

## **A TEST OF THE TWO-TIER CORPORATE GOVERNANCE STRUCTURE: THE CASE OF JAPANESE KEIRETSU**

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### **Abstract**

We examine the effect of corporate governance structure on the relation between ownership structure and financial leverage among Japanese firms. Under normal conditions, we find no significant relation between ownership variables and financial leverage. When firms signal financial difficulties, however, keiretsu financial institution equity owners intervene to moderate the use of debt. This evidence reveals the existence of a keiretsu two-tier corporate governance system. In the first stage, the unique corporate cross-shareholding allows mutual monitoring under normal circumstances. In the second stage, when firms get into financial trouble, keiretsu financial institutions assume control by reducing debt levels. The results highlight differences between keiretsu and independent corporate governance structures.

### **I. Introduction**

In a financial or horizontal keiretsu, corporations are linked together through an extensive network of corporate cross-shareholdings. Moreover, corporate members have close ties to a main bank, which not only provides member

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firms with debt financing, but also owns a substantial amount of each firm's equity. Previous research, such as Nakatani (1984) and Prowse (1990), provides empirical evidence on the effects of horizontal/financial corporate grouping (keiretsu) on firm behavior. Because financial institutions within these keiretsu networks are both creditors and equityholders, they have strong incentives to monitor their member firms carefully. However, Aoki (1990) and Aoki, Patrick, and Sheard (1994) state that financial institutions only take on an active monitoring role when member firms become financially distressed. Berglöf and Perotti (1994) also show theoretically that within a financial keiretsu, it is efficient to allow corporate cross-shareholders to mutually monitor each other. The main bank assumes responsibility for the survival of the distressed firm when financial distress becomes a real threat. Thus, Aoki (1990), Aoki, Patrick, and Sheard (1994), and Berglöf and Perotti (1994) suggest a two-tier monitoring system. In the first stage, corporate cross-shareholders serve as the monitors. In the second stage, the financial institutions take on an active intervention role.

An example of first-stage monitoring is the Presidents' Council (shachokai). Each keiretsu has a council that comprises of the presidents of the core keiretsu member firms. These councils hold monthly meetings to discuss group strategy, support group solidarity, mediate intragroup activities, and settle intragroup squabbles. In 1972, for example, chief executives at Mitsubishi Petrochemical Co. Ltd., disputed the issue of who should become the next president. Eventually, Mitsubishi group's council (Kin'yokai) passed judgment on the matter (Miyashita and Russell (1994)). Middle managers of keiretsu firms also meet monthly to discuss operations and coordinate corporate activities. An example of second-stage intervention is Daishowa Paper. In the early 1980s, Daishowa Paper was on the brink of bankruptcy, but Sumitomo Bank came to the rescue by providing timely equity infusions and by writing off half of Daishowa's outstanding debt (Hoshi, Kashyap, and Scharfstein (1990), Kester (1991)). Although these cases suggest a two-tier corporate governance system exists, this unique structure has yet to be empirically confirmed. This paper provides the first empirical evidence of Berglöf and Perotti's (1994) theoretical model of a hierarchical system for preventing financial distress.

We first identify a sample of companies that experience financial distress during our study period (1980–91). For both keiretsu and independent firms in this subsample, we observe no statistically significant relation between ownership structure and financial leverage when firms are performing well. At the onset of financial distress, financial leverage declines sharply for both keiretsu and independent companies. However, the reduction in firm leverage among keiretsu companies appears to be related to financial institution ownership, whereas the reduction in financial leverage among independent companies is determined by

profitability and the ability to use collateral assets. Overall, these findings provide empirical support for the keiretsu two-tier corporate governance structure.

