ANALYSIS OF FIRM EFFICIENCY AND PERFORMANCE IN THE CHINESE FINANCE INDUSTRY FROM OWNERSHIP PERSPECTIVE

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Abstract

Nowadays the finance industry plays vital roles in supporting China's economic growth. This study examines impacts of ownership concentration and various ownership categories on the performance of the 28 listed financial institutions in China, between 1999 and 2009. Our results indicate that ownership concentration, legal person and foreign ownership do not improve financial institutions' performance while state ownership has negative impacts. However, these results are moderated by firm size. State and legal person ownerships have positive impacts on large financial institutions' performance because of their great public scrutiny and political pressure.

Keywords: firm efficiency, ownership, corporate governance

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1. Introduction

China, the second largest economy in the world, has become an influential player in the global marketplace. The rapid economic growth relies heavily on support from its financial institutions. As an important pillar, financial institutions received great attention in the developed economies (Williams, 2003; DeYoung and Rice, 2004; Kosmidou et al., 2006; Athanasoglou et al. 2008; Sturm and Williams, 2010). However, there are few studies about the performance of financial institutions in developing economies, such as the largest emerging economy–China (Sufian and Chong, 2008; Sufian, 2009; Sufian and Habibullah, 2009; Zulkafli et al., 2009).

In 1978 China decided to abolish its mono-banking system dominated by the People's Bank of China (PBC) lasting for three decades. In 1979 and the early 1980s the Industrial and Commercial Bank of China (ICBC), the Agricultural Bank of China (ABC), the Bank of China (BOC) and the People's Construction Bank of China (PCBC), and People's Insurance Company of China (PICC) were separated from the PBC, known as the central bank. Between 1984 and 1994 joint stock commercial banks (JSCBs) were established to compete with the "Big Four" state-owned commercial banks (SOCBs). PICC's monopoly was broken by Ping

An Insurance in 1988 and the Pacific Insurance in 1991. Various other financial institutions owned either by the central government or local government, such as securities companies, insurance companies, and trust and investment companies (TICs), were introduced to compensate uncovered business categories by SOCBs or JSCBs. Rural credit cooperatives (RCCs) and urban credit cooperatives (UCCs) were established under the supervision of the ABC and later the PBC. Since 1995, UCCs have started to transform into city commercial banks (CCBs), such as the Beijing Bank and the Nanjing Bank. RCCs have started to become rural commercial banks, such as Shanghai Rural Commercial Bank. SOCBs were allowed to compete against each other and the new players in the market. However, the commercialisation of SOCBs before 2003 had not been successful (Chen et al., 2005; Jiang et al., 2009; Lin and Zhang, 2009). Billions of US dollars were injected by the government as capital between 1994 and 2003 to commercialize the SOCBs. At this stage the SOCBs were characterized by poor asset quality, high non-performing loans (NPLs), and low insolvency indicators.

Since 1995 China has introduced a series of legislation to build up the legal framework over its finance industry. *The People's Bank of China Law* (1995), *the Commercial Bank Law* (1995), *the*

Company Law (1995), *the Insurance Law* (1995), *the Securities Law* (1999) and other laws have been gradually made to regulate the activities of its fast growing financial institutions. *The Insurance Law* (1995) bought about the China Insurance Regulatory Commission (CIRC) in 1998. After joining the World Trade Organization (WTO) in December 2001, China commenced its post-WTO financial reforms. The China Banking Regulatory Commission (CBRC) was established in 2003 to strengthen the regulation over the banking industry and its sustainability in the long run. Later that year the People's Congress of China approved the CBRC and modified *the People's Bank of China Law* (1995) and passed *the China Banking Regulation Law* (2003). Since then the PBC has focused on monetary policies and terminated the role of bank monitoring and supervision.

