The Role of Management Ownership in Bank Governance:

Evidence from Taiwan

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Abstract

The purpose of this paper is to investigate the relationships that banks' managerial ownership has with financial performance and firm value. We use a sample of 35 Taiwan domestic banks for the period 2005-2014. In the pooled OLS regression analysis, we find that the banks' performance and market value fall as the level of management ownership rises, supporting the managerial entrenchment hypothesis. Moreover, the results show that when the ratio of managerial ownership pledge increases, then financial performance decreases while firm value increases. We conjecture that the positive effect of managerial ownership pledge on market value may be caused by the price maintenance effect of stock pledges. In addition, the evidence shows that there is a higher nonperforming loan ratio in family-dominated banks, and this hints that their loan decisions may have more severe agency problems relative to non-family ones.

Keywords: Bank, Management ownership, Stock pledge, Agency problem, Entrenchment hypothesis

1. Introduction

The separation of ownership and control is a norm of modern enterprises around the world. Agency theory indicates that managers may fail to act in ways that maximize shareholder wealth. However, given the fact that most managers are often also shareholders of the companies they run, ownership and control are not as separate as is often supposed, and the agency problem has now become a conflict between management shareholders (or controlling shareholders) and non-management shareholders (Shleifer and Vishny 1997; Claessens et al. 2000; Demsetz 1983).

In general, it is widely accepted that if management shareholders hold relatively less ownership, the possibility of agency problems will be greater. As such, the convergence-of-interests hypothesis proposes that increasing the level of managerial ownership can mitigate this potential agency problem (Jensen and Meckling 1976). In contrast, the entrenchment hypothesis suggests that greater managerial ownership may decrease firm performance when the manager has sufficient voting power to more fully control the company (Demsetz 1983; Fama and Jensen 1983). Overall, the relationship between management ownership and firm performance is thus mixed in the existing literature.

The 2008 financial crisis caused that considerable loss around the world. A vast body of literature shows that crisis periods affect the behavior of shareholders, and can lead to agency problems, especially in financial firms (see for example Johnson et al. 2000; Friedman et al. 2003; Saghi-Zedek and Tarazi 2015). Moreover, we find that Taiwanese banks have quite high financial leverage, with Table 1 showing that the average equity multiplier for the banking sector is 6.74 to 8.30 times greater than that seen for non-financial companies over the observed years. Similarly, we can also see high equity multipliers in the banking sectors of other countries, with able 2 presenting data covering 17 OECD countries, with an average equity multiplier of 11.70 in 2016. Additionally, it is clear that bank's businesses are highly correlated with their cash holdings. A high degree of leverage means that the bank's shareholders and depositors must endure greater risk, while bank products that are highly correlated with cash may be more likely to create more agency problems.

Table 1. The average equity multiplier seen in the banking and non-financial sectors

	The banking industry		Non-financial industries		AEM_B/AEM_N
	AEM_B	observations	AEM_N	observations	
2005	16.15	31	1.98	755	8.15
2006	16.06	32	1.94	771	8.30
2007	15.34	33	1.92	793	8.00
2008	16.65	33	2.02	818	8.24
2009	16.29	33	1.97	827	8.27
2010	16.05	34	2.06	843	7.79
2011	16.09	34	2.18	850	7.40
2012	15.12	35	2.22	852	6.80
2013	15.05	35	2.20	854	6.85
2014	14.60	35	2.15	854	6.74

Note: The AEM represents the average equity multiplier of the industry, and the equity multiplier is calculated by dividing total assets by the total equity.

