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The Ownership Structure of Japanese Financial Institutions

Abstract

This paper examines the ownership structures of 64 financial firms in Japan. The paper pays particular attention to the differences in the ownership structures of Japanese firms that have close institutional ties with other firms and those firms that are independent of such relationships. Like Demsetz and Lehn (1985) and Prowse (1992), the relationship between ownership concentration and size and "control potential" is examined. The study also analyzes the effect of market risk on the ownership structure of firms.

The results indicate that there are significant differences between the ownership structures of banks and insurance firms and those of other financial institutions. Compared to other types of financial institutions, ownership is less concentrated in banks and insurance companies. Among the five largest shareholders, financial shareholders own a greater percentage of banks and insurance firms than nonfinancial shareholders. On the other hand, the ownership concentrations of financial and nonfinancial shareholders in other financial firms are of comparable size. Ownership concentration is negatively related to firm size. There are, however, significant differences across firms and different types of shareholders with respect to the relationship between ownership concentration and measures of firm risk. A comparison of the results of the paper with those in previous studies indicates that the shareholders of financial firms behave differently than the shareholders of nonfinancial firms.

1. Introduction

This paper examines the ownership structure of 64 Japanese financial institutions in 1989. Using a methodology that is similar to those in Demsetz and Lehn (1985) and Prowse (1992), the five largest shareholders of the 64 firms in 1989 are identified and their ownership concentrations are related to firm-specific characteristics, such as firm size and risk.

The role of ownership structure in corporate governance and its implications for the performance of U.S. firms have been examined extensively in the literature.[1] The distinctive features of the Japanese industrial organization, in which groups of enterprises maintain long-term relationships characterized by extensive cross-holdings of equity, have also prompted studies that examine the determinants and effects of ownership concentration in Japanese nonfinancial firms.[2]

The results of the studies on Japanese nonfinancial firms suggest that the institutional arrangements between Japanese financial and nonfinancial firms have significant effects on firm performance. In particular, evidence indicates that banks and insurance companies form an integral part of corporate governance in Japanese nonfinancial firms through their ownership of equity and debt claims and the long-term relationships they maintain with the nonfinancial firms. Although the ownership structure of Japanese nonfinancial firms and its implications have been examined extensively, little attention has been paid to corporate

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[1] For example, Jensen and Meckling (1976) examine the implications of separation of ownership and control and the effects of ownership structure on agency costs. Demsetz and Lehn (1985) examine the determinants of ownership concentration in U.S. firms. Other studies have examined the effects of ownership structure on performance (Morck, Shleifer, and Vishny, 1988; Holderness and Sheehan, 1988), on the probability and pay-offs from successful takeovers (Stulz, 1988; Mikkelson and Partch, 1989), on adoption of anti-takeover amendments (Brickley, Lease, and Smith, 1988; Bhagat and Jefferis, 1991), and on stock market reaction to private equity sales (Wruck, 1989).

[2] For example, see Genay (1991), Hoshi, Kashyap, and Scharfstein (1990a, 1990b, 1991, 1992), Kim (1991), Lichtenberg and Pushner (1992), and Prowse (1990, 1992).

governance in financial firms.

One would expect corporate governance in Japanese financial institutions to differ from those in other Japanese firms for several reasons. First, evidence suggests that financial firms, in particular banks and insurance companies, play a distinctive role in the governance of other firms. In addition to owning equity and debt claims in other firms, banks and insurance companies are involved in the management of other firms through their long-term relationships with these firms. For example, banks and insurance companies offer financial and management assistance to firms with which they are closely related in times of financial distress. The differences between financial and nonfinancial firms in how actively they are involved in the management of other firms may influence corporate governance in financial firms. Second, financial and nonfinancial firms differ in the types of investments they make and these differences in investment strategies are likely to influence corporate governance. While financial firms are often joint-claim holders in other firms (they own both equity and debt claims of other firms), nonfinancial firms are usually pure shareholders. The differences in the pay-off schedules of joint- and single claims create different incentives for the managers of financial and nonfinancial firms. Consequently, corporate governance in these firms may differ. Third, financial firms are more regulated than nonfinancial firms. Closer monitoring by the regulators and the ability of banks to obtain funds through insured deposits are likely to influence corporate governance in financial firms.

This paper examines whether these differences between financial and nonfinancial firms influence their corporate governance by analyzing the ownership structure of financial firms. The study concentrates on the ownership structure of firms because evidence indicates that monitoring by shareholders is one of the few devices with which agency problems between management and other stakeholders can be controlled in Japan. For example, the external market for corporate control through takeovers is less active in Japan and stock ownership by management is rare. Furthermore, the debt claims of financial firms, especially fixed claims of banks and insurance companies, are more diffusely-owned than the debt claims

of nonfinancial firms. If monitoring by diffuse debt holders is more difficult, then monitoring by large shareholders would be a more significant part of corporate governance in financial firms.

The results of previous studies and the discussion above suggest that the differences between financial and nonfinancial firms may be more evident for banks and insurance companies than for other types of financial institutions. I examine whether these differences are reflected in the ownership structures by analyzing banks and insurance companies separately from other types of financial institutions.

The results of the study indicate that:

(1) The five largest shareholders of the 64 financial firms own, on average, more than 26% of a firm's outstanding shares. Furthermore, banks and insurance companies are among the largest shareholders of these firms. On average, banks and insurance companies own more than 14% of the shares of the financial firms in the sample.

(2) There are significant differences in the ownership structures of banks and insurance companies and other types of financial institutions. Ownership in banks and insurance companies are less concentrated than ownership in other firms. In addition, while financial shareholders own significantly higher percentage of banks and insurance firms than nonfinancial shareholders, ownership concentrations of financial and nonfinancial shareholders in other financial institutions are approximately equal.

(3) Ownership concentration is negatively related to size in all firms.

(4) The relationship between ownership concentration and measures of risk differs significantly across firms and shareholders.

(5) The shareholders of financial firms behave differently than the shareholders of nonfinancial firms.

These results suggest that the institutional arrangements between financial and nonfinancial firms in Japan influence not only the performance of nonfinancial firms, but also the ownership structures of financial firms. Furthermore, the differences in the behavior of the

shareholders of banks and insurance companies, which are the nexus of the industrial groups, and the shareholders of other financial institutions suggest that corporate governance in financial institutions may have implications for the performance of nonfinancial firms.

The rest of the paper is organized as follows. Section 2 describes the main characteristics of Japanese industrial groups and reviews existing evidence on the role of the financial institutions. Section 3 describes the determinants of ownership structures which are examined in the paper. Section 4 describes the data and section 5 presents the results on the determinants of ownership concentration. Section 6 concludes the paper with a summary of the results and their implications.

