OWNERSHIP STRUCTURE AND FINANCIAL PERFORMANCE: EVIDENCE FROM PANEL DATA OF SOUTH KOREA

Sanghoon Lee*

Abstract

The study seeks to examine the effect of equity ownership structure on firm financial performance in South Korea. I focus on the role of two main dimensions of the ownership structure: Ownership concentration (i.e., the distribution of shares owned by majority shareholders) and identity of owners (especially, foreign investors and institutional investors). Using panel data for South Korea in 2000--2006, I find that firm performance measured by the accounting rate of return on assets generally improves as ownership concentration increases, but the effects of foreign ownership and institutional ownership are insignificant. I also find that there exists a hump-shaped relationship between ownership concentration and firm performance, in which firm performance peaks at intermediate levels of ownership concentration. The study provides some empirical support for the hypothesis that as ownership concentration increases, the positive monitoring effect of concentrated ownership first dominates but later is outweighed by the negative effects, such as the expropriation of minority shareholders. The empirical findings shed light on the role ownership structure plays in corporate performance, and thus offer insights to policy makers interested in improving corporate governance systems in an emerging economy such as South Korea.

Keywords: Ownership Structure, Ownership Concentration, South Korea

**Department of Economics, University of Utah, 1645 E. Campus Center Dr. Rm. 308*
Salt Lake City, UT 84112-9300
Phone: 801-581-7481 / Fax: 801-585-5649
Email: slee@economics.utah.edu

1. Introduction

This study seeks to examine the effects of equity ownership structure on firm financial performance in South Korea and focuses on the role of two main dimensions of the ownership structure: ownership concentration (i.e., the distribution of shares owned by majority shareholders) and ownership identity (especially, foreign investors and institutional investors). Ownership structure is an important internal mechanism of corporate governance.

Corporate governance is an issue of growing importance, both theoretically and practically. However, corporate governance had been largely ignored in the mainstream economics literature. The traditional theory of the firm is based on a concept of a blackbox which transforms inputs into outputs. The theory states that the objective of the firm is to maximize profits by equating marginal costs to marginal revenues. It does not focus on the organizational structure inside the firm. Since the pioneer studies of Berle and Means (1932) and Coase (1937), the traditional theory of the firm has come under scrutiny by a growing literature on corporate governance. Some recent trends in microeconomic theory, such as new institutional economics, namely transaction costs economics, property rights theory, agency theory, and so on, have been concerned with the organizational and financial structure of the firm. Corporate governance has been a much debated topic of academic research since then. In addition, issues of corporate governance have practical appeal. It has been shown in various contexts that better corporate governance is associated with higher financial performance. Corporate governance has been discussed as one of the main factors that caused the East Asian financial crisis in 1997-98 and the accounting scandals such as Enron.

Through the 1970s and 1980s, corporate governance research examined governance mechanisms in individual countries, focused on the U.S. corporations. By the early 1990s, the research was beginning to uncover the possible impact of differing institutional environment on the structure and effectiveness of corporate governance mechanisms. Different countries have developed distinct patterns of corporate governance. In this respect, different solutions to corporate governance problems may be appropriate depending on the institutional setting of each country. Therefore, it might be necessary to look into a country's unique corporate structures, rules, and environments when analyzing the link between corporate governance and performance in the country.

The paper is constructed as follows. First I briefly sketch the theoretical background of corporate governance and previous empirical studies of the

relationship between ownership and economic performance. The unique feature of Korean economic development that could affect the ownership structure of Korean firms are also examined. Next, my hypotheses are presented and the data sample is described. The next section discusses the empirical model and documents empirical findings. Finally, I conclude and draw implications for ownership structure in Korea.

2. Theoretical background

Current perspectives on corporate governance can be divided into two contrasting paradigms: Shareholder Approach and Stakeholder Approach. Such a division is based on the purpose of the firm and its structure of governance arrangements described, explained and justified by each approach. While the shareholder approach regards the firm as a instrument for shareholders to maximize their own interests, the stakeholder approach views the firm as a locus in relation to various stakeholders' interests and focuses on the way the participants in a corporation interact with each other. Since this study examines the empirical validity of the shareholder approach, only the theory of the shareholder approach is presented below.

According to the shareholder theory of corporate governance, corporations should be controlled to maximize shareholders' wealth and the shareholders should be allocated decision rights. Alchian and Demsetz (1972), pioneers of property rights theory, suggest that a solution to the problem of shirking and free riding in a team production setting is for a residual claimant of the team to monitor the other members and to have the authority to direct members of the team. Monitors, as residual claimants, will pursue their own interests to maximize residual returns, which leads to maximizing the total value received by all the parties. In a firm, shareholders receive residual free cash flow in a form of dividends, which is the profits remaining once other stakeholders, such as lenders and employees, have been paid. Thus, residual rights of control should be allocated to shareholders.

However, an agency problem exists when attempting to allocate residual rights of control to shareholders, due to the separation of ownership and control. Berle and Means (1932) observed that during the 1920s ownership structure in public companies became one in which shareholders had become so numerous and dispersed that they were no longer able to manage the companies they owned. Thus, dispersed shareholders need to monitor and control management, but their incentive to monitor management is too weak. Legally, shareholders own a corporation, but they do not feel any sense of ownership or control over the firms because their stake is small. If one shareholder's monitoring leads to the improved performance of the firm, each shareholder has an incentive to free-ride in the hope that other shareholders will do the monitoring. Moreover, shareholders usually invest in many firms in order to diversify risk. They invest for the future dividend stream rather than invest in the future of the firm. In this context, shareholders would rather sell their shares than exercise rights. Therefore, dispersed ownership erodes the incentive to monitor management. In addition, dispersed shareholders do not have the ability to monitor management effectively because they typically do not have enough knowledge and information to make qualified decisions.

Concentrated ownership is widely acknowledged to provide incentives to monitor management. Large shareholders might have the greater incentive to improve firm performance than do dispersed shareholders. Furthermore, concerted actions by large shareholders are easier than by dispersed shareholders. In other words, large shareholders have both an interest in getting their money back and the power to demand it. However, despite the obvious benefits from concentrated ownership, attention has also been focused on the adverse effects. For example, while dispersed ownership offers better risk diversification for investors, concentrated ownership imposes increasing risk premia because of risk aversion of large shareholders (Demsetz and Lehn, 1985), causing potential under-investment problems. A more important issue in this respect is that concentrated ownership could lead to another sort of agency problem, that is, conflicts between large shareholders and small shareholders. Large shareholders have incentives to use their controlling position to extract private benefits at the expense of minority shareholders.

Besides ownership concentration, ownership identity is also relevant in the context of the agency problem. Monitoring is more effective when controlling shareholders have sufficient knowledge and experience of financial and business matters. Generally, foreign investors and institutional investors are known to have the resource and ability to properly monitor management decisions. It is often claimed that firms benefit from a high level of foreign ownership because foreign investors demand higher standards of corporate governance and assume a role of active monitors. Theoretical concerns regarding institutional investors' role in corporate governance were sparked by discussions of institutional shareholder activism. Shareholder activism has been identified as a new avenue for overcoming the agency problem of dispersed ownership (Scott, 1986). In theory, institutional investors can monitor management more efficiently than dispersed shareholders because of their expertise.

3. Previous empirical studies

Since concentrated ownership has its own specific benefits and costs, it is theoretically open which one dominates. Just as in the theoretical consideration, while some empirical research supports the positive relationship, other empirical research suggests that concentrated ownership does not necessarily lead to

better firm performance. Several papers (Short, 1994; Shleifer and Vishny, 1997; Gugler, 2001) provide comprehensive surveys and show that the overall empirical evidence on the effects of ownership concentration on firm performance is mixed. Two recent meta-analyses (Dalton *et al*., 2003; Sanchez and Garcia, 2007) also find no substantive relationship between ownership structure and firm performance. Howevere, according to Sanchez and Garcia (2007), the relationship is moderated by institutional environment. The relationship is stronger in continental countries than in Anglo-Saxon countries, which would support the argument that ownership is more positively related to firm performance in countries with lower levels of investor protection. In Korea, the positive effect of concentrated ownership on firm performance has been found by Mitton (2002), Joh (2003) among others.