Table 2. The average equity multiplier of banking for 17 OECD countries in 2016

Countries	Equity multiplier
Canada	4.83
Australia	5.29
United States	6.30
Sweden	7.54
Slovenia	8.64
Hungary	8.71
Poland	9.71
Norway	10.11
Spain	10.89
Chile	11.08
Belgium	12.23
Denmark	12.51
Portugal	13.63
Finland	14.90
Korea	17.97
Netherlands	19.64
Greece	24.92
Average	11.70

Source: The Organization for Economic Co-operation and Development

On the other hand, sometimes management shareholders may pledge their ownership to fill private funding gaps. If so, this indicates that they may face greater financial risk. In particular, when such funds are used to carry out a pyramid or cross-shareholding strategy, then this will make management shareholders' real equity ownership much lower than their level of control would suggest, and this may cause more agency problems (Chen et al. 2007; Chan et al. 2013). In this paper, we will examine the impact of managerial ownership pledges on bank performance and market value. To the best of our knowledge, previous studies have rarely focused on this issue, especially in the banking sector, and thus our work can contribute to the literature and address the current gaps with regard to this

topic.

Most prior studies use ROA or Tobin's Q to measure corporate performance or value (e.g., Morck et al. 1988; Agrawal and Knoeber 1996; McConnell and Servaes 1990). However, we know that banks rely on borrowers to regularly repay their loans as a main source of revenue. It is thus clear that a higher nonperforming loan ratio (NPLR) shows a bank has worse performance, even if it has the same ROA as other banks. Simultaneously, a higher NPLR also implies that the management has a greater possibility of agency problems. For example, a bank manager may enhance their private interest (in terms of a career move or in the form of kickbacks) by making a loan commitment to a specific individual or company, even if this loan has a high default risk. Therefore, in addition to ROA, this paper also uses NPLR as a proxy to measure the agency problem of banks.

This work mainly investigates three issues: (1) Does management ownership affect a bank's financial performance, nonperforming loan ratio, and market value? (2) Does the ratio of management ownership pledge affect a bank's financial performance, nonperforming loan ratio, and market value? (3) Does being a family-dominated affect a bank's financial performance, nonperforming loan ratio, and market value?

The rest of the article is organized as follows. Section 2 reviews the related literature and proposes research hypotheses. The sample and estimation methods are presented in section 3. Section 4 analyses the empirical results, and Section 5 then concludes this work.

2. Literature Review

2.1 Management Ownership and Firm Performance

The separation of ownership and control and asymmetric information causes agency conflicts between managers and owners, especially as management shareholders have less equity ownership. Jensen and Meckling (1976) propose the convergence-of-interests hypothesis and argue that increasing the level of managerial ownership can mitigate potential agency problems. In the banking sector, for example, Westman (2011) examines a sample of listed and unlisted banks from 37 different European countries, and also finds that management and board ownership have positive impacts on profitability.

In contrast, the entrenchment hypothesis suggests that management ownership has have a negative impact on firm value when the managerial equity reaches a substantial proportion, with enough voting power to ensure that the manager's private position inside the firm is secure (Demsetz 1983; Fama and Jensen 1983; Weisbach 1988). Farinha (2003) uses a large sample of UK companies and two distinct periods to analyze the entrenchment hypothesis. The results strongly suggest the possibility of managerial entrenchment when insider ownership reaches a threshold of around 30%. In addition, Griffith et al. (2002) employ a sample of the 100 largest U.S. bank holding companies from 1995 to 1999 to investigate the relation between managerial ownership and financial performance, as measured by market-value-added (MVA) and Tobin's Q. Their results show that there is a significant and negative relation between managerial ownership and performance in commercial banks. They further suggest that managerial entrenchment may offset the positive effects of the convergence-of-interest hypothesis.

Furthermore, Morck et al. (1988) find that there is a nonlinear relationship between management ownership and firm value (as measured by Tobin's Q) in a cross-section sample of 371 Fortune 500 firms with data for 1980. The evidence shows that firm value first increases as board ownership rises to 5%, then declines as board ownership increases from 5% to 25%, and finally rises slightly as it goes beyond 25%.

Based on a review of literature, in order to examine the role of management ownership in Taiwan's banking sector, we formulated the following null hypotheses (H0):

Hypothesis 1a: A bank's management ownership does not influence its financial performance.

