

# **Economic Shock, Owner-Manager Incentives, and Corporate Restructuring: Evidence from the Financial Crisis in Korea<sup>1</sup>**

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# **Economic Shock, Owner-Manager Incentives, and Corporate Restructuring: Evidence from the Financial Crisis in Korea**

## **Abstract**

We examine how owner-managers incentives and firm-specific measures of corporate governance affect restructuring decisions during an economy-wide shock. Using a large sample of Korean firms that had experienced a severe financial crisis during 1997-1998, we find that the likelihood of restructuring is negatively related to the divergence of cash flow rights and control rights of controlling shareholders, and that the announcements of restructuring by chaebol firms with such divergence are greeted more negatively by investors. However, firm-specific measures of corporate governance such as total debt, bank loans, and equity ownership by unaffiliated financial institutions mitigate these negative effects, thereby influencing firms to choose value-maximizing restructuring policies. Our results suggest that the controlling shareholders' incentives to expropriate other investors are high during an economic shock. Our results also highlight the importance of corporate governance in mitigating such expropriation incentives, and provide important implications for the role of corporate governance during an economic shock, such as the 2007-2008 global financial crisis.

## 1. Introduction

Market-wide shocks in the economy, such as the world-wide financial crisis in 2007-2008 caused by the U.S. subprime mortgage problems, the Great Depression in the U.S., and the financial crisis of East Asia in 1997, have a profound negative impact on asset prices, firms' investment and financing policies, investor sentiments, and consumer demands. To overcome these economy-wide adverse effects, firms that experience a market-wide shock (hereafter referred to as an *economic shock*) are expected to undertake several restructuring measures, which might be fundamentally different from those undertaken by firms that experience a firm-specific shock. However, evidence on the potential difference in restructuring measures during these different economic environments is limited. In particular, although there is extensive literature on the restructuring activity responding to firm-specific shocks, such as performance declines,<sup>1</sup> little is known about the restructuring activity during an economic shock and factors that influence its likelihood.

This lack of empirical evidence on the restructuring activity in response to an economic shock is unfortunate, given that the ability of firms to respond to an unexpected economic shock and the determinants of this response are important factors that affect firms' organizational efficiency. Furthermore, an economic shock tends to create different incentives among controlling shareholders, outside shareholders, and creditors concerning restructuring policies, since the agency problems among investors tend to increase significantly during the shock. For example, Johnson, Boone, Breach, and Friedman (2000) argue that a loss of investor confidence and the fall in expected returns on investment during a financial crisis lead to an increase in expropriation of minority shareholders by controlling

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<sup>1</sup> See, for example, John, Lang, and Netter (1992), Ofek (1993), Kang and Shivdasani (1997), and Denis and Kruse (2000). These studies show that following a performance decline, there is a high frequency of corporate restructuring and a significant improvement in post-restructuring operating performance. They also show that corporate governance is closely related to the probability that certain restructuring actions will be taken in response to performance declines. For example, Ofek (1993) shows that high leverage increases the likelihood of asset restructuring and employee layoffs during a performance decline. Kang and Shivdasani (1997) find that the frequency of asset downsizing, layoffs, and removal of outside directors in Japanese firms increases with ownership by the firm's main bank and other blockholders. Denis and Kruse (2000) also show that asset restructuring is more likely to occur in firms experiencing disciplinary events, such as takeover attempts, shareholder activism, and board dismissals.

shareholders.<sup>2</sup> Mitton (2002) also argues that, because of an increase in expropriation incentives during a crisis, corporate governance becomes more critical in explaining cross-firm differences in performance during the Asian financial crisis. Moreover, financial institutions that experience severe external shocks might have quite different incentives in dealing with their troubled client firms. For example, as witnessed by the 2007-2008 global financial crisis, during an economic shock, banks are usually saddled with large amounts of bad loans. Therefore, during an economic shock, banks are likely to have stronger incentives to closely monitor their client firms to reduce debt overhang problems. However, it is also possible that these bad loan problems create incentives for banks to take actions that merely preserve their claims on borrowers, instead of encouraging borrowers to engage in value maximizing actions (e.g., curtailing lending to firms with good future prospects, encouraging firms to take inefficient restructuring to generate cash for the repayment of bank debt, etc.).<sup>3</sup> These arguments suggest that, during an economic shock, controlling shareholders and other claimholders such as financial institutions have strong incentives to influence corporate managers to engage in restructuring actions that increase their private benefits. Therefore, an investigation of restructuring decisions during the economic shock and performance decline periods will help us better understand the claimholder's incentives and the role of corporate governance in different economic environments.

In this study, we use the Korean financial crisis during 1997-1998 as a setting for economic shocks, and examine how the nature of restructuring activities undertaken by firms experiencing an economic shock (the "economic shock sample") is different from that by firms experiencing a large decline in

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<sup>2</sup> Supporting this view, Lemmon and Lins (2003), Claessens, Djankov, Fan, and Lang (2002), and Baek, Kang, and Park (2004) show that during the Asian financial crisis, firms in which controlling shareholders owned more of the voting rights, but fewer cash flow rights, suffered more loss of share values. See also Denis and McConnell (2003) for a review of the literature related to other international corporate governance issues.

<sup>3</sup> The following article from the Financial Times illustrates how borrowers are pressured by their banks during the 2007-2008 global financial crisis: "The German BGA exporters' association yesterday forecast a dramatic deterioration in credit conditions in coming months, which would result in massive financing squeeze. Anton Börner, BGA president, told the Financial Times that "for middle- and long-term credit we already have significant difficulties." Even for short-term credit, he expected banks to exert massive pressure on borrowers." Financial Times (by Ralph Atkins, June 26, 2009, available at <http://www.ft.com/cms/s/0/866d2862-61ea-11de-9e03-00144feabdc0.html>).

operating performance during a non-crisis period, 1994-1996 (the “performance decline sample”).<sup>4</sup> Specifically, we examine whether the frequency of restructuring actions, and the factors that affect the probability of taking such actions are different between these two types of samples. In particular, we focus on the difference in roles of owner-manager incentives and firm-specific measures of corporate governance in facilitating restructuring decisions during the economic and performance decline periods. We use chaebol affiliation and the discrepancy in cash flow rights and voting rights of controlling shareholders as measures for owner-manager incentives, and leverage (borrowings from banks and borrowings from non-bank lenders) and equity ownership by unaffiliated financial institutions as firm-specific measures of corporate governance. We also examine the market’s *ex ante* valuation of these effects using the announcement returns of restructuring firms. To the extent that there has been little empirical evidence on restructurings initiated in response to an economic shock, our analysis should broaden the understanding of the nature of restructuring activities, and the forces affecting such activities during different economic environments.

In examining the determinants of restructuring during a financial crisis, there are at least three reasons why Korean data are useful in examining the issues raised above. First, Korea experienced a severe financial crisis in 1997, a crisis that can be characterized by a large drop in the value of its currency and stock, and a dramatic increase in its interest rates. The exchange rate at the end of October 1997, approximately one month before Korea sought a rescue package from the IMF, was 902 won per U.S. dollar. By the end of December 1997, the rate had gone up to 1,836 won per dollar, effectively devaluing the won by more than 100%. During the same period, the Korea Composite Stock Price Index (KOSPI) plummeted from 471 to 376 and hit its lowest level of 280 on June 16, 1998. The large depreciation of the Korean won also subsequently led to a dramatic increase in interest rates. The interest rates on 91-day commercial paper increased from 13.6% to 21.4% during the last two months of 1997 and peaked at 34.0% on January 7, 1998. To cope with the financial crisis, Korean firms implemented various

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<sup>4</sup> Kang, Lee, and Na (2004) examine corporate restructuring in Korea during a performance decline prior to the Asian financial crisis and document that financial structure and chaebol affiliation are important determinants of restructuring.

restructuring activities. Therefore, the 1997 Korean financial crisis provides a unique opportunity to examine restructuring activities conducted in response to an economic shock.

Second, many Korean firms belong to business groups known as *chaebols*, and ownership of chaebol-affiliated firms is heavily concentrated in one individual who has almost complete control over all firms within the group (Bae, Kang, and Kim, 2002; Joh, 2003; Baek, Kang, and Lee, 2006). Even though the owner-manager of a chaebol firm holds a relatively small portion of its cash flow rights, cross-holdings among chaebol firms allow each owner-manager to exercise full control over the firm. This provides controlling shareholders with strong incentives to expropriate minority shareholders, by investing the firm's resources to maximize their own or the group's wealth (La Porta, Lopez-de-Silanes, and Shleifer, 1999), even when such investments do not maximize the value of the individual firm. These group and ownership structures allow us to examine how the conflicts of interests between controlling and minority shareholders influence the restructuring decision of firms during different economic environments.

Finally, Korean data allow us to examine whether the incentives of large debtholders and unaffiliated shareholders to monitor their client firms differ during economic shock and performance decline periods. As documented by Kang (1998), it is well known that many Korean financial institutions, either as creditors or as shareholders, were passive investors prior to the financial crisis. Furthermore, the Korean government used banks to exercise control over many firms and, thus, banks' management was under great influence from the government. La Porta, Lopez-de Silanes, and Shleifer (2002) show that government ownership of banks leads to less positive role of banks in emerging markets. However, as shown in Johnson *et al.* (2000) and Harvey, Lins, and Roper (2004), the incentives of financial institutions to monitor their client firms are likely to significantly increase during a financial crisis, because their own financial difficulties arising from the shock force them to take actions to preserve their claims on these firms. The Korean data allow us to directly examine these arguments by comparing the disciplinary role of financial institutions before and during the financial crisis.

We find that chaebol firms in the economic shock sample display an abnormally-high frequency of restructuring actions, especially cash-generating asset contraction actions (e.g., asset sales), compared to

those in the performance decline sample. This is consistent with the view that the economic shock, which results in a severe credit crunch in the economy and a breakdown of internal capital markets, encourages chaebol firms to choose the restructuring actions that provide the immediate liquidity that is essential for survival.

We also find that during the financial crisis, chaebol firms with large discrepancy in cash flow rights and voting rights of owner-managers are less likely to engage in restructuring actions. To the extent that restructuring actions are value-enhancing responses to the economic shock and that chaebol owner-managers have strong incentives to expropriate minority shareholders during the economic shock, this evidence is consistent with the previous findings that the separation of cash flow rights and voting rights leads to lower firm values (Johnson *et al.*, 2000; Claessens *et al.*, 2002; Mitton, 2002; Lemmon and Lins, 2003; Baek, Kang, and Park, 2004). In contrast, the likelihood of restructuring is positively related to leverage. The effect of leverage on the likelihood of restructuring is more pronounced for chaebol firms, especially those with large discrepancy in cash flow rights and voting rights of owner-managers, than for other types of firms. These results are consistent with those of Harvey, Lins, and Roper (2004), who show that leverage plays a more important monitoring role in firms with higher expected managerial agency costs.

Moreover, for the economic shock sample, the likelihood of restructuring is positively associated with equity ownership by unaffiliated financial institutions and the ratio of bank loans to total assets. However, we do not find any significant role of bank loans for the performance decline sample. These results suggest that the difficulties of banks and other financial institutions during the period of financial crisis provide them with strong incentives to actively intervene in firms' restructuring decisions, in order to preserve the value of their investments in these firms.