In addition to the concentration of ownership, researchers have recently been giving increased attention to the issues of ownership identity. Since past literature on foreign ownership has focused on technological factors of foreign investment such as the spillover effect, there has been little empirical work on the relationship between foreign ownership and corporate governance (and firm performance). One empirical study (Oxelheim and Randoy, 2003) shows that foreign (Anglo-American) board membership positively affects firm performance in Norway or Sweden. A few studies in Korea confirm the positive relationship between foreign ownership and firm performance (Baek *et al*., 2004; Park, 2004). Unlike foreign ownership, there are countless studies that try to estimate the effects of institutional ownership on firm performance, but mixed results are reported. Although there is some evidence that institutional shareholders take an active role in corporate governance, there is no strong evidence suggesting positive effects of such shareholder activism on firm performance (for surveys, see Black, 1998; Gillan and Starks, 1998; Romano, 2001; Owen *et al*., 2005).

A nonlinear relationship between ownership concentration and firm performance is another important issue in empirical analysis. Thomsen and Pedersen (2000) show empirically that firm performance first improves as ownership is more concentrated, but eventually declines in the largest European companies. It indicates that, at high levels of ownership concentration, the benefit of concentrated ownership is outweighed by the negative effects. Among the negative effects, the expropriation of small shareholders by large shareholders is noteworthy. LaPorta *et al*. (1999) find that the main problem in large firms of 27 advanced countries may be the potential expropriation because controlling shareholders have control rights significantly in excess of cash flow rights via pyramid structure. Using data for public companies in East Asia, Claessens *et al*. (2002) show that firm market value increases with the cash-flow ownership of largest shareholders, but drops when the control rights of largest shareholders exceed their cash-flow ownership. Similar results are often found in Korea (Joh, 2003; Baek *et al*., 2004). Interestingly, evidence shows that, in emerging economies, control rights in excess of cash flow rights are related to lower firm values, but not enough to offset the benefits of concentrated ownership (Lins, 2003).

One of the most debated issues is whether ownership structure is determined endogenously. It is argued that an existing ownership structure, whether concentrated or dispersed, is the result of market forces driven by profit-maximizing incentives. The ownership structure arises from "competitive selection in which various cost advantages and disadvantages are balanced to arrive at an equilibrium organization of the firm" (Demsetz, 1983, p.384). If ownership is endogenous, there will be no systematic effects of ownership concentration on firm performance. The endogenous ownership hypothesis may explain the uncertain or mixed evidence for effects of ownership concentration. Demsetz and Lehn (1985), in supporting the argument of the endogenous ownership, show that among the factors that determine ownership structure are firm size, instability of profit rate, and so forth. They could not find any significant relationship between ownership concentration and firm performance. The endogenous ownership is also supported by other empirical studies (e.g., Holderness and Sheehan, 1988; Bergstrom and Rydqvist. 1990; Agrawal and Knoeber, 1996; Cho, 1998; Himmelberg *et al*., 1999; Demsetz and Villalonga, 2001). The meta-analysis by Sanchez and Garcia (2007) shows that control for endogeneity moderates the effect of ownership on firm performance. Those studies that do not address the endogeneity problem exhibit the positive and linear effect, but the effect does not exist in those studies that treat ownership concentration as an endogenous variable.

4. South Korea

South Korea has a relatively short history of capitalism and its rapid economic growth during the last several decades results in unique characteristics of corporate governance system in the country. The Korean model of economic development is often described as a state-led and *chaebol*-centered model. *Chaebol* is the family-controlled Korean style large business group such as Samsung, Hyundai and LG.

In the early 1960s, newly established government of Korea embarked on an economic development path. The government owned and controlled all major banks, and directed policy loans to strategically targeted sectors such as heavy and chemical industries (HCIs). The HCI-based industrialization required huge capital to achieve economies of scale and involved substantial risks. Thus the government had to support large firms (i.e., *chaebols*) and provide an implicit guarantee on bank lending, which encouraged *chaebols* to rely on bank borrowings more than equity financing.

Since the 1980s, the government has initiated

economic policy reforms to liberalize the financial sector. For example, in January 1992, the long-closed stock market of Korea partially opened to foreign investors. Foreign ownership ceiling was gradually raised and completely lifted in May 1998. While the state-led economy is in the middle of transitioning to a privatized economy, controlling shareholders of *chaebols* still use a pyramidal structures to exercise authority over a group of firms (Park, 2004). The dominant influence of controlling shareholders of *chaebols* can lead to the expropriation of minority shareholders.

Johnson *et al*. (2000) use the term "tunneling" to describe the transfer of wealth from minority shareholders to controlling shareholders. In practice, tunneling has been extensively reported in Korea. According to a recent report by the Center for Good Corporate Governance, 93 cases of tunneling by *chaebols* were found in 2007. It is reported that *chaebols* sometimes sell their subsidiaries to the relatives of the founders at low prices (Shleifer and Vishny, 1997). Among the best-known cases of tunneling in Korea is the Samsung Everland scandal. In 1996, Samsung Everland, a theme-park run by the Samsung Group, sold convertible bonds to the two children of the group's controlling shareholder far lower than its market price. As a result, they own more than 50 percent stake in the Samsung Everland.

However, legal enforcement and regulatory oversight to protect minority shareholders' rights have been quite weak. On July 16, 2008, the Seoul Central District Court dismissed the charge that the controlling shareholder of the Samsung Group handed over the management control to his son by issuing CBs of the Samsung Everland far below the market price. The court said that there was no fiduciary duty on the part of corporate directors to raise as much capital as possible when issuing new shares. The ruling shows that Korean legal environment does not yet work efficiently as a disciplinary mechanism to prevent controlling shareholders from engaging in expropriation of minority shareholders.

5. Hypotheses

This study seeks to determine whether ownership structure affects firm performance in South Korea. Ownership structure is analyzed in terms of ownership concentration and ownership identity.

According to agency theory, ownership structure should affect the efficiency of monitoring mechanisms. Traditionally, the theory holds that concentrated ownership should mitigate the agency problem. Based on the traditional agency theory, the study predicts that ownership concentration positively affects firm performance. The first hypothesis to be tested is as follows:

H1: Ownership concentration is positively associated with firm financial performance.

However, as discussed above, the negative effects of concentrated ownership are shown to be considerable. The positive and negative effects could be combined to develop the hypothesis that at low levels of ownership concentration, firm performance improves as ownership concentration rises, but at high levels of ownership concentration, an inverse relation between ownership and performance is observed as the negative effect such as the expropriation problem increases. Thus the second hypothesis is as follows:

H2: There is a hump-shaped relationship between ownership concentration and firm financial performance.

In addition to ownership concentration, ownership identity is important in understanding differences in firm performance. In this study, foreign ownership and institutional ownership are examined.

Foreign investors can be effective monitors of managers in emerging markets, because foreign investors demand higher standards of corporate governance. If foreign investors assume a role of active monitors, firm performance is expected to increase as foreign ownership increases. The third hypothesis is as follows:

H3: Foreign ownership is positively associated with firm financial performance.

Institutional investors also can be effective monitors, because institutional investors have the resource and ability to properly monitor management decisions. It is claimed that firm performance increase as institutional ownership grows. The fourth hypothesis is as follows:

H4: Institutional ownership is positively associated with firm financial performance.

6. Sample and variables

This study uses ownership and financial data of the companies listed on the Korea Stock Exchange for seven years (2000--2006). Most data could be obtained from the Korea Information Service website (http://www.kisinfo.com/KoreanStockMarket/index.htm). The website provides data based on annual reports, quarterly reports and audit reports of Korean companies., except for the data on ownership concentration. The data on ownership concentration were hand-collected from each firm's annual reports. Among 630 firms listed on the Korea Stock Exchange, firms that have a lot of missing data on the variables required for the empirical test are eliminated from the sample, and thus the final sample consists of 579 firms. Where a small part of data is missing, I replace missing values with non-missing values of the previous or following year.

Three ownership structure variables are used in the study. As a proxy for ownership concentration, the percentage of shares held by a controlling shareholder (labeled as CR1) is used. The controlling shareholder refers to a group of shareholders who control the company, such as shareholders owning substantial equity stake in a company, their family members, and affiliated entities. Foreign ownership is measured by the percentage of shares held by foreign investors

(FOR) and institutional ownership is measured by the percentage of shares held by institutional investors, such as banks, insurance companies, pension funds, and mutual funds (INS).

