Table 1) will lead to a decrease of 0.3% ( $0.326 \times 0.010$ ) in *NPL*, a 15% reduction from the average *NPL* of 2% (see Table 1).

**Table 3.** Regression results

	Dep. Var. = $NPL_t$			
	(1)	(2)	(3)	(4)
$Dispersion_t$	-0.024** (-4.02)			-0.010* (-2.26)
$GovOwn_t$		-0.014** (-4.74)		-0.006 (-1.15)
$ForOwn_t$			-0.015** (-4.64)	-0.009* (-2.57)
$Size_t$				-0.003 (-1.06)
$LDR_t$				0.041* (2.01)
$LoanGr_t$				0.020 (1.11)
$DepositGr_t$				0.014 (1.30)
$FemaleDir_t$				-0.003* (-2.59)
Fixed effects	Year	Year	Year	Year
N	93	93	93	93
R <sup>2</sup>	23.42%	23.03%	24.84%	53.71%

\*, \*\*:  $p < 5\%$ ,  $1\%$ .  $t$ -stat in parentheses.

The coefficient for  $GovOwn$  is negative and statistically significant in column 2 but is insignificant in the full model. This suggests that, in general, banks with government ownership have better loan quality, but the effect is more likely come from other factors such as the loan-to-deposit ratio or ownership dispersion, not government ownership itself. Thus, hypothesis H2 is rejected. A possible explanation is that, in the case of Vietnam, there are several forces that may positively influence the relationship between government ownership and loan quality. These forces could counter the potential negative impacts of government ownership identified in previous research, leading to an insignificant effect. First, compared to private owned banks, government-owned banks have the privileges of lending to bigger firms and government subsidized firms. Those firms normally have better risk profiles. Second, the State Bank of Vietnam monitors the NPL ratio of government-owned banks very closely due to their importance to the stability of the banking system and the economy as a whole. This discourages government-owned banks from taking excessive credit risk. Third, even if the NPL ratio of a government-owned bank is in fact high, the government may pressure the bank to report a lower figure. This is to avoid the public fear of a credit problem in the banking system while the government works behind the scene to solve the problem.

The coefficient for  $ForOwn$  is negative (-0.009) and statistically significant at the 5% level in the full model. This suggests that loan quality increases in the presence of foreign shareholders. Therefore, H3a is supported. This result is consistent with those reported by Lassoued et al. [1] and Berger et al. [17]. It implies that foreign investors play a positive role in improving the risk taking practice of banks in Vietnam. To show the economic significance,

foreign ownership lowers  $NPL$  by 0.9%, a 45% reduction from the average  $NPL$ .

Regarding the results for the control variables,  $LDR$  is positively related to  $NPL$ , indicating that banks with higher loan-to-deposit ration generally have lower loan quality. This is understandable as those banks seem to be willing to take more risk to expand their loan portfolios.  $FemaleDir$  is negatively related to  $NPL$ . This is consistent with the previous result by Dong et al. [2] showing that female directors improve risk taking.

A robustness test is conducted to further confirm the main result. To account for the potential issue of endogeneity (i.e.,  $NPL$  ratio can also simultaneously lead to changes in the ownership structure and other characteristics of the bank), I use the one-year lagged independent variables instead of the contemporaneous ones in the regression. Table 4 shows that the result remains robust. The coefficients for the lagged  $Dispersion$  and  $ForOwn$  are negative (-0.011 and -0.010 respectively) and are significant at the 5% and 1% level, respectively.

**Table 4.** Robustness test

	Dep. Var. = $NPL_t$			
	(1)	(2)	(3)	(4)
$Dispersion_{t-1}$	-0.019** (-3.30)			-0.011* (-2.21)
$GovOwn_{t-1}$		-0.012** (-3.91)		-0.002 (-0.39)
$ForOwn_{t-1}$			-0.014** (-4.50)	-0.010** (-2.79)
$Size_{t-1}$				-0.004 (-1.36)
$LDR_{t-1}$				0.036 (1.86)
$LoanGr_{t-1}$				0.019 (1.15)
$DepositGr_{t-1}$				0.002 (0.15)
$FemaleDir_{t-1}$				-0.005** (-3.77)
Fixed effects	Year	Year	Year	Year
N	91	91	91	91
R <sup>2</sup>	17.51%	19.54%	23.27%	54.18%

\*, \*\*:  $p < 5\%$ ,  $1\%$ .  $t$ -stat in parentheses.

## 5. Conclusion

This paper examines the relationship between bank loan quality and the aspects of bank ownership complexity, namely ownership dispersion and ownership type. The results for 13 listed commercial banks in Vietnam for the period of 2010-2019 demonstrate that ownership dispersion improves loan quality. Foreign ownership is associated with better loan quality while no relationship is found between government ownership and loan quality.

The results of this paper present several important implications for shareholders and policy makers. First, banks with concentrated ownership should be monitored closely for the potential of excessive risk taking.

Furthermore, bank shareholders should advocate for more diversified ownership in order to prevent the few powerful controlling shareholders from engaging in expropriation, possibly in the form of bad loans. The government should also exercise stricter regulation to inhibit these activities.

Second, my analysis indicates that, on average, foreign ownership reduces the percentage of bad loans by as much as 45%. Thus, more foreign investments in local Vietnamese banks should be facilitated to enhance the risk taking practice, particularly of credit risk. Despite the fact that the Vietnam government has become more and more open to foreign investors, foreign ownership in the banking sector remains limited by the law. Specifically, for commercial banks in Vietnam, a particular foreign investor cannot own more than 20% and total foreign ownership is capped at 30%. This limit should be adjusted upward in the future to allow for more foreign ownership.

This study, nevertheless, has a number of limitations. First, the sample size is not very large due to the lack of data available (some of the banks have been listed on the exchange only recently), albeit 93 observations are enough to ensure that the results are statistically meaningful. Second, while the robustness test partly addresses the issue of endogeneity, more tests, such as using instrumental variables or GMM, are needed to fully alleviate the concern. However, due to the limit of data size, those tests are not feasible. Finally, this paper focuses only on bank credit risk taking. Future studies could examine the impact of ownership complexity on other important aspects of bank operation, such as liquidity risk taking or operation efficiency.

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