



Agency problems and performance of Korean companies during the Asian financial crisis: Chaebol vs. non-chaebol firms

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Abstract

Agency problems can become more serious during an economy-wide financial crisis and they can have different roles depending on the corporate governance structure of a company. This paper examines whether agency problems explain the performance of Korean companies during the Asian financial crisis and whether agency problems explain the performance differently for chaebol vs. non-chaebol firms. Korean business groups, chaebols, are known to have weaker corporate governance structures than non-chaebol firms. The results show that the performance during the crisis is somewhat closely related to agency problems. In addition, the paper presents some evidences that the role of agency problems depends on corporate governance structures.

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1. Introduction

Global money managers say that there is “Korea Discount” due to the lack of an effective corporate governance system in Korea. In other words, many Korean companies’ market values are less than comparable firms’ in other capital markets due to the poor corporate governance system in Korea. This lack of an effective corporate governance system has been cited as one of the major problems that Korea should overcome for further

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economic development. Johnson et al. (2000) show that Korea has relatively low scores in their measures of corporate governance among emerging market countries. Due to their inefficient corporate governance structures, Korean companies are more likely to be subject to various agency problems, resulting in lower firm values.¹

This paper examines whether agency problems explain the performance of Korean companies during the Asian financial crisis. Agency problems are very likely to become more important factors during a crisis since the crisis would cause more companies to fall into a situation of financial distress and firms in financial distress would be exposed to more agency problems, especially agency problems between shareholders and bondholders (Jensen and Meckling, 1976). In addition, Johnson et al. (2000) argue that managers are more likely to expropriate minority shareholders during a crisis as the expected return on investment falls, and they show that countries with weak corporate governance have experienced a larger fall in asset prices during the Asian financial crisis. Rajan and Zingales (1998) also argue that investors pay more attention to corporate governance in a crisis, especially in the region with weak corporate governance systems, resulting in closer relation between corporate governance and firm value during a crisis. Therefore, it is an interesting empirical issue to test whether agency problems significantly explain the cross-sectional differences in performance in an economy-wide financial distress, such as the Asian financial crisis that Korea has recently experienced.

In a recent paper, Hahn and Mishkin (2000) present some evidence that the financial crisis in Korea can be partly explained by moral hazard and adverse selection problems caused by asymmetric information. At the individual company level, Mitton (2002) shows that companies with higher outside ownership concentration had significantly better stock price performance during the Asian financial crisis and concludes that corporate governance had a strong impact on firm performance during the East Asian financial crisis. Mitton (2002) uses a sample of 398 firms from Indonesia, Korea, Malaysia, the Philippines and Thailand. All the firms in his sample are among the largest and most liquid firms in their respective markets, and are included in the International Finance Corporation (IFC) global index.

To further study the role of agency problems during the Asian financial crisis, this paper examines whether agency problems explain stock price and operating performance during the Asian financial crisis using a more comprehensive data set² and various agency cost proxy variables. We examine not only agency problems between insiders (managers or controlling shareholders) and outside minority shareholders³ but also agency problems

¹ Recent studies such as La Porta et al. (1997, 1998, 1999) emphasize the importance of corporate governance in emerging markets and show that firm values are closely related to corporate governance across countries in their sample.

² Mitton (2002) uses 144 Korean companies in his sample while this paper includes 590 firms in the sample.

³ It is possible to differentiate between agency problems between managers and shareholders and agency problems between controlling shareholders and minority shareholders. Throughout the paper, we view these two agency problems as a similar one based on the assumption that controlling shareholders have full controls over all the important decisions in Korea and therefore, there is no discretionary power of managers against controlling shareholders. This assumption is not such an unrealistic assumption in Korea because controlling shareholders typically have full controls over all the important decisions, including the selection of management, and independent outside directors were not present before the crisis.

between shareholders and bondholders. Previous studies have not paid particular attention to the possibly different roles of these two agency problems during the crisis.

In addition, we closely examine whether agency problems play different roles for Korean business group member firms, chaebol firms, compared to non-chaebol firms. A chaebol's owner typically has almost complete control over all the member firms within the business group through pyramidal structures and cross holdings (Claessens et al., 2000).⁴ Joh (2003) shows that the difference between control rights and ownership rights is much bigger for chaebol firms, especially large chaebol firms, than non-chaebol firms in Korea. Since the owner-managers of chaebols have almost full control over all the member firms, they can easily expropriate minority shareholders for their own benefits. Bae et al. (2002) present an example of this expropriation by chaebol firms related to merger decisions. They find evidences that are consistent with the conjecture that chaebol firms on average make acquisition decisions for chaebol owners' personal interests, not for the shareholders' interests. In addition, Lins and Servaes (2002) show that reduction in value due to diversification is greater for the firms that belong to industrial groups in emerging markets and interpret this as an evidence that the industrial group structure allows expropriation of minority shareholders by controlling shareholders. By comparing the role of agency problems for chaebol firms with that for non-chaebol firms, we would like to examine whether different corporate governance structures have any impact on the role of agency problems during a crisis.

We analyze the performance of 590 non-financial companies that were listed in the Korean Stock Exchange as of May 1, 1997. We use seven variables that proxy for different degrees of potential agency problems. Two performance measures, stock returns and average return on assets (ROA) during the 1997 and 1998 fiscal year ends, are used. Stock returns are estimated over the period from May 1997 up to August 1998.⁵

The results show that ownership structure significantly explains the performance of Korean companies during the crisis, especially for chaebol firms. The explanatory power of agency problem proxy variables is different for chaebol firms compared to non-chaebol firms, in explaining stock returns during the crisis. For example, blockholder ownership has significant explanatory power for chaebol firms' stock returns while it is not closely related to stock returns for non-chaebol firms. On the other hand, long-term debt significantly explains stock returns for non-chaebol firms while it is not significant for chaebol firms.

However, agency problem proxy variables are less closely related to operating performance. This is consistent with Rajan and Zingales (1998). They argue that investors get more interested in agency problems during a crisis, implying a closer relation between

⁴ Bae et al. (2002) say that cross-holdings are much more popular in Korea than pyramidal structures. They show that the average cross-ownership for listed firms that belong to the top 30 chaebols is 27.6%. In addition, they argue that all the major decisions of each member firm are made by the controlling family, rather than professional management, indicating that the conflicts of interests between controlling family shareholders and outside minority shareholders are likely to be more severe for the top 30 chaebols than for other smaller chaebols or independent firms in Korea.

⁵ Mitton (2002) defines the Asian financial crisis period as the period from June 1997 to August 1998 and he examines the role of corporate governance during the crisis period.

agency problems and stock returns than the relation between agency problems and operating performance during a crisis. Moreover, the evidence that agency problems have a different explanatory power for chaebol firms compared to the power for non-chaebol firms indicates that the role of agency problems during a crisis seems to depend on the corporate governance structure of a company.

The paper proceeds as follows. Section 2 reviews related studies and develops hypotheses to be tested, and Section 3 describes the data, provides some summary statistics, and defines variables used in the analysis. Section 4 presents the empirical results. Section 5 discusses the results and its implications, and concludes.

2. Related studies and testable hypotheses

2.1. Agency problems and a crisis

There are three types of agency problems that previous studies have focused on: (i) conflicts of interests between shareholders and managers (agency costs of equity, Jensen, 1986); (ii) conflicts of interests between controlling shareholders and outside minority shareholders (La Porta et al., 2000); and (iii) conflicts of interests between shareholders and bondholders (agency cost of debt, Jensen and Meckling, 1976).

To the extent that managers are fully controlled by controlling shareholders, agency problems between managers and shareholders would be equivalent to agency problems between controlling shareholders and outside minority shareholders. Since most Korean companies are fully controlled by the owners,⁶ we do not emphasize the differences in these two agency problems throughout the paper.