Two variables are selected as a proxy for firm financial performance: net income to total assets ratio (NIA) and ordinary income to total assets ratio (OIA). The two measures of return on assets indicate how profitable a firm is relative to its total assets. A market based measure such as Tobin's Q is a popular proxy for firm performance in empirical studies of corporate governance because maximizing firm value is regarded as the objective of the firm. However, since the state-led development strategy of Korea require that firms respond to government dictates, not market forces, there has been the lack of a well-developed capital market in Korea. Indeed, Korean stock market did not develop sufficiently until recently. The market capitalization ratio for Korea from 2001 to 2004 in Table 1 is quite low in comparison to the ratios for other developed countries. Thus, in the study, accounting-based measures are preferred to market-based measures.

Table 1. Market Capitalization Ratio

	2001	2002	2003	2004	2005	2006
Switzerland	245.47	196.33	223.69	227.57	251.21	312.65
UK	149.88	117.30	134.74	132.14	136.31	158.39
USA	109.44	86.54	103.86	109.26	110.15	117.42
Australia	98.71	89.50	107.43	117.75	108.99	140.11
Canada	85.47	77.62	102.63	118.68	130.61	133.39
Germany	56.68	34.01	44.18	43.51	43.75	56.21
Japan	55.29	52.81	69.83	77.24	100.52	105.73
Italy	47.21	39.14	40.80	45.73	45.10	55.46
Korea	40.36	39.51	49.04	57.23	90.72	93.96

Source: World Federation of Exchanges and OECD. The market capitalization ratio is obtained by dividing domestic market capitalization by GDP.

Besides ownership structure, other factors can explain the variation in firm financial performance. Several control variables are introduced in the study: firm size, leverage, liquidity, risk, business cycle, and industry. Natural logarithm of total assets (LNA) and natural logarithm of total sales (LNS) are included to control for firm size. As for leverage, equity to assets ratio (EAR) is employed to control for capital structure effect, and in order to control for long-term financial distress, liabilities to equity ratio (LER) is utilized. With regard to liquidity, current ratio (current assets to current liabilities ratio, CUR) is a well-known liquidity ratio and is utilized as a proxy for a firm's financial capacity to meet its short-term financial distress. A quick ratio (QKR) is also employed, which is stricter than the current ratio, because it subtracts inventory from current assets. For firm risk, the beta coefficient (BET) of capital asset pricing model (CAPM) is used for capturing systematic risk of a firm's equity. Each firm's inventory to total assets ratio (IVA) is introduced to control for the effect of business cycle. A macro-level business cycle dummy (BCL) is also used. The business cycle dummy is constructed by examining the cyclical component of coincident composite index in Korea. The coincident composite index is based on the indices of production, consumption, trade in Korea. The cyclical component of coincident composite index is computed by removing the trend from the index. Over the period from 2000 to 2006, two big drops in the index are found in 2001 and 2004, which are regarded as years of recession. Nine industry dummies (IDS) based on one-digit SIC codes are used to control for industry factors. The description of the variables and summary statistics for the sample are presented in Table 2. Table 3 represents a correlation matrix for the selected variables, which indicates no multicollinearity problems.

Table 2. Description of Variables and Summary Statistics

Variable	Name	Description	Min	Median	Mean	Max
Ownership Concentration	CR1	The percentage of shares held by the largest shareholder	0.00	37.87	38.54	100.00
Foreign Ownership	FOR	The percentage of shares held by foreign owners	0.00	2.08	9.89	99.89
Institutional Ownership	INS	The percentage of shares held by institutional investors	0.00	4.74	9.97	95.31
Size	LNA	Natural Logarithm of Total Assets	2.83	7.51	7.73	13.37
	LNS	Natural Logarithm of Total Sales	-1.20	7.29	7.47	13.26
Leverage	EAR	Equity to Total Assets Ratio	0.24	52.18	51.94	98.40
	LER	Liabilities to Equity Ratio	0.00	91.58	196.20	40990.72

Liquidity	CUR	Current (Assets to Liabilities) Ratio	1.18	132.72	175.86	4473.67
	QKR	Quick Ratio	1.18	96.85	133.68	4473.67
Risk	BET	Beta Coefficient of the capital asset pricing model (CAPM)	-0.38	0.64	0.65	2.00
Business Cycle	IVA	Inventory to Total Assets Ratio	0.00	0.09	0.11	2.86
	BCL	Business Cycle Dummy				
Industry	IDS	Industry Dummies				
Firm Financial Performance	NIA	Net Income to Total Assets Ratio	-938.53	3.50	3.51	2357.53
	OIA	Ordinary Income to Total Assets Ratio	-928.78	4.21	3.08	77.78

The table shows the description of variables and summary statistics for the variables. This is a balanced panel of 579 firms, for which there are available annual observations for the period 2000-2006. The total number of observations is 4053.

Table 3. Correlation Matrix

	CR1	FOR	INS	LNA	LNS	EAR	LER	CUR	QKR	BET	IVA	NIA	OIA
CR1	1												
FOR	-0.04	1											
INS	-0.03	0.32	1										
LNA	-0.00	0.15	0.13	1									
LNS	-0.01	0.13	0.14	0.90	1								
EAR	0.18	0.07	0.06	-0.15	-0.20	1							
LER	-0.06	-0.02	0.01	-0.01	0.00	-0.27	1						
CUR	-0.01	0.06	0.10	-0.18	-0.20	0.46	-0.05	1					
QKR	-0.02	0.07	0.10	-0.15	-0.18	0.43	-0.04	0.97	1				
BET	-0.19	0.02	0.00	0.34	0.27	-0.15	0.00	-0.10	-0.07	1			
IVA	-0.01	-0.05	-0.01	-0.22	-0.14	-0.08	-0.00	0.02	-0.09	-0.05	1		
NIA	0.01	0.01	0.02	0.00	0.00	0.02	-0.03	0.01	0.01	0.00	0.00	1	
OIA	0.13	0.06	0.07	0.15	0.18	0.18	-0.11	0.06	0.05	0.00	-0.02	0.37	1

Figures are correlation coefficient estimates. Statistically significant correlations (at 5% level or better) are shown in boldface.

7. Empirical analysis

7.1 Methods

In this study, multivariate regression analysis on panel data is used to empirically test the hypotheses discussed above. Using combinations of variables, four linear regression equations used in the study are constructed as follows.

(1) $NIA = \beta_0 + \beta_1 CR1 + \beta_2 FOR + \beta_3 INS + \beta_4 LNA + \beta_5 EAR + \beta_6 CUR + \beta_7 BET + \beta_8 IVA + \beta_9 BCL + \beta_{10} IDS + \varepsilon$

(2) $OIA = \beta_0 + \beta_1 CR1 + \beta_2 FOR + \beta_3 INS + \beta_4 LNA + \beta_5 EAR + \beta_6 CUR + \beta_7 BET + \beta_8 IVA + \beta_9 BCL + \beta_{10} IDS + \varepsilon$

(3) $NIA = \beta_0 + \beta_1 CR1 + \beta_2 FOR + \beta_3 INS + \beta_4 LNS + \beta_5 LER + \beta_6 QKR + \beta_7 BET + \beta_8 IVA + \beta_9 BCL + \beta_{10} IDS + \varepsilon$

(4) $OIA = \beta_0 + \beta_1 CR1 + \beta_2 FOR + \beta_3 INS + \beta_4 LNS + \beta_5 LER + \beta_6 QKR + \beta_7 BET + \beta_8 IVA + \beta_9 BCL + \beta_{10} IDS + \varepsilon$

As a preliminary step, a pooled OLS regression is run. The pooled regression results of each equation seem to be contrary to what would be expected: NIA and OIA are not much different from each other and their correlation coefficient is very high compared to most other correlation coefficients, but the regression coefficients and t values for ownership concentration variable (CR1) when the dependent variable is NIA (that is, equations (1) and (3)) are totally different from those values when the dependent variable is OIA (that is, equations (2) and (4)). The first values are 0.03 (t = 0.74) and 0.03 (t = 0.65), but the second values are 0.15 (t = 8.33) and 0.15 (t = 8.08). This causes concern about outliers.

Two robust regression methods are employed to determine whether outliers are present in the data: Least Absolute Deviation (LAD) regression and Huber's M estimation. Huber regression is introduced by Huber (1973) and used commonly as a robust regression technique to reduce the effects of outliers. It employs a minimization approach using something between the sum of squared residuals and the sum of absolute deviations as an objective function. Both of the two methods show that the significance of most coefficients improves markedly. Especially, the significance increases dramatically when NIA is a dependent variable. Thus, it is reasonable to conclude that outliers do influence the pooled regression results (especially, when NIA is used as a firm performance variable) so that they may not reflect reality.