Hypothesis 1b: A bank's management ownership does not influence on the quality of its loan decisions.

Hypothesis 1c: A bank's management ownership does not influence its market value.

2.2 Management Ownership Pledge

Chen and Hu (2001) indicate that the share pledged loans of management shareholders have a negative impact on firm performance, because these may provide an incentive for managerial shareholders to invest in riskier projects. Chen et al. (2007) further indicate that if a share pledged loan is for management shareholder's personal use, it may bring cause agency problems, such as earnings management and stock manipulation. In addition, Chan et al. (2013) indicate that when the market value of the pledged stocks falls below the maintenance requirement, margin call pressure often leads management shareholders to implement a repurchase policy to protect their control rights. We

consider that management shareholders' private leverage may influence bank's performance and market value, as stated in the following null hypotheses (H0):

Hypothesis 2a: Increasing management ownership pledge does not influence bank's financial performance.

Hypothesis 2b: Increasing management ownership pledge does not influence the quality of the bank's loan decisions.

Hypothesis 2c: Increasing management ownership pledge does not influence the bank's market value.

2.3 Board Size

A larger board size generally brings more human capital (e.g. knowledge and experience) and contributes to better management, monitoring, and performance. However, too many board members may also cause inefficiency in decision-making, and thus have an adverse impact on performance and market value. For example, Yermack (1996) investigates the relationship between board size and firm value in a sample of 452 large U.S. industrial companies between 1984 and 1991. The results show that board size has a negative impact on firm value, and so indicate that small boards of directors are more effective. Likewise, Guest (2009) uses a large sample of 2,746 UK listed firms over period 1981-2002 to examine the relation between board size and firm performance. The results show that board size has a significantly negative impact on profitability, Tobin's Q and share returns. In addition, Ahmad, Guohui, Hassan, Naseem, and ur Rehman (2016) find that board size has positive effects on a bank's non-performing loans. Moreover, Andres (2008) uses a sample of large international commercial banks from six OECD countries (Canada, France, the UK, Italy, Spain, and the US) to investigate the role of boards of directors, and finds an inverted U-shaped relationship between board size and bank performance. The study concludes by suggesting that the optimal member of directors is around 19.

2.4 Large Shareholders' Ownership

According to the efficient monitoring hypothesis, larger shareholders have a greater incentive and cost advantage with regard to supervising managers relative to minority shareholders, and thus can better mitigate owner-manager agency conflicts (Pound 1988). Numerous studies also indicate that multiple large shareholders are an effective corporate governance mechanism, and hence have a positive effect on firm performance (e.g., Maury and Pajuste 2005; Attig et al. 2009; Attig et al. 2013; Boubaker et al. 2016; Zeckhauser and Pound 1990). However, Andres (2008) uses panel data on 275 German exchange-listed companies to investigate the relationship between large shareholders and firm performance. The results show that large ownership has a negative or unmeasurable influence on firm performance. Thomsen et al. (2006) also find that blockholder equity ownership has a negative impact on firm value and accounting profits in continental Europe.

2.5 Family-dominated

Several studies suggest that family firms tend to have better firm performance than nonfamily ones (Amit and Villalonga 2014; Anderson and Reeb 2003; Andres 2008; Faccio and Lang 2002; Villalonga and Amit 2006; Maury 2006; Barontini and Caprio 2006). The main argument is that family-dominated firms can reduce the conflict of interest between the owners and managers. However, Adiguzel (2013) finds that family ownership reduces the monitoring effectiveness of independent boards. Moreover, Feldman et al. (2016) indicate that because family firms may pursue multiple objectives in addition to, or other than, the maximization of shareholder value, they may fail to exploit all the available favorable opportunities, and so do not outperform nonfamily firms (e.g., Miller et al. 2007; Filatotchev et al. 2005; Holderness and Sheehan 1988; Zhou 2012).