## **II. The Keiretsu Two-Tier Corporate Governance Structure**

Aoki (1990) and Aoki, Patrick, and Sheard (1994) suggest that the main bank acts as a passive participant until a firm becomes financially distressed. Under normal circumstances, corporate cross-shareholders are initially relied upon to act as monitors. Berglöf and Perotti (1994) argue that corporate cross-shareholders act as mutual monitors within the keiretsu because this maximizes their overall utility. Fortunately, member firms are in a unique and advantageous position to serve as mutual monitors because they can observe each others' performance through their business relations and because they have specific industry knowledge. This constant interaction allows for better performance evaluation than what can be achieved through centralized monitoring. Therefore, corporate mutual monitoring represents a crucial mechanism to ensure that firms operate in a manner consistent with all shareholders' interests. In addition, with corporate cross-shareholders, direct profit sharing takes place. A firm's success is in the best interest of all corporate members. Under normal conditions, the corporate cross-shareholdings in these groups enjoy mutual monitoring and beneficial collaboration. Consistent with this notion, Flath (1995) asserts that Japanese corporations maintain an equity position to enhance their controlling power over trading partners.

However, Berglöf and Perotti's (1994) model also suggests that when a firm experiences financial difficulty, corporate cross-shareholders lose the incentive to maintain an active monitoring role. For example, the financial difficulty may be perceived as beyond repair or not worth an extensive rescue effort. Therefore, during financial hardships, monitoring managers may avoid acknowledging financial problems (to minimize effort) and attempt to maintain status quo at the expense of long-term prospect. Further, they may even gamble and take additional risk in the hope of restoring profitability. Aoki and Sheard (1991) suggest that member firms act cooperatively to avoid bank intervention because there may be some personnel costs and/or liquidation involved in the process (thus suggesting that managers' interests are more aligned with corporate cross-shareholders than with bank owners). This leads to continuation bias and inefficiency within the keiretsu structure. For example, other member companies may extend additional trade credits to ensure immediate survival of distressed firms at the expense of long-term value. Consequently, Berglöf and Perotti (1994) contend that an additional controlling device is needed for the coalition to survive financial crises.

When financial distress becomes a real threat, arrangements among corporate monitors break down because of adverse collusive behavior as described

previously. The longer the financial problems are unknown or unrealized, the worse the damage is. As a result, Berglöf and Perotti contend that it is important to be updated on a member firm's financial condition, even when monitoring powers may not be actively exercised. In this context, the main bank represents the best monitor of financial stability because the main bank is frequently updated on the financial health of member firms through their debt repayments, while an outside investor has only limited ability to update information. In addition, Aoki and Sheard (1991) assert that main banks serve as useful safety nets in times of crisis because they have the funds and the expertise to assume the responsibility. These arguments imply a two-tier monitoring system within the financial keiretsu. In the first stage, as Aoki (1990), Aoki, Patrick, and Sheard (1994), and Berglöf and Perotti (1994) suggest, corporate cross-ownership results in firms monitoring each other. The second stage occurs if firms get into financial trouble and the main bank assumes leadership and takes active control of the firm.

Keiretsu formations encourage collaborations among corporate members, but to ensure long-term profitability they use a main bank to act as an ultimate disciplinarian. Although these activities are well known in Japan, no empirical evidence exists as to how this two-tier governance system works. Our approach for empirically testing for the two-tier corporate governance model is simple and straightforward. The research methodology is based on two well-established contentions. First, poor profitability is a signal for impending financial distress. Kester (1991) states that banks are well informed and up-to-date regarding the financial condition of member firms. That is, main banks know immediately when firms are suffering from poor profitability. This has direct implications because poor profitability acts as a signal for the main bank to assume leadership. According to Berglöf and Perotti (1994), when poor profitability occurs, control over the firm shifts from the mutual governance of cross-shareholders to the main lender.

Second, leverage is usually controlled when financial distress becomes a real threat. Generally, firms cannot maintain high levels of leverage because the likelihood and costs of bankruptcy become greater. Banks are also less likely to lend money to financially unstable firms. In addition, firms that are likely candidates of financial distress should use less debt to mitigate consumer fears of impending liquidation (Titman (1984)). By minimizing consumer fears, demand for goods and services is maintained and financial distress may never occur. Based on these contentions, a member firm experiencing financial trouble should then reduce their leverage levels. This action represents the second stage of the Berglöf and Perotti (1994) model.