Regarding the market's reaction to the restructuring announcements, we find that abnormal returns for the economic shock sample are significantly positive only when restructuring actions generate immediate cash, or when they are undertaken by chaebol firms. For the performance decline sample, we also find significant positive returns when restructuring actions generate immediate cash, but do not find such positive returns when restructuring actions are undertaken by chaebol firms.

For the economic shock sample, the results from the multivariate regressions show that the announcement returns of restructuring actions by chaebol firms with large discrepancies in cash flow rights and voting rights of owner-managers are lower than those by other types of firms. However, when these chaebol firms have high leverage, their restructuring actions are viewed more favorably by the market. These results are consistent with those of previous studies (Claessens *et al.*, 2002; Mitton, 2002; Lemmon and Lins, 2003; Baek, Kang, and Park, 2004; Harvey, Lins, and Roper, 2004) and suggest that the market reacts more negatively to restructuring decisions made by firms with controlling shareholders who have strong incentives to expropriate minority shareholders, whereas it reacts more positively when better control mechanisms, such as high leverage, reduce such incentives for expropriation. We also find that abnormal returns for the chaebol restructuring firms are positively related to abnormal returns for the equally-weighted portfolio of other non-restructuring affiliates in the same group. The positive relation is stronger if the discrepancy in cash flow rights and voting rights of the controlling shareholders in the restructuring firm is larger. This finding, together with the result of the negative relation between the discrepancies in cash flow rights and voting rights of the controlling shareholders and the abnormal return for the chaebol restructuring firms suggests that such divergence between ownership and control can lead to wealth transfer from restructuring firms to other member firms in the same group.

Since the conflicts of interests among claimholders during an economic crisis are likely to vary depending on the institutional settings of the country, we expect the unique institutional environments in Korea, such as the corporate structure of chaebols, to limit our ability to generalize all the findings in the paper to other countries. However, our major findings that the 1997 Korean financial crisis creates different incentives for controlling shareholders, outside shareholders, and creditors concerning restructuring actions, and that corporate governance plays an instrumental role during the 1997 crisis are likely to have relevant implications to other countries experiencing a similar economy-wide shock, to the extent that an economic shock causes similar changes in incentives of various interest groups involved. Consistent with this view, using a sample of 306 global financial firms across 31 countries, Erkens, Hung, and Matos (2009) show that ownership structure and corporate governance play an important role in CEO turnover during the 2007-2008 global financial crisis.

This paper proceeds as follows. Section 2 discusses how the restructuring activities and their announcement effects are related to several measures of owner-manager incentives, corporate governance mechanisms, and other firm-specific characteristics. Section 3 describes the data and sample characteristics. In Section 4, we present the results from our empirical analysis. Section 5 summarizes and concludes the paper.

## **2. Determinants of restructuring and its announcement effect**

In this section we discuss how the factors that affect restructuring decisions play different roles during an economic shock versus during a performance decline. In many respects, the nature of an economic shock, such as the 1997 Korean financial crisis, is fundamentally different from that of an individual-level performance decline. During the period of an economic shock, most firms suffer from financial difficulties. Since an unexpected economic shock dries up the liquidity in the economy, many firms, particularly those with high leverage, are likely to run into severe financial trouble. Furthermore, financial difficulties in the economy increase bad debts in banks' loan portfolios, forcing banks to curtail lending to the corporate sector and, thus, creating a severe credit crunch problem. Consequently, their borrowers must turn to alternative sources of external financing to survive. However, because of capital market illiquidity and pessimistic investor sentiments during the economic shock, firms with high leverage or those with highly volatile cash flows tend to experience extreme difficulty obtaining external financing. Although group-affiliated firms can rely on internal capital markets for funding during a non-crisis period, these markets do not function well during a crisis period, since other member firms also suffer from the economic shock. This limits the efficient allocation of capital resources within group-affiliated firms. Furthermore, since an economic shock has an adverse effect on investor sentiments and employment, consumer demands tend to significantly drop during the shock period. Therefore, during an economic shock, many firms not only suffer from existing business losses, they also face few good future investment opportunities.

In contrast, performance declines typically are caused by firms' internal or industry-level problems, such as operational inefficiency, intensive competition, high costs, debt overhang, and so forth. Since the

overall financial health of banks and the general condition of capital markets are not likely to be affected by these problems, firms experiencing a performance decline still can gain access to private and public financing sources relatively easily, as long as they have good investment opportunities. The operation of an internal capital market within a business group also enables member firms that are experiencing a performance decline to easily obtain outside resources. Moreover, since performance declines are specific to only certain individual companies, investor sentiments and overall employment in the economy are not likely to be adversely affected by these declines. These differences in economic environments and difficulties faced by firms during economic and performance shock periods clearly suggest that firms experiencing a performance decline have fewer incentives to take restructuring activities than those experiencing an economic shock. They also suggest that the nature of the restructuring process and owner-manager incentives to undertake restructuring actions are fundamentally different between the two periods.

Below, we describe how several key variables have a differential effect on restructuring decisions and restructuring announcement returns during our two sample periods with different economic environments.

- *Chaebol*. The operation of an internal capital market within the chaebol allows chaebol firms to pool risks and prop up each other's performance (Shin and Park, 1999). Thus, during a performance decline, chaebol-affiliated firms are less likely to engage in restructuring actions than non-chaebol firms are. However, during the 1997-98 Asian financial crisis, internal capital markets do not function well since other member firms also suffer from the economic shock. Moreover, Korean banks experienced a severe credit crunch and were forced to curtail lending to the corporate sector. Consequently, their borrowers, including chaebol-affiliated firms, had to turn to alternative sources of financing to survive. Therefore, because of the breakdown of both external and internal capital markets during the economic crisis, even chaebol firms had difficulty obtaining financing. These scarce resources of chaebols during the financial crisis suggest that the likelihood of taking restructuring actions by chaebol firms is greater during an economic shock than during a performance decline. To the extent that the internal capital markets within the chaebol do not function well during an economic crisis, we also expect that the stock market reacts

more favorably when chaebol firms take restructuring actions that relax their liquidity constraints. We use, as a definition of a chaebol, a dummy variable that equals one if a firm belongs to one of the 30 largest business groups.<sup>5</sup>

- *Discrepancy between cash flow rights and voting rights.* One important characteristic of a chaebol is that its controlling shareholders have power over all member firms within the chaebol that exceeds their cash flow rights. To the extent that chaebol owner-managers' incentives to increase the resource under their control increase with the divergence between their cash flow rights and voting rights, we would expect chaebol firms with large ownership discrepancy to engage in restructuring actions less frequently than their non-chaebol counterparts. This argument also suggests that the substantial discretionary power held by controlling shareholders in chaebol firms have a negative effect on the market value of firms that announce restructuring since the controlling shareholders are likely to engage in restructuring for their own benefits. Moreover, as shown in Johnson *et al.* (2000) and Lemmon and Lins (2003), if the owner-managers' incentives to expropriate minority shareholders increase during a financial crisis, we would expect any adverse effect of ownership discrepancy on restructuring decisions to be more pronounced for the economic shock sample than for the performance decline sample. We use the logarithm of the ratio of voting rights to cash flow rights and a dummy variable that equals one if voting rights are greater than cash flow rights, as measures of the divergence between cash flow rights and control rights of the owner-managers.<sup>6</sup>

- *Equity ownership by unaffiliated financial institutions.* Although financial institutions in Korea, including commercial banks, are allowed to invest in stock, they were not very active in monitoring firms before the Asian financial crisis. This passive role of Korean financial institutions as shareholders

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<sup>5</sup> The top 30 chaebols have come to represent Korea's most prominent chaebols during the past three decades. Several previous studies also use top 30 chaebols as a definition of chaebol in their analyses (Joh, 2003; Bae, Kang, and Kim, 2002; Baek, Kang, and Park, 2004).

<sup>6</sup> Equity ownership by unlisted affiliated firms also is included in the calculation of voting rights.

suggests that they do not play any significant role in restructuring decisions before the Asian financial crisis. During an economic crisis, however, financial institutions also suffer from the adverse shock, and experience difficulties selling shares they hold, due to the illiquidity of stock markets. Such difficulties, coupled with a decline in firm value, may provide financial institutions with strong incentives to monitor managerial behaviors of the firms, and take actions to preserve the value of their equity investment. Therefore, equity ownership by unaffiliated financial institutions is expected to be positively associated with both the likelihood of restructuring and the market value of firms that announce restructuring during an economic crisis. We measure equity ownership of unaffiliated financial institutions as equity ownership of commercial banks, merchant banks, and investment trust companies that are not affiliated with the firms.

- *Leverage and bank loans.* Jensen (1986) argues that debt-service obligation induces highly leveraged firms to restructure when their value declines. Consistent with this prediction, Ofek (1993) shows that high leverage increases the likelihood of asset restructuring and employee layoffs for firms experiencing performance decline. High leverage also is likely to increase the probability of taking restructuring actions for firms experiencing an economic shock, because the surge in interest rates and the increase in bankruptcy risk tend to force managers to make more cautious investment decisions. These arguments suggest that the probability of taking restructuring actions and the valuation effect of restructuring events are positively associated with leverage. We measure leverage as the ratio of total debt to total assets.

Among the different types of debt claims, bank loans likely play an important role in corporate restructuring. Korean firms traditionally have been heavily reliant on bank financing, maintaining close and long-term ties with their banks. Therefore, as informed monitors, banks are expected to play an important role in corporate restructuring, in response to a performance decline (Fama, 1985).<sup>7</sup> This role of banks in corporate restructuring is expected to be manifested particularly when there is a shock to the

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<sup>7</sup> Kang (1998), however, argues that, during the normal period, Korean banks have few incentives to play the role of an active monitor, especially for chaebol firms, because most bank loans to chaebol firms are guaranteed by the cross-debt guarantees among them.

economy. When banks experience financial difficulties due to the adverse shock, they will have strong incentives to actively monitor their client firms, in order to preserve their debt claims on these firms. These arguments suggest that a higher fraction of bank debt in a firm's capital structure increases the likelihood of taking restructuring actions during an economic shock to a greater extent than during a performance decline. They also suggest that the effect of bank loans on the market value of firms that announce restructuring is more positive during an economic shock than during a performance decline. We use the ratio of bank debt to total assets to measure the strength of a firm's ties to a bank.

- *Other control variables.* In addition to the variables discussed above, we also consider other control variables in examining the likelihood of restructuring decisions and valuation effects, including firm size (the logarithm of the market value of equity), investment opportunities (Tobin's q as measured by the ratio of the market value of equity plus the book value of debt to the book value of total assets), liquidity (the ratio of liquid assets (cash plus marketable securities) to total assets) and cash flows (the ratio of cash flow (operating income plus depreciation) to total assets), and an export ratio (the ratio of exports to sales).