We argue that family control of a bank may impact its financial performance, loan-decision quality and market value, as stated in the following null hypotheses (H0):

Hypothesis 3a: Family control of a bank does not influence its financial performance.

Hypothesis 3b: Family control of a bank does not influence its loan decisions quality.

Hypothesis 3c: Family control of a bank does not influence its market value.

2.6 Government-dominated

It is generally believed that state-owned enterprises (SOEs) are more inefficient because they have less incentive to control costs, and hence have higher average costs of production than necessary. In the banking sector, for example, several studies report that state-owned banks underperform private ones, especially in developing countries (see Berger et al. 2005; Boubakri et al. 2005; Lin and Zhang 2009; Micco et al. 2007). However, Stiglitz (1993) argues that SOEs are needed to assist in achieving certain government policies (e.g. promoting economic development and

improving social welfare), which are usually unrelated to firm performance. Shen et al. (2014) indicate that the underperformance of government banks is thus due to political factors. If we remove the role of the government, however, the evidence shows that there is no difference in performance between government and private banks.

3. Empirical Method

3.1 Data Description

In 2002 and 2004, the Taiwanese government implemented two rounds of financial reform. The main aim of these reforms was to improve domestic banks' capital structures and international competitiveness. Figure 1 presents the trend of return on assets (ROA) and nonperforming loan ratio (NPLR) for Taiwanese domestic banks that underwent the two rounds of financial reform. Accordingly, we use the unbalanced panel data of 35 Taiwan domestic banks from 2005 to 2014 to investigate the role of management ownership in the banking sector (Note 1). Our empirical data is provided by the Taiwan Economic Journal Database (TEJ) and Banking Bureau of Financial Supervisory Commission, R.O.C., which also covers 16 banks that in terms of the tier one capital are ranked within the top 500 in the world(Note 2).
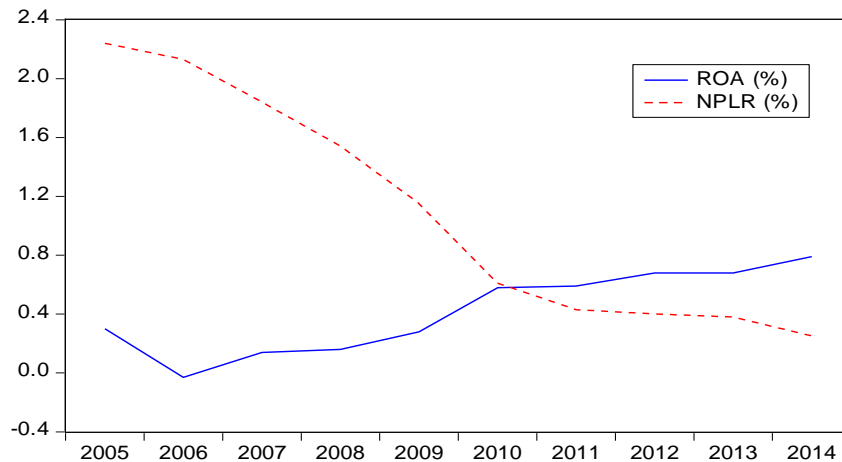

Figure 1. The average ROA and NPLR of Taiwan banking industry

3.2 Regression Model

This study aims to investigate the relationships that a bank's management ownership and management ownership pledge loans have with its performance, nonperforming loans, and market value. We use a pooled OLS regression model and develop three dependent variables, ROA, NPLR, and MV, to implement each regression analysis. Our baseline regression model is constructed as follows.