To empirically investigate Berglöf and Perotti's model, we test for a negative relation between leverage and the degree of financial institution ownership

when firms become less profitable.<sup>1</sup> Such a finding supports the existence of the second stage of their two-tier hierarchical corporate control model.

Financial institutions can reduce financial leverage levels of their member firms in several ways: (1) allowing interest concessions, (2) providing equity infusions, and/or (3) writing off outstanding loans. Anecdotal evidence of these behaviors is abundant. For example, when Nippon Light Metal experienced financial difficulty, Dai-ichi Kangyo Bank allowed interest rate reductions on outstanding loans. Similarly, Mitsui Bank gave interest concessions to Mitsui Toatsu. When Daishowa Paper experienced financial distress, Sumitomo Bank provided equity infusions and wrote off half of Daishowa's outstanding debt (Hoshi, Kashyap, and Scharfstein (1990), Kester (1991)). Finally, Sheard (1989), in a descriptive study, provides seventeen examples of bank assistance to financially struggling member firms in the form of reduced or shelved interest payments and loan write-offs. These examples suggest support for our hypothesis.

### III. Data and Methodology

#### *Data*

Our sample consists of all nonfinancial firms listed on the Tokyo Stock Exchange with complete records for 1980–91. The financial and ownership data are retrieved from the Financial Statement Files of the PACAP Databases™-Japan provided by the Sandra Ann Morsilli Pacific-Basin Capital Markets Research Center (PACAP) at the University of Rhode Island. The ownership data available in the PACAP Databases™-Japan Financial Statement Files include the number of outstanding shares held by the following types of shareholders: financial institutions, business corporations, government, individuals, and foreigners. Keiretsu affiliation data are obtained from *Industrial Groupings in Japan* (1985, 1989) published by Dodwell Marketing Consultants and *kigyo keiretsu souran* (1992) published by Toyo Keizai.<sup>2</sup>

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<sup>1</sup>Agrawal and Mandelker (1987) and Bathala, Moon, and Rao (1994) empirically examine the relation between financial leverage and ownership concentration. Agrawal and Mandelker find a positive relation between managerial ownership and leverage and cite it as a support for securityholdings' ability to reduce agency costs. Bathala, Moon, and Rao find a negative relation between institutional ownership concentration and leverage and cite it as an evidence of a monitoring presence by the institutional owner. However, neither study specifically examines the effect of ownership concentrations on leverage when firms experience financial difficulty.

<sup>2</sup>*Industrial Groupings in Japan*, published by Dodwell Marketing Consultants, is our primary source to identify keiretsu classification. *kigyo keiretsu souran* (1992), published by Toyo Keizai, is then used to cross-check discrepancies, with emphasis on the latter years in our study period. However, we do not find any discrepancy between the two sources.

### *Variables*

We employ regression analysis to examine the relation between leverage and ownership structure. Following Prowse (1990), we divide the book value of total debt outstanding and adjust for accounts and notes receivable by the quasi-market value of the firm (market value of equity plus total liabilities) and use it as our leverage measure, the dependent variable. For PACAP data items, this variable is calculated as follows:  $(BAL17 - (BAL3 - BAL10)) / (BAL17 + ((MKT3 \times MKT5) / 1000))$ . To measure ownership concentration, we calculate the proportion of financial institution, business corporation, and foreigner holdings as a percentage of outstanding shares for each firm. Following Demsetz and Lehn (1985), we use a log transformation to convert ownership variables into unbound variables. Because of data limitation, we cannot differentiate the financial institution types. However, we believe that aggregate ownership data represent mutual cooperation among financial institutions. Commercial banks are prohibited from holding more than 5 percent of a firm's outstanding equity (10 percent before 1987).<sup>3</sup> As a result, Japanese banks also have to rely on associated financial institutions (e.g., insurance, trust banks) to assist in maintaining equity positions. Aggregate ownership, therefore, represents the overall strength of monitoring mechanisms. Sheard (1994) suggests that the roles of financial institutions, especially the main banks, are disproportionately large relative to actual financial holdings. Keiretsu groups usually try to ensure that the aggregate shareholding of corporate members is sufficiently large to maintain significant control over each member (Berglöf and Perotti (1994)). We also include foreign ownership in our regressions. Because of high taxes and commissions, foreign investors in Japan are mostly institutional investors from overseas, especially the United States. Bathala, Moon, and Rao (1994) find that U.S. institutional owners put negative pressure on firm leverage. Therefore, we expect foreigners to exhibit the same type of relation in our Japanese sample. Finally, we employ several control variables because other factors are known to explain leverage variations (Harris and Raviv (1991)). The variables we use in regression analyses and their theoretical justifications are presented below.