To mitigate outlier influences, I drop the top and

bottom 1 percent of each performance variable from the sample: the top and bottom 1 percent of NIA are trimmed when NIA is used as a dependent variable and the top and bottom 1 percent of OIA is trimmed when OIA is used. In the pooled OLS regression with the trimmed data, the significance of the coefficients is improved and the similarity between NIA and OIA is confirmed: the values of CR1 for NIA are 0.07 (t = 7.69) and 0.09 (t = 9.72), and the values for OIA are 0.09 (t = 10.24) and 0.12 (t = 13.02).

The residual distributions for the regression equations (1) and (2) also support the effect of trimming. While the residual distributions on the non-trimmed data, presented in Figures 1 and 2, show long-tailed patterns, the residual distributions on the trimmed data, presented in Figures 3 figure 4, show that the data could be described as normally distributed. I have also conducted the empirical tests using the data with the top and bottom 5 % (and 10 %) trimmed, which are not presented in the study and the empirical results are not different from those presented in the study.

Figure 1. Residual Distribution (Non-Trimmed Data; NIA)

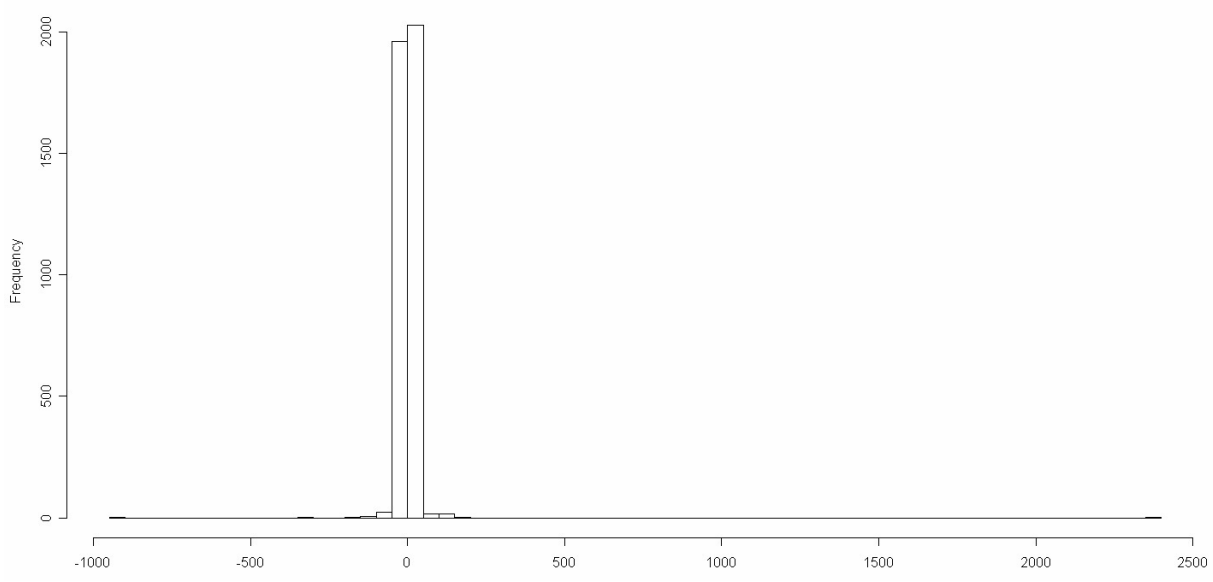


Figure 2. Residual Distribution (Non-Trimmed Data; OIA)

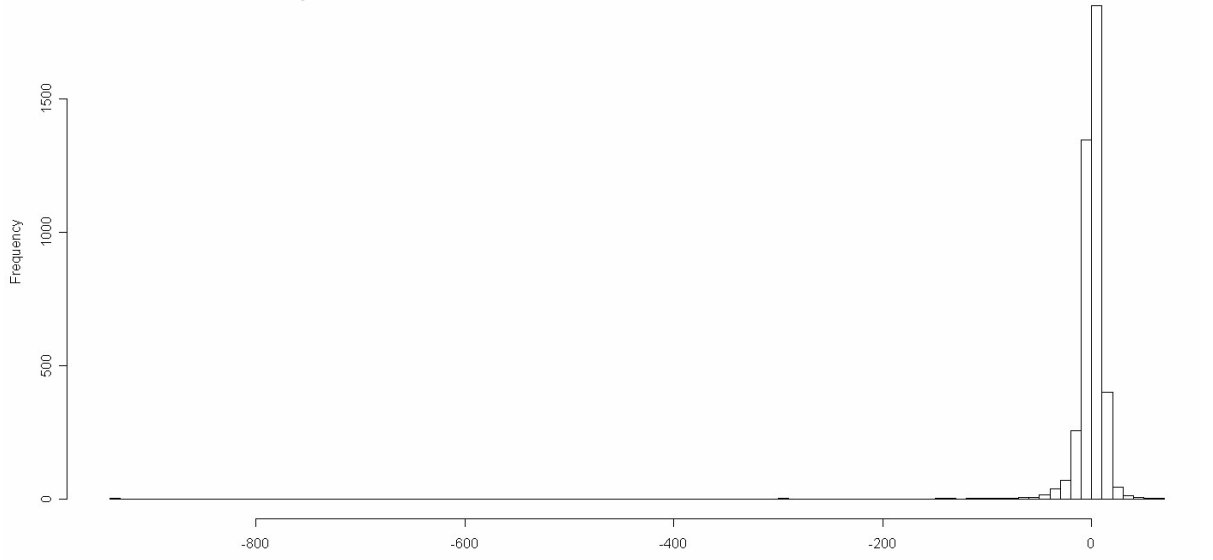


Figure 3. Residual Distribution (Trimmed Data; NIA)

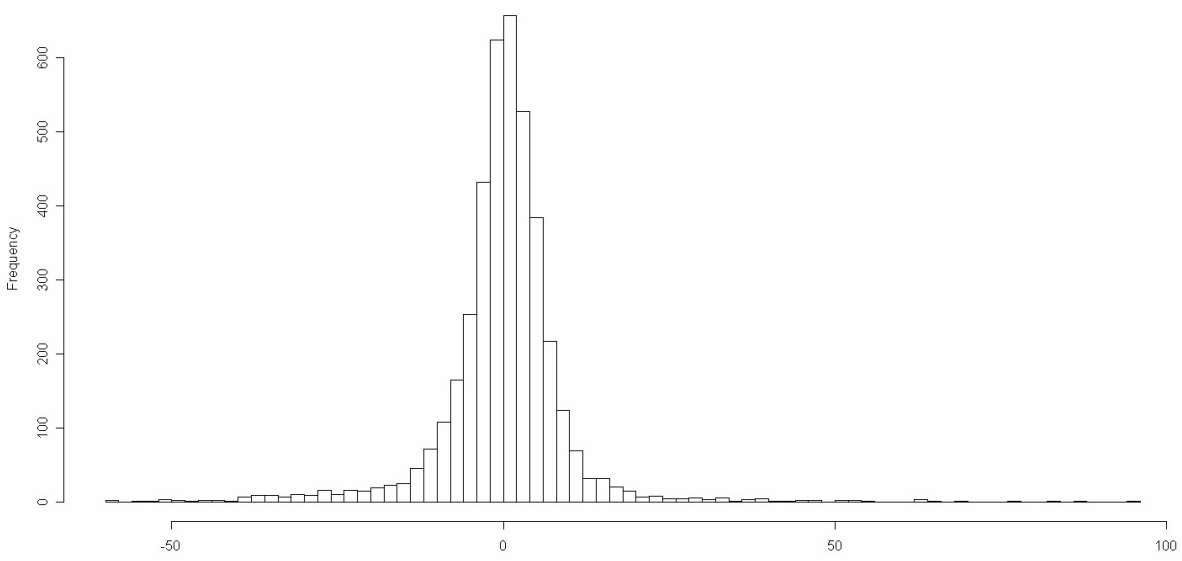
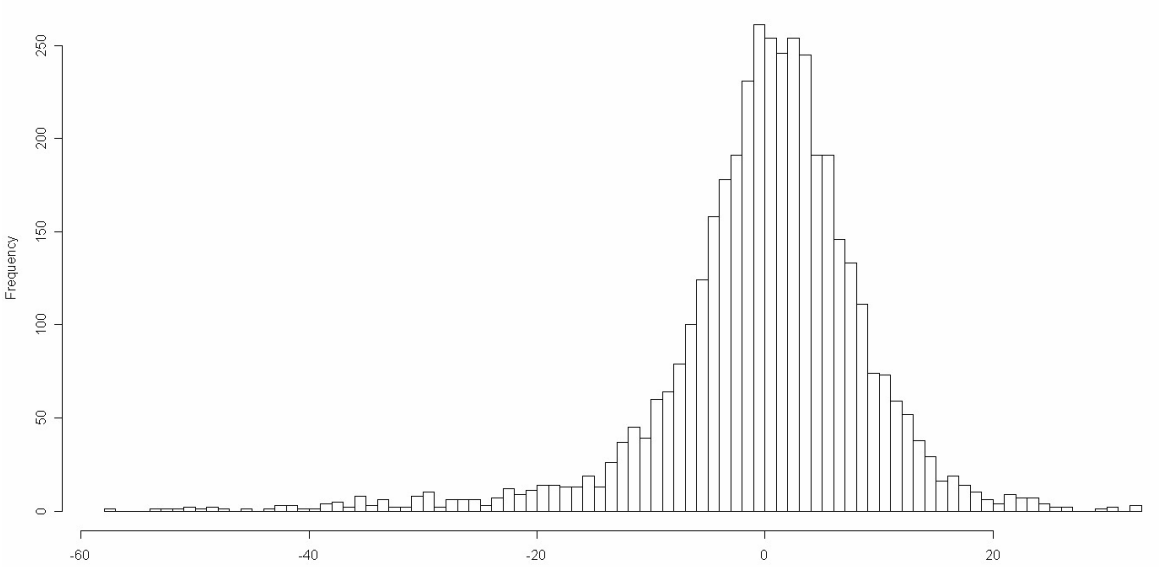