2. The Keiretsu system and the role of the Japanese financial institutions

Financial institutions play a significant and a distinctive role in Japanese corporate finance and governance. Until the deregulation of corporate bond markets in the early 1980s, loans from financial institutions were the main source of capital for Japanese companies.[3] Deregulation relaxed the rules for domestic secured and straight bond issues and allowed firms to issue unsecured and off-shore bonds. Consequently, the percentage of all funds raised by the corporate business sector through bond issues increased from 3.6% in 1984 to 15.9% in 1989, and to 24.5% in 1991.[4] Even with the increase in the bond issues over this period, the financial institutions continue to be a significant source of external financing for Japanese firms. Loans from financial institutions composed 87% of all funds raised in 1984, 64% in 1989, and 72.7% in 1991. At the same time, financial firms owned 39.5% of the outstanding shares of all companies listed in the First Section of the Tokyo Stock Exchange (TSE) in

[3] The rules on bond issues prevented all but the largest firms from issuing public debt. All bond issues were collateralized and the underwriting bank had to guarantee the bonds, whereby the bank was required to buy back the bonds at par value in cases of reorganization.

[4] The increase in bond issues from 1984 to 1989 was mainly in the issues of convertible and warrant bonds in foreign capital markets. Subsequent to the sharp decline in share prices since 1989, most of the issues have been straight domestic bonds.

1984, and 43.3% in 1989.

In addition to providing the majority of debt financing to nonfinancial companies, Japanese financial institutions also play a distinctive role in the governance and control of other firms. A distinguishing feature of Japanese industrial structure is the long-term relationships that exist among groups of firms, called *keiretsu*. The members of these groups maintain strong ties to one another through cross-holdings of equity and institutional arrangements in the product markets. The main characteristic of the keiretsu, however, is the active role the financial firms of the group play in the corporate control of member firms. There are six financial keiretsu in Japan, each of which has associated with it a city bank, a trust bank, a casualty and property insurance firm, and a life insurance company.[5] For example, the Mitsui group, one of the largest keiretsu, comprises the Mitsui Bank, Mitsui Trust and Banking, Mitsui Life Insurance, and Taisho Marine and Fire Insurance, as well as approximately 130 other firms in sectors ranging from retail sales to mining. The financial institutions within keiretsu own the equity of member firms and provide the majority of their loans. Genay (1991) reports that in 1989 keiretsu financial companies owned approximately 12% of a member firm's outstanding shares and provided 21% of its bank loans.

Ties between financial and nonfinancial firms in a keiretsu are not confined to the typical relationship between a firm and its debt- and equity-holders. Financial institutions within a keiretsu also provide financial and managerial assistance in times of financial distress. In most cases, the main bank of a financially distressed firm voluntarily subordinates its claims to other claims and coordinates loan re-structurings with the other debt-holders of the firm. It is also common for the persons, who were previously employed by banks, to become officers and/or directors of large nonfinancial firms, thereby facilitating information exchange

[5] Japanese banks and insurance companies are highly compartmentalized by their functions and sources of funds. City banks, which closely resemble money-center banks in the U.S., provide short-term funds for large firms. Long-term credit banks, on the other hand, provide long-term funds and are able to raise funds through debentures. Regional banks provide funds for small to mid-size firms and trust banks provide trust services. Japanese insurance companies are also compartmentalized; life insurance companies are mutual firms, whereas casualty and property insurance companies are publicly traded.

and ensuring continuity of the relationship.

In some cases, similar institutional arrangements exist between banks and enterprises that are not affiliated with a keiretsu. For example, it is common for a bank that provides the majority of a firm's loans to also have an equity stake in that firm. In such cases, the "main-bank" plays a role in the control of the independent firm as a keiretsu bank would. In general, it is perceived that banks and insurance companies play an important role in the management of companies and monitor the activities of the management closely.

Recent evidence suggests that the institutional arrangements between financial and nonfinancial firms have significant effects on the capital structure and performance of nonfinancial firms. For example, the results of Prowse (1990) and Hoshi, Kashyap, and Scharfstein (1990a, 1990b, and 1991) suggest that these institutional arrangements may mitigate some of the agency costs associated with external financing. Specifically, the keiretsu firms appear to be less liquidity-constrained in their investments than independent firms and there is no significant relationship between measures of agency costs and the leverage ratios of keiretsu firms, suggesting that these firms may have avoided costs of external financing through their institutional arrangements. In addition, compared to independent firms, keiretsu firms recover faster from financial distress. There also appears to be a positive relationship between profitability and factor productivity of Japanese firms and the amount of equity and debt held by financial institutions (Lichtenberg and Pushner, 1992; Gerlach, 1992).[6]

The results of these studies indicate that the identity of the large shareholders is important in determining the effects of ownership structure on firm behavior. In particular, ownership concentration by financial firms, especially ownership by banks and insurance companies, appears to have a different effect on the behavior of nonfinancial firms than ownership by other types of shareholders. The studies mentioned above ascribe the distinctive effects of ownership by banks and insurance companies to the role of these firms in the

[6] Other studies that examine the relationship between ownership structure and profitability of Japanese nonfinancial firms include Caves and Uekusa (1976), Nakatani (1984), Cable and Yasuki (1985), Genay (1991), and Gerlach (1992).

corporate governance of firms in which they own equity and debt claims. More specifically, it is argued that the equity stakes of financial firms, in conjunction with their ownership of fixed-claims and long-term relationships with nonfinancial firms, gives them access to information that is not available to other investors and alleviates the agency costs and asymmetric information problems of external financing for nonfinancial firms. Consequently, the differences between keiretsu and independent firms in their institutional arrangements with their stakeholders affect, not only the corporate governance of these firms, but also their performance.

While previous research on Japanese firms has paid particular attention to the implications of the ownership and capital structures of nonfinancial firms, there has been little research on the implications of keiretsu arrangements for the corporate governance of financial firms. The equity and debt claims that financial institutions hold and the long-term relationships they have with nonfinancial firms affect the expected profits of financial firms. For example, Kim (1992) shows that when shareholders are joint-claim holders in firms, as banks and insurance companies are, their expected profits from the investment differs from those of pure shareholders. As a result, joint-claim holders respond differently to changes in the characteristics of firms in which they invest than pure shareholders. These differences in the profit schedules of joint-claim holders (such as banks and insurance companies) and pure shareholders (such as nonfinancial firms) may result in different corporate governance systems in financial and nonfinancial firms.

