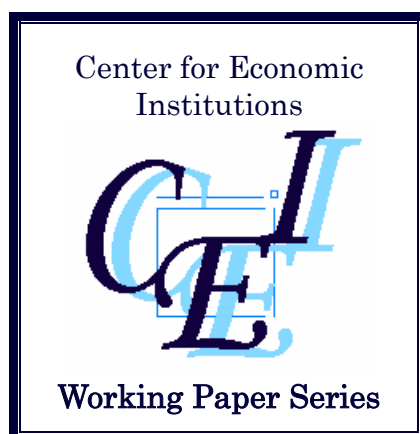


***Center for Economic Institutions***  
***Working Paper Series***

**CEI Working Paper Series, No. 2004-25**

***On the Bank-led Rescues Financially  
Distressed Firms in Japan***

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# On the Bank-led Rescues of Financially Distressed Firms in Japan

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First version: March 2003

This version: Sep. 2004

## Abstract

In this paper, we argue that the bank-led rescues of financially distressed firms in the heyday of the main bank system was inefficient since banks' implicit guarantee against bankruptcy resulted in moral hazard. The empirical results show that during the period before the financial deregulation of the 1980s main bank client firms retrenched operational expenses and improved corporate performance significantly less than the firms without close bank ties after the onset of financial distress. This evidence suggests that managers of bank-affiliated firms tended to do away with sharp downsizing by relying on financial support from their main bank.

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<sup>†</sup>I am grateful to helpful comments by Kaku Furuya, Akiyoshi Horiuchi, Masaharu Hanazaki, Hideshi Itoh, Matthias Kahl, Masaaki Kato, Makoto Nirei, Seki Obata, Makoto Saito, Juro Teranishi, Aaron Tornell and seminar participants at Hitotsubashi, Daito-Bunka, and the Japan Economic Association Fall 2003 Meeting. All errors are my own.

# 1 Introduction

While corporate governance in the U.S. is market-oriented, that in Japan is generally characterized as a stable, relationship-based system. Many believe that Japanese banks have played an important role in monitoring and disciplining managers of their client firms through a long-term link, the so-called "main bank relationship". The prolonged stagnation for more than a decade, however, questions the effectiveness of the main bank system since its role of monitoring client firms seems incompatible with today's serious non-performing loan problems. In response to this challenge, some professionals have argued that the recent poor corporate governance by Japanese banks was a consequence of the financial deregulation since the 1980s, which lowered rent opportunities of banks and thereby discouraged them from monitoring their client firms prudently (Aoki (1994), Hoshi and Kashyap (2001)).<sup>1</sup>

The conventional view with regard to corporate governance in Japan is the "state-contingent governance" theory (Aoki (1988)). In normal or favorable financial states, the governance structure of top management is entirely controlled by the body of permanent employees even though its main bank monitors the firm management. Once the firm is involved in financial distress, the main bank intervenes in the corporate management and provides special financial assistance to improve operating performance. Hoshi, Kashyap and Scharfstein (1990b) argue that the bank interventions rescue firms from costly financial distress. They show evidence that main bank client firms invest and sell more after the onset of financial distress than the firms without close bank ties.

However, are bank-led rescues of distress firms always efficient? When main banks bail out and monitor client firms, can they recover from financial distress more quickly than the firms without close bank ties? In other words, do strong bank ties lead firm managers to work less vigorously than if they had to deal with arm's length creditors? To our knowledge, no systematic studies exist that investigate whether the bank-led rescues of firms are efficient or not. This paper fills the gap by focusing on corporate restructuring of the firms in financial distress.

To the extent that corporate restructuring leads to improvement in op-

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<sup>1</sup>It should be noted that some scholars have already cast doubt on the monitoring role of main banks. Hanazaki and Horiuchi (2000) argue that financial deregulation was gradually and cautiously proceeded so as not to affect the profitability of banks. They also document that the decline in bank dependency by large firms started in the late 1970s, before the onset of financial deregulation.

erating performance, one might expect the effective corporate governance implies that main banks urge financially distressed firms to engage in restructuring for more efficient management. Contrary to this, we discover that main bank client firms in financial distress retrenched significantly less than the firms without close bank ties during the period before the financial deregulation of the 1980s. We also find that the corporate performance of the main bank client firms improved markedly less after the onset of distress than the downsizing independent firms. Based on the above evidence, we argue that managers of main bank client firms tended to do away with downsizing by relying on financial support from their main bank. The bank-led rescues of distressed firms in the heyday of the main bank system might be inefficient due to the implicit guarantee against bankruptcy.

Furthermore, we document that such differences in retrenchment and performance recovery after the onset of financial distress between main bank clients and independent firms disappeared in the 1990s. We interpret this finding as evidence that main bank client firms no longer believed in the implicit bail-out guarantee, partly because main banks could not afford to commit themselves to prop up client firms.

We then examine whether the decisions of corporate restructuring are influenced by capital and ownership structure. We find that the bank loan ratio and the bank ownership share are negatively correlated with cost reductions and subsequent improvement in performance, which is consistent with our moral hazard hypothesis. In contrast, corporate restructuring and quick recovery of performance are more likely when the foreign ownership share is high. In spite of being small shareholders, foreign investors appear to play a more significant role in the management of financially distressed firms than the silent majority of large investors that have long-term relationships with the firms, such as financial institutions and domestic corporate shareholders, in the 1990s.

Section 2 of this paper reviews previous studies on corporate governance in Japan. Section 3 and 4 describe the data and empirical results, respectively. Section 5 concludes.

## **2 Prior Research on Corporate Governance in Japan**

### **2.1 The Main Bank System**

One of the distinctive institutional features of corporate governance in Japan is the main bank system. Traditionally, a number of firms have maintained a close relationship with a particular bank, known as "main bank", which

holds the largest block of equity (at least among banks) and is a major lender.<sup>2</sup> The alleged role of main banks is to monitor firm management, to extend various types of financial assistance in financial distress, to dispatch a management team if necessary, to restructure firm organizations in bad situations, and to allow the firm to go bankrupt in the worst situations.

The cornerstone of the main bank system is the information-sharing relationship between the bank and its client firm. The close association between the main bank and the firm allows the bank to obtain information about the internal decision making of the firm which is not readily available, or available only at high cost, to the external capital market (Sheard (1989)). In this context, a long-term main bank relationship is regarded as an institution that mitigates the problem of asymmetric information between lenders and borrowers.

Diamond (1984) shows that delegating the task of monitoring to a financial intermediary minimizes monitoring costs, while issuing securities like public debt and equity may be inefficient either because monitoring costs are needlessly duplicated among individual security holders or because monitoring is a public good that no one has an incentive to provide (free-rider problems).<sup>3</sup> Hoshi, Kashyap and Scharfstein (1990a, 1991) present evidence that firms with closer ties with main banks are less liquidity constrained in their investment decision than independent firms.<sup>4</sup> They conclude that since main banks acquire inside knowledge of firm's investment opportunities, they facilitate smoother investment by freeing client firms from reliance on internal funds.

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<sup>2</sup>The Japanese Anti-Monopoly Law allows banks to hold up to 5% of a firm's stock (10% prior to 1987), but banks can exert more control over the firm by mobilizing the shareholding of the group's trust bank, insurance company, trading company and other member firms. It is argued that these shareholdings deter potential hostile takeover bids.