### **3. Data and summary statistics**

Our sample of firms that experienced an economic shock consists of 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) that were not under the supervision of the bankruptcy court as of November 18, 1997. We exclude the firms under court supervision, because important strategic decisions for these firms, such as restructuring, tend to be made by courts, not by management. To examine the restructuring activities of these firms, we use the *Korea Investor's Network for Disclosure System* (KINDS) and the *Korean Economic Daily Newspaper*.<sup>8</sup> All sources are examined for articles on

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<sup>8</sup> Korean listed firms are required to disclose their asset sales immediately whenever the amount of the sale is greater than 10% of the value of their total assets. This disclosed information is readily available to the public at the KINDS. Thus, our sample collection procedures that use both the KINDS and a financial newspaper are less likely to be subject to a selection bias, compared to those that use only financial newspapers. However, to ensure the robustness of our results, we also obtain information about restructuring activities for our sample firms from the firm-level financial data and re-estimate the regressions reported in the following section. Specifically, using the Listed Company Database of the Korean Listed Companies Association, we calculate the changes in tangible assets and

restructuring activities during the one-year period from November 18, 1997 to November 17, 1998. November 18, 1997 is the date when the IMF proposed a rescue package to Korea, to help it overcome the financial crisis that had started in the middle of that month. During that one-year period, starting November 18, 1997, the stock market plunged to its lowest level ever, on June 16, 1998, recording the lowest KOSPI level of 280, and many Korean firms implemented various restructuring activities and reforms to overcome the financial crisis. We identify each firm's chaebol affiliation using the Korea Fair Trading Commission's *Annual Statistics*, and find that 131 out of the 580 firms belong to one of the top 30 business groups.

To more closely examine the nature of restructuring activities during the economic shock, we construct a comparison sample of firms experiencing a performance decline during the 1994-1996 period, and compare the restructuring activities between the economic shock and performance decline samples. We start the sample period from 1994 because, before 1994, detailed data on controlling ownership are not available. To identify comparison firms, we follow the methodology of Kang and Shivdasani (1997). Specifically, for each year, we choose, as comparison firms, those that had experienced more than a 50% drop in their operating income (i.e., ROA) during the fiscal year,<sup>9</sup> but were not under the supervision of the bankruptcy court.

Since the magnitude of the economic shock cannot be directly comparable to the magnitude of a performance shock, and since the economic shock sample includes all non-financial firms during 1997-1998, whereas the performance decline sample includes only firms experiencing poor operating performance, it is not possible to identify a control firm that has the same characteristics as the firm experiencing economic shock. Thus, the purpose of identifying a comparison firm is not to directly

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employment from the fiscal year end of 1996 to the fiscal year end of 1998. We then consider that a firm takes a restructuring action if its industry-mean-adjusted change in tangible assets (or employment) is in the bottom quartile of the sample. The untabulated tests show that the results are qualitatively similar to those reported in the paper.

<sup>9</sup> Unlike Kang and Shivdasani (1997), who restrict their sample firms to those that were initially healthy before their performance declines, we do not impose "healthy" conditions when we select our sample firms. This is because the economic shock sample includes all non-financial firms listed on the KSE, irrespective of whether they initially were healthy before the shock. Therefore, imposing healthy conditions only on the performance shock sample could cause a selection bias problem, and make the comparison less meaningful.

compare its restructuring actions with those of the firm experiencing economic shock with similar characteristics. Rather, our purpose is to provide a reference point to aid in interpreting the results for the economic shock sample. Since evidence on the restructuring activities responding to performance declines is well documented for U.S. and Japanese firms, this evidence, together with the results derived from restructuring actions by Korean firms during a performance decline, is expected to provide important guidelines for evaluating the restructuring actions in response to an economic shock.

To identify the restructuring activities of firms in the performance decline sample, we search the KINDS and the *Korean Economic Daily Newspaper* for the one-year period from six months before to six months after the fiscal year end of the poor performance year. For example, if the fiscal year end of a firm is December 1994, we search sources from July 1994 to June 1995. As an alternative search period, we identify the restructuring activities of firms during the year of poor performance. Although not reported here, we examine the robustness of our findings by repeating all the analyses presented below using this new set of restructuring activities, and obtain results that are qualitatively similar to those reported in the paper. There are 193 firms in the performance decline sample. Out of these 193 sample firms, 33 belong to one of the top 30 chaebol groups.

We obtain daily stock return data from the Korea Investors Service-Stock Market Analysis Tool (KIS-SMAT), which includes the returns of all firms listed on the KSE. Financial data and bank loan data are obtained from the Listed Company Database of the Korean Listed Companies Association and annual reports, respectively. Ownership information of unlisted affiliated firms is obtained from the on-line database of Korea Information Service, KIS-Line.

In Table 1, we present the summary statistics for ownership structure and other financial characteristics of our sample firms. We divide the sample firms into chaebol and non-chaebol firms. Following La Porta, Lopez-de-Silanes, and Shleifer (1999), Claessens, Djankov, and Lang (2000), Mitton (2002), and Lemmon and Lins (2003), we measure the cash flow rights of the owner-managers (controlling shareholders) as the sum of the direct equity ownership of the owner-managers and their family and the product of the ownership stakes obtained indirectly along the chain in a pyramid structure (by tracing up to two layers of control chains). Voting rights are taken as the sum of direct equity

ownership of the owner-managers and their family and equity ownership by affiliated firms. It is widely recognized that member firms within chaebols are connected by extensive reciprocal shareholding agreements, and that chaebol owner-managers exercise substantial control over affiliated firms. Therefore, in accordance with Lemmon and Lins (2003) and Harvey, Lins, and Roper (2004), we include equity ownership by affiliated firms in estimating voting rights of the owner-managers. For the economic shock sample, the mean cash flow rights and voting rights of controlling shareholders are significantly lower for chaebol firms (11.92% and 25.34%) than those for non-chaebol firms (27.94% and 30.74%) at the 0.01 level. However, as expected, the mean ratio of voting rights to cash flow rights of chaebol firms is significantly greater than that of the non-chaebol firms (10.67 versus 1.35). The mean equity ownership by unaffiliated financial investors also is significantly larger for chaebol firms than for non-chaebol firms (14.12% versus 6.80%). The medians show a similar pattern.

Leverage is significantly different between the two groups, as well. For the economic shock sample, the mean leverage ratios for chaebol firms and non-chaebol firms are 76.4% and 67.0%, respectively. The average firm borrows about 31.2% of its total assets from banks. The mean ratios of bank loans to total assets are similar for chaebol firms and non-chaebol firms (30.8% versus 31.3%).

For the economic shock sample, we also find that chaebol firms are larger than non-chaebol firms. The average firm size of chaebol firms, measured by the market value of equity, is more than four times that of non-chaebol firms. The difference in firm size is statistically significant at the 0.01 level. The mean Tobin's q is lower for chaebol firms than for non-chaebol firms (1.01 versus 1.11). For chaebol and non-chaebol firms, the mean ratios of cash flow to total assets are, respectively, 5.7% and 5.5%, and the mean ratios of liquid assets to total assets are 5.2% and 10.9%. Although the mean difference in cash flow ratios between chaebol and non-chaebol firms is not significant, the difference in liquidity ratios is significant at the 0.01 level. The average ratio of exports to sales is 27.6% for chaebol firms and 24.7% for non-chaebol firms, though the difference is not significant.

For the performance decline sample, the results show similar patterns to those for the economic shock sample, except that the voting rights of controlling shareholders and Tobin's q are not significantly different between the chaebol and non-chaebol firms.

## **4. Empirical results**

### *4.1. Restructuring activities*

In this section, we examine various corporate restructuring activities that our sample firms engage in, in response to the economic shock and a performance decline. Following Denis and Kruse (2000) and Kang and Shivdasani (1997), we classify the restructuring activities into asset contraction actions and employment changes. Asset contraction actions include the sale of assets, investment cuts, plant closures, product or business line withdrawals, and spin-offs of units. Employment changes include layoffs, reductions in compensation or bonuses, and other actions that significantly affect the composition or compensation of a firm's employees, such as lowering the mandatory retirement age and offering early retirement incentives.

Table 2 shows the frequency of restructuring actions for both the economic shock and the performance decline samples. Out of 580 sample firms experiencing the economic shock, 195 (34%) engage in restructuring actions. In comparison, within a sample of 193 firms that have experienced a performance decline, 51 (26%) engage in restructuring actions. The tests of difference in the frequency of firms engaging in restructuring actions show that firms in the economic shock sample are significantly more likely to engage in such actions than are those in the performance decline sample. The difference is particularly evident among chaebol firms. For example, while more than 67% of chaebol firms engage in restructuring actions during the economic shock, the corresponding number during a performance decline is only 42%. The difference in the frequency of chaebol firms that undertake restructuring actions between the economic and the performance decline samples is significant at the 0.01 level. In contrast, the frequency of restructuring actions by non-chaebol firms during the economic shock is not significantly different from that during a performance decline (24% versus 23%).

These results indicate that chaebol firms in the economic shock sample display an abnormally-high frequency of restructuring actions compared to those in the performance decline sample, suggesting that the poor functioning of internal capital markets within a chaebol during the 1997-98 financial crisis had a significant effect on restructuring incentives of its member firms.

Among various restructuring activities, asset contraction actions occur more frequently than employment changes, within both the economic shock and the performance decline samples. During the economic shock (performance decline), 31% (25%) of the sample firms undertake asset contraction actions, whereas only 8% (3%) of the sample firms undertake employment changes. In comparison, using a sample of 92 Japanese and 114 U.S. firms that experienced a decline of at least 50% in their operating income in a given year during 1986 and 1990, Kang and Shivdasani (1997) show that 23% of their sample Japanese firms and 49% of their U.S. sample firms engage in some form of asset downsizing actions during the year of the performance shock and the following year. Ofek (1993) finds that 23% of his U.S. sample firms announce asset restructuring during the distress year, and Denis and Kruse (2000) show that 27% of their U.S. sample firms that experience performance declines undertake asset restructuring in the year of a performance decline. Thus, Korean firms that experience an economic shock are more likely to engage in asset contraction policies than are Japanese firms experiencing performance declines, but appear to undertake asset contraction actions as frequently as U.S. firms do.

Of the various asset contraction actions, the sale of assets is the most frequently observed response among firms in both the economic shock and performance decline samples. About 26% (21%) of the firms in our economic shock (performance decline) sample engage in asset sales. In comparison, Kang and Shivdasani (1997) find that 4% of their Japanese sample firms are involved in asset sales. The corresponding number in the Denis and Kruse's (2000) sample of U.S. firms is 15%. The higher frequency of asset sales in Korean firms that experience the economic shock than for Japanese, Korean, and U.S. firms that experience performance declines suggests that, to relax their liquidity constraints, firms experiencing an economic shock prefer to choose the restructuring type that generates immediate cash.

To further investigate this issue, we divide asset downsizing actions into two categories, based upon whether or not these actions generate cash inflows. The results show that the majority of asset downsizing actions in the economic shock sample is associated with cash generation. For example, 55% of chaebol firms in the economic shock sample engage in cash-generating asset contraction actions, while only 19% engage in non-cash-generating asset contraction actions (e.g., withdrawal from the line of business,

discontinuing or consolidating operations, and closing plants or headquarters). The corresponding numbers for chaebol firms in the performance decline sample are only 30% and 12%, respectively.