This paper examines corporate governance in financial firms by examining the ownership structure of these firms. I focus on ownership structure for two reasons. First, evidence indicates that owing to the differences in regulatory and legal environments, corporate governance in Japan relies more on direct monitoring by shareholders and creditors and long-term relationships between firms than it does in the U.S.[7] For example, while

[7] Corporate governance methods that align the interests of different stakeholders in U.S. firms include: an active external market for corporate control (Jensen and Ruback, 1983; Scharfstein, 1988); competition in the labor market (Fama 1980); explicit contracts between managers and other stakeholders (Shleifer and

management compensation schemes may align the interests of managers and investors in the U.S., management ownership and compensation based on the stock price of firms are rare in Japan.[8] Second, although monitoring by creditors play a significant role in the corporate governance of nonfinancial Japanese firms (Sheard, 1989; Prowse, 1990; Flath, 1993; Kaplan and Miron, 1993), as a result of financial regulations, private fixed-claim holders may not have as much incentive to monitor financial firms as they do nonfinancial firms. The majority of fixed-claims of banks and insurance companies are held by depositors and policy-holders. For instance, deposits and certificates of deposits constituted 65% of the total liabilities of city banks at the end of 1989, while total loans were only 1.6%, the majority of which was provided by the Bank of Japan. The existence of implicit and explicit deposit insurance and close monitoring of financial firms by regulators imply that diffuse fixed-claim holders such as depositors and policy-holders are less likely to monitor financial firms closely than are large shareholders. Therefore, the study focuses on the ownership structure of financial firms.

3. The determinants of ownership concentration

Previous studies on the ownership structure of firms, such as Demsetz and Lehn (1985) and Prowse (1992), offer us a framework to examine the determinants of ownership concentration in Japanese financial firms. Demsetz and Lehn considered four potential determinants of ownership concentration in U.S. firms and Prowse modified their framework for Japanese firms. For the most part, the framework of this paper parallels Prowse's framework.

One of the variables that is considered as a potential determinant of ownership

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Vishny, 1989); monitoring by the board of directors (Fama and Jensen, 1983; Rosenstein and Wyatt, 1990); restriction of resources under management's discretion (Jensen, 1988; Stulz, 1990); bond covenants (Smith and Warner, 1979; Bergman and Callen, 1991); and management compensation schemes (Murphy, 1986; Jensen and Murphy, 1990; Gibbons and Murphy, 1992).

[8] In addition, evidence indicates that market for corporate control is less active in Japan than in the U.S. (Kester, 1986) and long-term employment contracts restrict competition in the labor markets.

concentration by both Demsetz and Lehn and Prowse is the size of a firm. As a firm gets larger, the cost of purchasing a given level of ownership concentration increases. In addition, risk-averse shareholders who already own a given percentage of equity would increase their stake only at lower, risk-compensating prices. Higher cost of capital and higher acquisition costs for larger firms imply that shareholders of large firms would not obtain as concentrated an ownership as the shareholders of a smaller firm, therefore, there should be a negative relationship between size and ownership concentration. Demsetz and Lehn and Prowse, indeed, found a negative relationship between these variables; although, in Prowse, size was a significant determinant of ownership concentration only for independent firms.

I expect this negative relationship to also hold true for financial firms. Furthermore, in the case of financial firms, in particular for banks and insurance companies, size may be a proxy for the degree of regulation to which the firms are subjected. If large financial firms are subject to the "too big to fail" doctrine, then they may be under closer scrutiny by regulators than smaller firms. As a result, to the extend that the incentives of regulators and shareholders are aligned, regulators may act as delegated monitors for the shareholders. If regulators act as delegated monitors of large financial institutions then monitoring by large shareholders, hence ownership concentration of these shareholders, will be less in large firms and the negative relationship between size and ownership concentration will be reinforced.

The second determinant of ownership concentration that is considered in previous studies is, what Demsetz and Lehn call, the control potential of a firm. Control potential is the gain that occurs to shareholders from closer monitoring of the management. Demsetz and Lehn suggested that the noisier the environment in which a firm operates, the more difficult it is for shareholders to monitor and evaluate the management of the firm. Furthermore, any action taken by the management may have a greater impact on the firm's profitability if the firm's environment is changing rapidly. Therefore, when a firm operates in a noisier environment, shareholders would receive a higher payoff from close monitoring; as a result, ownership concentration should increase with higher control potential. Demsetz and Lehn

measured the control potential of a firm by its profit instability, which was proxied with three alternative variables: the standard deviation of the firm's stock returns, the standard errors from the market index model of the stock returns, and the standard deviation of the firm's accounting profit rates. The results of Demsetz and Lehn indicate that there is a positive relationship between control potential and ownership concentration of U.S. firms. In his paper, Prowse used the same measures of control potential and found that ownership concentration and control potential are significantly and positively related only for independent firms. Prowse suggested that since the institutional arrangements between keiretsu firms extend beyond cross-shareholdings and shareholders have other means of corporate control, ownership concentration alone may not be a good proxy for the degree of shareholders control; that is, the relationship between control potential and ownership concentration may be weaker for keiretsu firms.

In this paper, I modify the measures of control potential used by Demsetz and Lehn and Prowse in two ways. The first modification is designed to account for some of the differences between financial and nonfinancial firms and regulations affecting them. Financial firms have more extensive equity investments than nonfinancial firms.[9] The differences in the investment strategies of financial and nonfinancial firms imply that the profits of financial firms are likely to respond differently to aggregate movements in the stock prices. Furthermore, according to the risk-adjusted capital requirements of the Bank for International Settlements, Japanese banks are allowed to count 45% of the unrealized gains of their investments as tier 2 capital. Consequently, movements in the aggregate stock prices have direct effects on the risk-adjusted capital ratios of banks and the regulation to which they are subject. As a result, the shareholders of financial firms may care not only about the firm-specific risk (the portion of the firm's risk that is under management's control and is being

[9] In 1989, financial institutions (excluding securities companies and investment trusts) owned 43.3% of companies listed in the Tokyo Stock Exchange First Section whereas ownership by nonfinancial firms was only 24%.

monitored by the shareholders), but also about the market risk of the firm. Therefore, in addition to the standard measures of control potential, I include the market risk of the firms in the following analysis.

I expect the relationship between ownership concentration by different shareholders of financial firms and measures of firm-specific and market risk to differ across different types of firms and shareholders. Banks and insurance companies have more extensive equity portfolios than other financial firms and, as noted above, the movements in aggregate stock prices are likely to affect the regulations to which banks are subject. Consequently, compared with other types of financial institutions, I expect the ownership structure of banks and insurance companies to be more sensitive to the measure of market risk.