$$ROA_{i,t} = \alpha_0 + \alpha_1 SIZE_{i,t} + \alpha_2 EQUITY_{i,t} + \alpha_3 GDP_{i,t} + \alpha_4 MO_{i,t} + \alpha_5 MOS_{i,t} + \alpha_6 LSO_{i,t} + \alpha_7 BSIZE_{i,t}$$
$$+ \alpha_8 FAMILY_{i,t} + \alpha_9 GOVERN_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$NPLR_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 EQUITY_{i,t} + \beta_3 GDP_{i,t} + \beta_4 MO_{i,t} + \beta_5 MOS_{i,t} + \beta_6 LSO_{i,t} + \beta_7 BSIZE_{i,t}$$
$$+ \beta_8 FAMILY_{i,t} + \beta_9 GOVERN_{i,t} + u_{i,t} \quad (2)$$

$$MV_{i,t} = \gamma_0 + \gamma_1 SIZE_{i,t} + \gamma_2 EQUITY_{i,t} + \gamma_3 GDP_{i,t} + \gamma_4 MO_{i,t} + \gamma_5 MOS_{i,t} + \gamma_6 LSO_{i,t} + \gamma_7 BSIZE_{i,t}$$
$$+ \gamma_8 FAMILY_{i,t} + \gamma_9 GOVERN_{i,t} + v_{i,t} \quad (3)$$

where i is the index of the bank, t is the index of the time period, $\varepsilon_{i,t}$ is the error term, and all the variables are defined and presented in Table 3.

Table 3. Variable definitions

Variable	Definition
Dependent variables	
$ROA_{i,t}$	= The return on assets ratio, which is calculated by dividing net income by average total assets.
$NPLR_{i,t}$	= The bank's nonperforming loans to total gross loans.
$MV_{i,t}$	= The natural logarithm of the bank's market value, which is obtained by multiplying the number of its outstanding shares by the year-end share price.
Independent variables	
$SIZE_{i,t}$	= The natural logarithm of total assets.
$EQUITY_{i,t}$	= The equity ratio is calculated by dividing total equity by total assets.
$GDP_{i,t}$	= The growth rate of gross domestic product.
$MO_{i,t}$	= The shareholding ratio of directors and supervisors.
$MOS_{i,t}$	= The share pledge ratio of directors and supervisors
$LSO_{i,t}$	= A shareholder who's direct and indirect voting rights sum to 10% or more of the total.
$BSIZE_{i,t}$	= The number of directors and supervisors.
$FAMILY_{i,t}$	= 1, if a bank is dominated by a family, and zero otherwise.
$GOVERN_{i,t}$	= 1, if a bank is dominated by the government, and zero otherwise.

3.3 Descriptive Statistics

Table 4 provides descriptive statistics for the variables in our sample. The data set comprises 315 firm-year observations from 35 banks covering the period from 2005 to 2014, and all the variables are defined as in Table 3.

Table 4. Descriptive statistics

	Mean	Median	Maximum	Minimum	SD	Observations
ROA	0.323	0.440	5.410	-7.880	1.298	315
MV	11.046	11.285	13.432	8.380	250.063	315
NPLR	1.161	0.790	7.640	0.000	1.096	315
SIZE	13.238	13.110	15.298	10.615	1.087	315
EQUITY	7.965	6.090	64.710	2.820	7.653	315
GDP	3.353	3.700	8.930	-1.910	3.177	315
MO	26.453	14.320	100.000	0.000	29.952	315
MOP	19.622	0.100	100.000	0.000	29.572	315
LSO	19.170	16.990	86.340	0.000	13.982	315
BSIZE	15.254	15.000	26.000	6.000	4.505	315
FAMILY	0.610	1.000	1.000	0.000	0.489	315
GOVERN	0.159	0.000	1.000	0.000	0.366	315

The correlation coefficient measures the strength and direction of a linear relationship between two variables. Table 5 presents the correlation analysis results, which can be used to better understand the relations among the independent variables. We find that the correlation coefficients between all independent variables are less than 0.591.