*Collateral Values.* Secured debt gives lenders title to pledged assets until debt is fully paid. Because creditors can take possession of fixed assets, they can avoid the legal processes that, in the event of bankruptcy, are required for unsecured creditors. This implies a positive relation between debt measures and the capacity

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<sup>3</sup>The Amendment to the Anti-Monopoly Act in 1977 could affect our results because it reduces the proportion of shareholding by commercial banks from 10 percent to 5 percent (effective in 1987). However, because the amendment reduces bank holdings in the latter part of our sample, we believe that the amendment to the Anti-Monopoly Act represents a bias against finding results in support of our hypothesis. At the same time, firms in our sample experience declining leverage due to financial distress. Because these two events occur around the same time, these two events should induce a positive relation between financial institution shareholdings and financial leverage. Our hypothesis, however, predicts a negative relation.

of firms to collateralize their debt. Kester (1986) provides empirical support for this relation in Japan. We use the sum of inventory and net plant, equipment, and land over total assets as a measure of collateral assets in the firm. For PACAP data items, this variable is calculated as follows:  $((BAL4 + BAL7)/BAL9)$ .

*Depreciation.* DeAngelo and Masulis (1980) suggest that various forms of nondebt tax shields, including depreciation charges, can substitute for corporate debt. Thus, other things being equal, they expect a negative relation between debt levels and the availability of nondebt tax shields. They suggest that firms that invest heavily in tangible assets have high depreciation deductions, which, in turn, allow them to use less debt. Kester (1986) provides empirical support of this negative relation for Japan. We use the ratio of depreciation charges to total assets. For PACAP data items, this variable is calculated as follows:  $(JAF74/BAL9)$ .

*Index of Keiretsu Inclination.* This is a dummy variable equal to zero for independent firms and one for keiretsu firms. The classification is obtained from *Industrial Groupings in Japan* (1985, 1989) published by Dodwell Marketing Consultants. This index is determined from the group's influential power, which is the ratio of group's shareholding to the total shares held by the top ten shareholders. This classification is also based on: (1) characteristics and historical background of the group and the company, (2) sources and amount of bank loans, (3) board of directors coming from group companies, (4) company attitude toward the group, and (5) company connections to nongroup companies or other groups. The data we use by Dodwell Marketing Consultants is obtained from annual issues of *kigyo keiretsu souran* (1992) published by Toyo Keizai. The long-term financial relations between main banks and member companies permit these firms to use high debt levels (Hoshi, Kashyap, and Scharfstein (1990), Nakatani (1984)). This should lead to a positive relation between keiretsu membership and firm leverage.

*Industry Classification.* According to Titman (1984), a firm's liquidation can impose costs on its customers if it makes products that require maintenance in the future. However, customers take into account the liquidation likelihood and reduce demand and prices of the products. As a result, companies in certain industries, such as those that produce machines and equipment, may have high indirect bankruptcy costs and, therefore, have to bond themselves by choosing capital structures with relatively low leverage. Titman and Wessels (1988) provide empirical support for this contention. To examine unique industry effects, we include a series of dummy variables to identify industry classification. Firms in industries that produce machines and equipment (TSE Industry Codes 311–317) are equal to zero. To avoid the effects of government regulation, public utilities and financial institutions are excluded from the sample.