Figure 1. Three Pillars in Chinese Finance Industry
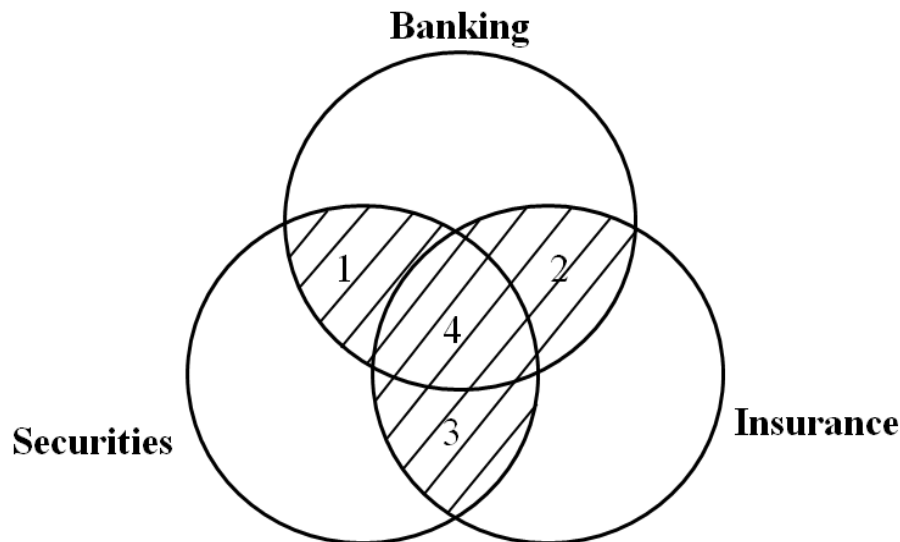
Note: The overlapped grids of 1, 2, 3 and 4 represent the financial holding companies (FHCs) in China

China's current regulatory framework (similar to *the Glass-Steagall Act*, 1933) separates commercial banking from investment banking. *The Commercial Bank Law* (1995 and its 2003 Amendment) and *the General Rules over Loans* (1996) prohibit investment in equity from proceeds of loans. Similarly *the Securities Law* (1999 and its 2004 Amendment) restricts fund flows from banks to the securities market. In addition, banks are not allowed to invest in the securities market other than government bonds. *The Insurance Law* (1995 and its 2002 Amendment) also restricts insurance companies in their business and investment scope other than providing insurance products. In short, banks, securities companies and insurance companies have been mostly confined to their core activities. There are only a few financial holding companies (FHCs) experimentally approved by the State Council in China, such as CITIC, Ever-Bright, and Ping An groups. The current three pillars of Chinese finance industry are shown by Figure 1.

The Chinese government realized at the beginning of its open door policy that collecting funds and taxes from SOEs would not provide sufficient capital to finance the restructure of its economy. By 1980 some collective companies were allowed to issue corporate stocks to their employees. For example, in 1981 the State Council issued treasury bonds (*Guo Ku Quan*) to finance its budget deficit, which started the securities market in China. In 1984 China started establishing joint stock companies. Since 1986 the PBC had approved many over-the-counter (OTC) markets throughout the country, eventually resulted in the formation of two nation-wide markets, Shanghai Stock Exchange (SHSE) and Shenzhen Stock Exchange (SZSE) in 1990. Various securities companies and trust companies have been established to provide services to the securities market. There were overlapping government agencies regulating the securities market, such as the Ministry of Finance (MOF), the PBC, the State Planning Commission for Restructuring the Economic System (SCRES), the State Administration of Industry and Commerce (SAIC) and local governments. The confusion and conflicts in the regulatory environment led to the establishment of the State Council Securities Committee (SCSC) and its operational branch, China Securities Regulatory Commission (CSRC) in 1992. According to *the Securities Law* (1999) the SCSC was merged with the CSRC which became the ultimate regulator over the securities market. However, it seems there may have been some limitations in the effectiveness of the regulation over the securities markets in China.

The 2001 corporate financial scandals of listed companies in China prompted the policy-makers and regulators at the CSRC and the State Economic and Trade Commission (SETC) to consider the need for corporate governance reform. *The Code of Corporate Governance for Listed Companies in China* (*the Code*) was jointly issued by CSRC and SETC in January 2002. *The Code* applies to all listed companies in China, and is the major benchmark for evaluation of corporate governance practices. All listed companies, including financial institutions, are required to act in accordance with *the Code* in their efforts to improve corporate governance. Aiming to eliminate the dominant managerial powers of the boards of directors, the CSRC additionally issued *the Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies* (*the Guidelines*) in August 2001, mandating that by 30 June 2003 at least one-third of board members shall be independent directors.