Figure 4. Residual Distribution (Trimmed Data; OIA)



For testing normality of the non-trimmed and trimmed data, three tests--Jarque-Bera test, Robust Jarque-Bera test, Shapiro-Wilk test--are performed. The Jarque-Bera test (Jarque and Bera, 1980) is a diagnostic of departure from normality, based on the sample kurtosis and skewness. The null hypothesis is that both excess kurtosis and skewness are 0, that is, the data are from a normal distribution. The Robust Jarque-Bera test (Gel and Gastwirth, 2006) employs the robust standard deviation (i.e., the Average Absolute Deviation from the Median (MAAD)) to estimate sample kurtosis and skewness. The Shapiro-Wilk test (Shapiro and Wilk, 1965) is another type of normality test. The results of the tests are presented in table 4. Those results show that the residual normality assumption cannot be held for both of the (trimmed and non-trimmed) data sets. However, the χ^2 values and *w* values are much different between the non-trimmed data and the trimmed data, which confirms the improvement of the trimmed data quality. Besides, a failure of a normality test on a very large sample may have little practical importance, because, for large sample sizes, small departures from normality will not have a serious effect on the results of empirical tests assuming normality (due to the Central Limit Theorem).

Table 4. Normality Tests

	Non-Trimmed		Trimmed	
	(1)	(2)	(1)	(2)
JB	952428136	346866308	38147.63	5717.55
	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)
RJB	6.587563e+13	46120055517	202334	12323.94
	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)
SW	0.11	0.34	0.80	0.90
	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)	(p < 2.2e-16)

JB, RJB, and SW respectively refer to the Jarque-Bera test, the Robust Jarque-Bera test, and the Shapiro-Wilk test. (1) and (2) refer to the regression equation numbers. Figures are χ^2 values for JB and RJB, and *w* values for SW, and p values are shown in parentheses below the values.

Examination of the sample skewness and kurtosis also can help in diagnosing how a distribution differs from a normal distribution. The difference between the non-trimmed data and the trimmed data in terms of the values of skewness and kurtosis, which is presented in table 5, also supports the the trimming of the data.

Table 5. Skewness and Kurtosis

	Non-Trimmed		Trimmed	
	(1)	(2)	(1)	(2)
Skewness	39.08	-30.39	0.47	-1.32
Kurtosis	2372.37	1431.17	15.06	5.20

(1) and (2) refer to the regression equation numbers. Figures are values of the sample skewness and the sample kurtosis.

Another econometric issue needs to be addressed because panel data are used in the study. As explained in every econometrics textbook, there are two main regression models for panel data: Fixed effects and Random effects. There have been discussions about the pros and cons of each model. The fixed effects model is used when controlling for omitted variables that differ between individuals but are constant over time. However, if some omitted variables might be constant over time but vary between individuals, and others might be fixed between individuals but vary over time, then the random effects model will be of help in taking the two types into account. The random effects model would be appropriate if data are representative of a sample rather than the entire population, because the individual effect term can be a random outcome rather than a fixed parameter. However, since this study covers almost all of the firms listed in the Korean stock market, it is likely that the random effects model is not appropriate for the study.

In order to compare the usefulness of these models, three tests are run using the trimmed data. First, fixed effects are tested by F test and the null hypothesis--all individual effects terms except one are zero--is rejected at 0.1% significance level. This suggests that the fixed effects model is better than the pooled OLS model for the data used in the study. Second, random effects are examined by Lagrange multiplier (LM) test and the null hypothesis--cross-sectional variance components are zero--is rejected at 0.1% significance level. This argues in favor of the random effects model against the pooled data model for the data. Finally, Hausman test is used to compare fixed effects and random effects and the null hypothesis-- there is no significant correlation between the individual effects and the regressors--is rejected at 0.1% significance level in this test. This confirms the argument in favor of the fixed effects model against the random effects model in the study. In sum, the test results confirm that the fixed effect model is superior to any other models in dealing with the data.

For the regression equations (1) and (2) using the fixed effects model and the renadom effects model, there are large changes in the estimates for CR1 and CUR when EAR is deleted. This possibly indicates a multicollinearity problem. Thus, the estimates for CR1 and CUR in the equations (1) and (2) are obtained via regression equations that exclude EAR.

In relation to the second hypothesis that a hump-shaped relation exists between ownership concentration and firm performance, Ramsey Regression Equation Specification Error Test (RESET) is conducted. The RESET tests whether nonlinear combinations of the independent variables help explain the dependent variable (Ramsey, 1969). The test results (p = 6.07e-06 for NIA; p < 2.2e-16 for OIA) confirm the nonlinear relationship between ownership concentration and firm performance. In order to test the hump-shaped pattern, piecewise OLS regression and quadratic OLS regression are used. Piecewise linear equations are estimated by using a specification that is piecewise linear in ownership concentration levels. The sample is broken at 55% of CR1 because a simple quadratic regression of the relation between CR1 and OIA was run and the result showed that there was a hump-shaped relation and firm performance peaked at around 55%. The piecewise linear equation would be: NIA (or OIA) = $\beta_0 + \beta_1$CR1 + β_{11}CR1* + β_2FOR + …

where

$$CR1^* = (CR1 - 55)D, \qquad D = \begin{cases} 0 & CR1 < 55 \\ 1 & CR1 \geq 55 \end{cases}$$

which is actually two models in one, since

$$NIA(or\ OIA) = \begin{cases} \beta_0 + \beta_1 CR1 + \beta_2 FOR + \ldots & CR1 < 55 \\ (\beta_0 - 55\beta_{11}) + (\beta_1 + \beta_{11})CR1 + \beta_2 FOR + \ldots & CR1 \geq 55 \end{cases}$$

One of typical econometric shortcomings of ownership-performance studies is endogeneity (or, reverse causality). Ownership structure can be an endogenous result of an optimizing process, not an exogenous factor that affect performance. If ownership structure is endogenously determined, estimates from typical OLS regression will be statistical artifacts and it leads to misinterpretation of the regression results. Granger causality test is used to detect the causal link between ownership structure and firm performance.

One aspect that needs to be mentioned is that although Granger causality test has the advantage to be operational, it is an incremental predictability between two time series variables, rather than a real causality. It would be better if different types of causality tests could be applied.

All of the regression results are shown in Tables 6, 7, 8 and 9.