Furthermore, the differences in the investment portfolios of financial and nonfinancial firms imply that the response of these firms, as shareholders, to changes in control potential are likely to be different. Moreover, financial shareholders have different contracts with firms than nonfinancial shareholders. In general, financial institutions hold joint claims of debt and equity in firms, whereas nonfinancial firms tend to have single equity claims.[10] Kim (1992) shows that when investors hold joint claims, the response of ownership concentration to changes in firm-specific risk depends on other characteristics of the firms and the specifics of the contract with the investors. As a result, while the relationship between ownership concentration by financial shareholders and firm-specific risk is to be determined by the data, the ownership concentration by nonfinancial shareholders is likely to be positively-related to firm-specific risk.

The second modification to the framework in Demsetz and Lehn was implemented to account for differences in the capital structures of firms. The pay-offs to shareholders from owning the equity of a firm and from monitoring the management depend on the volatility of the firm's assets. When firms are highly leveraged, as they are in Japan, the volatility of assets

[10] In instances where nonfinancial firms extend trade credit to firms in which they have equity claims, nonfinancial shareholders would also hold joint claims of debt and equity. I would expect this to hold true more for keiretsu firms than for independent firms.

may differ significantly from the volatility of the firm's equity. Furthermore, the ownership and capital structures of firms are determined jointly and both influence the management's actions. Therefore, if the capital structure of a firm is not taken into account, the relationship between ownership concentration and control potential, as measured by standard deviation of stock returns, may be mis-specified. I account for the capital structure of firms by adjusting all measures of control potential for the leverage of the firms.[11] Leverage is defined as the ratio of a firm's total liabilities (book-value) to the sum of total liabilities and market value of equity. The risk measures are then deflated by one minus this ratio.[12]

Demsetz and Lehn also consider the regulatory environment and the amenity potential of a firm's output (the ability to influence the types of goods produced by the firm and the utility derived from consumption of those goods) as potential determinants of concentrated ownership. Like Prowse, I do not attempt to measure these variables for the firms in my sample. In Japan, government regulations are often in the implicit form of "administrative guidance" and are hard to quantify. To a certain extent, I account for effects of regulation by analyzing banks and insurance companies separately. I do not make any attempt to account for the amenity potential of firms because it is difficult to identify the amenity potential of the firms in the sample.[13]

To summarize, this paper examines the relationship between ownership structure of

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[11] Previous studies of Japanese nonfinancial firms, such as Flath (1993), estimate the relationship between measures of agency costs and ownership and capital structure of firms simultaneously. However, lack of firm-level data on the identity of creditors of financial institutions makes it difficult to carry out a similar analysis in this paper.

[12] Note that this adjustment implicitly assumes that the variance of returns on debt is zero or that the sensitivity of returns on debt to the return on the market portfolio is zero. In the absence of detailed data on the liability structure of firms and the terms on the debt contracts, it is difficult to estimate the risk of firms' debt issues.

[13] Previous studies on Japanese firms, such as Kim (1991) and Flath (1993), examine the relationship between ownership structure and other measures of agency costs, including the ratio of R&D expenditures or advertising expenditures to sales and the ratio of intangible assets to total assets. Since these measures of agency costs are not applicable to financial firms, I have excluded them from the analysis.

financial firms and measures of size and risk, where risk is defined to include both firm-specific and market risk (adjusted for the leverage of firms). I expect ownership concentration to be negatively related to measures of size. When shareholders are likely to be single-claim holders, ownership concentration is likely to be positively-related to firm-specific risk. On the other hand, when shareholders are joint-claim holders (they own both the equity and the debt of a firm), the response of ownership concentration to firm-specific risk would depend on the specifics of the financial contracts. Consequently, the relationship between ownership concentration of joint-claim holders and firm-specific risk is to be determined by the data. The relationship between ownership concentration and market risk is expected to differ across different financial firms. In particular, as a result of the differences in the investment strategies and regulatory environment of banks and insurance companies and other types of financial firms, I expect the shareholders of banks and insurance companies to respond more strongly to the measure of market risk than the shareholders of other financial institutions.

4. The sample and measurements

The sample of firms, drawn from all companies in the Tokyo Stock Exchange (TSE), First Section in 1989, comprises 64 financial institutions: 20 banks, 13 casualty insurance companies, 19 real estate firms, and 11 financing companies.

The discussion above suggests that the differences between financial and nonfinancial firms are particularly evident for banks and insurance companies. The relationship between these companies and the firms to which they supply loans is characterized by long-term equity holdings and active involvement by the financial firms in the management of other firms, especially during times of financial distress. Banks and insurance companies are also more closely monitored by regulators than are real-estate and financing companies. In addition, banks can issue secured debt in the form of deposits. The deposit insurance system is likely to reduce the incentives of depositors to monitor the activities of management. As noted before, these differences in investment strategies and degree of regulation may result in

differences in the expected-profit schedules of banks and insurance companies and those of other financial firms. Consequently, the determinants of ownership structure for banks and insurance companies may differ from the determinants of ownership structure for real estate and financing companies. To be able to identify these potential differences in determinants of ownership structure, the sample is divided into two groups: the "nucleus" sample comprises 34 bank and insurance companies and 30 real estate and financing companies constitute the "peripheral" sample.

For each firm in the sample, the percentage of outstanding shares owned by the top five shareholders of the company in 1989, as well as the identities of the shareholders, were collected from the Japan Company Handbook (1990). Each of the five largest shareholders was then identified as a "financial firm", a "nonfinancial firm", or as "other".[14]

Size is measured, alternatively, by the total assets (TA) of firms in 1989 and the market value of equity (MVE) at the end of 1989. Control potential is measured, alternatively, by TOTAL or both SYS and NONSYS, where TOTAL is the leverage-adjusted standard deviation of a firm's monthly stock returns in the 1985-1989 period, NONSYS is the (leverage-adjusted) standard error from the market model where a firm's monthly stock returns (1985-1989) are regressed on the return on TSE First Section Index, and SYS is defined to be (the square-root of) the difference between TOTAL (squared) and NONSYS (squared).[15]

Table 1 lists the definitions of variables and Table 2 shows the sample statistics of the variables. For the 64 firms in the total sample, the average MVE is over ¥2 trillion and total assets average over ¥10 trillion. In terms of both measures of size, banks and insurance companies are significantly larger and are more highly leveraged than other types of financial

[14] The shareholder is classified as a financial firm if it belongs to one of the following sectors: banking, insurance, securities, real estate, and financing. Otherwise, the shareholder is classified as a nonfinancial firm (if it is a company) or as other.

[15] The following analysis was also done for the ownership structure of the sample firms in 1984, using TA and MVE in 1984 and NONSYS, SYS, and TOTAL calculated from the monthly stock returns in the 1979-1984 period. The qualitative results were similar to those reported in the paper.

institutions. The average leverage ratio for banks and insurance companies is 0.74, while the average leverage ratio of other financial institutions is 0.57.