A unique featured China's corporate governance system is its regulated ownership structure. The objective of this study is to examine whether financial institutions' performance is affected by the ownership concentration and various types of ownership. In the context of studying conflicts between the controlling shareholders and minority shareholders this study provides a comprehensive analysis of key factors that underlie ownership structure in Chinese financial institutions over a period of regulatory changes and ownership reforms during 1999 and 2009. Our results indicate that ownership concentration, legal person ownership and foreign ownership have no influence on profitability but state ownership has a negative impact. However, the management and controlling shareholders of large firms are more likely under greater public scrutiny and political pressure. We thus moderate the results by introducing firm size and find that state ownership and legal person ownership reveal positive impacts on firm performance.

The remainder of the paper is organized as follows. Section 2 reviews the literature regarding ownership structure and develops the corresponding hypotheses. Section 3 outlines the research method and describes variables. Section 4 presents the results and a discussion of these results. Section 5 comprises a brief conclusion.

2. Literature and Hypothesis

Based on the standard ownership classification system, the types of ownership in China are classified into the following categories: state, legal person, foreign, domestic individual, employee and management. When considering the impact of various types of ownership the ownership concentration is a key aspect. The level of ownership concentration demonstrates the distribution of power. Large companies face problems in the separation of ownership and control because they are managed by controlling shareholders and not by their professional managers (La Porta el al., 1999). Concentrated ownership of companies may reduce managers' freedom to take risks, make strategic decisions and take advantage of opportunities. High level of ownership concentration is expected to affect management incentive and corporate policy through the pressure that these investors can exert on managers (Brickley *et al.*, 1988; Pound, 1988; Bushee, 1998). Thus while a group of shareholders with a large total share of the equity might be more effective at monitoring management, their powers must be restrained to prevent them taking advantage of other shareholders (Clarke, 1998). According to Morck *et al.* (1988), Shleifer and Vishny (1997) and La Porta *et al.* (1999), we hypothesize that the high ownership concentration provides both incentive and opportunity for controlling shareholders and managers to engage in expropriation from minority shareholders and results in a poor performance of a company.

Although China conducted its ownership reform in the 1990s towards privatization the state ownership is still a dominant feature of the ownership structure of many Chinese listed companies (Tam, 2002) , such state ownership resulted a negative impact on firm performance (Wei *et al.*, 2005; Gunasekarage el al., 2007). This agency problem may arise due to different perspectives between state and non-state shareholders. For example, the state shareholders often pursue on maintenance of social order and redistributing social wealth as their priority, rather than consideration of profitability for public investors (Xu and Wang, 1999). Thus, we hypothesize that the high proportion of state ownership has a negative impact on firm performance.

The legal person shareholders represent another large proportion of ownership in Chinese listed companies (Sun and Tong, 2003). Prior studies suggest that legal person shareholders enjoy much more autonomy than state shareholders, play a vital role in corporate governance and report a positive effect on firm performance (Xu and Wang, 1999; Qi *et al.*, 2000; Sun and Tong, 2000, 2003; Peng, 2004). For instance, Xu and Wang (1999) and Qi *et al.* (2000) argue that legal person shareholders have incentives to put pressure on listed firms to increase efficiency and maximize profits, and will closely monitor firm performance. However, as a sensitive industry in China, financial institutions are dominantly influenced by the state, thus the autonomy of legal person shareholders is doubtful. Accordingly, we hypothesize the

proportion of legal person ownership has no impact on firm performance.

Unlike state and legal person ownership the primary objective of foreign ownership is to maximize profitability and shareholders' wealth. Prior studies conclude that foreign ownership has a positive impact on the firm performance of Chinese listed firms (Zhang *et al*., 2001; Wei *et al*., 2005). However, the foreign shareholders have small stakes in Chinese financial institutions with an average of 3.9%.[1] It causes some difficulties in fulfilling their role to monitor the performance of managers. Consequently, we hypothesize the proportion of foreign ownership has no impact on firm performance.

3. Research Design

3.1 Sample and Data

This study employs an unbalanced data set during the period 1999–2009 comprising 139 firm-year observations. Our sample covers all 28 financial institutions listed on either the SHSE or the SZSE by the end of 2009. In this study, the corporate governance and financial data was retrieved through use of a database (Osiris) as well as manually collected from the annual report of each listed firm. The stock prices were also manually collected from the official websites of the SHSE and the SZSE.