The weak corporate governance system in Korea makes it easier for controlling shareholders to expropriate minority shareholders. In a financially distressed situation, the possibility of expropriation of minority shareholders by controlling shareholders could increase because controlling shareholders are likely to be very desperate to take care of their own interests without considering minority shareholders' interests. Johnson et al. (2000) actually argue that managers are led to expropriate minority shareholders more as the expected return on investment falls as in the case of financial distress, and provide supporting evidence.

Agency problems between shareholders and bondholders⁷ would also become more serious as a firm falls into a financially distressed situation. When there is an economy-wide financial distress, the expected rate of return on investment will fall. Therefore, overinvestment problems are likely to become more serious than underinvestment problems during a crisis since good investment opportunities will be rare during a crisis.

⁶ The owner typically has full control over the selection of managers and the owner's influence on management has not been controlled by outside directors since independent outside directors did not exist until firms were required to have outside directors in 1998.

⁷ There are two types of agency cost of debt, underinvestment problems (i.e., debt overhang problems, Myers, 1977) and asset substitution effects (i.e., overinvestment problem, Jensen and Meckling, 1976).

2.2. Testable hypotheses

As Jensen and Meckling (1976) point out, agency costs of equity can arise when the interests of a firm's managers are not aligned with those of the firm's shareholders, especially when managers do not have large stakes in their company. Likewise, the interests of controlling shareholders might be better aligned with outside minority shareholders' as controlling shareholder ownership increases. However, too much concentration of manager or controlling shareholder ownership might result in firm value reduction due to management entrenchment or increase in expropriation probability (Morck et al., 1988; Ang et al., 2000).⁸ Therefore, we would expect positive relation between management or the largest shareholder ownership (which proxies for controlling shareholder's ownership) and performance at a lower level and then negative relation at a higher level.⁹ Because the probability of expropriation increases during a crisis, as Johnson et al. (2000) argue, we would expect more negative relation between the largest shareholder ownership and performance at a higher level of ownership during the crisis period.

The existence of blockholders might enhance the value of a firm because blockholders have incentives to closely monitor management or controlling shareholders, resulting in less agency costs of equity (e.g., Lins, 2000).¹⁰ Blockholders might play more important roles during a financial crisis if the expropriation possibility actually increases during a crisis. Since incentives to monitor increase as blockholder ownership increases, we would expect positive relation between blockholder ownership and performance.

Jensen (1986) shows that a company with a large amount of free cash flows is subject to higher agency costs of equity, implying negative relation between free cash flows and performance. Lang et al. (1991) and Lie (2000) present empirical results that are consistent with the free cash flow theory related to tender offers decisions and self-tender offers decisions, respectively. In addition, Maloney et al. (1993) show that tender offer firms with more debt perform better. This is consistent with the free cash flow story in that debt reduces agency problems between shareholders and managers and leads to better decision making by managers. However, in an economy-wide financial distress, free cash flow problems would become less important since managers would desperately need cash to survive, without leaving much money to squander. Therefore,

⁸ Morck et al. (1988) show that the positive effects of high ownership concentration (aligning the interests of managers with those of shareholders) initially dominate but the negative effects (management entrenchment) become more serious as the manager ownership increases to a high level.

⁹ Kim and Lee (2000) show that there is a curvilinear relation between the largest shareholder ownership and the corporate value using a sample of 168 Korean companies during the period from 1987 to 1996. Mitton (2002) shows that ownership concentration by managers is not significantly related to the performance of the firms in five East Asian countries while outside ownership concentration has significant explanatory power during the Asian financial crisis period.

¹⁰ Regarding the role of outsiders, Weisbach (1988) and Brickley et al. (1994) present evidence that the presence of outsiders on the board reduces potential agency problems. Moreover, Shleifer and Vishny (1986) discuss the potential positive role of large blockholders as effective monitors, and Denis et al. (1997b) present supporting evidence.

we might not expect significant relation between free cash flow and performance during a crisis.

Denis et al. (1997a), Rajan et al. (2000), and Lins and Servaes (2002) show that corporate diversification reduces value, and that agency problems between shareholders and managers are the cause of value-reducing diversification. Yun and Kim (1999) also show that corporate diversification in Korea reduces value, and that agency problems can explain this value reduction. If the degree of diversification before the crisis represents the seriousness of agency problems reflecting managers' or controlling shareholders' desire to diversify without considering outside minority shareholders' interests, we would expect negative relation between performance and the degree of diversification.

On the other hand, it is very likely that highly leveraged firms would experience worse performance in an economy-wide financial distress, compared to low leverage firms. This is because the firms with high leverages are more likely to fall into financial distress and this causes an increase in agency costs of debt. Jensen and Meckling (1976) point out that financial distress can intensify the conflicts of interests between bondholders and shareholders. In addition, the positive role of leverage, such as the disciplinary role of reducing free cash flow problems (Jensen, 1986) or the signaling of positive news (Titman and Trueman, 1986), becomes less critical in financial distress. Therefore, there is likely to be significant negative relation between leverage and performance during a crisis.

In addition, leverage might play a different role depending on its maturities. Short-term debt may be more useful in reducing free cash flow problems and in signaling high quality to outsiders since the necessity of rolling-over short-term debts will put the company under more frequent scrutiny of the capital market (Flannery, 1986; Diamond, 1991). At the same time, short-term debt can cause a serious liquidity problem, especially when the economy is in financial distress. Under an economy-wide financial distress, there is likely to be credit rationing resulting in a liquidity crisis. Given the fact that the positive role of leverage is less likely to be effective during a crisis and the liquidity becomes more important during a crisis, we would expect more negative relation between short-term leverage and performance during a crisis.

Korean business groups, chaebols, are well known to have weaker corporate governance structures than non-chaebol firms. The owners of chaebols typically control all the member firms through pyramid structures and cross holdings even when they have small cash flow rights (Claessens et al., 2000).¹¹ The weak corporate governance structure of chaebols might cause more serious agency problems for chaebol firms during a crisis. Therefore, we would expect that various agency problem proxy variables would have more significant explanatory powers for chaebol firms than they would for non-chaebol firms.

¹¹ The ownership structures are quite different for chaebol vs. non-chaebol firms. Table 2 shows that the largest shareholder ownership and management ownership are statistically significantly less for chaebols than for non-chaebols. Joh (2003) also shows that controlling shareholders' ownership is much smaller for chaebol firms even though their control rights are much bigger than their ownership rights. Joh argues that chaebols' controlling shareholders maintained control with even less ownership by exploiting affiliated firms' interlocking ownership.

In the following sections, we test the hypotheses developed in this section using the data described in the next section.

3. Data and summary statistics

3.1. Sample

Initially, we identify all the firms listed on the Korean Stock Exchange (KSE) as of May 1, 1997. From this initial sample, we exclude the following firms: (i) firms without stock price data on the 2000 Korea Securities Research Institute (KSRI)'s Stock Database¹²; (ii) firms without financial statement data on the Korea Listed Companies Association (KLCA)'s Listed Companies Database; and (iii) firms in the financial industry (companies with the KSRI industry classification code file numbers of 32, 33, 34, 35, 36, or 37). Our final sample includes 590 companies. Out of these, 135 firms belong to the top 30 chaebols as of April 1997. In April of each year, the Korea Fair Trade Commission (KFTC) ranks Korean conglomerates (chaebols) based on their total assets, and identifies the 30 largest chaebols.¹³

Table 1 shows the summary statistics of our sample firms. Chaebol firms are typically much larger than non-chaebol firms. The average market capitalization of chaebol firms (321 billion Korean won) is more than twice that of non-chaebol firms (125 billion won), while the average total assets of chaebol firms (1.7 trillion won) is more than five times that of non-chaebol firms (0.3 trillion won). However, the performance of non-chaebol firms was much better than that of chaebol firms right before the crisis. The return on assets (ROA) of non-chaebol was around 1% but that of chaebol was only 0.4%. The averages of ROA became negative after the start of the crisis. For example, the average ROA for the 1998 fiscal year end was around -9%.