*Profitability.* Several studies find a negative relation between leverage level and profitability (Jensen, Solberg, and Zorn (1992), Kester (1986), Titman and Wessels (1988)). The reason is that more-profitable firms are in a position to rely

on internally generated funds (Myers and Majluf (1984)). We use the ratio of operating income to sales as a proxy for profitability. For PACAP data items, this variable is calculated as follows:  $(INC5/INC1)$ .

*Firm Size.* Large firms are argued to be more diversified and less prone to bankruptcy than smaller firms. As a result, they have the ability to support more debt. Jensen, Solberg, and Zorn (1992) find empirical support for this hypothesis. In addition, Hodder and Tschoegl (1985) argue that the Japanese government disproportionately directs funds to large firms, who borrow heavily. These contentions suggest a positive relation between firm size and leverage. We use the natural logarithm of sales as a measure of size. For PACAP data items, this variable is calculated as follows:  $\log(INC1)$ .

*Earning Volatility.* High operating risk increases the probability and cost of bankruptcy. Therefore, high-operating-risk firms tend to use less debt than low-operating-risk firms (Bradley, Jarrell, and Kim (1984), Jensen, Solberg, and Zorn (1992)). We employ the standard deviation of the previous three years' annual changes in operating income over total assets. For PACAP data items, this variable is calculated as follows:  $\sigma(INC5/INC1)$ .

### *Research Design*

To test for the existence of the two-tier governance system, we examine the relation between equityholdings and firm leverage under deteriorating conditions. For each year and for each firm, we calculate an average of profitability for the previous three years. Berglöf and Perotti (1994) posit that profitability is one of the indicators that financial institutions use as a sign for potential problems. Within each year, all companies are then categorized into two groups: High Profits and Low Profits, based on the calculated three-year averages. The High Profits group consists of firms that have three-year averages above the annual median, whereas the Low Profits group consists of firms that have three-year averages lower than the median for that year. Next, we identify companies that perform well (High Profits) at the beginning of the study period but later experience declining performance (Low Profits). We differentiate between keiretsu and independent firms and perform regression analyses on these subsamples.

## **IV. Empirical Results**

Table 1 presents descriptive statistics for the variables used in this study. The overall results are consistent with previous studies. Based on annual sales, keiretsu firms are significantly larger than independent firms. Consistent with Nakatani (1984) and Lincoln, Gerlach, and Ahmadjian (1993), keiretsu firms have lower profitability and less earnings volatility. Regarding ownership structure,



TABLE 1. Descriptive Statistics.

Variables	Keiretsu	Independent	<i>t</i> -statistics
Leverage	0.496 (0.238)	0.436 (0.241)	14.335***
Financial institution holdings	0.376 (0.166)	0.331 (0.157)	15.499***
Corporation holdings	0.316 (0.185)	0.311 (0.185)	1.498
Foreigner holdings	0.042 (0.071)	0.046 (0.080)	-2.962***
Profitability	0.046 (0.049)	0.054 (0.057)	-8.717***
Log sales	11.223 (1.480)	10.884 (1.387)	13.328***
Earning volatility	0.016 (0.018)	0.017 (0.019)	-3.175***
Collateral assets	0.388 (0.145)	0.393 (0.146)	-1.998**
Number of observations ( <i>N</i> )	4,918	9,607	

Notes: This table reports overall averages for variables included in this study. The sample consists of 14,525 firm-year observations for manufacturing companies listed on the Tokyo Stock Exchange during 1980–91. Standard deviations are reported in parentheses. Keiretsu classification is obtained from *Industrial Groupings in Japan* (1985, 1989) and *kigyo keiretsu souran* (1992). The *t*-statistics comparing keiretsu firms and independent firms are calculated based on an *F*-test for equal variance assumption.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

keiretsu firms have significantly higher financial institution ownership than independent firms. Keiretsu companies also have a higher level of corporate equityholdings, but the difference is not statistically significant. We examine the proportion of financial institution and corporate ownership of keiretsu and independent firms on an annual basis and find a pattern similar to the aggregate results. The significant difference in financial institutional owners, along with the lack of differences in corporate ownership, is usually cited to explain the differences in leverage levels between keiretsu and independent firms. This explanation may be premature as Berglöf and Perotti (1994), Aoki, Patrick, and Sheard (1994), and Kester (1991) suggest. We probe into this issue with additional regression analyses. Finally, independent firms have significantly higher foreigner stockholdings than keiretsu firms. Although this is surprising, it could be a result

TABLE 2. Overall Regression Results.