3.2 Dependent Variables

In the corporate governance literature, there is debate over whether firm performance should be measured by use of profit ratios–Tobin's Q or ROA. Demsetz and Villalonga (2001) suggest that these measures differ in two ways. The first relates to the time horizon. Accounting profit ratios are backwards-looking measures of corporate performance, while Tobin's Q is a forward-looking measure. Accounting profit ratios are affected by accounting practices and emphasize management accomplishments, while Tobin's Q reveals the value investors assign to a firm's tangible and intangible assets based on predicted future revenue and cost streams. The second difference relates to who calculates the measure of firm performance. Accounting profit measures are commonly adopted by accountants constrained by accounting standards and accountability. The Tobin's Q measure is widely used by a community of investors constrained by their perceptions, including their acumen, optimism or pessimism. Demsetz and Villalonga (2001) believe that the later method is favoured by most economists, who have a better

understanding of market constraints than of accounting constraints. As a consequence, we employ both ROE and Tobin's Q for this study in order to ascertain whether the results are consistent regardless of the measure of performance used. This approach is consistent with other prior empirical studies which have used both measures of accounting profit and Tobin's Q (Demsetz and Lehn, 1985; Holderness and Sheehan, 1988; Morck *et al*., 1988; McConnell and Servaes, 1990; Denis and Denis, 1994; Wei and Varela, 2003; Wei, 2007; Harjoto and Jo, 2008). Tobin's Q is equal to the market value of stock and book value of debt divided by the book value of total assets. ROA is equal to a fiscal year's net income divided by total asset.

3.3 Independent Variables

The independent variables of ownership structure used to explain the firm performance of financial institutions consist of: (1) ownership concentration (CONCEN) which is the proportion of total shares held by the largest shareholders; (2) state ownership (STATE) which represents the proportion of shares held by the state; (3) legal person ownership (LEGALPERSON) which measures the proportion of shares held by legal person; (4) foreign ownership (FOREIGN) which measures the proportion of shares held by foreign investors.

3.4 Control Variables

Control variables include firm size, firm age, leverage, price-earnings ratio and earnings per share. Firm size (FIRMSIZE) is measured by the natural logarithm of total assets, which is often found to have a significant impact on internal governance mechanisms. Firm age (FIRMAGE) measures the number of years since initial listing. Leverage (LEVERAGE) is measured as long-term debt to total assets ratio. Price-earnings ratio (PE) is equal to market value per share divided by earnings per share. Earnings per share (EPS) is calculated as the difference between net income and dividends on preferred stock divided by average outstanding shares.

3.5 Model Specification

The panel regression analysis is used to examine the relationship between firm performance and ownership structure and the moderation with firm size. Accordingly, the models are applied in testing hypotheses in the following forms:

$$Performance\ (\text{TOBINS}Q/\text{ROA})_{i,t} = \alpha_1 + \alpha_2\text{CONCEN}_{i,t} + \alpha_3\text{STATE}_{i,t}$$
$$+ \alpha_4\text{LEGALPERSON}_{i,t} + \alpha_5\text{FOREIGN}_{i,t} + \alpha_6\text{FIRMSIZE}_{i,t}$$
$$+ \alpha_7\text{FIRMAGE}_{i,t} + \alpha_8\text{LEVERAGE}_{i,t} + \alpha_9\text{PE}_{i,t} + \alpha_{10}\text{EPS}_{i,t} + \varepsilon_{i,t} \quad \dots \text{Models (1) \& (2)}$$

$$Performance\ (\text{TOBINS}Q/\text{ROA})_{i,t} = \alpha_1 + \alpha_2\text{CONCEN}_{i,t} + \alpha_3\text{CONCEN}_{i,t}$$
$$* \text{FIRMSIZE}_{i,t} + \alpha_4\text{STATE}_{i,t} + \alpha_5\text{STATE}_{i,t} * \text{FIRMSIZE}_{i,t}$$
$$+ \alpha_6\text{LEGALPERSON}_{i,t} + \alpha_7\text{LEGALPERSON}_{i,t} * \text{FIRMSIZE}_{i,t}$$
$$+ \alpha_8\text{FOREIGN}_{i,t} + \alpha_9\text{FOREIGN}_{i,t} * \text{FIRMSIZE}_{i,t} + \alpha_{10}\text{FIRMSIZE}_{i,t} \quad \dots \text{Models (3) \& (4)}$$
$$+ \alpha_{11}\text{FIRMAGE}_{i,t} + \alpha_{12}\text{LEVERAGE}_{i,t} + \alpha_{13}\text{PE}_{i,t} + \alpha_{14}\text{EPS}_{i,t} + \varepsilon_{i,t}$$

As shown in Table 1 Panel A, there are no correlations between independent variables that reach 0.8. However, a certain degree of multicollinearity may still exist even when the bivariate correlation coefficients are low. The reason is that one independent variable may be a linear function of a set of several of the other independent variables (Gujarati, 2003). Hence, the presence of multicollinearity is also examined through estimation of the Variance Inflation Factor (VIF).[2] The results, reported in Table 1 Panel B, highlight that the largest VIF is 2.34 while the remainders are below 2.14. Thus, there is no evidence of a serious multicollinearity problem being present in the regression model.