Table 5. The correlations among the independent variables

Correlation (t-Statistic)	SIZE	EQUITY	GDP	MO	MOP	LSO	BSIZE	FAMILY	GOVERN
SIZE	1.000 (---)								
EQUITY	-0.222*** (-4.027)	1.000 (---)							
GDP	0.029 (0.517)	0.004 (0.079)	1.000 (---)						
MO	0.339*** (6.384)	-0.113** (-2.021)	0.017 (0.293)	1.000 (---)					
MOP	-0.138** (-2.473)	0.174*** (3.120)	-0.033 (-0.593)	-0.239*** (-4.364)	1.000 (---)				
LSO	-0.327*** (-6.131)	0.092 (1.627)	-0.030 (-0.535)	-0.546*** (-11.540)	0.125** (2.233)	1.000 (---)			
BSIZE	0.032 (0.559)	0.029 (0.522)	-0.018 (-0.312)	0.011 (0.186)	-0.162*** (-2.909)	-0.224*** (-4.063)	1.000 (---)		
FAMILY	-0.331*** (-6.206)	0.157*** (2.815)	0.007 (0.127)	-0.591*** (-12.959)	0.106* (1.886)	0.251*** (4.597)	-0.159*** (-2.845)	1.000 (---)	
GOVERN	0.584*** (12.714)	-0.128** (-2.286)	-0.002 (-1.142)	0.497*** (10.139)	-0.288*** (-5.330)	-0.394*** (-7.575)	0.346*** (6.530)	-0.543*** (-11.431)	1.000 (---)

This table presents the relations among the independent variables, with the t-statistics in parentheses below the correlation coefficients. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

4. Results and Discussion

4.1 Empirical Results

First, Table 6 reports the estimated regression results of equation (1). Our results show that SIZE (c=0.272, $p < 0.01$), EQUITY (c=0.075, $p < 0.01$), and GDP (c=0.044, $p < 0.05$) have a statistically significant and positive relation with ROA. In addition, MO (c=-0.007, $p < 0.05$), MOP (c=-0.005, $p < 0.05$), and LSO (c=-0.026, $p < 0.01$) have a significantly negative impact on ROA. Moreover, BSIZE, FAMILY, and GOVERN do not have a statistically significant relationship with ROA.

Table 6. The regression results for equation (1) (dependent variable: ROA)

Variable	Coefficient	Std. Error	t-Statistic	p-value
SIZE	0.272***	0.076	3.586	0.000
EQUITY	0.075***	0.009	8.658	0.000
GDP	0.044**	0.020	2.221	0.027
MO	- 0.007**	0.003	- 2.030	0.043
MOP	- 0.005**	0.002	- 2.062	0.040
LSO	- 0.026***	0.006	- 4.417	0.000
BSIZE	- 0.020	0.016	- 1.233	0.219
FAMILY	0.122	0.179	0.682	0.496
GOVERN	- 0.132	0.272	- 0.484	0.629
Intercept	- 3.005***	1.144	- 2.626	0.009
Adjusted R-squared	0.253			
Observations	335			

p-values are two-tailed. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively

Second, Table 7 reports the regression results of equation (2). The results show that SIZE (c=-0.275, p < 0.01), EQUITY (c=-0.024, p < 0.01), and GDP (c=-0.034, p < 0.10) have a statistically significant and negative relation with NPLR. In contrast, MO (c=0.006, p < 0.05), MOP (c=0.005, p < 0.05), LSO (c=0.009, p < 0.01), BSIZE (0.076, p < 0.01), and FAMILY (c=0.245, p < 0.01) have a significantly positive relationship with NPLR. Moreover, there are no statistically significant relations between GOVERN and NPLR.