The average 1-year return ending on April 30, 1997 was 31% for non-chaebol firms while it was -16% for chaebol firms. However, both chaebol and non-chaebol firms' performances got worse after the onset of the crisis. The average return over the 1-year period from May 1997 through April 1998 was -52% for chaebol firms and -58% for non-chaebol firms, while the average return of the Korea Composite Stock Price Index (KOSPI) was -40%. Since the KOSPI is a value-weighted index, the higher return of the KOSPI than the equally weighted averages of chaebol and non-chaebol firms indicates that larger firms performed better than smaller firms during this period. The average book-to-market equity ratio (B/M) for chaebol firms is 1.33, while the average for non-chaebol

¹² The KSRI database is free from survivorship bias. The 2000 KSRI CD maintains return data in each annual file and is composed of 21 separate annual files (from 1980 to 2000). For example, the firms delisted in the middle of 1997 will appear in the 1997 file even though they are not included in the 1998 file. Since we used the 1997 file within the 2000 KSRI CD in selecting our sample firms, there is no survivorship bias in this study.

¹³ Bae et al. (2002) discuss the characteristics of the top 30 chaebol firms based on the statistics at the end of 1997. They show that chaebol firms are more diversified, represent 46% of the KSE's total market capitalization, and have higher leverage ratios (the average debt to debt plus market value of equity ratio of 91%). In addition, the degree of cross-shareholding among member firms is significantly higher and an individual owner-manager (either a founder or his/her family) has almost complete control over all the firms within the chaebol.

Table 1
Summary statistics

	Chaebol	Non-chaebol	All
# of firms	135	455	590
Market capitalization (in Korean won)	321 billion	125 billion	170 billion
Total assets (in Korean won)	1693 billion	318 billion	633 billion
Sales (in Korean won)	1925 billion	208 billion	601 billion
B/M	1.33	0.87	0.98
ROA	0.37%	0.99%	0.84%
ROA ₉₇ , ROA ₉₈	– 1.79%, – 9.63%	– 1.46%, – 8.97%	– 1.54%, – 9.13%
Prior 1-year return	– 16.20% (– 28.31%)	31.03% (– 28.31%)	20.22% (– 28.31)
Post 1-year return	– 52.26% (– 40.10%)	– 58.10% (– 40.10%)	– 56.77% (– 40.10%)

The sample is composed of all firms listed on the Korean Stock Exchange as of May 1, 1997, except for the following. (i) Firms without stock price data on the 2000 Korea Securities Research Institute (KSRI)'s Stock Database; (ii) firms without financial statement data on the Korea Listed Companies Association (KLCA)'s Listed Companies Database; and (iii) firms in the financial industry (companies with the KSRI industry classification code file numbers of 32, 33, 34, 35, 36, or 37). Chaebol firms are the firms that belong to top 30 chaebols according to the Korean Fair Trade Commission classification in 1997. The financial statement information is based on the 1996 fiscal year end data. The market capitalization is as of April 30, 1997. B/M represents the book-to-market equity ratio, calculated based on the book value of equity (excluding preferred stock) at the 1996 fiscal year end and the market value of equity on April 30, 1997. Return on assets (ROA) is ROA for the fiscal year ending in 1996. ROA₉₇ and ROA₉₈ represent the ROAs at the 1997 and 1998 fiscal year end, respectively. Prior return is the 1-year holding period return ending on April 30, 1997. The return of the KOSPI index during the comparable period is reported in parenthesis. Post return is the 1-year holding period return starting from May 1, 1997. If a firm is delisted before the end of the 1-year holding period, then the return is calculated only up to the delisting date, assuming zero returns afterwards.

firms is 0.87. This might reflect the poorer growth prospects of chaebol firms, compared to non-chaebol firms. Or, it might simply reflect the poor stock price performance of those chaebol firms prior to the crisis.

3.2. Proxy variables for potential agency problems

Based on the hypotheses described earlier, we use the following variables to proxy for the degrees of potential agency problems: (i) largest shareholder ownership; (ii) manager ownership; (iii) blockholder ownership; (iv) free cash flow; (v) short-term leverage ratio; (vi) long-term leverage ratio; and (vii) number of business segments.

To measure potential agency problems between insiders (managers or controlling shareholders) and outside minority shareholders, we use three ownership structure variables. Previous studies (e.g., Morck et al., 1988) show that the increase in the largest shareholder (or manager) ownership would initially better align the largest shareholder's (or manager's) interests with outside shareholders, resulting in the increase in firm value, but too much increase would result in firm value reduction due to the increase in his incentives to expropriate outside minority shareholders. As blockholder ownership increases, agency problems between controlling shareholders and outside shareholders would decrease since blockholders would have stronger incentives to monitor managers or controlling shareholders (Shleifer and Vishny, 1986).

We also use one free cash flow measure (free cash flow over total assets) and a variable showing the degree of diversification (the number of business segments) to measure agency costs of equity. As Jensen (1986) indicates, managers are more likely to shirk when a company has a large amount of free cash flows. Rajan et al. (2000) also argue that agency problems between shareholders and managers lead firms to engage more in corporate diversification that reduces firm values.

In addition, we use two leverage variables (short-term debt over total assets and long-term debt over total assets) to measure the potential agency problems between shareholders and bondholders. As Jensen and Meckling (1976) point out, financial distress can intensify the conflicts of interests between bondholders and shareholders, and highly leveraged firms are more likely to fall into financial distress.

Each of the above mentioned proxy variables is measured in the following way using the financial statement information at the 1996 fiscal year end from the KLCA's Listed Company Database. The KLCA database also includes detailed information on the ownership structure of each company. The largest shareholder ownership includes the ownership of those who have special relationship (e.g., family members) with the largest shareholder. Manager ownership is the total percentage ownership held by the managers of each company. Blockholder ownership is the total percentage ownership held by those individuals and corporations that own more than 5% of total shares outstanding. Blockholder ownership does not include the largest shareholder ownership.

Free cash flow is defined similar to Lehn and Poulsen (1989). We define free cash flow as operating income before depreciation and amortization (KLCA's industrial file code # 209200 + 207900 + 208000 + 208100 + 208200), minus income taxes (# 216500), minus interest expenses (# 211600), minus cash dividends (# 302600).¹⁴ We use two proxy variables for leverage, short-term debt over total assets and long-term debt over total assets. To measure the degree of diversification, we use the number of business segments that are responsible for more than 10% of total sales. This is reported in the KLCA's Listed Company Database. However, KLCA reports only up to five business segments per firm, so this variable could be underestimated for some companies in our sample.

Table 2 shows the descriptive statistics of various agency problem proxy variables for chaebol and non-chaebol firms. All proxy variables for chaebol firms, except for free cash flows over total assets, are significantly different compared to those for non-chaebol firms. Chaebol firms typically have smaller largest shareholder ownership and manager ownership than non-chaebol firms. However, blockholder ownership is larger for chaebol firms. This reflects the fact that most of the firms in a chaebol own the shares of other firms in the same chaebol. Bae et al. (2002) report that the average cross-ownership for listed firms that belong to the top 30 chaebols is 27.6%, and the average for others is 15.97%.

The mean and median free cash over total assets are negative for both chaebol and non-chaebol firms. Even the value at the 70th percentile is not that high, around 1%. This might be indicating that most Korean firms were in desperate need of cash even before the

¹⁴ In our definition of free cash flow, we ignore the changes in deferred taxes. For all our sample firms, deferred taxes are zero. Being different from the U.S. accounting system, the Korean accounting system allows firms to report income taxes based on the tax accounting in income statements. Therefore, there are no permanent differences between the actual payments and the income taxes reported for book purposes.