Table 1. Multicollinearity Diagnostics

Panel A: Spearman Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) CONCEN	–								
(2) STATE	-0.397^{***}	–							
(3) LEGALPERSON	-0.05	-0.443^{***}	–						
(4) FOREIGN	-0.097	-0.026	-0.226^{**}	–					
(5) FIRMSIZE	0.04	0.036	-0.292^{***}	0.523^{***}	–				
(6) FIRMAGE	-0.294^{***}	-0.295^{***}	-0.027	-0.23^{**}	-0.249^{**}	–			
(7) LEVERAGE	-0.247^{**}	-0.078	-0.071	-0.305^{***}	0.499^{***}	-0.113	–		
(8) PE	-0.003	-0.005	0.146	-0.173^{*}	-0.373^{***}	-0.055	-0.054	–	
(9) EPS	0.041	0.147	-0.265^{**}	0.362^{***}	0.548^{***}	-0.112	0.028	-0.345^{***}	–

Panel B: VIF Diagnostic

Variables	VIF	SQRT VIF	Tolerance	R^2
(1) CONCEN	2.00	1.41	0.4996	0.5004
(2) STATE	2.34	1.53	0.4274	0.5726
(3) LEGALPERSON	2.14	1.46	0.4683	0.5317
(4) FOREIGN	1.35	1.16	0.7399	0.2601
(5) FIRMSIZE	1.73	1.32	0.5765	0.4235
(6) FIRMAGE	1.29	1.13	0.7773	0.2227
(7) LEVERAGE	1.19	1.09	0.8425	0.1575
(8) PE	1.12	1.06	0.8914	0.1086
(9) EPS	1.27	1.13	0.7889	0.2111
Mean VIF	1.60			

Notes:
Two-tailed *p*-values are used in determining significance: * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$

Table 2. Descriptive Statistics

Variable	Mean	Median	Min.	Max.	Std. Dev.
TOBINSQ	1.387	0.648	0.075	28.344	3.083
ROA	0.016	0.009	-0.185	0.123	0.035
CONCEN	0.581	0.554	0.31	0.865	0.275
STATE	0.227	0.163	0.00	0.915	0.242
LEGALPERSON	0.295	0.192	0.00	0.675	0.321
FOREIGN	0.039	0.00	0.00	0.333	0.069
FIRMSIZE	25.115	25.657	20.035	30.098	2.522
FIRMAGE	7.396	8.00	0.00	19.00	5.474
LEVERAGE	0.079	0.041	0.00	0.962	0.132
PE	63.017	30.527	-89.67	1865.04	176.52
EPS	0.555	0.384	-0.956	3.737	0.63

The Hausman test for a comparison between the random effects estimator and the fixed effects estimator was made. The test generates a χ^2 with degrees of freedom and probability (*p*-value). We found that the *p*-value is less than 0.05, thus the null hypothesis was rejected, which indicates that ordinary least squares (OLS) fixed effects estimator with the White cross-section covariance[3] should be used in this study.

4. Result and Discussion

4.1 Descriptive Statistics

The descriptive statistics presented in Table 2 provide a profile of the ownership characteristics of the listed Chinese financial institutions in our sample. With respect to performance indicators–TOBINS*Q* and ROA, the mean ratios are 1.387 and 0.016 respectively, with a range of 0.075 and 28.34 for TOBINS*Q* and –0.185 to 0.123 for ROA. Both mean and maximum ratios of TOBINS*Q* show that the market value of equity of a certain financial institution was very high due to its surging stock price. From this point we suggest that the financial institutions utilize the stock market as a means to

benefit the controlling shareholders and expropriate the interests of minority shareholders, which is indicated in accordance with poor ROA. In light of ownership structure we find that the mean of ownership concentration (CONCEN) is 58.1%, with a range from 31% to as high as 86.5%. The means of state ownership (STATE) and legal person ownership (LEGALPERSON) are 22.7% and 29.5% respectively. However, the mean of foreign ownership (FOREIGN) is around 3.9% only. These statistics once again confirm that the controlling parties are the real beneficiaries from the latest financial reforms.