<sup>3</sup>As Sheard (1989) argues, the sense in which the main bank represents a delegated monitor is slightly different from the sense in which Diamond (1984) uses the term. In Diamond's model, monitoring is delegated from depositors to an intermediary, whereas the main bank system can be characterized in terms of banks themselves delegating the monitoring of a particular firm to one particular bank (the main bank). Thus, in Japan the main bank may be the only bank that monitors the firm, but it is not the only bank which lends to the firm.

<sup>4</sup>Following Fazzari, Hubbard and Peterson (1988) and others, Hoshi, Kashyap and Scharfstein (1990a, 1991) use investment-cash flow sensitivity as an indicator of liquidity constraint. Several recent papers, however, question the validity of this approach. Kaplan and Zingales (1997) reexamine the "constrained" firm group used in the study of Fazzari, Hubbard and Peterson (1988) and show that sensitivity is the highest for those firms that are deemed unconstrained. Gomes (2001) theoretically shows significant cash flow effects even in the absence of financial frictions.

However, some scholars were reluctant to fully embrace the beneficial monitoring view of main banks even before the financial deregulation of the 1980s.<sup>5</sup> Caves and Uekusa (1976), Nakatani (1984) and Weinstein and Yafeh (1998) all show that bank-affiliated firms performed worse than independent firms on a variety of measures of profitability, suggesting that the benefits of bank relationship is not internalized by the firm. Weinstein and Yafeh (1998) find that main banks charge their client firms higher interest rates than firms with weak bank ties. They argue that these high debt costs reflect that banks are able to extract rents from their client firms in return for providing capital and other services. On the other hand, Aoki (1988) attributes the costs to an "agency fee" paid by individual shareholders for bank monitoring. Another possibility may be that it is a "bankruptcy insurance premium". Hoshi, Kashyap, and Scharfstein (1990b) stress the role of main banks to provide special assistance for their client firms in financial distress.<sup>6</sup> These assistance packages typically involve the provision of emergency finance in the first instance and then reductions or exemptions of interest payments (Kawai, Hashimoto and Izumida (1996)).<sup>7</sup>

Another vital way of main banks to bail out client firms is to dispatch managers to the client firms in financial distress. Kaplan and Minton (1994) report that bank director appointments are more likely when firms perform poorly and that such bank appointments are associated with a higher likelihood of CEO turnover and improved subsequent firm performance. Kang and Shivdasani (1995) find that poorly performing CEOs are more likely to be replaced when firms have strong main bank ties. Morck and Nakamura (1999) document that bank director appointments play different roles for group firms and outside group firms. For non-group firms, banks act as creditors to rescue their client firms from poor current liquidity. On the other hand, for group firms, banks act in the broader interests of stakeholders, including shareholders.

The above arguments indicate that the costs and benefits of main bank governance hinge, in large part, upon the efficiency of bank-led rescues of financially distressed firms. In this paper, we examine how main bank client

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<sup>5</sup>Sharpe (1990) and Rajan (1992) argue that close bank ties may be costly for client firms, as information monopolies or market power allow banks to extract rents.

<sup>6</sup>However, Hall and Weinstein (2000) find that firms without main bank ties receive as much loan assistance (from the top lending bank and from all bank lenders) as firms with ties to main banks.

<sup>7</sup>Fukao (1999) reports that the survey conducted in 1992 by Fuji Research Institute reveals that a number of firms expect emergency assistance from their main banks when they become financially distressed, in return for the long-term close ties with their main bank.

firms respond to financial distress in comparison with the firms without close bank ties.

## **2.2 Corporate Restructuring and Governance**

When firms are involved in financial distress, they try to avoid bankruptcy by restructuring their assets and liabilities. Asset sales, mergers, capital expenditure reductions, and layoffs (on asset side), and restructuring of bank debt and public debt (on liability side) are common responses to distress (Asquith, Gertner and Scharfstein (1994)). Moreover, some evidence shows that corporate performance significantly improves following downsizing (John and Ofek (1995), Espahbodi, John and Vasudevan (2000)).

It is sometimes argued in Japan, however, that the traditional Japanese management system (e.g., seniority ranking and lifetime employment) is incompatible with the U.S.-style corporate restructuring. As opposed to this, Kang and Shivdasani (1997) find that the responses of Japanese firms to a substantial decline in their operating performance are surprisingly similar to the U.S. firms in many respects, such as selling assets, closing plants, reducing capital expenditures and production, and through employee layoffs, although the frequency is lower than that of the U.S. counterparts.

Kang and Shivdasani (1997) report that the likelihood of asset downsizing and layoffs in Japanese firms increases with the ownership by the firms' main bank and other blockholders. They also find that the ownership by blockholders increases the probability of management turnover and outsider director additions, but reduces the likelihood of acquisitions. Our paper is different from Kang and Shivdasani (1997) in that they measure the frequency of corporate restructuring, while we examine its magnitude and speed. We also focus on the difference in response to performance declines between the firms with and without close bank ties, to which they do not pay attention.

Morck and Nakamura (1999) document that bank group firms' entertainment spending rises at uniformly higher rates following bank appointments than nongroup firms', although the difference is not statistically significant. The present paper looks at various measures of corporate restructuring following financial distress. It also identifies financial and ownership factors that could affect corporate restructuring and subsequent improvement in performance.

### 3 Data

We use financial data on all manufacturing firms listed on the Tokyo Stock Exchange that are obtained from the Japan Development Bank data base. We first identify a set of firms that suffered financial distress. Among the many possible definitions of financial distress, following John, Lang and Netter (1992), we choose one that selects firms experiencing negative ordinary income (operating income net of non-operating profits) for two consecutive years followed by three years of positive ordinary income.<sup>8</sup> As a convention, we denote the first year in which the ordinary income is negative as period  $t$ . Thus, for example, period  $t-1$  refers to the year of healthy performance preceding two years of financial distress and period  $t+3$  is the second year of positive profits following the spell of financial distress.

We adopt this definition for the following reasons. First, selecting firms with two years of poor performance ensures identification of responses to short-term financial distress, making it possible to evaluate the speed and the magnitude with which a firm reacts to a decline in value. As Kawai, Hashimoto and Izumida (1996) describe in detail, the consecutive years of negative profits usually arouse concerns with the firm's management and may invite some form of bank intervention since banks tend to view them as a reflection of something fundamentally wrong with the firm's management and operation rather than a temporary adverse shock to the firm.

Second, using a short period of poor performance avoids bringing into our sample firms continuing poor performance to which they did not react. The data reveal that firms do not always return to consecutive years of positive profits following consecutive years of negative profits; they often sink into consecutive negative profits for a year or even several years after having briefly returned to positive profits. We assume that these long distressed firms can continue their business due to the continuous financial support from their main banks. Hence, excluding these firms from our sample does not necessarily bias our conclusion.