The next section describes the ownership structure of financial firms and examines the relationship between ownership concentration by different shareholders and size and risk of firms.

5. The ownership structure of financial firms

Table 3 gives information on the ownership structure of the firms in the sample. For the total sample of 64 financial institutions, the percentage of shares owned by the top five shareholders ranges from 11% to 72% and the average concentration is 26.48%. Among the five largest shareholders, financial firms own a greater percentage of the firms, 15.6%, than nonfinancial firms, whose stake averages 10.6%. In addition, note that for some of the firms, all of the five largest shareholders are financial firms and the percentage of shares owned by nonfinancial shareholders is zero. Among the financial shareholders, banks and mutual life insurance companies are the largest shareholders. In fact, financial companies that are defined as nucleus shareholders (banks and all insurance companies) hold 14% of a firm on average.

A comparison of nucleus and peripheral firms shows that there are significant differences in the ownership structure of these firms. First, ownership by the five largest shareholders (T5) is significantly more concentrated in peripheral firms than in nucleus firms. Ownership by T5 in nucleus firms is 20.4%, compared to 33.4% in peripheral firms. Second, the difference between the amount of shares owned by financial and nonfinancial shareholders of firms is greater for nucleus firms than peripheral firms. Financial shareholders of banks and insurance companies own significantly greater percentage of shares, 14.6%, than nonfinancial shareholders who own 5.44%. In contrast, the financial and nonfinancial shareholders of peripheral firms own approximately equal amount of stock. Third, the ratio of the percentage of shares owned by banks and insurance companies (nucleus shareholders) to the percentage of shares owned by T5 is higher for nucleus firms (68.5%) than for peripheral firms (43.3%).

To summarize, ownership is more concentrated in peripheral firms than in nucleus firms and the percentage of shares owned by nonfinancial shareholders is higher for peripheral firms.

Tables 4 and 5 report the estimates of the relationship between ownership concentration and size and control potential. The tables report the results of regressions[16] when size is measured in terms of MVE and "control potential" is measured in terms of SYS and NONSYS jointly.[17] As mentioned above, I expect ownership concentration to be sensitive to both firm-specific and market risk. Consequently, both risk measures are included in the regressions. In tables 4 and 5, all risk measures are leverage adjusted. For comparison purposes, I also report the parameter estimates when control potential is measured by leverage -adjusted TOTAL and NONSYS, alternatively, and by unadjusted TOT in Appendix A. The effects of leverage adjustment on parameter estimates can be ascertained by comparing unadjusted estimates in column three of table A1 with the leverage adjusted estimates in column two.

Furthermore, as we expect the determinants of ownership concentration by financial shareholders to differ from the determinants of ownership by nonfinancial shareholders, the tables report the parameter estimates for the two types of shareholders separately, as well as those for the five largest shareholders. Estimation was done with transformed ownership concentration measures, λ, where

$$\lambda = \log[PER/(100-PER)]$$

and PER represents, alternatively, the percentage of outstanding shares owned by the five largest shareholders of the firm, T5, the percentage owned by the financial firms which are among the five largest shareholders, F5, or the percentage owned by the nonfinancial

[16] Note that ownership concentration by is censored at zero (table 3). Therefore, the relationship between ownership concentration of nonfinancial shareholders, NF5, and size and control potential is estimated under a Tobit specification, whereas the parameters for the ownership concentrations of T5 and F5 are estimated with OLS.

[17] The parameters were also estimated with TA as the size measure. The estimates were qualitatively similar to those reported in tables 4 and 5 so are not reported here.

shareholders which are among T5, NF5.

Table 4 reports the parameter estimates from OLS regressions (or TOBIT estimates) for all firms in the sample. First, note that the estimates for MVE have the expected negative sign and, with the exception of ownership by NF5, are statistically significant. Firm-specific risk (NONSYS) and ownership concentration T5 and NF5 are statistically and positively related, as expected. Ownership by financial shareholders is negatively related to NONSYS but is not statistically significant. On the other hand, ownership concentration for the total sample of firms is not significantly related to SYS. In other words, for all the firms in the sample, ownership concentration is negatively-related to size and positively-related to firm-specific risk. Ownership concentrations, however, do not appear to be related to the market risk. The analysis in the next table indicates that there are significant differences in the relationship between ownership concentration and these variables when the ownership structures of nucleus and peripheral firms are examined separately.

Table 5 presents information on the relationship between ownership concentration and size and control potential of financial firms when banks and insurance companies, the nucleus firms, are examined separately from other types of financial firms. As noted earlier, I expect the responses of ownership concentration in nucleus and peripheral firms to differ. The results in table 5 suggest that shareholders of these firms behave differently, especially with respect to the different measures of risk. The parameter estimates for size are, as expected, negative and statistically significant for the top 5 and nonfinancial shareholders of both classes of firms. Size may not be a significant determinant of ownership concentration for financial shareholders if wealth constraints are less binding, therefore costs of acquiring a given percentage of shares less significant, for these shareholders.

Note that there are significant differences between nucleus and peripheral financial firms with respect to the effects of risk on ownership concentration. Firm-specific risk appears to be significant and positive only for the financial shareholders of nucleus firms. On the other hand, firm-specific risk is significant for all classes of shareholders in peripheral firms and

different classes of shareholders respond differently to changes in NONSYS. Namely, while ownership concentration by the top 5 and nonfinancial shareholders increase as firm-specific risk increases, ownership by financial shareholders decreases.

There are also significant differences between the sensitivity of ownership concentrations of nucleus and peripheral firms to systematic risk. Ownership concentration of peripheral firms is not significantly related to SYS. Financial shareholders of nucleus firms, however, respond negatively, and significantly, to increases in systematic risk.

The results reported in tables 4 and 5 suggest that shareholders of different types of financial firms respond differently to the market and firm-specific risk measures. Specifically, in instances where the shareholders are likely to be single-claim holders, such as financial and nonfinancial shareholders of nucleus firms and nonfinancial shareholders of peripheral firms, the relationship between firm-specific risk and ownership concentration is positive as expected. On the other hand, in cases where the shareholders are likely to be joint-claim holders, such as financial shareholders of peripheral firms, the ownership concentration is negatively related to firm-specific risk, as the results of Kim (1992) suggest. Furthermore, the negative relationship between market risk (SYS) and ownership concentration by the largest shareholders of banks and insurance companies suggests that the effects of movements in aggregate stock prices on the profits of and the regulations to which these companies are subject are important determinants of ownership concentration.