4.2 Regression Analyses

Table 3 provides the panel data regression results of OLS fixed effect method to examine our hypotheses. These regression results report adjusted R^2s of 0.7215 and 0.2651 for OLS regression using TOBINS*Q* and ROA respectively, and *F*–statistics for both models indicate that statistically significant components of the variation in the chosen of measures of TOBINS*Q* and ROA are explained by variation in the set of independent variables.

Table 3. Panel Regression Results [a, b, c]

	Expected sign	Model (1) TOBINS*Q*		Model (2) ROA	
		Coefficient	*t-statistic*	*Coefficient*	*t-statistic*
Constant		41.801	3.29[**]	0.113	0.554
CONCEN	–	1.652	1.563	–0.009	–0.366
STATE	–	–1.976	–2.274[*]	–0.006	–0.423
LEGALPERSON	n/a	–0.514	–0.377	0.013	0.439
FOREIGN	n/a	2.582	1.738	0.029	0.859
FIRMSIZE	+	–1.797	–3.388[**]	–0.005	–0.607
FIRMAGE	+	0.359	3.282[**]	0.001	0.33
LEVERAGE	+	3.565	4.242[***]	0.044	3.91[***]
PE	+	0.01	4.2[***]	2.13e-05	1.214
EPS	+	1.247	5.326[***]	0.037	5.933[***]
Observation		139		139	
Adjusted R^2		0.7215		0.2651	
F-statistic		10.93[***]		2.38[***]	

The table reports the results of panel regression models (1) & (2):

$$Performance \,(\text{TOBINS}Q/\text{ROA})_{i,t} = \alpha_1 + \alpha_2\text{CONCEN}_{i,t} + \alpha_3\text{STATE}_{i,t} + \alpha_4\text{LEGALPERSON}_{i,t} + \alpha_5\text{FOREIGN}_{i,t}$$

$$+ \alpha_6\text{FIRMSIZE}_{i,t} + \alpha_7\text{FIRMAGE}_{i,t} + \alpha_8\text{LEVERAGE}_{i,t} + \alpha_9\text{PE}_{i,t} + \alpha_{10}\text{EPS}_{i,t} + \varepsilon_{i,t}$$

where, TOBINS*Q* (the dependent variable) = market value of stock and book value of debt divided by book value of total assets; ROA (the dependent variable) = return on assets; CONCEN = ownership concentration, proportion of shares held by the largest shareholders; STATE = proportion of shares held by the state; LEGALPERSON = proportion of shares held by legal person/entity; FOREIGN = proportion of shares held by foreign shareholders; FIRMSIZE = natural logarithm of book value of total assets at the end of fiscal year; FIRMAGE = years since initial listing; LEVERAGE = measured as long-term debt to total assets ratio; PE = pricie-earnings ration is measured as market value per share divided by earnings per share; EPS = earnings per share is calculated as the difference between net income and dividends on preferred stock divided by average outstanding shares

Notes:

[a] The panel data set is unbalanced because it includes some firms were listed between 2000 and 2009.

[b] Hausman test for a comparison between the random effects estimator and the fixed effects estimator was made. The test generates a χ^2 statistic with degrees of freedom and probability (*p*-value). We found that *p*-value is less than 0.05, thus the null hypothesis was rejected, which means that fixed effects estimator should be used.
[c] Two-tailed *p*-values are used in determining significance: [*] if $p < 0.05$; [**] if $p < 0.01$; [***] if $p < 0.001$.

In terms of independent variables, first, we find that ownership concentration (CONCEN) has no impact on firm performance measured by TOBINS*Q* and ROA. Thus, our hypothesis is not supported. An explanation of this consequence is that controlling shareholders are not concerned about firm performance as most shares owned by either the state or the legal persons or both in Chinese financial institutions, the other shareholders cannot thus officiate their duties of monitoring and supervising efficiently within the highly concentrated financial environment. Second, regarding to state ownership (STATE) we are not surprised to learn the hypothesis is supported which shows a negative impact on firm performance measured by TOBINS*Q*. State shares are retained by the State Asset Management Bureau (SAMB) of the central or provincial governments or their agencies and are not usually allowed to be publicly traded. The character of this type of ownership allows them to revise the primary objective of investment and compromise with other social orders, such as increasing employment and redistributing wealth. Third, our hypothesis regarding legal person ownership (LEGALPERSON) is supported. The legal person shares are held by domestic institutional investors and influenced by the state ultimately, therefore they, as state shareholders, weaken managerial incentives to achieve the goal of profit maximization. Last, our hypothesis regarding foreign ownership (FOREIGN) is also supported. We conclude that foreign shareholders have difficulties to carry out their role of overseeing the performance of the management because of small stakes in Chinese financial institutions.