7.2 Empirical Results

Table 6. Regression Results (1)

	Pooled	LAD	Huber	Trimmed	Fixed	Random	Piecewise	Quadratic
CR1	0.01	0.03***	0.03***	0.06***	0.04**	0.08***	0.09***	0.24***
	(0.47)	(6.59)	(7.38)	(7.17)	(2.71)	(7.31)	(7.95)	(6.99)
CR1*							-0.13***	-0.00***
							(-3.31)	(-5.25)
FOR	-0.00	0.01**	0.01*	0.00	-0.01	-0.00	0.00	0.00
	(-0.11)	(2.61)	(2.52)	(0.75)	(-1.42)	(-0.20)	(0.73)	(0.76)
INS	0.07	0.02***	0.02***	0.01	0.00	0.01	0.01	0.01
	(1.40)	(4.30)	(3.59)	(1.55)	(0.09)	(0.91)	(1.57)	(1.58)
LNA	0.30	0.55***	0.76***	1.28***	1.55**	1.39***	1.29***	1.29***
	(0.56)	(10.06)	(11.13)	(10.59)	(2.82)	(8.73)	(10.72)	(10.78)
EAR	0.05	0.10***	0.11***	0.12***	0.14***	0.13***	0.12***	0.12***
	(1.41)	(20.69)	(21.51)	(13.46)	(9.79)	(12.30)	(13.28)	(13.24)
CUR	0.00	0.00	0.00 †	0.00**	0.00**	0.00***	0.00**	0.00**
	(0.29)	(0.55)	(1.94)	(3.00)	(3.09)	(7.16)	(2.98)	(3.01)
BET	-0.26	-0.37	-0.08	-1.62**	-0.98	-1.18*	-1.55**	-1.56**
	(-0.11)	(-1.31)	(-0.28)	(-3.01)	(-1.56)	(-2.10)	(-2.89)	(-2.90)
IVA	4.16	0.63*	1.62 †	4.56**	5.74**	3.97*	4.62**	4.50**
	(0.58)	(2.09)	(1.76)	(2.83)	(2.64)	(2.22)	(2.87)	(2.80)

This table shows the regression results using the first regression equation. Figures are regression coefficient estimates, and *t* values are shown in parentheses below coefficient estimates. CR1* refers to $CR1^2$ in the quadratic regression. ***, **, *, and † respectively indicate significance levels at 0.1%, 1%, 5%, and 10% levels. Business cycle dummy is used in all regressions. Industry dummies are included in all regressions, except for in Fixed Effects and Random Effects regression. The estimates for CR1 and CUR of Fixed Effects and Random Effects regressions come from regressions that exclude EAR.

Table 7. Regression Results (2)

	Pooled	LAD	Huber	Trimmed	Fixed	Random	Piecewise	Quadratic
CR1	0.11***	0.04***	0.05***	0.08***	0.09***	0.11***	0.13***	0.36***
	(6.21)	(7.05)	(8.33)	(9.48)	(7.31)	(10.15)	(11.08)	(11.17)
CR1*							-0.22***	-0.00***
							(-5.93)	(-8.91)
FOR	0.01	0.02**	0.01*	0.01	-0.02*	-0.01	0.01	0.01
	(0.89)	(3.19)	(2.40)	(1.46)	(-2.33)	(-0.97)	(1.42)	(1.47)
INS	0.05*	0.03***	0.04***	0.04***	0.01	0.02 †	0.04***	0.04***
	(2.44)	(4.99)	(4.47)	(3.60)	(0.86)	(1.86)	(3.63)	(3.67)
LNA	2.41***	0.91***	1.15***	1.65***	2.94***	1.89***	1.67***	1.67***
	(10.16)	(11.31)	(13.16)	(14.27)	(6.13)	(10.68)	(14.50)	(14.60)
EAR	0.19***	0.14***	0.16***	0.18***	0.22***	0.20***	0.18***	0.18***
	(10.70)	(22.60)	(24.23)	(21.14)	(17.56)	(19.42)	(20.90)	(20.93)
CUR	-0.00	0.00	0.00	0.00	0.00 †	0.00***	0.00	0.00
	(-0.38)	(0.65)	(0.25)	(0.15)	(1.67)	(4.99)	(0.10)	(0.13)
BET	-0.84	-0.27	0.19	-0.58	0.74	0.29	-0.46	-0.46
	(-0.79)	(-0.71)	(0.48)	(-1.14)	(1.39)	(0.56)	(-0.90)	(-0.90)
IVA	8.61**	1.29	2.23 †	3.88*	5.43**	4.56*	3.91*	3.72*
	(2.69)	(0.98)	(1.89)	(2.44)	(2.79)	(2.57)	(2.47)	(2.36)

This table shows the regression results using the second regression equation. Figures are regression coefficient estimates, and *t* values are shown in parentheses below coefficient estimates. CR1* refers to $CR1^2$ in the quadratic regression. ***, **, *, and † respectively indicate significance levels at 0.1%, 1%, 5%, and 10% levels. Business cycle dummy is used in all regressions. Industry dummies are included in all regressions, except for in Fixed Effects and Random Effects regression. The estimates for CR1 and CUR of Fixed Effects and Random Effects regressions come from regressions that exclude EAR.

Table 8. Regression Results (3)

	Pooled	LAD	Huber	Trimmed	Fixed	Random	Piecewise	Quadratic
CR1	0.02	0.05***	0.05***	0.09***	0.04*	0.08***	0.12***	0.28***
	(0.65)	(10.17)	(10.67)	(9.72)	(2.54)	(7.29)	(9.90)	(8.08)
CR1*							-0.15***	-0.00***
							(-3.91)	(-5.69)
FOR	-0.00	0.01*	0.01**	0.01	-0.00	0.00	0.01	0.01
	(-0.09)	(2.30)	(2.72)	(1.10)	(-0.68)	(0.36)	(1.07)	(1.11)
INS	0.08	0.02**	0.02***	0.02 †	0.00	0.01	0.02 †	0.02 †
	(1.50)	(2.99)	(3.44)	(1.67)	(0.53)	(1.05)	(1.69)	(1.70)
LNS	0.26	0.74***	1.00***	1.47***	2.19***	1.46***	1.48***	1.48***
	(0.55)	(14.87)	(16.23)	(13.35)	(7.27)	(10.42)	(13.47)	(13.53)
LER	-0.00*	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
	(-2.14)	(-24.40)	(-26.09)	(-5.86)	(-5.86)	(-6.02)	(-5.83)	(-5.78)
QKR	0.00	0.01***	0.01***	0.01***	0.00***	0.00***	0.01***	0.01***
	(0.78)	(9.23)	(19.95)	(10.59)	(4.06)	(7.97)	(10.46)	(10.45)
BET	-0.58	-0.33	-0.78**	-2.19***	-0.03	-1.30*	-2.10***	-2.10***
	(-0.25)	(-1.18)	(-2.61)	(-4.15)	(-0.06)	(-2.34)	(-3.97)	(-4.00)
IVA	3.33	0.33	0.92	3.11 †	2.83	1.96	3.15*	3.03 †
	(0.47)	(0.37)	(1.01)	(1.95)	(1.30)	(1.10)	(1.98)	(1.90)

This table shows the regression results using the third regression equation. Figures are regression coefficient estimates, and *t* values are shown in parentheses below coefficient estimates. CR1* refers to $CR1^2$ in the quadratic regression. ***, **, *, and † respectively indicate significance levels at 0.1%, 1%, 5%, and 10% levels. Business cycle dummy is used in all regressions. Industry dummies are included in all regressions, except for in Fixed Effects and Random Effects regression.

Table 9. Regression Results (4)

	Pooled	LAD	Huber	Trimmed	Fixed	Random	Piecewise	Quadratic
CR1	0.14***	0.06***	0.08***	0.11***	0.09***	0.11***	0.17***	0.41***
	(8.08)	(10.43)	(12.19)	(13.01)	(7.20)	(10.09)	(14.22)	(12.49)
CR1*							-0.25***	-0.00***
							(-6.64)	(-9.31)
FOR	0.02	0.01*	0.02**	0.02*	-0.00	0.00	0.02*	0.02*
	(1.19)	(2.40)	(2.57)	(2.05)	(-0.82)	(0.15)	(2.02)	(2.07)
INS	0.06*	0.03***	0.03***	0.04***	0.02 †	0.02*	0.04***	0.04***
	(2.47)	(4.42)	(4.37)	(3.85)	(1.69)	(2.23)	(3.88)	(3.92)
LNS	2.70***	1.14***	1.43***	1.81***	3.04***	1.95***	1.82***	1.82***
	(12.70)	(15.69)	(17.92)	(16.94)	(11.74)	(12.91)	(17.16)	(17.24)
LER	-0.00***	-0.00 †	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
	(-6.37)	(-1.93)	(-21.57)	(-9.02)	(-8.15)	(-8.53)	(-9.00)	(-8.96)
QKR	0.00***	0.01***	0.01***	0.01***	0.00***	0.00***	0.01***	0.01***
	(4.97)	(10.39)	(18.73)	(11.11)	(3.64)	(6.46)	(10.91)	(10.92)
BET	-1.78 †	-0.38	-0.61	-1.25*	2.25***	0.60	-1.07*	-1.08*
	(-1.72)	(-1.09)	(-1.57)	(-2.44)	(4.16)	(1.16)	(-2.10)	(-2.13)
IVA	4.85	0.72 †	0.71	0.54	-0.58	0.27	0.55	0.36
	(1.54)	(1.87)	(0.60)	(0.34)	(-0.29)	(0.15)	(0.34)	(0.22)

This table shows the regression results using the fourth regression equation. Figures are regression coefficient estimates, and *t* values are shown in parentheses below coefficient estimates. CR1* refers to $CR1^2$ in the quadratic regression. ***, **, *, and † respectively indicate significance levels at 0.1%, 1%, 5%, and 10% levels. Business cycle dummy is used in all regressions. Industry dummies are included in all regressions, except for in Fixed Effects and Random Effects regression.