We examine two distinct sample periods to see whether the role of main banks changed following the financial deregulation. The first sample period

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<sup>8</sup>Hoshi, Kashyap and Scharfstein (1990b) use an alternative definition of financial distress, which is the two consecutive years of less than one coverage ratio (the ratio of operating income to interest payments). A close investigation of the financial data reveals that when Japanese large firms have less than one coverage ratio, they usually try to sell fixed property (e.g. real estate and financial assets) to make their ordinary profit positive. These large firms do not respond promptly to their poor performance. Hence, we do not follow their definition in this paper.



in which firms could enter our sample begins in April 1978 and ends in March 1985, while the second period begins in April 1990 and ends in March 1997. For most firms, the fiscal year runs from April 1 to the following March 31. We correspond our first sample period to that of Hoshi, Kashyap, and Scharfstein (1990b) and define it as the pre-deregulation period. This is because Hoshi, Kashyap, and Scharfstein (1990a) identify 1983 as the year in which the financial deregulation virtually started in Japan. We name our second sample period the post-deregulation period. The second sample period is chosen so that we can include the most recent and available data. We identify 72 firms in the pre-deregulation period and 112 firms in the post-deregulation period matching our criteria.

The next step in forming the data is to identify which firms had close ties to main banks. As Aoki, Patrick and Sheard (1994), and Hall and Weinstein (2000) argue, any definition of main bank contains noise which decreases the power of econometric tests. For example, definitions based on affiliation with an industrial group seem to be excessively strict, because some unaffiliated firms have long-term ties with banks. Definitions based on bank lending behavior are sometimes inappropriate because many firms go through periods without any borrowing from banks. In this paper, we choose the latter definition since almost all financially distressed firms borrow from banks. Here, the main bank client firms are defined if their largest commercial bank lender does not change for five years prior to the beginning of financial distress and during the period of financial distress. On the other hand, if the largest bank lender changes at least once over the same period, we regard the firm as an independent. Ultimately, we have 42 main bank client firms out of 72 firms in the pre-deregulation period and 47 main bank clients out of 112 firms in the post-deregulation period.

Table 1 lists the descriptive statistics for financially distressed firms in our sample. In this paper, we assume that the following factors could affect corporate restructuring and subsequent performance recovery: a main bank dummy, bank loan ratios, leverage ratios, bank ownership, the ownership by large shareholders, and foreign ownership. Out of the 72 firms for the pre-deregulation period, 58.3% are firms with close ties to their main bank, while 41.9% are main bank clients out of the 112 firms for the post-deregulation period. This partially reflects the decline in dependency for financing on banks by large firms in Japan.

Declines in bank loan ratios (the bank loans as a share of debt) and leverage ratios (the debt as a share of total asset) also indicate the trend of the decline in bank dependency. On the other hand, foreign ownership slightly increased in our sample. In fact, the foreign ownership as a percentage of

market value has increased substantially during the 1990s.

Looking at the correlations among capital structure measures and equity ownership shares for the two sample periods (Table 2), we find positive and high correlations between bank loan ratios and bank ownership shares in the pre-deregulation period, but they turn out to be negative in the post-deregulation period. This suggests that even after large firms lowered their bank dependency, banks may have kept a significant influence on their client firms as shareholders.

Bank ownership and large shareholder are negatively correlated. We interpret this as evidence that large shareholders are dominated by non-financial corporate shareholders.

Lastly, as opposed to our intuition, the correlations between main bank dummy and bank loan ratio are low. This suggests that main bank client firms do not necessarily have high bank loan ratios relative to the firms without close bank ties.

## 4 Empirical Results

The primary objective of this paper is to empirically investigate whether main banks urge client firms in financial distress to engage in corporate restructuring to recover their operating performance. We also examine whether capital and ownership structure affect corporate restructuring and subsequent performance recovery. Before examining whether there is any difference in corporate restructuring between main bank client firms and independent firms, we test whether corporate restructuring contributes to improvement in performance.

### 4.1 Effect of Restructuring on Performance Recovery

Here, we test to identify factors that can improve the operating performance of financially distressed firms. We do this by regressing the changes in operating performance on several measures of corporate restructuring. The dependent variable is the changes in ordinary income as a percentage of the lagged assets. We measure the changes in the dependent and independent variables relative to the first year of negative profit.

The first independent variable is the percentage change in assets. John and Ofek (1995) argue that the sale of assets leads to improvement in performance through an increase in a firm's focus. On the contrary, as Jensen (1986) suggested, expansion of assets that represents diversification strategies or results in a loss of focus can be detrimental to firm value. Nev-

ertheless, a substantial investment in the core business, especially when accompanied by reducing the number of segments, could also result in improvement in performance due to economies of scale. Hence, we do not make any predictions regarding the coefficient of this variable.

The second and third variables are the percentage change in the number of employees and the change in labor cost as a percentage of sales, respectively. Layoffs of employees, reductions in compensations or bonuses, and other actions are likely to occur so that firms would downsize, or adopt more efficient or capital intensive production techniques. These should lead to improvement in performance. However, large cuts in employees can demoralize the survivors and lead to losses in productivity (Brockner (1988)). This could hamper or even reverse the effect of cost savings. These variables also could have ambiguous effects on performance recovery.

The last variable we use is the change in operating expenses as a percentage of sales.<sup>9</sup> This is a typical measure for the efficiency of the cost structure of firms. In general, firms with low cost structure generate more profits than those with high cost structure. Hence, we expect a positive coefficient for this variable.

We conduct this analysis using a median regression estimator due to the skewness of accounting data and the existence of extreme observations (Kaplan (1989), Jain and Kini (1994)). Some distressed firms are involved in major restructuring through asset sales, spin-offs, and mergers. Hoshi, Kashyap, and Scharfstein (1990b) exclude these firms from their sample since they are unable to measure the firms' investment. However, this introduces the possibility of selection bias in their sample. We do not omit them; instead, we use the median regression and avoid the possibility of estimation bias due to the extreme observations.

Table 3 reports the results of our analysis. We conduct the same regressions for both pre- and post-deregulation periods to see the difference in the effect of corporate restructuring on improvement in performance between the two periods. In the equation 1, we regress the change in ordinary income as a percentage of the lagged assets over the period from  $t$  to  $t+2$  against the changes in measures of corporate restructuring from  $t$  to  $t+1$ . The coefficient of the change in assets is positive and significant at the 1% level, which is consistent with related work by Espahbodi, John and Vasudevan (2000). This suggests that firms that increased their asset base had improvement in performance. The coefficients of the changes in the number of employees

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<sup>9</sup>"Operating expenses" refer to the selling and general administrative expenses in the Japanese accounting terms.

and labor cost are both negative, although the coefficient of employees is not significant. Firms that were able to reduce costs by reducing the number of employees and/or compensations improved performance. The coefficient of the change in operating expenses is also negative and significant at the 5% level. Firms that succeed in cutting down on operating expenses have larger improvement in performance.

In the equation 2, we conduct the regression when the dependent variable is taken over the period from  $t$  to  $t+3$  and the independent variables from  $t$  to  $t+2$ . The results are similar to those of the equation 1 except that the coefficient of the change in assets is not significant. The coefficients of the changes in labor cost and operating expenses are both negative and significant.

The equations 3 and 4 have the same specifications as the equations 1 and 2, but use observations for the post-deregulation period. Interestingly, the results are quite similar to those for the pre-deregulation period. The coefficients of the change in assets are positive and the coefficients of the other three variables are negative for the two equations. Overall, our results suggest that corporate restructuring tends to be more successful for the firms that cut down on labor cost and operating expenses.

## 4.2 Main Bank Client Firms versus Independent Firms

In this section, we compare the operating performance, corporate size, and the certain elements of costs between main bank client firms and independent firms.