Table 7. The regression results for equation (2) (dependent variable: NPLR)

Variable	Coefficient	Std. Error	t-Statistic	*p*-value
SIZE	- 0.275	0.068	- 4.052	0.000
EQUITY	- 0.024	0.008	- 3.123	0.002
GDP	- 0.034	0.018	- 1.894	0.059
MO	0.006	0.003	2.164	0.031
MOP	0.005	0.002	2.332	0.020
LSO	0.009	0.005	1.648	0.100
BSIZE	0.076	0.015	5.173	0.000
FAMILY	0.245	0.160	2.870	0.004
GOVERN	- 0.050	0.243	- 0.207	0.836
Intercept	3.381	1.023	3.304	0.001
Adjusted R-squared	0.162			
Observations	335			

p-values are two-tailed. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively

Finally, Table 8 presents the regression results of equation (3). We find that SIZE (c=1.120, p < 0.01), EQUITY (c=0.036, p < 0.01), GDP (c=0.045, p < 0.01), MOP (c=0.005, p < 0.01), and FAMILY (c=0.306, p < 0.01) have a statistically significant and positive relation with MV. Whereas there is a significantly negative relationship between MO and MV (c=-0.007, p < 0.05). Moreover, LSO, BSIZE, and GOVERN do not have a statistically significant relationship with MV.

Table 8. The regression results for equation (3) (dependent variable: MV)

Variable	Coefficient	Std. Error	t-Statistic	*p*-value
SIZE	1.120***	0.058	19.170	0.000
EQUITY	0.036***	0.005	7.463	0.000
GDP	0.045***	0.012	3.722	0.000
MO	- 0.007**	0.003	-2.500	0.013
MOP	0.006***	0.001	3.903	0.000
LSO	0.001	0.004	0.030	0.976
FAMILY	0.306***	0.115	2.664	0.008
GOVERN	0.305	0.168	1.819	0.071
BSIZE	0.001	0.011	0.077	0.939
Intercept	- 4.707	0.912	-5.160	0.000
Adjusted R-squared	0.743			
Observations	213			

p-values are two-tailed. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively

4.2 Discussion

The impact of management ownership on firm performance remains unclear in the existing literature. In the banking sector, the presence of managerial shareholders may create more opportunities for agency problems. Table 9

combines our main regression results, with the evidence showing that a bank's MO has significantly negative effects on its ROA and MV. This means that a higher management ownership ratio is accompanied by lower financial performance and market value, thus rejecting null hypotheses H1a and H1b. This result also tends to support the managerial entrenchment hypothesis. Moreover, the significant and positive relationship between MO and NPLR also confirms this again, and rejects the null hypothesis H1c.

The agency problem mainly comes from the conflicts of interest that can occur between owners and managers. When a management shareholder increases his private leverage, we consider that he will have a greater incentive to create his private interest from the company. Our evidence indicates that that MOP has a significantly negative influence on ROA, and a positive effect on the bank's NPLR. In other words, a higher pledge ratio of management ownership is associated with worse profitability and a higher nonperforming loan ratio, neither of which are conducive to bank performance. We thus reject the null hypotheses H2a and H2b. However, there is a strongly significant and positive relationship between MOP and MV. Chan et al. (2013) argue that in order to protect their control rights and maintain the market value of pledged equity, management shareholders tend to implement a treasury stock policy. We conjecture that the positive relationship between MOP and MV may be the stock price maintenance effect of the management ownership pledge.

Several studies suggest that family firms can relieve the potential conflict of interest between owners and managers, and hence have better firm performance. Our evidence shows that there is no statistically significant relation between FAMILY and ROA, and thus we do not reject the null hypothesis H3a. That said, there is no evidence which shows that being family-dominated will affect a bank's financial performance. However, we find that the family-dominated banks have a significantly higher NPLR, and thus we reject the null hypothesis H3b. This also suggests that such an ownership structure may lead to a higher agency risk with regard to a bank's loan decisions. Moreover, our evidence shows that being dominated by a family has a significantly positive influence on a bank's MV, and this rejects the null hypothesis H3c. Moreover, the evidence also indicates that GOVERN has a positive relationship with MV. This implies that from the perspective of the market, investors have more confidence in state-dominated banks than family-dominated ones.