The results of the fixed effects regression provide evidence that ownership concentration has positive effects on firm performance. The ownership concentration (CR1) has positive and statistically significant coefficients for each regression: 0.04 (t = 2.71), 0.09 (t = 7.31), 0.04 (t = 2.54), and 0.09 (t = 7.20), respectively. For example, according to the result of the regression (4), for 1% increase in ownership concentration, the ratio of ordinary income to total assets increases by 0.09. Whereas the effect of

ownership concentration is confirmed to be statistically significant, there is no significant relationship between ownership identity (i.e., foreign ownership and institutional ownership) and firm performance.

The effects of some control variables on firm performance are confirmed to be significant in the fixed effects regression. Among control variables, firm size is noticeable. The positive effect of firm size (i.e., total assets and total sales) on firm performance is strong and statistically significant for each regression: 1.55 (t = 2.82), 2.94 (t = 6.13), 2.19 (t = 7.27) and 3.04 (t = 11.74). This result indicates that big firms show higher performance. Leverage is also found to be important in explaining firm performance. The positive relation between the equity to total assets ratio (EAR) and the dependent variables, and the negative relation between the liabilities to equity ratio (LER) and the dependent variables are statistically significant for each regression although the coefficients of LER are very small: 0.14 (t = 9.79), 0.22 (t = 17.56), –0.00 (t = −5.86) and −0.00 (t = −8.15). It implies that the higher equity ratio and the lower debt ratio improve the firm performance. This result supports, at least in part, the view that the excessively high ratio of debt to equity of Korean firms left corporate sector vulnerable to the 1997-98 financial crisis. Liquidity also might be a factor in determining firm performance. Although the coefficients are not much different from zero, the relation between the liquidity variables (CUR and QKR) and the dependent variables is shown to be statistically significant: 0.00 (t = 3.09), 0.00 (t = 1.67), 0.00 (t = 4.06) and 0.00 (t = 3.64).

The results of the piecewise regression and the quadratic regression can be understood as supporting the idea of the hump-shaped relationship between ownership concentration and firm performance. The effect of ownership concentration on firm performance is positive at lower levels of ownership concentration, but negative at higher levels of ownership concentration. The piecewise regression results show that firm performance increases as ownership concentration increases up to the point at which ownership concentration reaches 55%, but decreases slowly after the peak point. The slopes in each regression are 0.10 (t = 8.10), 0.14 (t = 11.81), 0.12 (t = 9.90) and 0.18 (t = 14.23) at low levels of ownerhsip concentration. At high levels of ownership concentration, the slopes are −0.04, −0.10, −0.04 and −0.08. The quadratic regression results are remarkably strong compared to other regression results: for CR1, 0.26 (t = 7.34), 0.39 (t = 11.59), 0.28 (t = 8.08) and 0.42 (t = 12.49); for $CR1^2$, –0.00 (t = −5.46), –0.00 (t = −9.13), –0.00 (t = −5.70) and –0.00 (t = −9.32). The large difference between the quadratic regression results and other regression results in terms of the coefficients of CR1 certainly reflects the hump-shaped relation between ownership concentration and firm performance. Especially, the results provide strong evidence of the rapid increase in ownership concentraiton at lower levels.

The Granger causality test result in Table 10 provides strong evidence that ownership concentration affects firm performance but not the other way around. It is statistically significant at 0.01% that ownership concentration causes, in Granger sense, variations in firm performance.

Table 10. Granger Causality Test

	CR1 $\Rightarrow$ NIA	NIA $\Rightarrow$ CR1	CR1 $\Rightarrow$ OIA	OIA $\Rightarrow$ CR1
Order 1	18.78***	0.44	24.12***	0.72
Order 2	8.12***	1.86	11.62***	0.79
Order 3	4.90**	1.33	7.76***	0.57

Arrows indicate the direction of granger causality. Order refers to N th order of lags. Figures are F values. ***, **, *, and † respectively indicate significance levels at 0.1%, 1%, 5%, and 10% levels.

Although caution should be taken when interpreting the results of the Granger causality test because the time series of my data is not long enough, the test result argues in favor of the exogenous ownership assumption. It is claimed that the endogenous ownership hypothesis is not appropriate for studying emerging markets, because developing countries do not have liquid and mature capital markets, and thus it is difficult for investors to trade and adapt ownership structure in response to changing market circumstances. Put differently, market forces do not function efficiently in the stock markets of such economies (Stiglitz, 1994). The evidence in favor of the exogenous ownership assumption is consistent with the insufficiently developed stock market due to the state-led and *chaebol*-centered model of Korea. In this regard, the beta coefficient (BET), one of the control variables, might be problematic because the beta coefficient (BET) is based on the CAPM, which is predicated on the efficient market hypothesis. It would be in conflict with the view that the financial market is not sufficiently efficient in Korea. However, the main results do not change when the same regressions are run without the beta coefficient variable.

8. Conclusion

The empirical findings in this study shed light on the role ownership structure plays in firm performance, and thus offer insights to policy makers interested in

improving corporate governance systems in an emerging economy such as South Korea.

Using panel data for 579 firms in South Korea during 2000--2006, the study finds that firm performance improves as ownership concentration increases. The result supports the traditional agency theory and the Granger causality test clearly supports the exogenous ownership assumption. However, unlike previous empirical findings, the effects of foreign ownership and institutional ownership on firm performance are not significant. The evidence can be interpreted in the way that the long tradition of state-led economic development in Korea has made difficult institutional changes allowing for the active role of foreign investors and "institutional shareholder activism." Indeed, recent discussions about the corporate governance environment of Korea have suggested that although corporate governance reform has been conducted in Korea since 1980s and has been accelerated since the financial crisis in 1997, external mechanisms of corporate governance such as legal provisions to protect investors and financial markets have not yet been developed sufficiently (e.g., Kim *et al*., 2004). As a result, foreign ownership and institutional ownership are shown not to affect firm performance. The results of positive effect of ownership concentration and insignificant effect of foreign and institutional ownership concur with the hypothesis suggested by the two meta-analyses (Dalton *et al*., 2003; Sanchez and Garcia, 2007) that the effect of ownership concentration on firm performance is more positive and significant where legal protection of investors is weak.

The data also provide strong evidence that there exists a hump-shaped relationship between ownership concentration and firm performance, in which firm performance peaks at intermediate levels of ownership concentration. The finding provides empirical support for the hypothesis that as ownership concentration increases, the positive monitoring effect of concentrated ownership first dominates but later is outweighed by the negative effects, such as the expropriation of minority shareholders. Given substantial ownership concentration in Korean firms, especially *chaebols*, the influence of controlling shareholders can lead to the expropriation of minority shareholders. Although Korea has made significant progress in legal and regulatory reforms, the current legal framework is still deemed to be too weak to prevent the expropriation of minority shareholders.

To sum up, although a significant linear relationship between ownership concentration and firm performance found in the study suggests that concentrated ownership can be an effective mechanism of corporate governance in a country with limited legal protection of investors, the nonlinear effect of ownership concentration on firm performance shows the possibility that controlling shareholders can expropriate wealth from minority shareholders in such a country. This demonstrates a need for continuing legal reform and strict enforcement of regulation to curb the tunneling by controlling shareholders.