Table 4-1 through 4-5 shows our analysis. We present results and significance levels for both medians and means, but we base our analysis on medians. This is common practice for the same reasons described above. For medians, we base significance levels on non-parametric Wilcoxon signed-rank test. For means, we report parametric  $t$ -tests. Barber and Lyon (1996) demonstrate that because extreme observations exist, non-parametric Wilcoxon signed-rank test are uniformly more powerful than parametric  $t$ -tests. We report both test statistics for completeness, but emphasize the nonparametric tests. Furthermore, we conduct Wilcoxon rank-sum tests to examine whether the difference in median of our measures between main bank client firms and independent firms is significantly different from zero. We conduct the same analysis using industry-adjusted data and obtain the similar results. Since we are interested in the absolute changes in these variables, we do not report the industry-adjusted results.

Table 4-1 reports the changes in operating performance for all firms,

main bank client firms and independent firms over the periods before and after the financial deregulation. All variables are measured relative to the first year of negative profit (period  $t$ ). Panel A shows that following the financial distress the median of operating performance for all firms steadily increases in the pre-deregulation period. The performance changes from  $t$  to  $t+2$  and from  $t$  to  $t+4$  are 3.9% and 6.0%, respectively. While both main bank client firms and independent firms had improvement in performance following financial distress, the median changes in operating performance are significantly higher for independent firms than for main bank firms. On the other hand, the standard deviation of the changes in operating performance for independent firms is more than that for main bank client firms. Panel B reports the changes in operating performance in the post-deregulation period. From  $t$  to  $t+2$ , the changes in operating performance are higher for main bank clients than those for independents although they are not significantly different. Independent firms had larger improvement in performance from  $t$  to  $t+3$  and from  $t$  to  $t+4$  than main bank client firms.

In sum, independent firms generally outperformed main bank client firms after the onset of financial distress. This result seems contradictory to the findings of Hoshi, Kashyap, and Scharfstein (1990b) that main bank client firms invest and sell more than independent firms during the same period. We show below that the main reason for this discrepancy is that independent firms curtail their operational costs more than main bank client firms.

We then examine the median changes in firm size and certain elements of costs that could affect improvement in performance. Table 4-2 reports the percentage changes in assets for all firms, main bank client firms, and independent firms. The period covers from the first year of negative profits (period  $t$ ) to three years from that year. Panel A shows that for all firms, there is a slight decline in assets from  $t$  to  $t+1$  (median -1.0%) followed by a slight recovery from  $t+1$  to  $t+2$  (median 1.8%) and a significant increase from  $t+2$  to  $t+3$  (median 3.0%). Over the period from  $t$  to  $t+3$  the median assets increase by 4.8%, but this increase is insignificant according to the signed-rank test. Although the difference is not significant, independent firms grow at higher rates than main bank client firms after the onset of financial distress. On the other hand, the standard deviation of the growth rate of assets for independent firms is always higher than that for main bank firms, which is similar to the above results with respect to the operating performance.

Panel B reports the results from the same analysis for the post-deregulation period. Assets decrease substantially from  $t$  to  $t+1$  (median -3.6%) and from  $t+1$  to  $t+2$  (median -2.0%), thereafter increase slightly from  $t+2$  to  $t+3$  (me-

dian 0.4%). It follows from this that firms downsize their assets in response to poor performance in the post-deregulation period more than in the pre-deregulation period. In contrast to the result for the pre-deregulation period, independent firms downsize their assets more than main bank client firms in the post-deregulation period, although the difference is not significant.

Table 4-3 and 4-4 report the percentage changes in employees and the changes in labor cost as a percentage of sales, respectively. Panels A of Table 4-3 and 4-4 show that financially distressed firms experience substantial layoffs and labor cost reductions in the pre-deregulation period. Employment falls significantly from  $t$  to  $t+1$  (median -4.5%) and from  $t+1$  to  $t+2$  (median -4.2%), and thereafter increases slightly from  $t+2$  to  $t+3$  (median 0.7%). The labor cost over sales also declines over the entire period: from  $t$  to  $t+1$  (median -0.4%), from  $t+1$  to  $t+2$  (median -0.7%) and from  $t+2$  to  $t+3$  (median -0.2%). Our striking result is that independent firms curtail labor cost by reducing employees and/or compensations more than main bank client firms in the pre-deregulation period. The Wilcoxon rank-sum test indicates that the difference in median labor cost between main bank client firms and independent firms is significant over the period from  $t$  to  $t+3$ .

On the contrary, Panels B of Table 4-3 and 4-4 show that there is no such substantial difference in layoffs and retrenchment between main bank clients and independents for the post-deregulation period. Just after the onset of financial distress (from  $t$  to  $t+1$ ), independent firms cut down on labor cost and lay off employees more than main bank firms; while during the period from  $t+1$  to  $t+2$ , main banks reduce employees and labor cost more than independent firms. The evidence that independent firms retrench more than main bank client firms is no longer seen in the post-deregulation period.

Table 4-5 reports the changes in operating expenses as a percentage of sales. Similar to the results obtained above, Panel A shows that independent firms retrench operating expenses significantly more than main bank firms for two and three years after the onset of financial distress in the pre-deregulation period. Moreover, Panel B of Table 4-5 indicates that this difference in median operating expenses between main bank client firms and independent firms is still significant in the post-deregulation period as well.

### **4.3 Effect of Capital and Ownership Structure**

In the previous section, we find that independent firms had larger improvement in performance and larger reductions in labor cost and operating ex-

penses than main bank client firms during and after financial distress, especially for the pre-deregulation period. However, close bank ties are not the only difference in the financial structure that could affect their ability to work out of distress. To address this issue, we conduct regression analyses to control for other factors that could affect corporate restructuring and subsequent operating performance. Specifically, we include several measures of the capital and ownership structure in the dependent variables of our regressions to examine corporate governance mechanisms for financially distressed firms.<sup>10</sup>

The first independent variable is the main bank dummy that equals to one if a particular firm is a main bank client firm and zero otherwise. The second variable is the bank loan ratio (bank loans over debt). As discussed earlier, the conventional view stresses that the close bank ties enable main banks to engage in stringent monitoring for client firms and promote efficient management of the firms. Here, however, we argue that the close bank ties, when accompanied by the bail-out guarantee, generate the moral hazard problem which discourages firm managers from reducing operational expenses and disturbs quick recovery of corporate performance. We expect negative effects of these variables on corporate restructuring and performance.

The third variable is the leverage ratio (the ratio of debt to assets). Debt can have both positive and negative effects on corporate restructuring and firm value. Myers (1977) demonstrates that ‘too much’ debt induces firm managers acting in the interests of shareholders to forego positive net present value projections (the underinvestment problem).<sup>11</sup> On the other hand, the overinvestment problem, maintained by Jensen (1986), can be curtailed if managers are forced to put our excess funds to serve debt. With regard to the effect of debt on corporate restructuring, Jensen (1989) argues that highly-leveraged firms respond quickly to the performance declines in order to prevent default. On the contrary, if most of debt comprises bank loans, the positive effect of debt on restructuring may be offset by the moral hazard effect due to the ever-lasting support by banks. Hence, we do not make any predictions on the coefficient of this variable.