Table 2
Descriptive statistics for the agency cost-related variables

	Chaebol (135)	Non-chaebol (455)	All (590)	Difference
Largest shareholder ownership	20.15% (11.7, 20.3, 25.6)	28.56% (20.8, 27.7, 33.9)	26.72% (18.8, 25.6, 32.9)	− 6.26
Manager ownership	6.19% (0.1, 0.7, 8.3)	19.66% (11.5, 19.0, 26.7)	16.57% (6.8, 15.0, 23.0)	− 10.74
Blockholder ownership	12.19% (0.0, 8.9, 15.8)	9.08% (0.0, 5.4, 10.2)	9.79% (0.0, 5.8, 11.7)	3.24
Free CF/total asset	− 0.2% (− 1.2, − 0.3, 1.1)	− 0.4% (− 1.7, − 0.4, 1.1)	− 0.4% (− 1.6, − 0.4, 1.1)	0.64
Short-term debt/total asset	46.6% (37.9, 46.8, 54.4)	40.5% (32.1, 39.7, 47.6)	41.9% (33.4, 41.2, 49.5)	4.30
Long-term debt/total asset	28.7% (21.9, 27.5, 34.4)	23.6% (17.1, 22.9, 28.4)	24.8% (18.3, 24.0, 29.7)	4.36
# of business segments	2.34 (2, 2, 3)	2.01 (1, 2, 2)	2.09 (1, 2, 3)	3.05

The sample is composed of all firms listed on the Korean Stock Exchange as of May 1, 1997, except for the following. (i) Firms without stock price data on the 2000 Korea Securities Research Institute (KSRI)'s Stock Database; (ii) firms without financial statement data on the Korea Listed Companies Association (KLCA)'s Listed Companies Database; and (iii) firms in the financial industry (companies with the KSRI industry classification code file numbers of 32, 33, 34, 35, 36, or 37). Chaebol firms are the firms that belong to top 30 chaebols according to the Korean Fair Trade Commission classification in 1997. The financial statement information, including ownership information, is based on the 1996 fiscal year end data. The largest shareholder ownership includes the ownership of those who have special relationship (e.g., family members) with the largest shareholder. Manager ownership represents the total percentage ownership held by managers of the company. Blockholder ownership represents the ownership held by those individuals and corporations that own more than 5% of total outstanding shares. Free CF represents free cash flow, and is defined similar to [Lehn and Poulsen \(1989\)](#) (i.e., operating income before depreciation, minus income taxes, minus interest expenses, minus preferred stock dividends, and minus common stock dividends). # of business segments represents the number of business segments that are responsible for more than 10% of the total sales. Average is reported on the left and the 30th percentile, median, and the 70th percentile are reported in parenthesis. Difference represents the *z*-statistics from the Wilcoxon rank-sum test for the test of the differences of the each variable's distributions for chaebol and non-chaebol firms.

crash. This also indicates that free cash flow problems may not have been a major concern for most Korean companies around the crisis period.¹⁵ Chaebol firms typically have higher leverage, both short-term and long-term leverages, than non-chaebol firms. The average short-term debt over total assets is 42% for our sample firms. As previously mentioned, [Choi et al. \(2000\)](#) argue that such a high short-term leverage is one of the major causes for the Korean financial crisis. In addition, chaebol firms have more business segments than non-chaebol firms.

In an unreported table, we check correlations among proxy variables. Largest shareholder ownership is significantly positively correlated with manager ownership

¹⁵ The low average free cash flow over total assets of our sample firm (the mean of − 0.4% and the median of − 0.4%) is in contrast with the median free cash over total assets of around 5% for the industries in [Lie \(2000\)](#). The sample in [Lie \(2000\)](#) includes 8194 announcements of special dividends, regular dividend increase, or self-tender offers by U.S. firms.

(0.57) but is not significantly related to blockholder ownership (-0.09). On the other hand, free cash flow is significantly negatively correlated with short-term debt (-0.25). This might be because firms with more free cash flows are less dependent on borrowing, especially in the short-term. Short-term leverage is, however, significantly negatively related to long-term leverage (-0.30). There is also significant negative relation between manager (and largest shareholder) ownership and both long-term leverage (-0.24 , and -0.12 for largest shareholder ownership) and the number of business segments (-0.14 , and -0.13 for largest shareholder ownership).

3.3. Other control variables

Fama and French (1992) show that book-to-market equity ratio (B/M) and size are the two most important factors that explain the cross-sectional distribution of stock returns in the US. Kim and Kim (2000) also show that B/M and size have significant explanatory powers in Korea. Therefore, we use market capitalization and B/M of each firm as control variables in our study. Market capitalization is measured as of April 30, 1997. B/M is calculated based on the book value of equity (excluding preferred stocks) at the 1996 fiscal year end and on the market value of equity on April 30, 1997. As was mentioned above, Table 1 shows that chaebol firms are typically larger than non-chaebol firms, and they have higher B/M than non-chaebol firms do.¹⁶

In addition to size and B/M, we also use beta from the Capital Asset Pricing Model to control for risk, and prior 1-year return to control for a possible impact of prior stock returns on future stock returns (e.g., Jegadeesh and Titman, 1993). Beta is measured based on the market model by regressing individual company's daily returns on the daily returns of the Korea Composite Stock Price Index (KOSPI) over the 1-year period ending on April 30, 1997.

All these control variables are mainly for the stock return performance. However, we use the same control variables for the examination of the operating performance in Table 4 in the multivariate regression analysis.

3.4. Performance measure

On May 14, 1997, Thailand's currency was first hit by a massive attack from speculators and the Korean government gave up defending its battered currency on November 17, 1997.¹⁷ Fig. 1 shows the KOSPI levels at the end of each month during the period from January 1996 through December 2000. The KOSPI was close to 1000 in April

¹⁶ To examine whether size and B/M significantly explain cross-sectional differences in stock returns during our sample period, we calculated the average return over the period from May 1, 1997 through December 31, 1999, for various size and B/M groups. B/M seems not to explain the differences in returns across firms while size does. In contrast to the results in previous studies, large firms outperformed small firms during this period. This is true even when chaebol and non-chaebol firms are examined separately.

¹⁷ On November 21, 1997, Korea announced that it would seek a rescue plan from the IMF and on December 1, 1997, Korea and the IMF resumed talks on the rescue plan after an initial deal failed. On December 4, 1997, the IMF announced a rescue package including a record amount of loan. Kho and Stulz (2000) include more detailed description on event days during the Asian financial crisis.

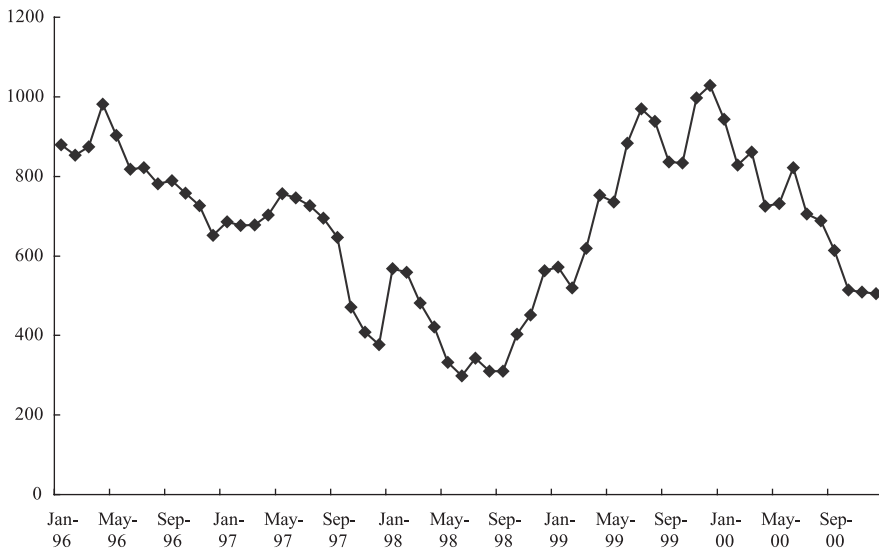


Fig. 1. Korea Composite Stock Price Index (KOSPI). The following graph shows the KOSPI levels at the end of each month from January 1996 through December 2000.