The differences in the ownership structure of nucleus and peripheral firms and differences in the responses of the shareholders of these firms indicate that the institutional arrangements between banks, insurance companies and other firms not only affect the performance and capital structure of nonfinancial firms, but also may have significant effects on the ownership structure and corporate governance of "nucleus" financial firms.

Furthermore, a comparison of the results in tables 4 and 5 for financial firms with the results in tables B3 and B4 in Appendix B for nonfinancial firms shows that the response of the shareholders of financial firms to the measures of firm-specific and market risk differs

significantly from that of the shareholders of nonfinancial firms.[18]

6. Concluding Remarks

This study examines the ownership structures of financial firms in Japan. A distinctive feature of Japanese corporate organization is the institutional ties that exist between the members of industrial groups, called keiretsu. Financial institutions, in particular banks and insurance companies, play an important role in these groups. In addition to being an important source of debt-financing, financial firms are also among the largest shareholders of Japanese firms. The evidence suggests that these ties between financial institutions and other firms have significant effects on the performance of nonfinancial firms. Previous studies on Japanese firms have focused on the ownership structure of nonfinancial firms and its effects on firm behavior. This study adds to the literature by examining the ownership structure of financial firms, which are often identified as monitors of nonfinancial firms. In particular, I differentiate between the ownership structures of banks and insurance companies that form the nexus of keiretsu and the ownership structure of other types of financial firms. I also examine ownership concentration by different classes of shareholders separately.

The methodology of the paper is similar to that in Demsetz and Lehn (1985) and Prowse (1992), except for the two modifications I make to the measures of control potential. I examine the relationship between ownership concentration and systematic and firm-specific risk jointly. I also adjust the measures of control potential for the capital structure of firms.

The results indicate that there are significant differences in the ownership structures of different types of financial institutions. In particular, ownership is less concentrated in banks and insurance companies (the nucleus firms) than in other financial institutions (the peripheral firms). While financial firms are more likely to be among the five largest shareholders of nucleus firms than nonfinancial shareholders, financial and nonfinancial shareholders own similar amounts of the outstanding shares of the peripheral firms.

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[18] See Appendix B for a brief discussion of the results for the nonfinancial firms.

There are also differences across financial institutions and their shareholders in terms of the relationship between ownership concentration and measures of size and risk. While ownership concentration tends to be negatively related to size for all firms and shareholders, the relationship between ownership concentration and measures of risk varies across firms. Specifically, ownership concentration of shareholders which can be classified as single-claim holders, such as nonfinancial shareholders of peripheral firms, increases with increases in firm-specific risk. On the other hand, the ownership concentration of shareholders that are likely to be joint-claim holders, such as the financial shareholders of peripheral firms, decreases with increases in firm-specific risk. Furthermore, the shareholders of nucleus firms respond more strongly to the market risk of the firm than the shareholders of peripheral firms.

Institutional arrangements between firms and differences in their investment strategies and regulatory environments appear to influence the ownership structures of Japanese firms and the behavior of their shareholders. In particular, a comparison of the results in tables 3-5 with the results reported in Prowse (1992) or in Appendix B of this paper indicates that the ownership structure and the behavior of the shareholders of financial institutions differ from those of nonfinancial institutions. In other words, the results of the paper suggest that the institutional arrangements between financial and nonfinancial firms affect, not only the ownership structure and performance of nonfinancial firms, but also have significant effects on the ownership structure of financial firms which act as delegated monitors of nonfinancial firms. Furthermore, the shareholders of these delegated monitors appear to respond differently to firm-specific characteristics, such as the measures of firm-specific and market risk, than the shareholders of nonfinancial firms.

The results of previous studies indicate that the ownership of debt and equity by financial institutions has significant effects on the performance of other firms. For example, ownership of debt and equity claims by banks and insurance companies influence how profitable nonfinancial firms are (Lichtenberg and Pushner, 1992), the extent to which agency costs and asymmetric information problems associated with external finance are resolved

(Hoshi, Kashyap, and Scharfstein, 1990a, 1991; Prowse, 1990), the rate at which firms recover from financial distress (Hoshi, Kashyap, and Scharfstein, 1990b), and monitoring by the board of directors (Kaplan and Minton, 1993). The results of this paper indicate that shareholders of banks and insurance companies respond differently to measures of firm-specific and market risk. Consequently, factors that affect performance of nonfinancial firms may also affect corporate governance in financial firms and how they respond as monitors of nonfinancial firms. For example, ownership concentration by financial firms in nonfinancial firms may depend, not only on the characteristics of nonfinancial firms, but also on whether equity ownership affects the firm-specific or market risk of financial institutions.

Developing a model where the specifics of the institutional arrangements between financial and nonfinancial firms are examined explicitly is beyond the scope of this paper. However, the results of this paper suggests that such a model would be useful in analyzing corporate governance and performance in Japanese financial and nonfinancial firms. Specifically, such a model would enable us to examine how changes in firm characteristics affect ownership concentrations of financial firms in nonfinancial firms, how the shareholders of financial firms respond to these changes, and the extent to which nonfinancial firms are monitored by financial institutions.

These issues have important implications not only for corporate control mechanisms in Japan, but also for the U.S. financial markets. Since early 1980s, the activities of Japanese banks in the U.S. financial markets have grown significantly. For example, Japanese banks' share of commercial and industrial loans in the U.S. has increased from less than 20% in 1984 to more than 50% in 1990. With the decline in the stock prices and economic conditions in Japan, that share has dropped slightly since 1990; however, Japanese banks continue to be an important source of credit for firms in the U.S. Therefore, factors affecting corporate governance and the incentives of shareholders of these firms are likely to influence their activities in the U.S.

The determinants of ownership structure of Japanese firms also have policy

implications for the U.S. For example, there has been proposals to allow non-banks to own the equity of bank holding companies, as well as proposals to allow banks to provide equity financing to small firms. An analysis of the ownership structures of Japanese firms, which are not prohibited such investments, would allow us to evaluate these proposals. For instance, the results of this study suggests that nonfinancial shareholders of banks respond differently to firm-specific characteristics than other types of shareholders. Furthermore, the shareholders of financial firms that provide both equity and debt financing appear to behave differently than the shareholders of other financial firms and nonfinancial firms. The results of this paper suggest that the effects of proposed legislations on the ownership structure of banks and the incentives of shareholders and managers would depend in which form the non-banks can own bank holding companies and what restrictions would be put on the activities of the banks.

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TABLE 1. DESCRIPTION OF VARIABLES

T5 Percentage of outstanding shares owned by the firm's five largest shareholders in 1989.

F5 Percentage of outstanding shares owned by financial institutions who are among the firm's five largest shareholders.