Variables	Coefficients	t-statistics
Intercept	-0.143 (0.021)	-6.897***
Financial institutions	-0.018 (0.002)	-7.513***
Business corporations	0.013 (0.002)	6.530***
Foreigners	-0.028 (0.001)	-33.238***
Profitability	-0.162 (0.028)	-41.022***
Depreciation	-1.520 (0.080)	-18.901***
Collateral values	0.383 (0.012)	32.872***
Log sales	0.047 (0.001)	34.411***
Earning volatility	-0.233 (0.079)	-2.920***
Keiretsu classification	0.034 (0.003)	11.007***
Adjusted R <sup>2</sup>	0.506	
N	13,595	

Notes: This table presents regression results predicting cross-sectional differences in leverage for companies listed on the Tokyo Stock Exchange during 1980–91. Keiretsu classification is based on *Industrial Groupings in Japan* (1985, 1989) and *kigyo keiretsu souran* (1992). Standard errors are shown in parentheses. Results for year and industry dummy variables are not reported.

\*\*\*Significant at the 1 percent level.

of the stable cross-shareholding among keiretsu companies that prevents foreigners from obtaining shares of keiretsu members. We elaborate on this issue in the following discussion.

Table 2 presents the pooled regression results using the whole sample of firms with leverage as the dependent variable. It contains the results for ownership variables and other leverage determinants. We find a significant negative relation between leverage and level of financial institution ownership. When a firm has greater financial institution ownership, they tend to have less leverage. This result contradicts Flath (1993), Hoshi, Kashyap, and Scharfstein (1990), and others who contend that when a financial institution acts as both debt- and equityholders it allows their member firms to carry more debt. Previous research may assume this notion because keiretsu firms enjoy higher leverage levels and higher levels of financial institution equityholdings (see Table 1) even after controlling for other factors (see Table 2). The results in the previous tables and the dummy variable

result may suggest that financial institutions are responsible for the higher leverage levels. However, our overall regression results show, at this level, that corporate owners are primarily responsible for the higher leverage. This finding is consistent with Prowse (1990), who states that trade credits and account receivables are common sources of short-term financing. Therefore, because our leverage measure incorporates short-term liabilities, our findings are not surprising. Finally, foreign shareholders seem to have a negative relation with firm leverage. We speculate, however, that foreign owners' participation is passive in the sense that they may invest in Japanese firms with low leverage. Anecdotal evidence, such as the failure of T. Boone Pickens to get into Koito Manufacturing's board of directors, indicates that foreign investors are usually prevented from active participation in Japanese firms (Miyashita and Russell (1994)). Knowing that they may be excluded, foreign investors invest in companies with low leverage.

Examining the control variables, we find strong support for the pecking order theory by Myers and Majluf (1984) because the regression coefficient for profitability is significantly negative. Consistent with previous research, we also find a positive relation between debt and firm size (Jensen, Solberg, Zorn (1992)) and collateral values (Bradley, Jarrell, and Kim (1984)). In addition, depreciation turns out to be one of the nondebt tax shields that Japanese firms use, thus providing support for DeAngelo and Masulis (1980). Consistent with Bradley, Jarrell, and Kim (1984), we find a negative relation between earning volatility and leverage. Finally, all industry dummy variables exhibit significantly positive signs. This is consistent with Titman's (1984) contention that firms in nonunique industries tend to have higher leverage than those in unique industries. We also perform regression analysis on a yearly basis and calculate the mean of the twelve-year coefficients and *t*-statistics, which are calculated by dividing the coefficient means by their respective standard deviations. Since this alternative method provides a conclusion similar to the pooled regression, we do not report the results.