Regarding changes in employment and compensation policies, as shown above, about 8% of the firms in the economic shock sample and 3% of the firms in the performance decline sample change their employment and compensation policies. In comparison, Ofek (1993) and Denis and Kruse (2000) document an employee-layoff occurrence rate of 28% and 13% for their samples of poorly performing U.S. firms, respectively, and Kang and Shivdasani (1997) report that 28% of poorly performing Japanese firms undertake employment change policies during the performance decline year and the year subsequent to it. Thus, Korean firms in the economic shock sample appear to display an abnormally high frequency of employee layoffs, compared to Korean firms in the performance decline sample, but show a low frequency compared to U.S. and Japanese firms that experience a performance decline. We also find that, while the frequency of adopting changes in employment and compensation policies during an economic crisis is significantly higher for chaebol firms than for non-chaebol firms (21% versus 4%), such a significant difference does not exist during a performance decline (6% versus 2%).

In summary, compared to the firms experiencing a large decline in operating performance, those experiencing the economic shock tend to engage more frequently in restructuring actions. The difference is more evident among chaebol firms. These results are consistent with the view that the capital market illiquidity and the lack of profitable investment opportunities observed during an economic crisis make firms, especially chaebol firms, financially-constrained and, therefore, induce them to choose contraction policies that can preserve liquidity.

#### *4.2. Determinants of restructuring decisions*

In this section, to clarify the relation between the key variables of interest discussed in Section 2 and the likelihood of restructuring activity, we use multivariate logit regressions in which the dependent variable is set to one if a particular restructuring action occurs, and zero otherwise. Explanatory variables are measured at the fiscal year-end that immediately precedes the economic shock and a performance decline.

Table 3 examines the factors that influence the likelihood of restructuring in response to an economic shock. All variables that are interacted with a dummy variable are demeaned by subtracting the mean of sample firms from their original values. In model (1), we use, as explanatory variables, chaebol affiliation, the logarithm of the ratio of voting rights to cash flow rights as a measure of ownership discrepancy, interaction term between these two variables, leverage, and equity ownership by unaffiliated financial institutions. In accordance with Lemmon and Lins (2003), we winsorize the logarithm of the ratio of voting rights to cash flow rights at the 95<sup>th</sup> percentile, to avoid overemphasizing firms with extreme ownership discrepancy. The logit model also controls for firm size, Tobin's q, the ratio of cash flow to total assets, the ratio of liquid assets to total assets, the ratio of export to sales, and industry dummies. We find that the coefficient on the chaebol dummy is positive and significant at the 0.05 level, indicating that chaebol firms are more likely to engage in restructuring actions than non-chaebol firms. However, the coefficient on the interaction term between the ownership discrepancy and the chaebol dummy is negative and significant. Thus, chaebol firms are less likely to engage in restructuring actions when their controlling shareholders have large discretionary power relative to their cash flow rights. The coefficient on leverage is positive and significant at the 0.01 level. Thus, controlling for other factors, firms with high leverage are more likely to contract when the economy is adversely affected. This result is consistent with findings by Ofek (1993) and supports Jensen's (1989) argument that high leverage forces firms to respond quickly to a decline in value. We also find that unaffiliated financial institutions perform an important role by increasing the likelihood of asset contractions during the financial crisis. This result is consistent with theoretical work on the role of outside shareholders by Demsetz and Lehn (1985) and Shleifer and Vishny (1986). Among control variables, the coefficient on firm size is positive and significant whereas the coefficient on Tobin's q is negative and significant at the 0.01 level. These results suggest that larger firms and firms with fewer investment opportunities are more likely to undertake restructuring actions.

To examine whether the effect of leverage on the likelihood of restructuring is different between chaebol and non-chaebol firms, in model (2) we interact the leverage ratio with a chaebol dummy. During an economic shock, the resources available for chaebol firms are likely to be limited, because the internal

capital market does not function well, and a liquidity problem in one member firm can spread into the whole group because of cross-debt guarantees within chaebol firms. Moreover, given that chaebol firms typically maintained higher leverages than non-chaebol firms during our sample period (Bae, Kang, and Kim, 2002), chaebol firms are likely to be more vulnerable to an economic shock. Therefore, chaebol firms with high leverage are likely to take more frequent restructuring actions than their non-chaebol counterparts. Consistent with this view, we find that the coefficient on the interaction term is positive and significant. However, the positive coefficient on the chaebol dummy in the previous regression becomes insignificant. These results indicate that the high probability of restructuring by chaebol firms reported in model (1) is mainly driven by those firms with a high leverage ratio. Thus, during an economic shock, the disciplinary role of debt is particularly strong for highly-leveraged chaebol firms.

In model (3), we disaggregate the leverage into the ratio of bank loans to total assets and the ratio of non-bank debt (total debt – bank loans) to total assets, and include the interaction term between the chaebol dummy and two leverage variables. The coefficients on both bank debt and non-bank debt ratios are positive and significant, but the coefficient on non-bank debt ratio is smaller and less significant than the coefficient on bank debt ratio. These results suggest that firms are more likely to engage in restructuring when their banks hold a significant debt claim, supporting the hypothesis that banks with large debt claims have strong incentives to monitor a firm. The importance of bank debt in corporate restructuring is consistent with the results in Gilson, John, and Lang (1990), who show that U.S. firms with large bank borrowings are more likely to restructure their debt. The results, however, also are consistent with the view that banks become active monitors during an economic shock, because of their own financial difficulties and incentives to preserve their investments in client firms. Model (3) also shows that the coefficients on both interaction terms – between the chaebol dummy and the bank loan ratio, and between the chaebol dummy and the non-bank debt ratio – are positive and significant, but the coefficient on the former interaction term is larger and more significant.

Models (4) and (5) replace the chaebol dummy in models (2) and (3) with a dummy variable that equals one if the ratio of voting rights to cash flow rights of owner-managers for chaebol firms is greater than one, and zero otherwise. We expect that the control function of leverage to facilitate restructuring

decisions is more pronounced for chaebol firms with large discrepancy in cash flow rights and control rights of owner-managers. For example, Harvey, Lins, and Roper (2004) show that leverage plays an important monitoring role in firms with high expected managerial agency costs, and that debt creates value when there is a large degree of separation between cash flow rights and control rights. Thus, during an economic crisis, leverage is expected to increase the likelihood of restructuring, particularly for chaebol firms with large ownership discrepancy. Consistent with this view, we find that the coefficients on the interaction term between a dummy variable for chaebol ownership discrepancy and the leverage ratio and the interaction term between this dummy and the bank loan ratio are positive, but only the coefficient on the latter interaction term is significant.

In untabulated tests, we also examine the likelihood of restructuring in response to a performance decline. Similar to the findings for the economic shock sample, the coefficient on the leverage ratio is positive and significant for the performance decline sample. However, when we disaggregate the leverage ratio into the bank loan and non-bank debt ratios, the coefficient on the bank loan ratio becomes insignificant, whereas the coefficient on the non-bank debt ratio turns out to be positive and significant. The coefficient on equity ownership by financial institutions is also insignificant. These results suggest that, prior to the financial crisis, banks and unaffiliated financial institutions, either as debtholders or as shareholders, do not have incentives to monitor corporate managers, supporting the notion that Korean financial institutions played a passive role before the financial crisis, as discussed in Section 2. We also find that, unlike the results observed with the economic shock sample, the coefficient on the ownership discrepancy variable and the coefficient on its interaction with the leverage ratio are not significant. The coefficients on most control variables are also insignificant.<sup>10</sup>

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<sup>10</sup> To examine whether the impacts of ownership discrepancy and leverage ratio on a firm's restructuring decision during an economic shock are different from those during a performance decline, in untabulated tests, we estimate the logit regressions for a pooled sample of restructuring actions during economic shock and performance decline periods. We find that chaebol firms with ownership discrepancy in the economic shock sample are less likely to restructure than non-chaebol counterparts in the economic shock and performance decline samples. We also find that compared to non-chaebol firms in the economic shock and performance decline samples, highly-leveraged chaebol firms experiencing an economic shock are more likely to engage in restructuring actions. This positive effect of leverage ratio on restructuring actions during the economic crisis is particularly strong when chaebol firms with

Overall, the analysis of restructuring actions for the economic shock sample indicates that the probability of taking restructuring actions increases when firms maintain high leverage, particularly bank debt, in their capital structure. In contrast, chaebol firms with large ownership discrepancy are less likely to restructure in response to an economic shock, possibly due to the owner-managers' distorted incentives to maximize the group size. We also find that the probability of taking restructuring actions increases when unaffiliated financial institutions that are less likely to be influenced by managers hold large equity claims, and when chaebol firms, especially those with ownership discrepancies, have high leverage or maintain close lending relationships with banks.

#### *4.3. The valuation effects of restructuring events*

Previous studies show that restructuring activities caused by performance shocks lead to an increase in firm value (Jain, 1985; Denis and Kruse, 2000). In this section, we examine the valuation effects of restructuring announcements during an economic shock and a performance decline. Restructuring announcements, in response to an adverse economic shock and a large decline in operating performance, will be value-enhancing events, if firms sell unprofitable assets or operations, reduce labor expenses, or strengthen their strategic position by focusing on core businesses. In particular, during an economic shock, restructuring actions that generate immediate cash inflow might be greeted more favorably by investors since such actions increase a firm's liquidity, which is crucial in coping with a financial crisis.

To assess the valuation effect of corporate restructuring, we use a standard event-study approach. We identify initial public announcement dates of the restructuring activities from the KINDS, and the *Korean Economic Daily*. As the announcement date, we use the date that a news announcement first appeared in either of these two publications.

For each event, we compute the abnormal return using the market model. We use the KOSPI return as the market return proxy. We obtain our estimates of the market model by using 200 trading days of return data, beginning 220 days before and ending 21 days before the restructuring announcement. We then

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ownership discrepancy have a high bank loan ratio, indicating that the disciplinary role of bank loans becomes stronger when the agency problem of controlling shareholders is severe (Harvey, Lins, and Roper, 2004).

calculate daily abnormal returns and sum the daily abnormal returns over three days around the restructuring announcement date, to obtain the cumulative abnormal return (CAR (-1, 1)). To avoid biases in the estimation of CAR, we exclude observations if the firm makes other restructuring announcements during the estimation period of the market model. We use the *t*-statistic to test the hypothesis that the average CARs are equal to zero, and the Wilcoxon sign-rank test statistic to test the hypothesis that the CARs are symmetrically distributed around zero.