NF5 Percentage of outstanding shares owned by non-financial institutions who are among the firm's five largest shareholders.

MVE The market value of the firm's outstanding shares as of the end of 1989.

LEV (Book-value of total liabilities in 1989) / (Market value of equity + Book-value of total liabilities in 1989)

TOTAL The standard deviation of the firm's monthly stock returns in the 1985-1989 period, adjusted by the leverage ratio of the firm.

NONSYS The square-root of mean square error from the market model of the firm's stock returns in the 1985-1989 period, adjusted by the leverage ratio of the firm.

SYS The difference between TOTAL and NONSYS.

TABLE 2. SUMMARY STATISTICS: MEANS AND STANDARD DEVIATIONS OF VARIABLES; FINANCIAL FIRMS

	Total Sample	Nucleus Firms	Peripheral Firms
MVE (¥ trillion)	2.06	3.51	0.43
	(3.09)	(3.64)	(0.68)
TA (¥ billion)	10,367	18,107	1,336
	(16,332)	(14,111)	(1,753)
LEV	0.66	0.74	0.57
	(0.25)	(0.14)	(0.31)
TOTAL	6.02	5.48	6.62
	(4.57)	(3.41)	(5.61)
SYS	2.15	2.72	1.50
	(2.93)	(2.45)	(3.31)
NONSYS	3.87	2.76	5.12
	(3.17)	(1.58)	(3.98)

TABLE 3. OWNERSHIP CONCENTRATION IN FINANCIAL FIRMS: THE PERCENTAGE OF SHARES OWNED BY THE TOP 5 SHAREHOLDERS BY THE IDENTITY OF SHAREHOLDERS

	Mean	St. Dev.	Min.	Max
Shareholder		TOTAL SAMPLE (N=64)		
Total (T5)	26.48	14.44	10.9	72.4
Financial Firms (F5)	15.60	5.87	3.9	37.3
Nonfinancial Firms (NF5)	10.60	16.34	0	68.5
Other Types	0.28	1.48	0	9.9
Banks	7.99	6.06	0	20.1
Casualty Insurance Companies	0.86	1.90	0	8.0
Life Insurance Companies	5.30	5.13	0	19.0
Real Estate Firms	0.33	1.06	0	4.8
Other Financial Firms	1.13	3.51	0	24.8
Nucleus Financial Firms	14.15	5.37	0	72.4
		NUCLEUS FIRMS (N=34)		
Total (T5)	20.35	9.47	10.9	62.9
Financial Firms (F5)	14.62	4.62	6.3	26.9
Nonfinancial Firms (NF5)	5.44	9.38	0	46.4
Other Types	0.29	1.67	0	9.9
Banks	5.45	5.34	0	17.0
Casualty Insurance Companies	0.85	1.76	0	6.7
Life Insurance Companies	7.56	5.33	0	19.0
Real Estate Firms	0.29	1.00	0	4.8
Other Financial Firms	0.47	1.33	0	4.6
Nucleus Financial Firms	13.86	4.56	6.3	26.9
		PERIPHERAL FIRMS (N=30)		
Total (T5)	33.42	15.97	16.9	72.4
Financial Firms (F5)	16.70	6.90	3.9	37.3
Nonfinancial Firms (NF5)	16.45	20.27	0	68.5
Other Types	0.27	1.22	0	6.6
Banks	10.87	5.58	0	20.1
Casualty Insurance Companies	0.87	2.09	0	8.0
Life Insurance Companies	2.74	3.46	0	11.3
Real Estate Firms	0.37	1.14	0	4.3
Other Financial Firms	1.86	4.86	0	24.8
Nucleus Financial Firms	14.47	6.22	0	24.9

TABLE 4. FINANCIAL FIRMS -- TOTAL SAMPLE

Regression results for the ownership concentration by all shareholders (T5), financial shareholders (F5), and nonfinancial shareholders (NF5) on size and risk.

Independent Variables	All Shareholders	Financial Shareholders	Nonfinancial Shs.
INTERCEPT	-1.295* (0.136)	0.216* (0.021)	-0.128 (0.110)
MVE	-0.061* (0.024)	-0.008* (0.004)	-0.005 (0.019)
NONSYS	0.101* (0.024)	-0.004 (0.004)	0.069* (0.018)
SYS	-0.035 (0.025)	0.004 (0.004)	-0.020 (0.019)
Adj. R^2	0.35	--	--
F-Value	12.30*	--	--
Condition Num.	4.03	4.03	4.03
LR Test	--	2.59	7.35*
Censored Obs.	--	0	18

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.
*Indicates significance at the 5 level.

TABLE 5. FINANCIAL FIRMS -- NUCLEUS AND PERIPHERAL FIRMS
Regression results for the ownership concentration by all shareholders (T5), financial shareholders (F5), and nonfinancial shareholders (NF5) on size and risk.

	All Shareholders		Financial Shareholders		Nonfinancial Shs.	
Independent Variables	**Nucleus Firms (n=34)**	**Peripheral Firms (n=30)**	**Nucleus Firms (n=34)**	**Peripheral Firms (n=30)**	**Nucleus Firms (n=34)**	**Peripheral Firms (n=30)**
INTERCEPT	-1.691	-1.013	-1.793	-1.490	-0.078	-0.036
	(0.146)	(0.177)	(0.161)	(0.089)	(0.611)	(0.188)
MVE	-0.024*	-0.396*	-0.004	0.222	2.5×10^{-5}	-0.601*
	(0.012)	(0.137)	(0.011)	(0.136)	(0.011)	(0.308)
NONSYS	0.130	0.090*	0.092*	-0.070*	0.024	0.077*
	(0.068)	(0.031)	(0.046)	(0.028)	(0.029)	(0.026)
SYS	-0.004	-0.017	-0.097*	0.026	0.015	-0.006
	(0.048)	(0.044)	(0.021)	(0.045)	(0.016)	(0.032)
Adj. R^2	0.19	0.26	0.28	0.16	--	--
F-Value	3.60**	4.38*	5.19*	2.93*	--	--
Condition Num.	6.60	3.59	6.60	3.59	6.60	3.59
Censored Obs.	--	--	--	--	10	8
LR Test	--	--	--	--	1.55	7.11

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.
*Indicates significance at the 5% level.

APPENDIX A

The following tables report the parameter estimates when the relationship between ownership concentration and size and control potential of *financial* firms was estimated as in Demsetz and Lehn (1985) and Prowse (1992).

Table A1. Regression results for the ownership concentration by all shareholders (T5) on size and standard measures of risk.