The fourth through sixth independent variables are measures of ownership structure: the equity ownership shares by banks, large shareholders

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<sup>10</sup>We do not examine the effect of managerial ownership since there are no firms with managerial stock ownership in the pre-deregulation period and very few firms in the post-deregulation period in our sample.

<sup>11</sup>The underinvestment problem can be mitigated, however, if main banks, as equity holders of their client firms, refinance the debt.

and foreign investors. Bank ownership is generally regarded as a measure of close bank ties. According to the conventional view, the simultaneous ownership of debt and equity claims by banks can be beneficial for client firms if it alleviates potential conflicts of interests between creditors and equity holders, thereby improving firm value (Jensen and Meckling (1976), Myers (1977), Stultz (1988)). However, we regard the close bank ties as a device to discourage firm managers from having sufficient budget cuts and hamper improvement in performance. Hence, we expect a negative effect of this variable on corporate performance and restructuring.

Shleifer and Vishny (1997) argue that since large shareholders are able to govern by exercising their voting rights, generally they have incentives to monitor management to enhance firm value. It is argued, however, that the cross-shareholdings among companies, banks and other financial institutions in Japan may not have functioned to induce large shareholders to play such a disciplinary role. Nakatani (1984) describes the corporate group and related cross-shareholdings as a shock-absorbing, "mutual insurance" arrangement in which firms can maintain more stable corporate performance over time rather than higher profitability. Most CEOs have placed shareholders in importance after employees, customers and banks for a long time. Hence, we expect a negative effect of this variable on corporate restructuring and performance.

The literature on corporate governance has not so far explored the effect of foreign ownership on corporate restructuring and performance. In spite of being small shareholders, foreign investors may have a considerable influence on the decisions of corporate restructuring since they demand to have a return on their investment more than the silent majority of large shareholders that have long-term relationships with the firms. Hence, we expect a positive effect of this variable on corporate restructuring and performance.

Table 5-1 reports a series of regressions where the dependent variable is the changes in operating performance. In the equations 5 and 6, we regress changes in operating performance over the periods from  $t$  to  $t+2$  and  $t$  to  $t+3$  against the measures of the capital and ownership structure at  $t-1$  for the pre-deregulation period. We use the variables at the time before the onset of distress (period  $t-1$ ) as independent variables to avoid the simultaneity problem. The only variable that enters the regressions significantly is the main bank dummy. This suggests that main bank client firms improve their operating performance significantly less than independent firms in the pre-deregulation period. In contrast, the equations 7 and 8 show that the main bank dummy is not significant for the post-deregulation period and the signs of the coefficients are not stable.



The regression results for the post-deregulation period (equations 7 and 8) also reveal the positive and significant relation between the foreign ownership share and the change in operating performance. The main bank dummy is no longer significant for the post-deregulation period. The coefficients of the bank ownership share and the ownership by large shareholders are negative and significant in the equation 8. These results apparently contradict the conventional view that close bank ties and large shareholders contribute to efficient management. Rather, they seem consistent with our hypothesis that firm managers shirk to downsize firm organizations and reduce operational costs by relying on the financial support from banks and on the infeasibility of takeovers and public protests for control due to the mutual shareholding among corporations.

We then test whether close bank ties and large shareholder ownership interfere with corporate restructuring. We restrict our regressions to those in which dependent variables are the changes in labor cost and the changes in operating expenses because, as in Table 3, these cost reductions significantly contribute to improvement in performance. Table 5-2 reports the regression results where the dependent variable is the changes in labor cost. The equations 9 and 10 show that the main bank dummy and the bank loan ratio is positively related to the changes in labor cost in the pre-deregulation period. In contrast, in the equation 11 for the post-deregulation period, the coefficient of the main bank dummy is not significant, while that of foreign ownership is negative and significant at 10% level. The coefficients of the bank ownership share and the ownership share by large shareholders are positive and significant in the equation 12. These results suggest that close bank ties, represented by bank-related variables, and the corporate shareholdings, measured by large shareholder ownership, discourage firms from cutting down on labor cost.

Table 5-3 reports the result from the regressions where the dependent variable is the changes in operating expenses. Similar to the results in Table 5-2, the equation 13 shows the changes in operating expenses are positively related to the main bank dummy and the bank loan ratio for the pre-deregulation period. Moreover, the coefficients of the main bank dummy and the leverage ratio are positive and significant for the post-deregulation period, as the equation 15 shows. The foreign ownership share is negatively correlated with the changes in operating expenses for the post-deregulation period in both equations 15 and 16.

So far we have seen that main bank client firms cut down on operational cost and improved corporate performance significantly less than the firms without close bank ties in the pre-deregulation period, while the difference

between the two groups almost disappeared in the post-deregulation period. The former finding is consistent with our moral hazard hypothesis. With regard to the latter finding, the main reason may be that main bank client firms no longer believed in the implicit bail-out guarantee, partly because their main banks could not afford to commit themselves to prop up client firms.

Overall, the bank-related variables, such as the bank loan ratios and the bank ownership share, have negative effects on cost reductions and subsequent improvement of performance. In contrast, the high foreign ownership share led firm managers to curtail operational costs and achieve quick recovery of performance in the 1990s.

Another striking result from these regressions is a sharp contrast in the effect of equity ownership on corporate restructuring and performance between the pre- and the post-deregulation periods. Since the 1990s, the distribution of equity claims has played a significant role on corporate governance for the firms in financial distress.

## 5 Conclusion

In this paper, we argue that the bank-led rescues of distressed firms in the heyday of the main bank system was inefficient due to the moral hazard problem. To support this view, we show evidence that main bank client firms in financial distress retrenched significantly less than the firms without close bank ties during the period before the financial deregulation of the 1980s. We also find that the corporate performance of the main bank client firms improved markedly less after the onset of distress than the downsizing independent firms. Furthermore, we discover that such differences in retrenchment and improvement in corporate performance after the onset of financial distress between main bank client firms and independent firms disappeared in the 1990s.

We then examine whether the decisions of corporate restructuring are influenced by capital and ownership structure. We document that ownership structure, especially the equity ownership by foreign investors, gained importance in corporate restructuring and subsequent operating performance in the 1990s. We should not overlook that, in spite of being small shareholders, foreign investors play more significant roles in corporate governance for financially distressed firms than the silent majority of large investors such as financial institutions and domestic corporate shareholders.

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Table 1. Descriptive statistics

Panel A: The pre-deregulation period

72 firms	Mean	Std.dev.	Median	Min	Max
Main bank dummy	0.583	-	1	0	1
Bank loan ratio	43.284	16.246	43.285	0	79.667
Leverage ratio	83.794	9.3758	85.703	42.051	99.162
Bank ownership	24.785	15.245	23.895	1.19	59.55
Large shareholders	51.158	14.986	50.055	22.71	83.78
Foreign ownership	1.844	6.0957	0.155	0	34.67

Panel B: The post-deregulation period

112 firms	Mean	Std.dev.	Median	Min	Max
Main bank dummy	0.419	-	0	0	1
Bank loan ratio	33.172	22.173	31.908	0	97.816
Leverage ratio	63.628	19.170	66.624	11.230	129.081
Bank ownership	33.278	16.840	31.535	1.44	77.98
Large shareholders	47.722	13.754	44.905	24.37	86.62
Foreign ownership	3.422	5.748	1.955	0.01	39.33

1) "Main bank dummy" equals to one if a particular firm is a main bank client firm and zero otherwise. "Bank loan ratio" is bank loans as a % of debt. "Leverage ratio" is debt as a % of assets. "Bank ownership" is the % ratio of bank ownership. "Large shareholders" is the % ratio of ownership by the 12 largest shareholders. "Foreign ownership" is the % ratio of ownership by foreign investors.