Panels A and B of Table 4 report the CARs (-1, 1) of restructuring actions for the economic shock sample and for the performance decline sample, respectively. During the economic shock, the chaebol firms that announce restructuring policies realize significantly positive returns. The mean and median CARs (-1, 1) for chaebol firms are 3.4% and 2.5%, respectively, both of which are significant at the 0.01 level. In contrast, the mean and median CARs (-1, 1) for non-chaebol firms are not significant. Separating restructuring actions into cash-generating and non-cash-generating actions, we find that, for chaebol firms, cash-generating actions lead to positive and significant mean and median returns (4.6% and 2.6%) and non-cash-generating actions lead to negative and insignificant mean and median returns. The difference in mean CARs (-1, 1) is significant at the 0.05 level. We find similar patterns for non-chaebol firms. However, for non-chaebol firms, the mean CAR (-1, 1) for non-cash-generating actions is negative and marginally significant (-3.7%), but the mean CAR (-1, 1) for cash generating actions is positive and insignificant (0.5%). These results are generally consistent with those of Denis and Kruse (2000) who show that abnormal returns for asset sale announcements during performance declines are positive and significant, whereas those for cost-cutting or layoff announcements are negative and insignificant. Given that, during an economic crisis, most firms suffer from the liquidity shock and that the internal capital markets within the chaebol do not function well, our results suggest that investors are disappointed when firms do not solve their liquidity problems by taking actions that immediately generate cash inflow. However, as shown in Panel B of Table 4, we do not find any significant valuation effects for restructuring actions during a performance decline, except for a marginally positive CAR (-1, 1) for cash-generating restructuring actions of the total sample.

To examine whether the announcement returns of restructuring actions are related to owner-manager incentives and firm-specific measures of corporate governance, we present the estimates from multivariate regressions using CARs (-1, 1) as the dependent variables. Since the announcement returns differ significantly depending on whether the actions generate cash flows, we run the regression models for cash-generating and non-cash-generating actions separately. Table 5 reports the regression estimates for the sample of cash-generating restructuring actions during the economic shock. All variables that are interacted with a dummy variable are again demeaned by subtracting the mean of sample firms from their original values.

In model (1), the coefficient on the interaction term between the chaebol dummy and the logarithm of the ratio of voting rights to cash flow rights is negative and significant. This result is consistent with the view that the separation of the cash flow rights and control rights of chaebol owner-managers increases their incentives to expropriate other investors during an economic shock. In contrast, model (2) shows that the market responds more positively when restructuring activities are announced by chaebol firms with a higher leverage ratio. Model (3) further shows that the positive role of leverage in model (2) is more pronounced for chaebol firms with ownership discrepancy. This result suggests that debt disciplines chaebol owner-managers with severe agency problems, and influences them to follow value-enhancing restructuring decisions. Model (4) demonstrates that the coefficients on both interaction terms between bank debt and a dummy variable for chaebol firms with ownership discrepancy and between non-bank debt and a dummy variable for chaebol firms with ownership discrepancy are positive and significant. In contrast, for the subsample of non-cash-generating restructuring actions during an economic shock, none of the variables is significant (not reported).<sup>11</sup>

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<sup>11</sup> To examine whether the impacts of ownership discrepancy and leverage ratio on CARs (-1,1) during an economic shock are different from those during a performance decline, in untabulated tests, we estimate the regressions for a pooled sample of restructuring actions during economic shock and performance decline periods. We find that restructuring actions by chaebol firms with ownership discrepancy in the economic shock sample result in more negative announcement returns than do those by non-chaebol firms in the pooled sample. We also find that the positive effects of leverage on firm value are significantly higher for chaebol firms, particularly for chaebol firms with ownership discrepancies, in the economic shock sample than for non-chaebol firms in the pooled sample.

Overall, our results show that, during an economic shock, the announcement effects of cash-generating restructuring actions undertaken by chaebol firms are positive and significant. In contrast, the announcements of restructuring by chaebol firms with divergence in cash flow rights and control rights of controlling shareholders and those with a lower leverage ratio are greeted more negatively by investors. These results suggest that chaebol owner-managers have different objectives than their non-chaebol counterparts when they restructure their firms, especially during an economic shock, and that the stock market pays attention to these differences in managerial incentives.

#### *4.4. Effect of restructuring actions on the equally-weighted portfolio of other member firms*

If a firm's restructuring decisions during an economic shock are motivated by controlling shareholders' incentives to maximize their own private benefits or by incentives to share resources among member firms, restructuring announcements will have value implications not only for restructuring firms but also for other member firms in the same chaebol. For example, if a chaebol firm engages in cash-generating restructuring to increase controlling shareholders' private benefits and if such restructuring sends bad signals to the market about the quality of the governance structures the chaebol adopts, it could have a negative impact on the value of other group affiliates. On the other hand, if cash generated through a firm's restructuring implies more resources available for intra-group propping, such restructuring announcements will have a positive effect on the market value of other member firms in the same group.

To address this issue, we estimate the equally-weighted portfolio returns of other firms that belong to the same chaebol as the restructuring firm. Abnormal returns for other group affiliates are calculated by using a portfolio approach. The market-model parameters are estimated using returns of the equally-weighted portfolio of other firms in the same group and then used to calculate the daily abnormal returns of the portfolio. The daily abnormal returns are accumulated to obtain the portfolio CAR from day  $-t$  to day  $+t$ .

Panel A of Table 6 shows the mean and median equally-weighted portfolio CARs (-1, 1) of other member firms around restructuring announcement dates. For the subsample of cash generating

restructuring, both the mean and median equally-weighted portfolio CARs (-1,1) of other member firms are positive and significant at the 0.01 level. These results are consistent with the propping view of restructuring during an economic shock. However, for the subsample of non-cash generating restructuring, we do not find any significant abnormal returns for other member firms.

Panel B of Table 6 reports the results from regressing the equally-weighted portfolio CAR (-1, 1) of other member firms on restructuring firms' CARs (-1, 1) and financial characteristics. Model (1) shows that the equally-weighted portfolio returns of other member firms are positively and significantly related to the returns of restructuring firms. To the extent that resources generated through restructuring are an important indicator of the chaebol's ability to prop up its member firms, this result is consistent with the propping view regarding business groups. Model (2) shows that the coefficient on the interaction term between the CARs (-1, 1) of restructuring firms and the dummy for high cash flow rights of the controlling shareholders (equals 1 if the cash flow right is above the sample median) is negative and significant. Thus, the sensitivity of abnormal returns for the equally-weighted portfolio of non-restructuring affiliates to abnormal returns for the restructuring firms is lower when the controlling shareholders have high cash flow rights in the restructuring firm. To the extent that controlling shareholders with high cash flow rights in a certain firm have a strong incentive to discourage it from engaging in restructuring to prop up other member firms, this result further supports the propping view for business groups during an economic shock period. In contrast, model (4) shows that the positive association between abnormal returns for the restructuring firms and abnormal returns for the equally-weighted portfolio of non- restructuring affiliates is stronger if the discrepancy in cash flow rights and voting rights of the controlling shareholders in the restructuring firm is larger. To the extent that chaebol owner-managers' power to reallocate the resources among member firms increases with their ownership discrepancy in restructuring firms, this result suggests that the propping effect is stronger when the controlling shareholders have concentrated ownership in the firm that exceeds their cash flow rights and have excessive power over the firm.

Overall, the results in Table 6 suggest that the market perceives propping-motivated restructuring activities by a chaebol-affiliated firm during an economic shock as group-wide events. They also suggests that the market's ex ante valuation of propping effects is significantly affected by cash flow rights and discrepancy in cash flow rights and

voting rights of the controlling shareholders in the restructuring firm.<sup>12</sup>

#### 4.5. Additional tests

In this section we briefly discuss the results of additional tests regarding the probability of taking restructuring actions during an economic shock, valuation effects of restructuring, and the effect of restructuring actions on the long-term operating performance. For the sake of brevity, we do not report the results in the table.

- *Marginal effects of key determinants of downsizing actions*

To examine whether potential bias in interpreting logit regressions with interaction terms also exists in our data and to determine whether the key determinants of restructuring policies that are statistically significant in Table 3 are also economically significant, we separately calculate the marginal effects of key variables for chaebol and non-chaebol firms, as suggested by Powers (2005). For the subsample of chaebol firms during the economic shock, the marginal effect coefficient on the dummy for ownership discrepancy is a significant -0.153, suggesting that the probability of taking restructuring actions by chaebol firms with ownership discrepancy is about 15.3% lower than that by chaebol firms without ownership discrepancy. We also find that for chaebol firms a one-standard deviation increase in ownership by unaffiliated financial institutions (9.3%) from the sample mean (14.1%) would result in a 13.5% increase in the likelihood of taking a restructuring action. Similarly, a one-standard deviation increase in the leverage ratio (11.4%) or bank loan ratio (14.9%) from the sample mean is associated with a 16.0% or a 25.9% increase in the likelihood of restructuring, respectively. In contrast, among these variables only leverage and bank loan ratios are statistically significant for the subsample of non-chaebol firms during the economic shock with smaller marginal effects. For the subsample of chaebol firms during a performance decline, none of these variables are significant.

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<sup>12</sup> In unreported tests, we also experiment with the value-weighted portfolio CAR and obtain the results that are qualitatively similar to those reported in the paper.

- *Quantifying the size of restructuring actions*

In this paper, we have measured the restructuring action using a dummy variable. To check the robustness of our results, we quantify the size of restructuring and use it as a measure of the extent of restructuring. Of 156 firms that undertake cash-generating downsizing actions, we are able to collect the data on the size of restructuring and other relevant information for 114 firms. Using these 114 restructuring firms, together with non-restructuring firms, we reestimate the regressions in Table 3. Specifically, we use as a dependent variable the ratio of cash generated from restructuring to the market value of equity and as independent variables the same explanatory variables as those used in Table 3. We obtain qualitatively similar results.

- *Fire sales of assets*

It is possible that firms destroy values by being forced to engage in fire sales to solve short term liquidity problems. In particular, it is possible that non-chaebol firms under liquidity constraints are more likely to engage in fire sales than chaebol firms that can rely on internal capital markets for funding. To address this issue, we have collected the data on prices and book values of assets sold from the KINDS and the *Korean Economic Daily Newspaper*. Although 151 sample firms have conducted 221 asset sales during the financial crisis period, both prices and book values are available only for 93 cases, 48 (45) of which are undertaken by chaebol (non-chaebol) firms. Although this small sample size prohibits us from conducting a meaningful analysis, we examine whether the market's responses to assets sales vary depending on the ratio of price-to-book value of assets sold. We also examine whether the ratio of price-to-book value of assets sold is significantly different between chaebol firms and non-chaebol firms. Price-to-book value ratios are likely to be lower for those assets sold at fire-sales prices, holding everything else constant. In untabulated tests, we find that there is no significant difference in the price-to-book value ratio between chaebol and non-chaebol firms. When we use the price-to-book value ratio as a dependent variable and a dummy variable for non-chaebol firms together with other control variables as the independent variables, none of the coefficients are statistically significant. Finally, we find that the price-to-book value ratio is positively and significantly related to CARs (-1, 1), but the

interaction term between this ratio and the non-chaebol dummy is not significantly related to CARs (-1, 1). These results suggest that the extent of fire sales of assets during an economic crisis is similar between chaebol and non-chaebol firms and the effect of such fire sales on firm value is statistically indistinguishable between these two groups of firms, possibly due to the breakdown of internal capital markets within the chaebol.