1996, was around 700 in May 1997, dropped below 400 by summer 1998, and started to rebound in September 1998.

We measure the stock price performance of our sample firms from May 1997 to August 1998. Our performance measurement period starts from right before the beginning of the Asian financial crisis, and stops before the market rebounds.¹⁸

For stock price performance, buy-and-hold stock returns are measured over the period starting from May 1, 1997, by compounding daily returns. If a company is delisted before the end of the measuring period, then the return calculation stops on the delisting date.

Operating performance is measured as the average returns on assets (ROAs) during the 1997 and 1998 fiscal year ends. We also use profit margin as another operating performance measure but do not report the results here because the qualitative results are similar.

4. Empirical results

4.1. Univariate comparison of performance

We examine the differences in stock returns between the firms with different agency problem proxy variables. Table 3 reports the average returns for companies with various proxy variables in the top 30th percentile (high) and the average returns for the companies

¹⁸ Mitton (2002) defines the Asian financial crisis period as the period from the end of June 1997 to August 1998. The beginning of this period corresponds with the devaluation of the Thai baht on July 2, 1997, and the ending point corresponds with the date on which the indices of five countries began a sustained upward trend.

with proxy variables in the bottom 30th percentile (low). In addition, [Table 3](#) reports the differences between high and low groups. The cutoff points used to classify the sample firms into high or low groups for each variable are reported in [Table 2](#). We use the cutoff points based on the total sample firms for both chaebol and non-chaebol firms.

The average holding period returns during the crisis period from May 1997 to August 1998 are reported on top and the mean of average ROAs during the 1997 and 1998 fiscal year ends are reported at the bottom of each cell.

For chaebol firms, significant (at least at the 10% significance level) differences in holding-period returns during the crisis period between the high and the low groups appear for largest shareholder ownership, free cash flow and short-term leverage. Chaebol firms in the high largest shareholder ownership group earned on average 15% significantly higher returns than chaebol firms in the low largest shareholder ownership group. Firms in the high free cash flow group generated returns that were 20% higher than those in the low free cash flow group, and the difference between two groups is significant at the 1% significance level using the nonparametric two-sided Wilcoxon rank-sum test. Moreover, chaebol firms with low short-term leverage generated returns that were 13% significantly (at the 5% significance level) higher than the returns for chaebol firms with high short-term leverage.

For non-chaebol firms, we observe significant differences in returns for all agency problem proxy variables except for the diversification variable. In contrast to the chaebol firms' case, there are significant differences in returns among different manager ownership and blockholder ownership groups. Non-chaebol firms with high largest shareholder ownership (manager or blockholder ownership) have returns, on average 8% (11% or 7%) higher than the returns of non-chaebol firms with low largest shareholder ownership (manager or blockholder ownership). These differences are significant at the 1% (5% for blockholder ownership) significance level. Free cash flows and leverage ratios remain significant at the 1% significance level for non-chaebol firms.

The univariate comparison of performance between different agency proxy variables suggests that agency problems seem to explain the performance of non-chaebol firms better than the performance of chaebol firms. For the total sample, all agency problem proxy variables are significant except for the number of business segments variable.

In the last two columns of [Table 3](#), we examine the differences in returns between chaebol firms and non-chaebol firms in the high (or low) group of each agency proxy variable. For free cash flows and long-term leverage variables, chaebol firms in the high group generate significantly higher returns than those non-chaebol firms in the high group. For the low largest shareholder and manager ownership groups, chaebol firms generate higher returns than non-chaebol firms.

The operating performance results show that there are significant differences between the high and the low groups for blockholder ownership, free cash flow and leverage variables, for both chaebol and non-chaebol firms. For blockholder ownership and free cash flow variables, however, the results are the opposite of the expected results. When the performance of chaebol firms are compared with that of non-chaebol firms in the same agency problem proxy variable group (i.e., high or low group), chaebol firms in the high group perform significantly worse than non-chaebol firms in the high group for blockholder ownership and free cash flow variables. For the low group, we find significant

Table 3
Chaebol and non-chaebol performance categorized by agency cost variables

	Chaebol			Non-chaebol			Total			Chaebol–Non-chaebol	
	High	Low	Diff	High	Low	Diff	High	Low	Diff	High	Low
Large Sh (20:64, 157:113)	–56.28%	–71.17%	14.89%**	–66.83%	–74.41%	7.58%***	–65.64%	–73.24%	7.60%***	10.55%*	3.24%*
Manager (9:91,167:85)	4.66%	–4.95%	0.29%	–3.94%	–5.93%	1.99%	–4.03%	–5.53%	1.50%*	–0.72%	0.98%*
Blockholder (58:37,119:140)	–70.06%	–66.73%	–3.33%	–64.34%	–75.07%	10.73%***	–64.63%	–70.76%	6.13%***	–5.72%	8.34%**
FCF/TA (42:34, 135:143)	0.83%	–7.40%	8.23%	–1.66%	–6.18%	4.52%	–1.53%	–6.87%	5.34%***	2.49%	–1.22%
ST Debt/TA (56:25, 121:152)	–60.45%	–69.73%	9.29%	–61.04%	–68.08%	7.04%**	–60.85%	–68.42%	7.57%**	0.59%	–1.65%
LT Debt/TA (75:19, 102:158)	–4.99%	–4.41%	–0.58%**	0.65%	–4.75%	5.40%***	–4.67%	–1.22%	–3.45%***	–5.64%***	0.34%
# of seg. (56:34, 131:156)	–53.01%	–73.29%	20.28%***	–61.55%	–68.42%	6.88%***	–59.52%	–69.36%	9.84%***	8.54%**	–4.87%
	0.41%	–8.78%	9.19%***	0.63%	–8.32%	8.95%***	0.58%	–8.41%	8.99%***	–0.22%***	–0.46%
	–71.08%	–58.49%	–12.59%**	–76.90%	–61.84%	–15.05%***	–75.06%	–61.37%	–13.69%***	5.82%	3.35%
	–9.62%	–3.11%	–6.51%**	–6.74%	–2.68%	–4.06%***	–7.69%	–2.74%	–4.95%***	–2.88%	–0.43%
	–67.66%	–60.61%	–7.04%	–75.85%	–60.00%	–15.85%***	–72.38%	–60.07%	–12.31%***	8.19%**	–0.61%
	–7.54%	–2.62%	–4.92%**	–8.69%	–0.63%	–8.06%***	–8.17%	0.27%	–8.44%***	1.15%	–1.99%
	–65.69%	–69.57%	3.88%	–70.57%	–67.43%	–3.14%	–69.11%	–67.81%	–1.30%	4.88%	–2.14%
	–2.08%	–7.48%	5.40%	–5.22%	–1.78%	–3.44%	–4.21%	–2.81%	–1.40%	3.14%	–5.70%**

The sample is composed of all non-financial firms listed on the Korean Stock Exchange as of May 1, 1997. Chaebol firms are the firms that belong to top 30 chaebols according to the Korean Fair Trade Commission classification in 1997. The financial statement information, including ownership information, is based on the 1996 fiscal year end data. The largest shareholder ownership (Large Sh) includes the ownership of those who have special relationship (e.g., family members) with the largest shareholder. Manager ownership (Manager) represents the total percentage ownership held by managers of the company. Blockholder represents the ownership held by those individuals and corporations that own more than 5% of total outstanding shares. FCF represents free cash flow, and is defined similar to *Lehn and Poulsen (1989)*. ST Debt/TA represents short-term debt over total assets and LT Debt/TA represents long-term debt over total assets. # of business segments (# of Seg.) represents the number of business segments that are responsible for more than 10% of the total sales for each company. High includes the firms with each agency problem proxy variable in the top 30 percentiles and Low includes the firms with each agency problem proxy variable in the bottom 30 percentiles. Diff represents the return of High minus the return of Low. The last two columns (Chaebol–Non-chaebol) show the differences in returns between chaebol and non-chaebol firms in the High (or Low) group of each agency proxy variable. *** (** or *) represents the case where the differences are significant at the 1% (5% or 10%) significance level when the Wilcoxon rank-sum test is used. The numbers in parenthesis below each agency proxy variable represents the number of chaebol and non-chaebol firms that belong to High vs. Low groups (Chaebol High:Chaebol Low, Non-chaebol High:Non-chaebol Low). The average return over the crisis period from May 1997 to August 1998 is reported on top and the average of (1997 ROA + 1998 ROA)/2 is reported at the bottom of each cell.

differences between chaebol and non-chaebol firms for large shareholder ownership and diversification variables.