2) The pre-deregulation covers the period in which the firms become financially distressed in any year from 1978 to 1984, while the post-deregulation covers the period in which their financial distress starts from 1990 to 1996.

Table 2. Correlation coefficients

Panel A: The pre-deregulation period

72 firms	Main	Bank loan	Leverage	Bank own	Large	Foreign
Main bank dummy	1					
Bank loan ratio	0.092	1				
Leverage ratio	0.194	0.212	1			
Bank ownership	0.200	0.500	0.043	1		
Large shareholders	-0.068	-0.269	0.291	-0.549	1	
Foreign ownership	-0.058	-0.041	0.018	-0.048	0.245	1

Panel B: The post-deregulation period

112 firms	Main	Bank loan	Leverage	Bank own	Large	Foreign
Main bank dummy	1					
Bank loan ratio	0.234	1				
Leverage ratio	0.381	0.668	1			
Bank ownership	0.033	-0.205	-0.054	1		
Large shareholders	0.057	0.123	-0.036	-0.667	1	
Foreign ownership	-0.006	-0.184	-0.128	0.169	0.046	1

1) "Main bank dummy" equals to one if a particular firm is a main bank client firm and zero otherwise. "Bank loan ratio" is bank loans as a % of debt. "Leverage ratio" is debt as a % of assets. "Bank ownership" is the % ratio of bank ownership. "Large shareholders" is the % ratio of ownership by the 12 largest shareholders. "Foreign ownership" is the % ratio of ownership by foreign investors.

2) The pre-deregulation covers the period in which the firms become financially distressed in any year from 1978 to 1984, while the post-deregulation covers the period in which their financial distress starts from 1990 to 1996.



Table 3. Changes in operating performance

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)

Equation 1	t to t+2	Equation 2	t to t+3
Const.	2.3759 (5.92)***	Const.	4.0234 (3.37)***
Chanasset (t to t+1)	0.0335 (6.45)***	Chanasset (t to t+2)	0.0221 (1.18)
Chanemploy (t to t+1)	-0.0216 (-0.97)	Chanemploy (t to t+2)	-0.0485 (-0.94)
Chanlaborcost (t to t+1)	-1.2660 (-5.16)***	Chanlaborcost (t to t+2)	-0.2671 (3.37)***
Chanoperating (t to t+1)	-0.1481 (-2.20)**	Chanoperating (t to t+2)	-0.1257 (-2.39)**
<i>Pseudo R</i> <sup>2</sup>	0.1513	<i>Pseudo R</i> <sup>2</sup>	0.0956
No. of obs.	72	No. of obs.	72

Panel B: The post-deregulation period (t is any year from 1990 to 1996)

Equation 3	t to t+2	Equation 4	t to t+3
Const.	1.7317 (5.14)***	Const.	3.1974 (7.11)***
Chanasset (t to t+1)	0.0440 (1.90)*	Chanasset (t to t+2)	0.0184 (0.85)
Chanemploy (t to t+1)	-0.0373 (-1.36)	Chanemploy (t to t+2)	-0.0640 (-1.24)
Chanlaborcost (t to t+1)	-0.7054 (-4.54)***	Chanlaborcost (t to t+2)	-0.2137 (-1.63)*
Chanoperating (t to t+1)	-0.4148 (-3.05)***	Chanoperating (t to t+2)	-0.3420 (-3.80)***
<i>Pseudo R</i> <sup>2</sup>	0.2003	<i>Pseudo R</i> <sup>2</sup>	0.1557
No. of obs.	111	No. of obs.	111

1) The dependent variable is the change in ordinary income as a % of the lagged assets. "Chanasset" is the % change in assets.

"Chanemploy" is the % change in the number of employees.

"Chanlaborcost" is the change in labor cost as a % of assets.

"Chanoperating" is the change in operating expenses as a % of sales.

2) Numbers in parentheses denote t-statistics. Asterisks \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

Table 4-1. Changes in operating performance

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)

	t to t+2	t to t+3	t to t+4
All firms (Sample size: 72)			
Mean	4.1613***	6.6859***	7.0483***
Std.dev.	6.7050	5.8880	6.3731
Median	3.9426***	5.3805***	6.0443***
Main bank firms (Sample size: 42)			
Mean	3.1014***	5.7850***	5.8780***
Std.dev.	3.6736	4.5047	4.2977
Median	2.0215***	4.9475***	4.8116***
Independent firms (Sample size: 30)			
Mean	5.6452***	7.9470***	8.6868***
Std.dev.	9.3328	7.3053	8.2805
Median	5.6290***	7.8723***	8.6933***
Rank-sum test	1.171*	2.074**	2.311***

Panel B: The post-deregulation period (t is any year from 1990 to 1996)

	t to t+2	t to t+3	t to t+4
All firms (Sample size: 112)			
Mean	2.3731***	4.5170***	4.9780***
Std.dev.	3.4273	3.5669	3.9155
Median	2.0465***	3.5129***	3.9788***
Main bank client firms (Sample size: 47)			
Mean	2.1937***	3.6853***	3.9411***
Std.dev.	2.5514	2.5793	2.5753
Median	2.3422***	2.8904***	3.3939***
Independent firms (Sample size: 65)			
Mean	2.5028***	5.1184***	5.717***
Std.dev.	3.9564	4.0505	4.5253
Median	1.7915***	3.8646***	4.7811***
Rank-sum test	-0.097	1.624*	2.497***

1) Significance levels for difference in median between main bank client firms and independent firms are based on Wilcoxon rank-sum tests (Z-statistics are displayed); those for difference from zero are based on t-tests for mean and on Wilcoxon signed-rank tests for median.

2) \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. No asterisks mean that the null hypothesis is not rejected.

Table 4-2. Percentage changes in assets

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 72)					
Mean	4.4996	2.4796	5.6465***	7.4331	14.8401**
Std.dev.	36.4713	14.0661	15.9679	41.7885	56.1768
Median	-1.0293	1.7517	3.0796***	1.7226	4.8768
Main bank client firms (Sample size: 42)					
Mean	-0.6312	1.8198	3.0313	1.0995	3.9841
Std.dev.	10.6688	11.8377	12.1260	14.7874	19.1480
Median	-1.0293	1.4546	2.5815	1.3386	1.3742
Independent firms (Sample size: 30)					
Mean	11.6826	3.4032	9.3078**	16.3002	30.0385*
Std.dev.	54.8103	16.8752	19.8139	61.8610	82.4522
Median	-0.5879	3.1706	4.2796***	4.6753	9.4665**
Rank-sum test	0.137	0.777	1.291	0.560	1.382
Panel B: The post-deregulation period (t is any year from 1990 to 1996)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 112)					
Mean	-3.2480***	-1.4509*	1.4855**	-4.4391***	-2.8279
Std.dev.	10.3956	9.0780	7.8312	15.3157	19.1535
Median	-3.6291***	-1.9831***	0.3894	-5.6014***	-6.1878**
Main bank client firms (Sample size: 47)					
Mean	-4.2708***	-0.6394	0.6656	-4.8296***	-4.1880**
Std.dev.	5.4908	8.1473	5.1415	10.004	11.3370
Median	-4.0460***	-1.6318*	0.5292	-5.0983***	-4.540***
Independent firms (Sample size: 65)					
Mean	-2.5084	-2.0376*	2.0783*	-4.1567*	-1.8443
Std.dev.	12.8234	9.7154	9.3014	18.2948	23.2710
Median	-3.5805***	-2.5498**	0.1421	-6.2026***	-6.4722**
Rank-sum test	0.610	-0.404	0.168	-0.198	-0.150

1) Significance levels for difference in median between main bank client firms and independent firms are based on Wilcoxon rank-sum tests (Z-statistics are displayed); those for difference from zero are based on t-tests for mean and on Wilcoxon signed-rank tests for median.