In terms of control variables, FIRMSIZE shows a significant and negative relationship with TOBINS*Q*. The interpretation for the negative impact is that the management and controlling shareholders of Chinese financial institutions are less concerned about the forward–looking performance measure, Tobin's *Q*, as they know that the minority shareholders have no other choices and have to invest in these highly concentrated listed financial companies predominated by the state and/or legal entities. FIRMAGE reveals a

significant and positive impact on TOBINS*Q*, means that the longer listing financial institutions take advantage of their historical reputation attracting more investment from the market. Other control variables (LEVERAGE/PE/EPS) show significant and positive impacts on both TOBINS*Q* and ROA (except PE) and indicate that financial institutions are concerned with the market response from their debtholders and investors.

4.3 Robustness Check

In order to check the robustness of the results that we find above, this study also include a sensitivity analysis. We use a moderate variable – FIRMSIZE, and argue that in large financial institutions the management and controlling shareholders are under greater public scrutiny than in smaller institutions, therefore they have greater incentives to mitigate political costs and manage financial performance (Watts and Zimmerman, 1986). We expect that there are interactions between FIRMSIZE and the factors of ownership structure.

As shown in Table 4 after interactions with FIRMSIZE the ownership concentration (CONCEN) reveals a significant and negative relationship on TOBINS*Q*. This negative effect arises from agency problem, involving expropriation from minority shareholders by controlling shareholders in emerging economies, such as China. The interactions with FIRMSIZE and state ownership (STATE) and legal person (LEGALPERSON) are also supported, and both of them have positive impacts on TOBINS*Q* and ROA. We conclude that large Chinese financial institutions are motivated to improve firm performance because the management becomes concerned about political threats or regulatory intrusions from the various regulatory bodies in China, such as the CBRC, the CIRC and the CSRC. Last, the robustness check does not show that FIRMSIZE has an interaction of foreign ownership (FOREIGN) on firm performance. A possible explanation is that the low average level of shareholding by foreign investors does not allow them to effectively enhance corporate governance and improving firm performance.

Table 4. Robustness Check [a, b, c]

	Expected sign	Model (3) TOBINSQ		Model (4) ROA	
		Coefficient	*t-statistic*	*Coefficient*	*t-statistic*
Constant		24.85	3.481[***]	0.1437	1.221
CONCEN	–	51.51	4.137[***]	0.07	0.166
CONCEN*FIRMSIZE	+/–	−1.998	−4.199[***]	−0.002	−0.108
STATE	–	−44.88	−3.303[**]	−0.465	−4.727[***]
STATE*FIRMSIZE	+/–	1.702	3.125[**]	0.018	4.043[***]
LEGALPERSON	n/a	−28.95	−3.126[**]	−0.412	−1.817
LEGALPERSON *FIRMSIZE	+/–	1.09	3.435[***]	0.016	2.123[*]
FOREIGN	n/a	11.918	0.862	0.848	1.35
FOREIGN*FIRMSIZE	+/–	−0.439	−0.866	−0.031	−1.333
FIRMSIZE	+	−1.067	−3.593[**]	−0.006	−1.372
FIRMAGE	+	0.278	2.655[**]	−0.0004	−0.212
LEVERAGE	+	3.181	3.264[**]	0.049	3.499[***]
PE	+	0.01	4.475[***]	2.41e-05	1.385
EPS	+	1.223	7.136[***]	0.035	4.499[***]
Observation		139		139	
Adjusted R^2		0.7403		0.2813	
F-statistic		10.83[***]		2.35[***]	