The results in Table 3 suggest that agency problems are closely related to stock returns while they are less closely related to operating performance. In addition, the role of agency problems seems to be different for chaebol firms compared to its role for non-chaebol firms, especially for stock return performance. In the next section, we examine whether the results in Table 3 hold even after we control for other factors using multivariate regression analyses.

4.2. Multivariate regression analysis

We statistically test the significance of various agency problem proxy variables by using regression analyses. We control for prior return, beta, size and B/M in each regression. Table 4 reports the regression results for stock returns and operating performance using all agency problem proxy variables in one regression. The following is used:

$$R_i \text{ (or } ROA_i) = \alpha + \beta_1 PR1_i + \beta_2 Beta_i + \beta_3 LMKT_i + \beta_4 LBM_i + \beta_5 CH_i + \beta_6 LAR1_i \\ + \beta_7 LAR2_i + \beta_8 LAR3_i + \beta_9 MAN_i + \beta_{10} OUT_i + \beta_{11} FCF_i \\ + \beta_{12} STD_i + \beta_{13} LTD_i + \beta_{14} DIV_i + \text{Industry dummies} \dots + \varepsilon_i.$$

R_i represents the holding period return from May 1997 through August 1998 and ROA_i represents the average ROAs during the 1997 and 1998 fiscal year ends. $PR1_i$ represents the return from May 1996 through April 1997. $Beta_i$ is the beta of the company i , $LMKT_i$ is the natural log of market capitalization (= Ln (market capitalization in billion won)), LBM_i is the natural log of book-to-market equity ratio, and CH_i is the dummy variable for a chaebol company. $LAR1_i$, $LAR2_i$, and $LAR3_i$ are the largest shareholder ownership variables. If the largest shareholder ownership (LAR) is less than 30%, $LAR1$ is equal to LAR, and both $LAR2$ and $LAR3$ are 0. If LAR is in between 30% and 35%, then $LAR1$ is 30%, $LAR2$ is LAR minus 30%, and $LAR3$ is set to 0. If LAR is greater than 35%, then $LAR1$ is 30%, $LAR2$ is 5%, and $LAR3$ is LAR minus 35%.¹⁹ MAN_i is the manager's ownership, OUT_i is the blockholder ownership, FCF_i is the free cash flow over total assets, STD_i is the short-term debt over total assets, and LTD_i is the long-term debt over total assets.²⁰ Industry dummy variables are used to control for the industry effects. We divide firms into 10 industry groups depending on the industry classification code of KLCA

¹⁹ To examine the form of nonlinear relation of the largest shareholder ownership with performance, we tried various regression models with different cut-off points for $LAR1$, $LAR2$ and $LAR3$, and also tried the model with square of largest shareholder ownership. Out of various cut-off points tried, 30–35% cutoff points used in the paper best explained the return differences. The qualitative results using different cutoff points are similar to those in the paper. In addition, we also tried different nonlinear versions of manager ownership variables but do not report the results here because the qualitative results are similar to those reported here (i.e., not significant).

²⁰ To control for the possible endogeneity of proxy variables, we also used three-stage regressions. The qualitative results were similar to those reported in Table 4, based on ordinary least squares.

Table 4
Multivariate regression results

# of Obs	Stock returns			Change in ROA		
	Chaebol	Non-chaebol	All	Chaebol	Non-chaebol	All
	135	453	588	128	406	534
Constant	-2.833 (-4.487)	-0.409 (-0.882)	-1.336 (-3.722)	-47.754 (-0.918)	2.422 (0.100)	-9.335 (-0.409)
PR1	-0.108 (-1.599)	-0.019 (-1.082)	-0.178 (-1.115)	7.129 (1.337)	2.401 (1.584)	2.991 (2.217)
Beta	0.554 (1.116)	-0.118 (-0.431)	-0.057 (-0.242)	21.870 (0.542)	-10.334 (-0.662)	-4.257 (-0.262)
LMKT	0.080 (3.165)	0.000 (-0.004)	0.033 (2.461)	1.723 (0.804)	0.422 (0.499)	0.759 (0.877)
LBM	-0.023 (-0.682)	-0.020 (-1.097)	-0.009 (-0.584)	-0.751 (-0.249)	-0.048 (-0.019)	-0.142 (-0.074)
CH			0.039 (1.254)			2.564 (1.135)
LAR1	0.784 (2.162)	0.489 (2.064)	0.525 (2.661)	3.814 (0.090)	7.910 (0.418)	-0.836 (-0.049)
LAR2	1.410 (0.766)	-1.449 (-1.635)	-0.909 (-1.125)	9.437 (0.058)	-43.011 (-0.680)	-32.795 (-0.513)
LAR3	-0.049 (-0.087)	0.314 (1.428)	0.214 (1.069)	31.302 (0.946)	-0.721 (-0.057)	3.297 (0.270)
MAN	0.234 (0.539)	0.082 (0.669)	0.066 (0.587)	21.041 (1.356)	9.244 (1.132)	14.194 (1.793)
OUT	0.621 (1.910)	0.104 (1.241)	0.214 (2.129)	6.591 (0.716)	9.799 (2.089)	7.742 (1.970)
FCF	-0.338 (-0.446)	-0.148 (-0.419)	-0.081 (-0.241)	-18.089 (-0.386)	69.293 (3.114)	62.917 (3.209)
STD	-0.469 (-2.112)	-0.504 (-4.732)	-0.426 (-4.556)	-13.318 (-0.738)	-16.534 (-1.162)	-17.586 (-1.552)
LTD	-0.317 (-1.170)	-0.369 (-3.257)	-0.305 (-2.995)	-19.805 (-1.562)	-30.490 (-3.304)	-26.425 (-3.725)
DIV	-0.006 (-0.407)	-0.005 (-0.404)	-0.002 (-0.247)	2.838 (1.863)	-0.323 (-0.401)	0.576 (0.757)
Industry Control	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R ²	21.5%	10.2%	10.28%	12.83%	5.57%	6.82%

The following describes the regressions used in the this table:

$$R_i \text{ (or } ROA_i) = \alpha + \beta_1 PR1_i + \beta_2 Beta_i + \beta_3 LMKT_i + \beta_4 LBM_i + \beta_5 CH_i + \beta_6 LAR1_i + \beta_7 LAR2_i + \beta_8 LAR3_i + \beta_9 MAN_i + \beta_{10} OUT_i + \beta_{11} FCF_i + \beta_{12} STD_i + \beta_{13} LTD_i + \beta_{14} DIV_i + \text{Industry dummies} \dots + \varepsilon_i.$$