References

1. Agrawal, A. and Knoeber, C. R. (1996), "Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders", *The Journal of Financial and Quantitative Analysis*, Vol. 31 No.2, pp.377–397.
2. Alchian, A. A. and Demsetz, H. (1972), "Production, Information Costs, and Economic Organization", *American Economic Review*, Vol. 62 No. 5, pp.777–795.
3. Baek, J. S., Kang, J. K. and Park, K. S. (2004), "Corporate Governance and Firm Value: Evidence from the Korean Financial Crisis", *Journal of Financial Economics*, Vol. 71 No. 2, pp. 265–313.
4. Bergstrom, C. and Rydqvist, K. (1990), "The Determinants of Corporate Ownership: An Empirical Study on Swedish Data", *Journal of Banking and Finance*, Vol. 14 No. 2, pp. 237–253.
5. Berle, A. and Means, G. (1932), *The Modern Corporation and Private Property*, Macmillan, New York, NY.
6. Black, B. S. (1998), "Shareholder Activism and Corporate Governance in the U.S.", in Newman, P. (Ed.), *The New Palgrave Dictionary of Economics and the Law*, Macmillan, New York, NY.
7. Cho, M. H. (1998), "Ownership Structure, Investment, and the Corporate Value: An Empirical Analysis", *Journal of Financial Economics*, Vol. 47 No. 1, pp. 103–121.
8. Claessens, S., Djankov, S., Fan, J. P. H. and Lang, L. H. P. (2002), "Disentangling the Incentive and Entrenchment Effects of Large Shareholdings", *Journal of Finance*, Vol. 57 No. 6, pp. 2741–2772.
9. Coase, R. H. (1937), "The Nature of the Firm", *Economica*, Vol. 4 No. 16, pp. 386–405.
10. Dalton, D. R., Daily, C. M., Certo, S. T. and Roengpitya, R. (2003), "Meta-Analyses of Financial Performance and Equity: Fusion or Confusion?", *Academy of Management Journal*, Vol. 46 No. 1, pp. 13–26.
11. Demsetz, H. (1983), "The Structure of Ownership and the Theory of the Firm", *Journal of Law and Economics*, Vol. 26 No. 2, pp. 375–390.
12. Demsetz, H. and Lehn, K. (1985), "The Structure of Corporate Ownership: Causes and Consequences", *The Journal of Political Economy*, Vol. 93 No. 6, pp. 1155–1177.
13. Demsetz, H. and Villalonga, B. (2001), "Ownership Structure and Corporate Performance", *Journal of Corporate Finance*, Vol. 7 No. 3, pp. 209–233.
14. Gel, Y. R. and Gastwirth, J. L. (2006), "A Robust Modification of the Jarque-Bera Test of Normality", *Economics Letters*, Vol. 99 No. 1, pp. 30-32.
15. Gillan, S. L. and Starks, L. T. (1998), "A Survey of Shareholder Activism: Motivation and Empirical Evidence", *Contemporary Finance Digest*, Vol. 2 No. 3, pp. 10–34.
16. Gugler, K. (2001), *Corporate Governance and Economic Performance*, Oxford University Press , New York, NY.
17. Hermalin, B. E. and Weisbach, M. S. (1991), "The Effects of Board Composition and Direct Incentives on Firm Performance", *Financial Management*, Vol. 20 No. 4, pp. 101–112.

18. Himmelberg, C. P., Hubbard, R. G. and Palia, D. (1999), "Understanding the Determinants of Managerial Ownership and the Link between Ownership and Performance", *Journal of Financial Economics*, Vol. 53 No. 3, pp. 353–384.
19. Holderness, C. G. and Sheehan, D. P. (1988), "The Role of Majority Shareholders in Publicly-held Corporations", *Journal of Financial Economics*, Vol. 20 No. 1, pp. 317–346.
20. Huber, P. J. (1973), "Robust Regression: Asymptotics, Conjectures and Monte Carlo", *The Annals of Statistics*, Vol. 1 No. 5, pp. 799–821.
21. Jarque, C. M. and Bera, A. K. (1980), "Efficient Tests for Normality, Homoscedasticity and Serial Independence of Regression Residuals", *Econometric Letters*, Vol. 6 No. 3, pp. 255–259.
22. Joh, S. W. (2003), "Corporate Governance and Firm Profitability: Evidence from Korea Before the Economic Crisis", *Journal of Financial Economics*, Vol. 68 No. 2, pp. 287–322.
23. Johnson, S., Porta, R. L., de Silanes, F. L. and Shleifer, A. (2000), "Tunneling", *American Economic Review*, Vol. 90 No. 2, pp. 22–27.
24. Kim, E. H. and Kim, W. (2008), "Changes in Korean Corporate Governance: A Response to Crisis", *Journal of Applied Corporate Finance*, Vol. 20 No. 1, pp. 47–58.
25. Kim, H. S., Kim, N. S. and Wong, C. (2004), "Korea", in Dallas, G. S. (Ed.), *Governance and Risk: An Analytical Handbook for Investors, Managers, Directors, and Stakeholders*, McGraw-Hill, New York, NY.
26. Lins, K. V. (2003), "Equity Ownership and Firm Value in Emerging Markets", *Journal of Financial and Quantitative Analysis*, Vol. 38 No. 1, pp. 159–184.
27. McConnell, J. J. and Servaes, H. (1990), "Additional Evidence on Equity Ownership and Corporate Value", *Journal of Financial Economics*, Vol. 27 No. 2, pp. 595–612.
28. Mitton, T. (2002), "A Cross-Firm Analysis of the Impact of Corporate Governance on the East Asian Financial Crisis", *Journal of Financial Economics*, Vol. 64 No. 2, pp. 215–241.
29. Morck, R., Shleifer, A. and Vishny, R. (1988), "Management Ownership and Market Valuation: An Empirical Analysis", *Journal of Financial Economics*, Vol. 20 No. 1-2, pp. 293–315.
30. Owen, G., Kirchmaier, T. and Grant, J. (Eds.) (2005), *Corporate Governance in the US and Europe: Where Are We Now?*, Palgrave Macmillan, New York, NY.
31. Oxelheim, L. and Randøy, T. (2003), "The Impact of Foreign Board Membership on Firm Value", *Journal of Banking and Finance*, Vol. 27 No. 12, pp. 2369–2392.
32. Park, Y. S. (2004), "Assessing the Impact Of Corporate Governance On Productivity And Growth in Korea", in Gonzalez, E. T. (Ed.), *Impact of Corporate Governance on Productivity: Asian Experience*, Asian Productivity Organization, Tokyo, Japan.
33. Porta, R. L., de Silanes, F. L. and Shleifer, A. (1999), "Corporate Ownership around the World", *Journal of Finance*, Vol. 54 No. 2, pp. 471–517.
34. Ramsey, J. B. (1969), "Tests for Specification Errors in Classical Linear Least Squares Regression Analysis", *Journal of the Royal Statistical Society*, Series B (Methodological), Vol. 31 No. 2, pp. 350–371.
35. Romano, R. (2001), "Less is More: Making Institutional Investor Activism a Valuable Mechanism of Corporate Governance", *Yale Journal on Regulation*, Vol. 18 No. 2, pp. 174–251.
36. Sanchez-Ballesta, J. P. and Garcia-Meca, E. (2007), "A Meta-Analytic Vision of the Effect of Ownership Structure on Firm Performance", *Corporate Governance*, Vol. 15 No. 5, pp. 879–893.
37. Scott, J. (1986), *Capitalist Property and Financial Power: A Comparative Study of Britain, the United States and Japan*, Wheatsheaf, Brighton.
38. Shapiro, S. S. and Wilk, M. B. (1965), "An Analysis of Variance Test for Normality (Complete Samples)", *Biometrika*, Vol. 52 No. 3-4, pp. 591–611.
39. Shleifer, A. and Vishny, R. (1997), "A Survey of Corporate Governance", *Journal of Finance*, Vol. 52 No. 2, pp. 737–783.
40. Short, H. (1994). "Ownership, Control, Financial Structure and the Performance of Firms", *Journal of Economic Surveys*, Vol. 8 No. 3, pp. 203–249.
41. Short, H. and Keasey, K. (1999), "Managerial Ownership and the Performance of Firms: Evidence from the U.K", *Journal of Corporate Finance*, Vol. 5 No. 1, pp. 79–101.
42. Stiglitz, J. E. (1994), *Whither Socialism?*, MIT Press, Cambridge, Massachusetts.
43. Thomsen, S. and Pedersen, T. (2000), "Ownership Structure and Economic Performance in the Largest European Companies", *Strategic Management Journal*, Vol. 21 No. 6, pp. 689–705.