McAllister and McManus (1993) indicate that larger banks have better risk diversification opportunities and lower funding costs, and thus there is a positive size effect on performance. Because of economies of scale, numerous studies have pointed out that larger banks usually have better performance than smaller ones (e.g., Rangan et al., 1988; Miller and Noulas, 1996; Masood and Ashraf, 2012; Perera et al., 2013). Additionally, Sufian and Chong (2008) indicate that bank profitability is sensitive to macroeconomic conditions, and when there is a decline in economic activity then banking business will shrink, and this will have a negative impact on profitability. Our results show that the assets size (SIZE), equity ratio (EQUITY), and general economic situation (GDP) have significant and positive effects on a bank's ROA and MV. These results are in line with most prior studies.

Additionally, we also find that a higher ratio of large shareholder ownership (LSO) is associated with lower ROA and higher NPLR, and this shows that the large shareholders of banks do not seem to play an effective supervisory role. In addition, the evidence also shows that a larger board size (BSIZE) is accompanied by a higher ratio of nonperforming loans (NPLR), which means that having too many members on a board is likely to harm the quality of loan decisions, and this result is consistent with the findings of Yermack (1996), Eisenberg et al. (1998), Stepanova et al. (2012), and Staikouras et al. (2007).

Table 9. The main regression results

Variable	ROA	NPLR	MV
SIZE	0.272***	-0.275***	1.120***
	(3.587)	(-4.052)	(19.170)
EQUITY	0.075***	-0.024***	0.036***
	(8.659)	(-3.123)	(7.463)
GDP	0.044**	-0.033*	0.045***
	(2.221)	(-1.894)	(3.722)
MO	-0.007**	0.006**	-0.007**
	(-2.030)	(2.164)	(-2.500)
MOP	-0.005**	0.005**	0.006***
	(-2.062)	(2.332)	(3.903)
LSO	-0.026***	0.009*	0.001
	(-4.417)	(1.651)	(0.030)
BSIZE	-0.020	0.076***	0.001
	(-1.233)	(5.173)	(0.077)
FAMILY	0.122	0.461***	0.306***
	(0.682)	(2.870)	(2.664)
GOVERN	-0.132	-0.050	0.443**
	(-0.484)	(-0.207)	(2.315)
Intercept	-3.005***	3.381***	-4.707***
	(-2.626)	(3.304)	(-5.160)
Adjusted R-squared	0.253	0.162	0.743
Observations	335	335	213

We report the t-statistics in parentheses below the coefficients. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

5. Conclusion

This study investigates the role of management ownership in bank governance. Our results show that a higher management ownership ratio is accompanied by both less bank performance and market value, and this supports the managerial entrenchment hypothesis.

Furthermore, we find that there is a negative relation between management ownership pledge and bank performance. In other words, if management shareholders increase their personal leverage then this is not conducive to a bank's performance. However, we also find that management ownership pledge has a significantly positive relationship with a bank's market value, and we speculate this may be caused by the price maintenance effect of a stock pledge.

Our evidence also shows that being either a family- or government-dominated bank will have a positive impact on market value. In addition, it is worth mentioning that family-dominated banks have a significantly higher nonperforming loan ratio than nonfamily ones, and this implies that they have a greater agency risk in their loan decisions.

It should be noted that generalizability of this study is somewhat limited by the fact that all the data came from Taiwanese banks. However, this paper still contributes to the literature on agency theory as it describes the impact of management shareholders private financial leverage on a bank's performance and market value. To the best of our knowledge, this topic has been neglected in prior studies, and thus our work can contribute to the literature and address this current gap. However, more research is needed to examine the impact of management shareholders' private financial leverage on firm performance and market value in the future in other contexts than the one

investigated in this study.

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Notes

Note 1. The total number of domestic banks in Taiwan is 38 in 2014.

Note 2. See the survey July 2015 issue of *The Banker*.