The table reports the results of panel regression models (3) & (4):

$$Performane\,(TOBINSQ/ROA)_{i,t} = \alpha_1 + \alpha_2 CONCEN_{i,t} + \alpha_3 CONCEN_{i,t} * FIRMSIZE_{i,t} + \alpha_4 STATE_{i,t} + \alpha_5 STATE_{i,t}$$

$$* FIRMSIZE_{i,t} + \alpha_6 LEGALPERSON_{i,t} + \alpha_7 LEGALPERSON_{i,t} * FIRMSIZE_{i,t} + \alpha_8 FOREIGN_{i,t} + \alpha_9 FOREIGN_{i,t}$$

$$* FIRMSIZE_{i,t} + \alpha_{10} FIRMSIZE_{i,t} + \alpha_{11} FIRMAGE_{i,t} + \alpha_{12} LEVERAGE_{i,t} + \alpha_{13} PE_{i,t} + \alpha_{14} EPS_{i,t} + \varepsilon_{i,t}$$

where, TOBINSQ (the dependent variable) = market value of stock and book value of debt divided by book value of total assets; ROA (the dependent variable) = return on assets; CONCEN = ownership concentration, proportion of shares held by the largest shareholders; STATE = proportion of shares held by the state; LEGALPERSON = proportion of shares held by legal person/entity; FOREIGN = proportion of shares held by foreign shareholders; FIRMSIZE = natural logarithm of book value of total assets at the end of fiscal year; FIRMAGE = years since initial listing; LEVERAGE = measured as long-term debt to total assets ratio; PE = price-earnings ratio is measured as market value per share divided by earnings per share; EPS = earnings per share is calculated as the difference between net income and dividends on preferred stock divided by average outstanding shares

Notes:

[a] The panel data set is unbalanced because it includes some firms were listed between 2000 and 2009.

[b] Hausman test for a comparison between the random effects estimator and the fixed effects estimator was made. The test generates a χ^2 statistic with degrees of freedom and probability (*p*-value). We found that *p*-value is less than 0.05, thus the null hypothesis was rejected, which means that fixed effects estimator should be used.

[c] Two-tailed *p*-values are used in determining significance: [*] if $p < 0.05$; [**] if $p < 0.01$; [***] if $p < 0.001$.

5. Conclusion

The objective of this study was to examine whether financial institutions' performance is affected by the ownership concentration and various types of ownership. We used a panel data set comprising of all 28 financial institutions in China with a total of 139 firm-year observations over 1999 and 2009. Our findings suggested that only state ownership shows a negatively related to the performance of Chinese financial institutions, while ownership concentration, legal person ownership and foreign ownership have no impacts. However, these findings have been moderated by firm size. The interactions with state ownership and legal person ownership demonstrate positive impacts on firm performance due to greater public scrutiny and political pressure on large financial institutions.

Several implications can be drawn from this study. The core of ownership reforms in Chinese finance industry is to introduce modern management and corporate governance concepts to improve its efficiency and performance, so as to avoid repeated bailouts by the government. First, the ownership of Chinese financial institutions is still highly concentrated and results in low efficiency and poor performance. Second, the real beneficiaries of finance industry ownership reforms are the state and legal person shareholders. From the perspective of secondary market, minority shareholders lack confidence to invest in financial institutions' future. Last and importantly, the outset expectation of introducing foreign ownership was to bring the improvement of the corporate governance, technological advancement and risk management practices of financial institutions (Dobson and Kashyap, 2006). But financial institutions did not achieve this core objective because of the poor proportion of foreign investment. To extend these implications we predict possible future bailouts by the Chinese government due to its inadequate financial reforms.

Endnotes

[1] According to China Banking Regulatory Commission (CBRC 2003) No. 6 Decree the proportion of shares held by a foreign institution has been restricted to no more than 20% and aggregated foreign ownership no more than 25% (Xu and Lin, 2007).

[2] The critical value of the VIF to test for multicollinearity is 10. Gujarati (2003) suggests that there is no evidence of multicollinearity unless the VIF of a variable exceeds 10. All values used in this study were well below this critical level.

[3] Heterokedasticity is very common in panel data (Baltagi, 2005). In this study we use the Breusch-Pagan Lagrange Multiplier (LM) test to detect heteroskedasticity. The results indicate that all models, measured by TOBINSQ and ROA, encounter a unknown nature of heteroskasticity. Thus, heterokedasticity robust standard errors are computed so that the $t–$ and $F–$ statistics remain valid (Wooldridge, 2006). The standard errors in the regression analyses of this study are corrected by using the White cross-section covariance method.

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