2) \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. No asterisks mean that the null hypothesis is not rejected.

Table 4-3. Percentage changes in employees

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 72)					
Mean	-7.1029***	-7.9684***	-0.9268	-14.5687***	-14.9990***
Std.dev.	16.6654	13.9039	13.9062	21.7830	22.4134
Median	-4.5207***	-4.2489***	-0.7418*	-10.8817***	-12.8443***
Main bank client firms (Sample size: 42)					
Mean	-9.4472***	-6.8589***	0.5505	-14.8466***	-14.7487***
Std.dev.	10.6396	12.3828	17.0987	14.8148	19.9754
Median	-5.0956***	-4.2423***	0.2415	-11.2432***	-12.8443***
Independent firms (Sample size: 30)					
Mean	-5.8209**	-9.5217***	-2.9951**	-14.2598***	-15.3493***
Std.dev.	22.3793	15.8820	7.2470	29.1095	25.7987
Median	-5.6455***	-5.0880***	-2.2718**	-12.8130***	-14.1301***
Rank-sum test	-0.565	-0.971	-2.364**	-0.263	-0.445
Panel B: The post-deregulation period (t is any year from 1990 to 1996)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 112)					
Mean	-6.1449***	-7.2690***	-4.5697***	-12.9318***	-16.7090***
Std.dev.	9.5365	9.0301	6.4352	12.3598	14.2849
Median	-4.5811***	-5.0430***	-3.9031***	-11.6358***	-15.8059***
Main bank client firms (Sample size: 47)					
Mean	-5.2850***	-6.0822***	-5.2875***	-10.9844***	-15.5083***
Std.dev.	5.4677	9.5065	6.3415	11.0705	13.2823
Median	-4.2910***	-5.7039***	-4.5297***	-11.0582***	-15.6983***
Independent firms (Sample size: 65)					
Mean	-6.7666***	-8.1273***	-4.0507***	-14.3399***	-17.5771***
Std.dev.	11.6323	8.6422	6.5013	13.1173	15.0097
Median	-5.0131***	-4.8929***	-3.1818***	-12.0395***	-16.2347***
Rank-sum test	-1.200	0.003	2.208**	-1.094	-0.569

1) Significance levels for difference in median between main bank client firms and independent firms are based on Wilcoxon rank-sum tests (Z-statistics are displayed); those for difference from zero are based on t-tests for mean and on Wilcoxon signed-rank tests for median.

2) \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. No asterisks mean that the null hypothesis is not rejected.

Table 4-4. Changes in labor cost as a percentage of sales

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 72)					
Mean	-0.7784***	-1.0526***	-0.5353**	-1.810***	-2.3669***
Std.dev.	1.6110	1.5628	2.0681	2.2652	2.7556
Median	-0.4105***	-0.7620***	-0.2364**	-1.4027***	-1.6901***
Main bank client firms (Sample size: 42)					
Mean	-0.7088**	-0.6757***	-0.3475*	-1.3845***	-1.7321***
Std.dev.	1.5878	0.9918	1.2161	1.9312	2.2093
Median	-0.3612***	-0.4701***	-0.0521	-1.0255***	-1.2155***
Independent firms (Sample size: 30)					
Mean	-0.7958	-1.5802***	-0.7982	-2.2760***	-2.7748***
Std.dev.	1.6524	2.0237	2.8737	2.6606	3.3219
Median	-1.0713**	-1.1832***	-0.5043	-1.8221***	-2.0735***
Rank-sum test	-1.868*	-2.090**	-0.662	-2.068**	-1.748*
Panel B: The post-deregulation period (t is any year from 1990 to 1996)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 111)					
Mean	-0.2490	-1.2244***	-0.9372***	-1.4735***	-2.4108***
Std.dev.	2.0489	2.4502	2.0492	2.9081	3.4339
Median	-0.0584	-0.7849***	-0.6778***	-0.7900***	-1.6007***
Main bank client firms (Sample size: 47)					
Mean	-0.2933	-1.0398***	-0.5770***	-1.3325***	-1.9096***
Std.dev.	1.5626	1.7091	1.3612	2.4883	3.0174
Median	-0.0084	-0.9999***	-0.5449***	-0.8502***	-1.1863***
Independent firms (Sample size: 64)					
Mean	0.2166	-1.3604***	-1.2017***	-1.5770***	-2.7788***
Std.dev.	2.3547	2.8819	2.4107	3.1889	3.6900
Median	-0.0946	-0.5440***	-0.9190***	-0.7389***	-1.6473***
Rank-sum test	-0.101	0.477	-1.194	0.161	-1.074

1) Significance levels for difference in median between main bank client firms and independent firms are based on Wilcoxon rank-sum tests (Z-statistics are displayed); those for difference from zero are based on t-tests for mean and on Wilcoxon signed-rank tests for median.

2) \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. No asterisks mean that the null hypothesis is not rejected.

Table 4-5. Changes in operating expenses as a percentage of sales

Panel A: The pre-deregulation period (t is any year from 1978 to 1984)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 72)					
Mean	-0.1718	-0.4226*	0.1464	-0.5945**	-0.4480
Std.dev.	1.5654	1.9589	1.9703	2.4750	3.2279
Median	-1.8748	-0.0752	0.3438	-0.2595*	-0.1495
Main bank client firms (Sample size: 42)					
Mean	0.0956	-0.25517	0.4869	-0.1594	0.3275
Std.dev.	1.1053	1.4516	1.9640	1.6857	2.7566
Median	0.1448	-0.0628	0.5130**	-0.1133	0.0975
Independent firms (Sample size: 30)					
Mean	-0.5463*	-0.6572	-0.3301	-1.2035**	-1.5337**
Std.dev.	1.7200	2.5137	1.9099	3.2129	3.5603
Median	-0.4705**	-0.0980	-0.1101	-0.7910***	-0.5656**
Rank-sum test	-2.376**	-0.366	-1.542*	-2.125***	-2.501**
Panel B: The post-deregulation period (t is any year from 1990 to 1996)					
	t to t+1	t+1 to t+2	t+2 to t+3	t to t+2	t to t+3
All firms (Sample size: 112)					
Mean	-0.1875	-1.1521***	-0.8650***	-1.3397***	-2.2047***
Std.dev.	2.4765	2.4112	1.9682	4.0286	4.5220
Median	0.0990***	-0.6961***	-0.6547***	-0.6500***	-1.1737
Main bank client firms (Sample size: 47)					
Mean	0.0900	-0.6130***	-0.4573***	-0.5230	-0.9803**
Std.dev.	1.4903	1.3893	1.0514	2.3069	2.5145
Median	0.2706	-0.4719	-0.2579	-0.1887	-0.4078
Independent firms (Sample size: 65)					
Mean	-0.3882	-1.5420***	-1.1598***	-1.9302***	-3.0900***
Std.dev.	2.9905	2.8858	2.3904	4.8455	5.3873
Median	-0.4261	-0.7784	-0.8090	-0.9421	-1.9915
Rank-sum test	-1.618*	-1.442	-1.406	-1.949*	-2.974***

1) Significance levels for difference in median between main bank client firms and independent firms are based on Wilcoxon rank-sum tests (Z-statistics are displayed); those for difference from zero are based on t-tests for mean and on Wilcoxon signed-rank tests for median.