Table 3 reports summary statistics and regression results for companies that experienced financial distress during the study period. We classify firms into High Profits and Low Profits groups. Our study sample consists of firms that went from the High group to the Low group during our study period. We execute the same regression model as the regression employed in the previous table, but we execute it separately on the High and Low samples. This table provides empirical evidence of the two-tier system of corporate governance. First, summary statistics in Panel A show that financial leverage falls significantly when firms experience financial distress (deteriorating profitability). The average financial leverage falls from 45.1 percent to 40.6 percent for keiretsu firms, while it falls from 39.7 percent to 35.9 percent for independent firms. This evidence indicates that firms try to reduce, or are being forced to reduce, their leverage levels in times of financial difficulties. However, to see whether financial institutions influence this behavior, we must turn

TABLE 3. Regression Results for Companies at the Onset of Financial Distress.

Variables	Keiretsu Companies		Independent Companies	
	High Profits	Low Profits	High Profits	Low Profits
Panel A. Summary Statistics				
Profits	0.053 (0.029)	0.017 (0.037)	0.054 (0.035)	0.020 (0.031)
Leverage	0.451 (0.214)	0.406 (0.213)	0.397 (0.196)	0.359 (0.188)
Panel B. Regression Results				
Intercept	-0.130 (-0.562)	-0.027 (-0.105)	-0.177 (-1.711)	0.151 (1.150)
Financial institutions	0.034 (1.086)	-0.081*** (-3.911)	-0.015 (-1.262)	0.004 (0.301)
Business corporations	-0.007 (-0.325)	0.049** (2.286)	-0.015 (-1.676)	0.024 (1.880)
Foreigners	-0.029*** (-3.325)	0.001 (0.034)	-0.029*** (-8.217)	-0.002 (0.421)
Profitability	-0.267 (-0.555)	-0.332 (-0.831)	-0.299 (-1.569)	-0.559** (-2.115)
Depreciation	-9.359*** (-5.654)	-2.610** (-1.992)	-1.211*** (-3.877)	-0.298 (-0.864)
Collateral values	1.397*** (7.833)	0.095 (0.581)	0.524*** (8.860)	0.519*** (6.421)
Log sales	0.024 (1.328)	0.064*** (3.374)	0.035*** (5.073)	0.026*** (3.034)
Earning volatility	0.741 (0.848)	2.009** (2.125)	-1.511*** (-3.635)	-0.663 (-1.315)
Adjusted $R^2$	0.478	0.486	0.384	0.238
$N$	140	126	532	448

Notes: This table presents summary statistics and regression results predicting cross-sectional differences in financial leverage for Tokyo Stock Exchange industrial companies that entered into financial distress during 1980–91. From the total sample, firms are separated into two groups (High Profits and Low Profits) based on average three-year profitability. Only companies in transition (performed well at the beginning of the period and later experienced low profitability) are included. Keiretsu classification is based on *Industrial Groupings in Japan* (1985, 1989) and *kigyo keiretsu souran* (1992). In Panel A, standard deviations are shown in parentheses. In Panel B,  $t$ -statistics are shown in parentheses. Sample size may vary because of uneven number of firm-year observations.

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

to our regression results to examine factors affecting financial leverage before and during financial distress. These results are presented in Panel B.

In Panel B, we observe no significant relation between ownership variables and financial leverage when firms are financially healthy. However, when profits decline, only keiretsu firms show a significantly negative relation between financial institution holdings and leverage. When firms are profitable, keiretsu financial institutions do not restrain leverage levels, but when firms become unprofitable, keiretsu financial institutions exert more control in the capital structure decisions of member firms. We view this as evidence for the well-publicized monitoring mechanism of keiretsu financial institutions and its effectiveness. We also observe a positive relation between keiretsu corporate equityholdings and financial leverage at the onset of financial distress. As Berglöf and Perotti (1994) imply, the monitoring mechanism by keiretsu corporate owners can lead to entrenchment and inefficient collaboration, which, in turn, leads to high leverage. If banks do not intervene, these low-profit firms would probably file bankruptcy eventually.