• *Other determinants of downsizing actions*

*Block ownership:* Since Mitton (2002) shows that firms with concentrated ownership suffered less during the Asian financial crisis, we first examine whether large block ownership has an effect on a firm's restructuring decisions. We measure the ownership concentration by the sum of block holdings by all shareholders who own 5% or more of issued shares (summed blockholder concentration) and include it as an additional explanatory variable for the regressions in Table 3. We find that the coefficients on summed blockholder concentration are not significant. However, when we subdivide summed blockholder concentration into affiliated (block holdings by owner-managers, their family members, and affiliated firms) and unaffiliated ownership, and interact these variables with the chaebol dummy, the interaction variable between affiliated ownership and chaebol dummy is significantly and negatively related to the likelihood of restructuring. These results are consistent with those of Baek, Kang, and Park (2004), who show that, during the Asian financial crisis, higher equity ownership by insiders and affiliated firms had a greater adverse effect on firm values when the firm belonged to one of the top 30 chaebols.

*Foreign debt versus domestic debt:* Allayannis, Brown, and Klapper (2003) show that, during the Asian financial crisis, the firms that used the foreign currency denominated debt and hedged it to local currency, experienced the largest drop in their market value. To examine whether the currency of denomination of debt matters in determining restructuring decisions, we divide total leverage used in Table 3 into foreign and domestic borrowings. We find that only the ratio of domestic debt to total assets is significantly and positively related to the likelihood of taking restructuring actions.<sup>13</sup>

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<sup>13</sup> The potential explanation for the insignificance of foreign debt in the regressions is that foreign debt accounts for only a small portion of the total debt in our sample. The mean (median) ratio of foreign debt to total debt is only

*Loans from government-controlled banks versus loans from independent banks:* La Porta, Lopez-de Silanes, and Shleifer (2002) provide some evidence that lending decisions by government-controlled banks in emerging markets are not value-driven, suggesting that debt from government-controlled banks is a less effective monitoring device than debt from independent banks. To examine whether the influence of loans in restructuring decisions is different, depending upon whether banks are government-owned or independent, we divide bank loans into loans from government-controlled banks and those from other banks. Because the Korean government had full ownership of the Korea Development Bank and more than 60% of the Industrial Bank of Korea during our sample period, for our analysis we consider these two banks to be government-controlled banks. The results show that only the ratio of loans from independent banks to total assets is significantly and positively related to the likelihood of restructuring, supporting the results of La Porta, Lopez-de Silanes, and Shleifer (2002).

*Export ratio:* During a financial crisis, firms with a high proportion of foreign sales might have more diversified investment opportunities in foreign countries and, thus, their investment opportunities are less likely to be adversely affected by the economic shock. Consequently, these firms might have fewer incentives to restructure compared to firms that depend mostly on domestic sales. To address this issue, we divide the sample into high- and low-export firms, according to the sample median, and then re-estimate the logit regressions in Table 3 separately for these two subsamples. We find that the significance of our key variables is similar between high- and low-export firms. These results suggest that the effects of ownership discrepancy and leverage on restructuring are similar whether firms have large foreign sales or not. However, liquidity-related variables are significant only among low-export firms, suggesting that these firms were more financially-constrained during the crisis than high-export firms were.

• *Determinants of expansionary actions*

To further examine the importance of owner-manager incentives and firm-specific measures of

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7.93% (3.67%).

corporate governance in firms' restructuring decisions in response to the economic shock, we search expansionary actions our sample firms undertake and estimate multivariate logit regressions in which the dependent variable is set to one if a particular expansionary action occurs, and zero otherwise. Expansionary actions include joint ventures, strategic alliances, acquisitions, construction of new facilities, expansion of existing production facilities, establishment of new subsidiaries or new businesses, increased R&D or output, and financial investments in unaffiliated and affiliated firm. Out of 580 sample firms experiencing the economic shock, we find that 234 (40%) engage in expansionary actions. The likelihood of taking expansionary actions is positively related to the separation of the cash flow rights and control rights of chaebol owner-managers. In contrast, the likelihood of taking expansionary actions is negatively related to leverage and bank loan ratios. These results further suggest that owner-manager incentives and firm-specific measures of corporate governance play an important role in making firms' expansionary action decisions during an economic shock.

- *Effect of restructuring actions on the long-term operating performance*

Previous studies show that restructuring activities caused by performance shocks are associated with an improvement in operating performance (John and Ofek, 1995; Kang and Shivdasani, 1997; Denis and Kruse, 2000). To address this issue, we examine the effect of restructuring actions on the long-term operating performance of our sample firms. Specifically, we estimate the industry-adjusted ratio of operating income to total assets (ROA) for the three years following the announcements. For the sample of restructuring actions during the economic shock, the average change in ROA is a marginally significant 2.00% over the three-year period. When we divide the total number of sample firms into chaebol and non-chaebol groups, the significance disappears for both chaebol firms and non-chaebol firms. For the sample of restructuring actions during a performance decline, however, the average change in ROA is significantly positive only for non-chaebol firms. Thus, restructuring actions result in improvements in operating performance, especially those taken by non-chaebol firms following performance declines. These results are consistent with those of Kang and Shivdasani (1997) and Denis and Kruse (2000). The fact that restructuring actions during the economic shock do not improve long-term operating performance

for both chaebol and non-chaebol firms suggests that these actions mainly are geared toward avoiding short-term liquidity constraints, rather than improving long-term operational efficiencies.

## **5. Summary and conclusions**

In this paper, we examine how owner-manager incentives and firm-specific measures of corporate governance affect restructuring decisions during an economy-wide shock. Since business environments and claimholder incentives differ substantially during economic and performance shock periods, firms experiencing an economic shock are likely to have different restructuring incentives compared to those experiencing a performance shock. Consistent with this view, we find that Korean chaebol firms in the economic shock sample display an abnormally-high frequency of restructuring actions compared to those in the performance decline sample. Moreover, the frequency of cash-generating restructuring actions is higher for firms in the economic shock sample than for firms in the performance decline sample, suggesting that firms experiencing an economy shock have stronger incentives to choose restructuring that mitigates their liquidity constraints than firms experiencing performance declines do.

We also find that, during an economic shock, the likelihood of restructuring increases with leverage, especially bank loans, and equity ownership by unaffiliated financial institutions. Chaebol affiliation also increases the likelihood of restructuring, but mostly for firms with high leverage. In contrast, chaebol firms with larger ownership discrepancy are less likely to restructure than other firms are. For a pooled sample of firms in the economic shock and performance decline samples, we find that these results are evident mainly among firms experiencing an economic shock.

Finally, we find that, during an economic shock, chaebol firms that engage in (cash-generating) restructuring actions realize a positive and significant announcement return, whereas during a performance decline, both chaebol firms and non-chaebol firms experience insignificant positive returns. The cross-sectional regression analysis shows that announcements of restructuring actions during an economic shock by chaebol firms with a divergence in cash flow rights and control rights of controlling shareholders and those by chaebol firms with a lower leverage ratio are greeted more negatively by investors. Consistent with the market's ex-ante valuation of intra-group propping, we also find that

abnormal returns of the chaebol restructuring firms are positively related to abnormal returns of the equally-weighted portfolio of other non-restructuring affiliates in the same group. The sensitivity of abnormal returns for the equally-weighted portfolio of non-restructuring affiliates to abnormal returns for the restructuring firms is lower if the cash flow rights of the controlling shareholders in the restructuring firms are higher. In contrast, the sensitivity is higher if the discrepancy in cash flow rights and voting rights of the controlling shareholders in the restructuring firms is larger.

Overall, these results are consistent with the view that the separation of cash flow rights and control rights of controlling shareholders increases their incentive to expropriate other investors, particularly during an economic shock. However, firm-specific measures of corporate governance such as total debt, bank loans, and equity ownership by unaffiliated financial institutions mitigate such expropriation incentives, thereby influencing firms to choose value-maximizing restructuring policies. Our findings that corporate governance plays a more important role in determining a firm's restructuring decisions during an economic shock than during a performance decline are also consistent with the view that the role of corporate governance in firms' investment decisions becomes more critical when interests of various claimholders diverge more. To the extent that the divergence of interests of claimholders is likely to be particularly severe during an economic shock, because of financial difficulties experienced by almost all claimholders, our findings based on Korean experience are likely to have important and relevant implications for the role of corporate governance during other economy-wide shocks, such as the global financial crisis of 2007-2008.

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**Table 1**  
Descriptive statistics of firm characteristics

	Economic Shock Sample					Performance Decline Sample				
	Total firms N= 580	Chaebol firms N= 131	Non-chaebol firms N= 449	Test of Difference		Total firms N= 193	Chaebol firms N= 33	Non-chaebol firms N= 160	Test of Difference	
				t-test	Wilcoxon z-test				t-test	Wilcoxon z-test
Cash-flow rights of controlling shareholders (%)	24.42 <sup>***</sup> [24.34] <sup>***</sup>	11.92 <sup>***</sup> [8.15] <sup>***</sup>	27.94 <sup>**</sup> [27.54] <sup>**</sup>	0.00	0.00	28.55 [27.33]	18.07 [19.59]	30.62 [28.87]	0.00	0.00
Voting rights of controlling shareholders (%)	29.55 <sup>**</sup> [28.58] <sup>***</sup>	25.34 <sup>**</sup> [24.00] <sup>**</sup>	30.74 [29.71]	0.00	0.00	32.43 [31.70]	31.36 [29.16]	32.65 [32.08]	0.61	0.65
Voting rights / Cash-flow rights	3.397 <sup>***</sup> [1.000] <sup>**</sup>	10.672 <sup>***</sup> [2.827] <sup>*</sup>	1.349 <sup>**</sup> [1.000]	0.00	0.00	1.483 [1.000]	3.202 [1.498]	1.144 [1.000]	0.01	0.00
Equity ownership by unaffiliated financial institutions (%)	8.45 [6.20]	14.12 [13.00]	6.80 [4.94]	0.00	0.00	8.12 [6.13]	13.21 [12.60]	7.11 [5.30]	0.00	0.00
Total debt / total assets	0.691 <sup>***</sup> [0.689] <sup>**</sup>	0.764 [0.770]	0.670 <sup>***</sup> [0.653] <sup>**</sup>	0.00	0.00	0.642 [0.648]	0.776 [0.786]	0.615 [0.609]	0.00	0.00
Bank loans / total assets	0.312 <sup>***</sup> [0.277] <sup>***</sup>	0.308 [0.278] <sup>*</sup>	0.313 <sup>***</sup> [0.277] <sup>***</sup>	0.76	0.43	0.234 [0.209]	0.255 [0.198]	0.230 [0.209]	0.42	0.60
Market value of equity (billion won)	130.45 [51.84] <sup>***</sup>	333.26 [142.50]	71.66 <sup>*</sup> [41.30] <sup>***</sup>	0.00	0.00	143.08 [37.48]	604.57 [125.44]	53.85 [32.11]	0.20	0.00
Tobin's q	1.088 [1.004]	1.007 <sup>**</sup> [0.953] <sup>***</sup>	1.111 [1.035]	0.00	0.00	1.097 [1.070]	1.106 [1.071]	1.095 [1.069]	0.81	0.83
Cash flow (operating income + depreciation) / total assets	0.056 [0.056]	0.057 [0.058]	0.055 [0.055]	0.71	0.63	0.057 [0.052]	0.071 [0.052]	0.054 [0.053]	0.31	0.85
Liquid assets (cash + marketable securities) / total assets	0.096 <sup>**</sup> [0.074] <sup>*</sup>	0.052 [0.033] <sup>**</sup>	0.109 <sup>*</sup> [0.090]	0.00	0.00	0.114 [0.084]	0.054 [0.041]	0.126 [0.091]	0.00	0.00
Export / sales	0.253 <sup>***</sup> [0.191] <sup>*</sup>	0.276 [0.239]	0.247 <sup>***</sup> [0.176] <sup>**</sup>	0.24	0.16	0.322 [0.226]	0.294 [0.260]	0.327 [0.218]	0.58	0.68