2) \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively. No asterisks mean that the null hypothesis is not rejected.

Table 5-1. Changes in operating performance

	Pre-deregulation		Post-deregulation	
	Equation 5 t to t+2	Equation 6 t to t+3	Equation 7 t to t+2	Equation 8 t to t+3
Const.	8.0300 (1.50)	17.8172 (2.83)***	2.9122 (1.53)	8.3696 (5.16)***
Mainbank (at t-1)	-0.4119 (-1.61)*	-0.7603 (-1.87)*	0.6626 (1.29)	-0.1132 (-0.25)
Bankloan (at t-1)	-0.0345 (-0.80)	-0.0483 (-0.89)	-0.0146 (-1.00)	-0.0027 (-0.22)
Leverage (at t-1)	-0.0498 (-0.71)	-0.0938 (-1.09)	-0.0072 (-0.42)	-0.0122 (-0.83)
Bankowner (at t-1)	-0.0058 (-0.11)	-0.0854 (-1.34)	-0.0066 (-0.34)	-0.0645 (-3.80)***
Large (at t-1)	0.0007 (0.01)	0.0049 (0.08)	-0.0039 (-0.17)	-0.0451 (-2.21)**
Foreignowner (at t-1)	0.0812 (0.97)	-0.0888 (-0.85)	0.0799 (2.31)**	0.0843 (2.52)**
<i>Pseudo R</i> <sup>2</sup>	0.0447	0.1215	0.055	0.076
No. of obs.	72	72	112	112

1) The dependent variable is the change in ordinary income as a % of the lagged assets.

2) "Mainbank" is the main bank dummy (1=main bank client firms, 0=independent firms). "Bankloan" is the ratio of bank loans to debt. "Leverage" is the ratio of debt to assets. "Bankowner" is the ownership share by banks. "Large" is the ownership share by the 12 largest shareholders. "Foreignowner" is the ownership share by foreign investors.

3) Numbers in parentheses denote t-statistics. Asterisks \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

4) The pre-deregulation covers the period in which t is any year from 1978 to 1984, while the post-deregulation covers the period in which t is any year from 1990 to 1996.

5) Median regressions are conducted to take into account the skewness of accounting data and the existence of extreme observations.

Table 5-2. Changes in labor cost as a percentage of sales

	Pre-deregulation		Post-deregulation	
	Equation 9 t to t+1	Equation 10 t to t+2	Equation 11 t to t+1	Equation 12 t to t+2
Const.	-1.2433 (-1.22)	-5.0914 (-2.13)**	-0.4325 (-0.33)	-4.4532 (-3.29)***
Mainbank (at t-1)	0.2401 (1.78)*	0.5235 (1.93)*	-0.1244 (-0.35)	-0.4200 (-1.16)
Bankloan (at t-1)	0.0190 (2.58)**	0.0247 (1.10)	-0.0011 (-0.12)	0.0016 (0.16)
Leverage (at t-1)	0.0002 (0.02)	0.0062 (0.19)	0.0097 (0.84)	0.0094 (0.78)
Bankowner (at t-1)	-0.0213 (-2.20)	0.0096 (0.37)	-0.0008 (-0.06)	0.0240 (1.74)*
Large (at t-1)	0.0103 (1.09)	0.0280 (0.90)	-0.0017 (-0.10)	0.0488 (2.88)**
Foreignowner (at t-1)	-0.0024 (-0.16)	-0.0340 (-0.79)	-0.0609 (-1.84)*	-0.0810 (-1.19)
<i>Pseudo R</i> <sup>2</sup>	0.0568	0.0972	0.0125	0.026
No. of obs.	72	72	111	111

1) The dependent variable is the change in labor cost as a % of sales.

2) "Mainbank" is the main bank dummy (1=main bank client firms, 0=independent firms). "Bankloan" is the ratio of bank loans to debt. "Leverage" is the ratio of debt to assets. "Bankowner" is the ownership share by banks. "Large" is the ownership share by the 12 largest shareholders. "Foreignowner" is the ownership share by foreign investors.

3) Numbers in parentheses denote t-statistics. Asterisks \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

4) The pre-deregulation covers the period in which t is any year from 1978 to 1984, while the post-deregulation covers the period in which t is any year from 1990 to 1996.

5) Median regressions are conducted to take into account the skewness of accounting data and the existence of extreme observations.



Table 5-3. Changes in operating expenses as a percentage of sales

	Pre-deregulation		Post-deregulation	
	Equation 13 t to t+1	Equation 14 t to t+2	Equation 15 t to t+1	Equation 16 t to t+2
Const.	-0.8343 (-0.61)	-2.3318 (-1.14)	-2.2950 (-2.28)**	-3.8043 (1.77)*
Mainbank (at t-1)	0.8302 (2.34)**	0.5582 (1.27)	0.52013 (1.88)*	0.3882 (0.64)
Bankloan (at t-1)	0.0205 (1.68)*	0.0085 (0.56)	0.0031 (0.41)	0.0007 (0.05)
Leverage (at t-1)	-0.0011 (-0.06)	0.0238 (0.93)	0.0176 (1.97)*	0.0301 (1.49)
Bankowner (at t-1)	-0.0208 (-1.37)	-0.0161 (-0.86)	-0.0062 (-0.61)	0.0055 (0.25)
Large (at t-1)	-0.0007 (-0.05)	-0.0036 (-0.19)	0.0196 (1.58)	0.0239 (0.89)
Foreignowner (at t-1)	0.0067 (0.28)	-0.0420 (-1.39)	-0.0504 (-2.75)***	-0.0594 (-1.86)*
<i>Pseudo R</i> <sup>2</sup>	0.0771	0.0513	0.0934	0.0720
No. of obs.	72	72	112	112

1) The dependent variable is the change in operating expenses as a % of sales.

2) "Mainbank" is the main bank dummy (1=main bank client firms, 0=independent firms). "Bankloan" is the ratio of bank loans to debt. "Leverage" is the ratio of debt to assets. "Bankowner" is the ownership share by banks. "Large" is the ownership share by the 12 largest shareholders. "Foreignowner" is the ownership share by foreign investors.

3) Numbers in parentheses denote t-statistics. Asterisks \*, \*\* and \*\*\* denote significance at the 10%, 5% and 1% level, respectively.

4) The pre-deregulation covers the period in which t is any year from 1978 to 1984, while the post-deregulation covers the period in which t is any year from 1990 to 1996.

5) Median regressions are conducted to take into account the skewness of accounting data and the existence of extreme observations.