Table 3 also reports regression results for independent firms at the onset of financial distress. We observe insignificant relations between financial institution ownership and leverage, regardless of financial conditions. This pattern is different from the keiretsu sample in which financial institution shareholders negatively affect leverage when firms experience financial distress. Overall, based on these observations, we believe that monitoring by financial institutions for independent firms is different from that for keiretsu firms in that financial institutions are not influencing leverage levels of distressed independent firms. Similar to the keiretsu case, we observe that corporate cross-shareholders of independent firms try to encourage the use of more debt when financial conditions are deteriorating. However, the magnitude of the corporate ownership coefficient for independent firms is much smaller than that for the keiretsu firms. Furthermore, the regression coefficient for profitability of distressed independent firms is significantly negative, indicating that liquidity becomes a crucial determinant of leverage (Myers and Majluf (1984)) for poor-performing independent companies. In addition, independent companies that have high levels of collateral assets can use more financial leverage. We observe no such relations for poor-performing keiretsu firms, thus indicating that keiretsu financial institutions disregard those factors when rescuing their members. These findings provide support for the notion that the governance structure of independent companies is different from that of keiretsu companies.

This evidence supports the existence of a two-tier monitoring system in Japan. In the first stage, during times of higher profitability, banks are passive monitors. In the second stage, during times of poor profitability, banks are active disciplinarians that control capital structure by mitigating leverage to prevent firms

from experiencing financial distress.<sup>4</sup> In addition, because keiretsu corporate owners exert a positive influence on leverage in the context of poor profitability, it appears that active bank monitoring is especially necessary in the second stage. In this case, financial institutions have no choice but to intervene because they cannot simply liquidate their equityholdings.

The findings suggest that keiretsu financial institutions actually use their monitoring capability to lower firm leverage when they detect signs of financial troubles. This contradicts the popular notion that stockholdings by banks induce more borrowing (Hoshi, Kashyap, and Scharfstein (1990), Kester (1986)), but supports the contention that banks perform the role of monitors effectively (Berglöf and Perotti (1994), Sheard (1989)). The keiretsu two-tier governance system by Berglöf and Perotti (1994) demonstrates the complex nature of the financial keiretsu network. Through their monitoring process, keiretsu financial institutions promptly exercise their power to control and suppress the use of debt when necessary. When firms are profitable, financial institutions allow companies to have more flexibility in their decision making. Our results also emphasize the importance of the relation among keiretsu corporations and highlight the difference between the corporate governance systems of keiretsu and independent companies.

## **V. Conclusions**

In this study, we examine interrelations among corporate governance mechanisms, ownership structure, and capital structure decisions in Japan. Specifically, we study the effect of financial institution and corporate equityholdings on firm leverage under different corporate governance structures. We find that financial institutions do not have significant influence on member firms' capital structure when profitability is high. However, when keiretsu firms experience financial difficulties or show signs of troubles (measured by low profitability), we find that financial institution owners try to reduce their member firms' leverage. We call this unique system "the two-tier corporate governance structure." Meanwhile, we also find different roles for corporate shareholders. For example, corporate cross-shareholders in the keiretsu groups exert much stronger significant upward influence on financial leverage than corporate equityholders of independent firms. Overall, our findings support the existence of a two-tier corporate governance mechanism and emphasize the role of financial institutions and business corporations in the financial keiretsu networks.

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<sup>4</sup>We also use operating cash flows and a Tobin's  $Q$  proxy as an alternative splitting variable to profitability. The results are qualitatively the same. Profitability splitting points range from 4.5 percent to 5.9 percent. We also conduct a manipulation check by using zero profitability as the dividing point and find consistent and even stronger results. This indicates that financial institutions begin to be concerned about a firm's financial condition even before situations get out of control.

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