The economic shock sample includes 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) as of November 18, 1997, which is the date when the IMF proposed a rescue package to Korea to help overcome the financial crisis that had started in the middle of that month. The performance decline sample includes 193 nonfinancial firms listed on the KSE that experience a more than 50% drop in their operating income (ROA) within a year during the 1994-1996 period. Firms that are in a supervision of the bankruptcy court before a shock (performance decline) are excluded from the sample. Chaebol firms are those belonging to one of the 30 largest business groups in Korea. The cash flow right of the controlling shareholder is measured as the sum of the direct equity ownership of the controlling shareholders and their family and the product of the ownership stakes obtained indirectly along the chain in a pyramid structure (by tracing up to two layers of control chains). Voting rights are taken as the sum of direct equity ownership of the controlling shareholders and their family and equity ownership by affiliated firms. All accounting variables are measured at the end of the fiscal year immediately before November 18, 1997 (performance decline year). Tobin's q is calculated by dividing the sum of market value of equity and book value of debt by total assets. The median is reported in square brackets. The numbers in the test-of-difference columns denote *p*-values from the test of difference between chaebol and non-chaebol firms. The difference in each variable between the economic shock sample and the performance decline sample is tested using the t-test and the Wilcoxon z-test, and the symbols \*, \*\*, and \*\*\* in the economic shock sample columns denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 2**

Frequency of restructuring actions during the economic shock and the performance decline

	Economic Shock Sample				Performance Decline Sample			
	Total firms N= 580	Chaebol firms (A) N= 131	Non-chaebol firms (B) N= 449	Test of Difference (A-B)  <i>p</i> -value of Chi-square test	Total firms N= 193	Chaebol firms (C) (N= 33)	Non-chaebol firms (D) (N= 160)	Test of Difference (C-D)  <i>p</i> -value of Chi-square test
	Number (%)	Number (%)	Number (%)		Number (%)	Number (%)	Number (%)	
<b>Total restructuring actions (1 + 2)</b>	<b>195 (33.6)*</b>	<b>88 (67.2)***</b>	<b>107 (23.8)</b>	<b>0.00</b>	<b>51 (26.4)</b>	<b>14 (42.4)</b>	<b>37 (23.1)</b>	<b>0.02</b>
<b>1. Asset contraction actions</b>	<b>178 (30.7)</b>	<b>79 (60.3)**</b>	<b>99 (22.1)</b>	<b>0.00</b>	<b>48 (24.9)</b>	<b>13 (39.4)</b>	<b>35 (21.9)</b>	<b>0.03</b>
By types:								
(1) Asset sales	151 (26.0)	69 (52.7)**	82 (18.3)	0.00	41 (21.2)	11 (33.3)	30 (18.8)	0.06
Asset sales to affiliated firms	37 (6.4)*	23 (17.6)	14 (3.1)	0.00	6 (3.1)	4 (12.1)	2 (1.3)	0.00
Asset sales to non-affiliated firms	126 (21.7)	53 (40.5)**	73 (16.3)	0.00	36 (18.7)	7 (21.2)	29 (18.1)	0.68
(2) Investment cut	14 (2.4)	6 (4.6)	8 (1.8)	0.07	2 (1.0)	1 (0.6)	1 (0.6)	0.21
(3) Closing plant or suspending operations	18 (3.1)	7 (5.3)	11 (2.5)	0.09	4 (2.1)	0 (0.0)	4 (2.5)	0.35
(4) Withdrawal from line of business	12 (2.1)	7 (5.3)	5 (1.1)	0.00	3 (1.6)	2 (6.1)	1 (0.6)	0.02
(5) Spin off	22 (3.8)**	19 (14.5)**	3 (0.7)	0.00	1 (0.5)	0 (0.0)	1 (0.6)	0.65
By cash generation:								
(1) Asset downsizing with cash generation	156 (26.9)	72 (55.0)***	84 (18.7)	0.00	41 (21.2)	10 (30.3)	31 (19.4)	0.16
(2) Asset downsizing without cash generation	48 (8.3)	25 (19.1)	23 (5.1)	0.00	10 (5.2)	4 (12.1)	6 (3.8)	0.05
<b>2. Employment changes</b>	<b>44 (7.6)**</b>	<b>28 (21.4)**</b>	<b>16 (3.6)</b>	<b>0.00</b>	<b>5 (2.6)</b>	<b>2 (6.1)</b>	<b>3 (1.9)</b>	<b>0.17</b>
(1) Layoffs	28 (4.8)**	16 (12.2)	12 (2.7)	0.00	3 (1.6)	1 (3.0)	2 (1.3)	0.45
(2) Pay cut	19 (3.3)**	12 (9.2)*	7 (1.6)	0.00	1 (0.5)	0 (0.0)	1 (0.6)	0.65
(3) Lowering mandatory retirement ages or offering early retirement incentives	3 (0.5)	3 (2.3)	0 (0.0)	0.00	1 (0.5)	1 (3.0)	0 (0.0)	0.03

The economic shock sample includes 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) as of November 18, 1997, which is the date when the IMF proposed a rescue package to Korea to help overcome the financial crisis that had started in the middle of that month. The performance decline sample includes 193 nonfinancial firms listed on the KSE that experience a more than 50% drop in their operating income (ROA) within a year during the 1994-1996 period. Firms that are in a supervision of the bankruptcy court before a shock (performance decline) are excluded from the sample. Chaebol firms are those belonging to one of the 30 largest business groups in Korea. To identify restructuring activities of firms, we search the *Korea Investor's Network for Disclosure system* and the *Korean Economic Daily Newspaper*. For the economic shock sample, all sources are examined for stories during the one-year period starting from November 18, 1997. For the performance decline sample, we examine the sources for an one-year period from six months before to six months after the fiscal year end of the poor-performance year. Number indicates the number of firms that announce each action and % in parentheses indicates the percentage of firms that announce each action out of total firms in each category. The numbers in the test-of-difference columns denote *p*-values for the Chi-square test of the difference in mean percentage of firms between chaebol and non-chaebol firms. The difference in mean percentage between the economic shock sample and the performance decline sample is tested using the Chi-square test, and the symbols \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 3**

Logit estimates of the likelihood of restructuring actions during the economic shock

	(1)	(2)	(3)	(4)	(5)
Chaebol dummy: (A)	0.8817** (0.01)	0.4502 (0.22)	0.4852 (0.20)		
Log (voting rights / cash flow rights): (B)	0.4765* (0.07)	0.1315 (0.47)	0.1387 (0.45)		
(A) × (B)	-0.6705* (0.06)				
Total debt / total assets: (C)	2.2357*** (0.00)	1.9509*** (0.00)		2.0953*** (0.00)	
(A) × (C)		4.5397** (0.05)			
Bank loans / total assets: (D)			2.3217*** (0.00)		2.3159*** (0.00)
Non-bank debt / total assets: (E)			1.3902* (0.10)		1.6443** (0.04)
(A) × (D)			5.6551** (0.03)		
(A) × (E)			4.3335* (0.08)		
Dummy for chaebol firms with ownership discrepancy (equals one if the ratio of voting rights to cash flow rights of the chaebol firm > 1): (F)				0.1862 (0.57)	0.2834 (0.42)
(F) × (G)				3.0938 (0.21)	
(F) × (H)					4.7538* (0.10)
(F) × (I)					2.3972 (0.36)
Equity ownership by unaffiliated financial institutions	2.7655* (0.07)	2.8803* (0.06)	3.2235** (0.04)	2.9440** (0.04)	3.2817** (0.03)
Log (market value of equity)	0.5596*** (0.00)	0.5537*** (0.00)	0.5593*** (0.00)	0.6529*** (0.00)	0.6530*** (0.00)
Tobin's q	-1.3866*** (0.00)	-1.2932*** (0.01)	-1.3177*** (0.01)	-1.4940*** (0.00)	-1.5060*** (0.00)
Cash flow (operating income + depreciation) / total assets	0.4661 (0.85)	0.5420 (0.83)	0.3460 (0.89)	0.3239 (0.90)	0.3323 (0.89)
Liquid assets (cash + marketable securities) / total assets	-1.6390 (0.31)	-1.7361 (0.28)	-1.9929 (0.22)	-2.5960* (0.10)	-2.7820* (0.08)
Export / Sales	-0.2905 (0.53)	-0.2758 (0.55)	-0.2573 (0.57)	-0.2343 (0.60)	-0.1962 (0.66)
Intercept	-10.9850*** (0.00)	-9.5004*** (0.00)	-9.5826*** (0.00)	-10.9003*** (0.00)	-10.9279*** (0.00)
Industry dummies	YES	YES	YES	YES	YES
Number of firms involved in restructuring actions	186	186	186	188	187
Number of firms in sample	556	556	555	563	561
Model p-value	0.00	0.00	0.00	0.00	0.00

The sample includes 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) as of November 18, 1997, which is the date when the IMF proposed a rescue package to Korea to help overcome the financial crisis that had started in the middle of that month. Firms that are in a supervision of the bankruptcy court before a shock are excluded from the sample. To identify restructuring activities of firms, we search the *Korea Investor's Network for Disclosure system* and the *Korean Economic Daily Newspaper*. The sources are examined for stories during the one-year period starting from November 18, 1997. The dependent variable equals one if firms undertake at least one of the restructuring actions categorized in Table 2. The chaebol dummy takes the value of one if firms are those belonging to one of the 30 largest business groups in Korea. The cash flow right of the controlling shareholder is measured as the sum of the direct equity ownership of the controlling shareholders and their family and the product of the ownership stakes obtained indirectly along the chain in a pyramid structure (by tracing up to two layers of control chains). Voting rights are taken as the sum of direct equity ownership of the controlling shareholders and their family and equity ownership by affiliated firms. Tobin's q is calculated by dividing the sum of market value of equity and book value of debt by total assets. All accounting variables are measured at the end of the fiscal year immediately before November 18, 1997. All variables that are interacted with a dummy variable are demeaned. Numbers in parentheses are *p*-values. The symbols \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 4**

Cumulative abnormal returns [CAR (-1, 1)] around the announcement of restructuring activities

*Panel A: CARs (-1, 1) for the sample of restructuring actions during the economic shock*