R_i represents stock returns for company i and ROA_i represents the average return on assets during the 1997 and 1998 fiscal year ends for firm i . $PR1_i$ represents the return over May 1996 through April 1997. $Beta_i$ is the beta of the company i , $LMKT_i$ is the natural log market capitalization (= Ln (market capitalization in billion won)), LBM_i is the natural log book-to-market equity ratio, and CH_i is the dummy variable for chaebol company. $LAR1_i$, $LAR2_i$, and $LAR3_i$ are the largest shareholder ownership (LAR). If LAR is less than 30%, $LAR1 = LAR$, and $LAR2 = LAR3 = 0$. If LAR is in between 30% and 35%, $LAR1 = 30%$, $LAR2 = LAR - 30%$ and $LAR3 = 0$. If LAR is greater than 35%, then $LAR1 = 30%$, $LAR2 = 5%$ and $LAR3 = LAR - 35%$. MAN_i is the manager's ownership, OUT_i is the blockholder ownership, FCF_i is the free cash flow over total assets, STD_i is the short-term debt over total assets, LTD_i is the long-term debt over total assets, and DIV_i is the degree of diversification represented by the number of business segments. Industry dummies are used to control for the industry effects. Coefficients are reported on top and White's heteroskedasticity-consistent t -statistics are reported in parenthesis.

database. To examine the different roles of agency problems for chaebol firms vs. non-chaebol firms, we run the regressions for chaebol and for non-chaebol firms separately.

The results for stock returns show that among control variables, only size has a significant explanatory power even though size becomes insignificant when we run the regression only for non-chaebol firms.

Among agency problem proxy variables, the coefficients of the largest shareholder ownership (LAR1), blockholder ownership and leverages are significant for the total sample. The significantly positive coefficient of LAR1 indicates that the high ownership of largest shareholders (at least up to the 30% level) positively affects stock returns during the crisis even though the negative, albeit insignificant, coefficient of LAR2 suggests the existence of nonlinearity in the relation between the largest shareholder ownership and performance. Moreover, the significantly positive coefficient of blockholder ownership indicates that blockholders play positive roles. This is especially true for the chaebol firms. Even though cross holdings are prevalent among chaebol member firms and therefore a significant portion of blockholder ownership is held by chaebol member firms, the significant positive coefficient of blockholder ownership for chaebol firms implies that during the crisis, blockholders play positive monitoring roles for chaebols, that are known to have weaker corporate governance structures. However, the coefficient of blockholder ownership for non-chaebol firms is not statistically significant. Manager ownership does not have any significant explanatory power. This might be because managers do not have full control over important decisions of the company in most Korean companies. Instead, owners have almost complete control over all the important decisions.

Different from the univariate results in Table 3, free cash flows are not significantly related to stock returns. On the other hand, both short-term and long-term leverages have significant explanatory powers. This holds for non-chaebol firms. However, for chaebol firms, leverage becomes less important, especially in the case of long-term leverage. This might be related to the existence of the internal capital market for chaebol firms as Park and Shin (1999) show that chaebol firms are less subject to liquidity problems due to the internal capital market. In addition, adjusted- R^2 of the regression for chaebol firms (21.5%) is more than twice that for non-chaebol firms (10.2%), implying that agency problem proxy variables explain the differences in performance among chaebol firms much better than the differences among non-chaebol firms.

The significant role of leverage in explaining the performance of Korean companies during the crisis may be consistent with the agency based theory that a highly leveraged firm in financial distress makes inefficient investment decisions and this leads to a value decrease. Alternative explanation is that the stock market pays a lot of attention to the firm's ability to repay loans, especially short-term loans, when most financial institutions are not willing to renew short-term credit due to their own liquidity problems in an economy-wide financial distress. This might lead to very poor performance of the firms with very high leverage, especially those with very high short-term leverage.

To examine this issue, we calculate the average return during the crisis period for the firms in different investment and leverage groups. If the poor performance is due to inefficient investment decisions, then we will expect worse performance for those

Table 5
R&D and performance

R&D	Leverage		
	Low	High	Diff
Low	– 59.83% (127)	– 69.98% (125)	– 10.15%***
	– 3.08% (122)	– 6.10% (122)	– 3.02%***
High	– 58.61% (44)	– 66.95% (35)	– 8.33%**
	– 1.78% (42)	– 16.41% (34)	– 14.63%***
Diff	1.22%	3.03%	
	1.30%	– 10.31%	

This table reports the average stock returns and the average returns on assets (ROA) for the sample firms in different research and development (R&D) and leverage groups. Sample firms are divided into three R&D groups depending on the following industry-adjusted R&D expense change during the 1996 and 1998 fiscal year ends. R&D expenses are measured relative to sales in each fiscal year end. The median industry R&D expense change is subtracted to calculate the industry-adjusted R&D expense change. Sample firms in the bottom 30 percentiles are classified into the low R&D group and those in the top 30 percentiles are classified into the high R&D group. Sample firms are also divided into three leverage groups depending on their industry-adjusted short-term debt over total assets at the 1996 fiscal year end. Firms in the bottom 30 percentiles are in the low leverage group and those in the top 30 percentiles are in the high leverage group. Average stock returns over the crisis period from May 1997 to August 1998 are reported on top and averages of (1997 ROA + 1998 ROA)/2 are reported at the bottom, and the number of observations used to calculate the averages is reported in parenthesis. “Diff” column (or row) reports the differences in performance between the low and the high R&D (or leverage) groups.

***, **, and * represent significance at 1%, 5%, and 10% levels from the Wilcoxon rank-sum test.

companies with large investment among highly leveraged firms. The results in Table 5, however, do not show any significant differences in average stock returns between the high and the low investment groups holding leverage constant.²¹ This indicates that poor investment decision during the crisis is not the primary reason why high leverage firms have performed poorly during the Asian financial crisis.

We also examine whether the coefficients of agency proxy variables are different for chaebol vs. non-chaebol firms by including interactive dummy variables for all nine agency problem proxy variables (i.e., chaebol dummy times each agency proxy variable) into the regression equation. The unreported results show that none of the interactive dummy variables are significant. Even though agency problems seem to have different explanatory power when chaebol firms and non-chaebol firms are separately examined, the results suggest that there are no statistically significant differences in the impact of agency problem proxy variables between chaebol vs. non-chaebol firms.

Table 4 also reports the results of the multivariate regressions using the average ROA during the 1997 and 1998 fiscal year ends as dependent variables. For the operating performance of total sample, blockholder ownership, free cash flow and long-term leverage are highly significant and manager ownership is marginally significant. However, when we run the regression separately for chaebol firms only, nothing except for the number of

²¹ We measure the amount of investment during the crisis using the following proxy: change in research and development (R&D) over sales during the 1996 and the 1998 fiscal year ends for the crisis period. Rankings of R&D over sales and leverage (short-term debt over total assets) are based on industry-median adjusted numbers.

business segments is significant. For non-chaebol firms, the results are similar to the total sample results except for the manager ownership. In sum, for the operating performance, blockholder ownership is positively related to operating performance just for non-chaebol firms. This is in contrast with the results for stock returns. The exactly opposite is true for the stock returns (i.e., blockholder ownership is more important for chaebols). For chaebol firms' operating performance, no agency problem proxy variables significantly explain differences in operating performance except for the diversification proxy variable. The only significant coefficient for the number of business segments is positive and this is inconsistent with the agency theory. The significant coefficients of free cash flow variable for non-chaebol and total sample are also inconsistent with the agency theory.

We also used the interactive dummy variables to check whether the coefficients of agency problem proxy variables are significantly different for chaebol firms and found that there are no differences in coefficients of all proxy variables except for the diversification variable.

In sum, agency problems seem to have some power in explaining stock returns of Korean companies during the crisis period. Specifically, largest shareholder ownership and blockholder ownership are significantly positively related to stock returns during the crisis for chaebol firms, while blockholder ownership does not have significant relation with stock returns for non-chaebol firms. However, we observe very different picture when operating performance is examined. Blockholder ownership matters only for non-chaebol firms for operating performance. Corporate governance structure seems to matter in determining the role of agency problems during the crisis but agency problems seem to play different roles in the stock market compared to its roles in explaining the differences in operating performance.

5. Summary and conclusion

This paper examines whether agency problems explain the performance of Korean companies during the Asian financial crisis. Since most Korean companies were known to have weak corporate governance structures, agency problems might become more important during a crisis. The financial crisis, which Korea has recently experienced, provides an interesting experimental setting to test the role of different agency problems in explaining the cross-sectional differences in performance under an economy-wide financially distressed situation. Moreover, the comparison of the roles of agency problems for chaebol vs. non-chaebol firms provides us with a piece of useful information about whether the corporate governance structure has any impact on the role of agency problems during a crisis.

The performance of 590 non-financial companies that were listed in the Korean Stock Exchange as of May 1, 1997 is analyzed in the paper. We use seven variables that would proxy for different degrees of potential agency problems: (i) three ownership structure variables (largest shareholder ownership, manager ownership and blockholder ownership); (ii) one free cash flow variable (free cash flow over total assets); (iii) two leverage variables (short-term debt over total assets and long-term debt over total assets); and (iv) one variable to show the degree of diversification (number of business segments). Here, ownership structure, free cash flow and diversification variables are more closely related to

the agency problems between insiders (managers or controlling shareholders) and outside minority shareholders and leverage is more closely related to the agency cost of debt. Stock returns and one operating performance measure, average return on assets (ROA) during the 1997 and 1998 fiscal year ends, are used to measure the performance. Stock returns are measured over the period from May 1997 to August 1998 right before the Korean stock market rebounded.

The results seem to suggest that corporate governance structure matters in determining the role of agency problems during the crisis but agency problems play different roles in the stock market compared to its roles in explaining the differences in operating performance. This is somewhat consistent with [Rajan and Zingales \(1998\)](#) in that if investors pay more attention to corporate governance under a crisis, there will be possibly different impacts of agency problems on stock returns compared to their impact on operating performance.

We find some evidence that the explanatory power of agency problems is different for chaebol firms, compared to non-chaebol firms. For example, blockholder ownership is significant when only chaebol firms are separately analyzed but it is not significant when non-chaebol firms are separately examined in a regression. However, we find no significant differences in the coefficients of block holder ownership for chaebol vs. non-chaebol firms. Even though the sensitivity of blockholder ownership to returns is not significantly different, the different explanatory power of agency problems in explaining the returns of chaebol firms compared to its power for non-chaebol firms' returns indicates that corporate governance structure seem to influence the role of agency problems during a crisis.

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References

- Ang, J.S., Cole, R.A., Wuh Lin, J., 2000. Agency costs and ownership structure. *Journal of Finance* 55, 81–106.
- Bae, K.-H., Kang, J.-K., Kim, J.-M., 2002. Tunneling of value added? Evidence from mergers by Korean Business Groups. *Journal of Finance* 57, 2695–2740.
- Brickley, J.A., Coles, J.L., Terry, R.L., 1994. Outside directors and the adoption of poison pills. *Journal of Financial Economics* 35, 371–390.
- Choi, D., Jen, F.C., Shin, H., 2000. Causes and consequences of the Korean financial crisis. *Review of Pacific Basic Financial Markets and Policies* 3, 1–26.

- Claessens, S., Djankov, S., Lang, L.H.P., 2000. The separation of ownership and control in East Asian. *Journal of Financial Economics* 58, 81–112.
- Denis, D.J., Denis, D.K., Sarin, A., 1997a. Agency problems, equity ownership, and corporate diversification. *Journal of Finance* 52, 135–160.
- Denis, D.J., Denis, D.K., Sarin, A., 1997b. Ownership structure and top executive turnover. *Journal of Financial Economics* 45, 193–221.
- Diamond, D., 1991. Debt maturity structure and liquidity risk. *Quarterly Journal of Economics* 106, 709–737.
- Fama, E.F., French, K.R., 1992. The cross-section of expected returns. *Journal of Finance* 47, 427–466.
- Flannery, M., 1986. Asymmetric information and risky debt maturity choice. *Journal of Finance* 41, 19–37.
- Hahn, J.-H., Mishkin, F.S., 2000. The Korean financial crisis: An asymmetric information perspective. *Emerging Markets Review* 1, 21–52.
- Jegadeesh, N., Titman, S., 1993. Returns to buying winners and selling losers: Implications for market efficiency. *Journal of Finance* 48, 65–91.
- Jensen, M., 1986. Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review* 76, 323–329.
- Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3, 305–360.
- Joh, S.W., 2003. Corporate governance and firm profitability: Evidence from Korea before the economic crisis. *Journal of Financial Economics* 68, 287–322.
- Johnson, S., Boone, P., Breach, A., Friedman, E., 2000. Corporate governance in the Asian financial crisis. *Journal of Financial Economics* 58, 141–186.
- Kho, B.-C., Stulz, R.M., 2000. Banks, the IMF, and the Asian crisis. *Pacific-Basin Finance Journal* 8, 177–216.
- Kim, S., Kim, J., 2000. Firm size and book-to-market factors in Korean stock returns. *The Korean Journal of Finance* 13, 21–47 (in Korean).
- Kim, Y.S., Lee, J.C., 2000. The relationship between corporate value and ownership structure. *The Journal of Korean Securities Association* 26, 173–197 (in Korean).
- Lang, L., Stulz, R., Walkling, R., 1991. A test of the free cash flow hypothesis. *Journal of Financial Economics* 29, 315–335.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. *Journal of Finance* 52, 1131–1150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. *Journal of Political Economy* 106, 1115–1155.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1999. Investor protection and corporate valuation, Unpublished working paper, Harvard University.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2000. Investor protection and corporate governance. *Journal of Financial Economics* 58, 3–27.
- Lehn, K., Poulsen, A., 1989. Free cash flow and stockholder gains in going private transactions. *Journal of Finance* 44, 771–787.
- Lie, E., 2000. Excess funds and agency problems: An empirical study of incremental cash disbursements. *Review of Financial Studies* 13, 219–248.
- Lins, K., 2000. Equity ownership and firm value in emerging markets, Working Paper, University of North Carolina.
- Lins, K., Servaes, H., 2002. Is corporate diversification beneficial in emerging markets? Working paper, London Business School.
- Maloney, M.T., McCormick, R.E., Mitchell, M.L., 1993. Managerial decision making and capital structure. *Journal of Business* 66, 189–217.
- Mitton, T., 2002. A cross-firm analysis of the impact of corporate governance on the east Asian financial crisis. *Journal of Financial Economics* 64, 215–241.
- Morck, R., Shleifer, A., Vishny, R.W., 1988. Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics* 20, 293–315.
- Myers, S., 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5, 147–175.
- Park, Y., Shin, H., 1999. Financing constraints and internal capital markets: Evidence from Korean ‘chaebols’. *Journal of Corporate Finance* 5, 169–191.

- Rajan, R.G., Zingales, L., 1998. Which capitalism? Lessons from the East Asian crisis. *Journal of Applied Corporate Finance* 11, 40–48.
- Rajan, R.G., Servaes, H., Zingales, L., 2000. The cost of diversity: The diversification discount and inefficient investment. *Journal of Finance* 55, 35–80.
- Shleifer, A., Vishny, R., 1986. Large shareholders and corporate control. *Journal of Political Economy* 94, 461–488.
- Titman, S., Trueman, B., 1986. Information quality and the valuation of new issues. *Journal of Accounting and Economics* 8, 159–172.
- Weisbach, M.S., 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20, 431–460.
- Yun, Y.S., Kim, S.P., 1999. The value impacts of business diversification and agency problems. *The Korean Journal of Finance* 12, 1–37 (in Korean).