	Total sample (A + B)	Restructuring with cash generation (A)	Restructuring without cash generation (B)	Test of difference (A - B)
Total sample (1 + 2)	0.0133 (1.50) [0.016]* (n=149)	0.0231** (2.26) [0.023]*** (n=121)	-0.0287* (-1.91) [-0.023] (n=28)	0.052*** (2.85) [0.047]***
Chaebol firms (1)	0.0342*** (2.75) [0.0252]*** (n=66)	0.0457*** (3.25) [0.0262]*** (n=54)	-0.0177 (-0.82) [-0.0223] (n=12)	0.063** (2.01) [0.049]*
Non-chaebol firms (2)	-0.0032 (-0.26) [0.005] (n=83)	0.0049 (0.34) [0.016] (n=67)	-0.0371* (-1.75) [-0.024] (n=16)	0.042 (1.35) [0.040]*
Test of difference (1 - 2)	0.037** (2.11) [0.020]*	0.041** (2.01) [0.010]	0.019 (0.63) [0.002]	

*Panel B: CARs (-1, 1) for the sample of restructuring actions during a performance decline*

	Total sample (A + B)	Restructuring with cash generation (A)	Restructuring without cash generation (B)	Test of difference (A - B)
Total sample (1 + 2)	0.0165* (1.77) [0.0052]* (n=40)	0.0196* (1.73) [0.0061]* (n=32)	0.0040 (0.37) [0.0021] (n=8)	0.016 (1.00) [0.004]
Chaebol firms (1)	0.0270 (1.03) [0.0054] (n=11)	0.0439 (1.27) [0.0129] (n=8)	-0.0183 (-1.76) [-0.0286] (n=3)	0.062 (1.06) [0.042]
Non-chaebol firms (2)	0.0125 (1.47) [0.0052] (n=29)	0.0115 (1.15) [0.0054] (n=24)	0.0174 (1.33) [0.0052] (n=5)	-0.006 (0.26) [0.000]
Test of difference (1 - 2)	0.014 (0.69) [0.000]	0.032 (1.25) [0.008]	-0.036 (1.87) [-0.0338]	

The economic shock sample includes 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) as of November 18, 1997, which is the date when the IMF proposed a rescue package to Korea to help overcome the financial crisis that had started in the middle of that month. The performance decline sample includes 193 nonfinancial firms listed on the KSE that had experienced more than a 50% drop in their operating income (ROA) within a year during the 1994-1996 period. Firms that are in a supervision of the bankruptcy court before the shock (performance decline) are excluded from the sample. We identify initial public announcement dates of the restructuring activities from the *Korea Investor's Network for Disclosure system*, and a daily newspaper, the *Korean Economic Daily Newspaper*. We use as the announcement date the date that a news announcement first appeared in either of these two publications. We exclude observations that accompany other restructuring announcements during the estimation period of the market model. For each event, we compute the abnormal return using the market model. We use the KOSPI return as the market return proxy. We obtain our estimates of the market model by using 200 trading days of return data beginning 220 days and ending 21 days before the restructuring announcement. We then calculate daily abnormal returns and sum the daily abnormal returns over three days around the restructuring announcement date to get the cumulative abnormal return (CAR). Chaebol firms are those belonging to one of the 30 largest business groups in Korea. The mean CAR (-1, 1) is reported on top, followed by *t*-statistic in parentheses, median CAR (-1, 1) in square bracket, and the number of observations in parentheses at the bottom. The symbols \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 5**

OLS regression of cumulative abnormal returns [CAR (-1, 1)] around the announcement of cash-generating restructuring activities during the economic shock on explanatory variables

	(1)	(2)	(3)	(4)
Chaebol dummy: (A)	-0.0061 (0.89)	0.0231 (0.46)		
Log (voting rights / cash flow rights): (B)	0.1240* (0.08)	-0.0110 (0.60)		
(A) × (B)	-0.1380* (0.06)			
Total debt / total assets: (C)	-0.0473 (0.54)	-0.0897 (0.28)	-0.0404 (0.60)	
(A) × (C)		0.3893** (0.04)		
Dummy for chaebol firms with ownership discrepancy (equals one if the ratio of voting rights to cash flow rights of the chaebol firm > 1): (D)			-0.0222 (0.44)	-0.0243 (0.41)
(C) × (D)			0.4082* (0.08)	
Bank loans / total assets: (E)				-0.0480 (0.56)
Non-bank debt / total assets: (F)				-0.0203 (0.83)
(D) × (E)				0.4020* (0.10)
(D) × (F)				0.4619* (0.09)
Equity Ownership by unaffiliated financial institutions	0.0149 (0.91)	0.0485 (0.73)	0.0798 (0.55)	0.0719 (0.60)
Log (market value of equity)	0.0064 (0.55)	0.0103 (0.33)	0.0130 (0.19)	0.0127 (0.20)
Tobin's q	-0.0052 (0.86)	0.0008 (0.98)	-0.0003 (0.99)	0.0048 (0.87)
Cash flow (operating income + depreciation) / total assets	0.2819 (0.23)	0.3768 (0.11)	0.3783 (0.11)	0.3752 (0.12)
Liquid assets (cash + marketable securities) / total assets	-0.0245 (0.89)	0.0120 (0.95)	-0.0246 (0.89)	-0.0040 (0.98)
Intercept	-0.0305 (0.89)	-0.2099 (0.26)	-0.2422 (0.16)	-0.2427 (0.17)
Industry dummies	YES	YES	YES	YES
Number of observations	119	119	120	120
Adjusted R <sup>2</sup>	0.048	0.053	0.034	0.020

The sample includes 580 nonfinancial firms listed on the Korean Stock Exchange (KSE) as of November 18, 1997, which is the date when the IMF proposed a rescue package to Korea to help overcome the financial crisis that had started in the middle of that month. Firms that are in a supervision of the bankruptcy court before a shock are excluded from the sample. To identify restructuring activities of firms, we search the *Korea Investor's Network for Disclosure system* and the *Korean Economic Daily Newspaper*. The sources are examined for stories during the one-year period starting from November 18, 1997. The dependent variable is the cumulative abnormal return (CAR) calculated in Table 5. The chaebol dummy takes the value of one if firms are those belonging to one of the 30 largest business groups in Korea. The cash flow right of the controlling shareholder is measured as the sum of the direct equity ownership of the controlling shareholders and their family and the product of the ownership stakes obtained indirectly along the chain in a pyramid structure (by tracing up to two layers of control chains). Voting rights are taken as the sum of direct equity ownership of the controlling shareholders and their family and equity ownership by affiliated firms. Tobin's q is calculated by dividing the sum of market value of equity and book value of debt by total assets. All accounting variables are measured at the end of the fiscal year immediately before November 18, 1997. All variables that are interacted with a dummy variable are demeaned. Numbers in parentheses are *p*-values. The symbols \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

**Table 6**

OLS regression of equally-weighted portfolio cumulative abnormal returns [CAR(-1,1)] of other chaebol firms that belong to the same chaebol as the restructuring firm

Panel A: Equally-weighted portfolio CAR(-1, 1) of non-restructuring firms that belong to the same chaebol as the restructuring firm

Total sample	Restructuring with cash generation (A)	Restructuring without cash generation (B)	Test of difference (A - B)
0.0240 <sup>***</sup> (2.61) [0.0116] <sup>**</sup> (n=65)	0.0318 <sup>***</sup> (3.01) [0.0174] <sup>***</sup> (n=53)	-0.0108 (-0.79) [-0.0145] (n=12)	0.043 <sup>*</sup> (1.83) [0.032] <sup>*</sup>

Panel B: OLS regression of equally-weighted portfolio CAR(-1, 1) of non-restructuring firms that belong to the same chaebol as the restructuring firm on restructuring firms' financial characteristics

	(1)	(2)	(3)	(4)
Intercept	0.1641 (0.30)	0.1532 (0.35)	-0.0193 (0.90)	0.0684 (0.67)
CAR (-1,1) for restructuring firms: (A)	0.5290 <sup>***</sup> (0.00)	0.6696 <sup>***</sup> (0.00)	0.5300 <sup>***</sup> (0.00)	0.4385 <sup>***</sup> (0.00)
Cash flow rights of controlling shareholders	-0.2753 <sup>***</sup> (0.00)			
Dummy for high cash flow rights (equals one if cash flow rights of the controlling shareholders are greater than the sample median): (B)		-0.0464 <sup>***</sup> (0.00)		
(A) × (B)		-0.2838 <sup>*</sup> (0.07)		
Log (voting rights / cash flow rights)			0.0124 <sup>**</sup> (0.05)	
Dummy for high discrepancy ratio (equals one if the ratio of voting rights to cash flow rights is greater than the sample median): (C)				0.0416 <sup>***</sup> (0.01)
(A) × (C)				0.2575 <sup>*</sup> (0.09)
Total debt / total assets	0.1217 (0.16)	0.0859 (0.34)	0.1066 (0.27)	0.0759 (0.41)
Equity Ownership by unaffiliated financial institutions	0.0010 (0.99)	0.0638 (0.42)	0.0666 (0.43)	0.0840 (0.30)
Dummy for cash-generating restructuring actions	0.0085 (0.65)	0.0034 (0.87)	0.0076 (0.71)	0.0040 (0.84)
Log (market value of equity)	-0.0128 <sup>**</sup> (0.05)	-0.0096 (0.14)	-0.0051 (0.44)	-0.0071 (0.27)
Tobin's q	-0.0224 (0.12)	-0.0255 <sup>*</sup> (0.09)	-0.0267 <sup>*</sup> (0.10)	-0.0268 <sup>*</sup> (0.08)
Cash flow (operating income + depreciation) / total assets	0.4127 <sup>*</sup> (0.06)	0.3000 (0.19)	0.4200 <sup>*</sup> (0.08)	0.2828 (0.23)
Liquid assets (cash + marketable securities) / total assets	0.1526 (0.30)	0.0884 (0.56)	0.0814 (0.62)	0.0633 (0.68)
Industry dummies	YES	YES	YES	YES
Number of observations	64	64	64	64
Adjusted R <sup>2</sup>	0.538	0.509	0.439	0.492

The sample comprises 65 chaebol firms that engage in restructuring actions between November 18, 1997 and November 17, 1998 and 65 portfolios of other chaebol firms that do not engage in restructuring actions during the same period. Abnormal returns for other group affiliates are calculated by using the market model. The market model parameters are estimated using returns of the equally-weighted portfolio of other firms that belong to the same chaebol as the restructuring firm and then used to calculate the daily abnormal returns of the portfolio. The cash flow right of the controlling shareholder is measured as the sum of the direct equity ownership of the controlling shareholders and their family and the product of the ownership stakes obtained indirectly along the chain in a pyramid structure (by tracing up to two layers of control chains). Voting rights are taken as the sum of direct equity ownership of the controlling shareholders and their family and equity ownership by affiliated firms. Tobin's q is calculated by dividing the sum of market value of equity and book value of debt by total assets. All accounting variables are measured at the end of the fiscal year immediately before November 18, 1997. In Panel A, the mean equally-weighted portfolio CAR (-1, 1) is reported on top, followed by *t*-statistic in parentheses, median equally-weighted portfolio CAR (-1, 1) in square bracket, and the number of observations in parentheses at the bottom. In Panel B, numbers in parentheses are *p*-values. The symbols \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.