	All Firms			Nucleus Firms			Peripheral Firms		
INTERCEPT	-1.129*	-1.329*	-0.567*	-1.494*	-1.690*	-0.899*	-0.865*	-1.017	-0.514*
	(0.138)	(0.145)	(0.169)	(0.190)	(0.145)	(0.289)	(0.171)	(0.176)	(0.206)
MVE	-0.093*	-0.069*	-0.071*	-0.042*	-0.024	-0.034*	-0.487*	-0.431*	-0.309*
	(0.022)	(0.019)	(0.019)	(0.019)	(0.014)	(0.016)	(0.151)	(0.089)	(0.112)
NONSYS	0.094*	--	--	0.127*	--	--	0.089*	--	--
	(0.029)	--	--	(0.050)	--	--	(0.032)	--	--
TOTAL	--	0.036	--	--	0.040*		--	0.049	--
	--	(0.019)	--	--	(0.018)		--	(0.024)	--
TOT	--	--	-0.020*	--	--	-0.017	--	--	-0.007
	--	--	(0.007)	--	--	(0.011)	--	--	(0.010)
Adj. R^2	0.22	0.34	0.23	0.15	0.22	0.16	0.16	0.28	0.03
F-Value	9.89*	17.15*	10.15*	3.92*	5.57*	4.10*	3.83	6.66*	1.51

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.
TOT is *unadjusted* for the capital structure of the firms.
*Indicates significance at the 5 level.

APPENDIX B

The tables in this appendix reproduce the results presented in the body of the paper and in Appendix A for nonfinancial firms. These results are provided to form a basis of comparison for the results presented in the paper and in previous studies of the ownership structure of Japanese firms.

The sample comprises 314 nonfinancial firms drawn randomly from all the firms in the TSE First Section in 1989. To account for the possible effects of the institutional arrangements on the ownership structure of keiretsu firms, the analysis is also carried out for keiretsu and independent firms separately. Based on the classifications reported in Dodwell (1988), 237 of the 314 firms in the total sample are identified as belonging to a keiretsu and 77 firms are identified as being "independent" of such affiliations. It should be noted that this classification is broader than that reported in Nakatani (1984) and used in most studies of Japanese nonfinancial firms. Therefore, a firm that is identified as a keiretsu firm in this sample may not have been classified as such in Nakatani. The similarities between the ownership structure of the firms in this sample and those reported in Prowse and other studies suggest that the differences in classification do not have significant effects on the results.

All of the variables are defined as those for the financial firms and table B1 reports the sample statistics. The average size of the firms in the total sample is ¥0.61 billion in terms of MVE and ¥479 billion in terms of TA. Note that the keiretsu firms are, on average, larger than independent firms and the differences in size are statistically significant. The average leverage ratio of the firms in the total sample is 0.29 and keiretsu firms have significantly higher leverage ratios than independent

firms.

A comparison of the numbers in table B1 with those in table 2 shows that nonfinancial firms are significantly smaller and have lower leverage ratios than financial firms.

Table B2 shows the ownership structures of nonfinancial firms. For the total sample, the average ownership concentration by the five largest shareholders, T5, is 31.9%. Among the largest five shareholders, those that are identified as financial firms own 18.9%, while those identified as nonfinancial shareholders own 13% of a firm on average.

A comparison of the ownership structures of keiretsu and independent firms indicate that ownership concentration of T5 in independent firms is significantly higher than in keiretsu firms. On average, ownership by T5 is 35% for independent firms and 31% for keiretsu firms. In addition, while the ownership concentration of financial shareholders (F5) is significantly higher than the ownership concentration of nonfinancial shareholders (NF5) in keiretsu firms, ownership concentrations of F5 and NF5 in independent firms are not significantly different. The ownership concentration of F5 and NF5 in keiretsu firms are, respectively, 20% and 11%. On the other hand, ownership concentrations of F5 and NF5 in independent firms are 15% and 19%. Also note that in all three of the samples, ownership concentrations of financial and nonfinancial shareholders are censored at zero.

The figures reported in table B2 are similar to those reported in previous studies, such as Prowse (1992) and Genay (1991). For example, for the 85 keiretsu firms in Prowse, the ownership concentration of T5 is 33.2% and the ownership by F5 is 26.1%. The five largest shareholders in Prowse own 32.8% of an independent firm

and financial shareholders own 22.9%.

Table B3 reports the parameter estimates from the regressions of ownership concentrations of T5, F5, and NF5 on measures of size and risk for the total sample.[19] Ownership concentrations all three shareholders are negatively and significantly related to MVE. Ownership concentrations of T5 and NF5 are significantly and positively related to firm-specific risk (NONSYS) of nonfinancial firms. Ownership concentration of f5 is negatively related to NONSYS but is not statistically significant. Also note that the financial and nonfinancial shareholders respond differently to the measure of market risk (SYS). The ownership concentration of NF5 is negatively and significantly related to SYS. In contrast, the parameter estimate of SYS is positive and statistically significant for F5.

The results in table B4 indicate that when keiretsu and independent firms are examined separately, the behavior of the shareholders is similar to those reported in table B3. That is, ownership concentrations of T5 and F5 decrease with increases in size (MVE) and market risk (SYS), but increase with an increase in firm-specific risk, NONSYS. On the other hand, the ownership concentration of financial shareholders is not significantly related to measures of size and risk for either the keiretsu firms or the independent firms. These results indicate that although the shareholders of financial and nonfinancial firms respond similarly to increases in size, their response to measures of both firm-specific and market risk differ significantly.

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[19] Since the ownership concentrations of F5 and NF5 are censored at zero, parameters are estimated under a Tobit specification for these shareholders. The parameter estimates of T5 are obtained from OLS regressions.

Table B1. Ownership Concentration In Nonfinancial Firms: The Percentage of Shares Owned by The Top 5 Shareholders by The Identity of Shareholders

	Mean	St. Dev.	Min.	Max
Shareholder		**TOTAL SAMPLE (N=314)**		
Total (T5)	31.88	13.07	14.7	68.4
Financial Firms (F5)	18.90	7.22	0	40.7
Nonfinancial Firms (NF5)	12.98	17.10	0	62.7
		KEIRETSU FIRMS (N=237)		
Total (T5)	30.81	12.29	14.7	65.1
Financial Firms (F5)	20.04	6.91	0	40.7
Nonfinancial Firms (NF5)	10.77	15.75	0	61.9
		INDEPENDENT FIRMS (N=77)		
Total (T5)	35.16	14.85	16.6	68.4
Financial Firms (F5)	15.38	7.07	0	36.2
Nonfinancial Firms (NF5)	19.79	19.28	0	62.7

Table B2. Summary Statistics

	Total Sample	Keiretsu Firms	Independent Firms
MVE (¥ billion)	0.61	0.64	0.43
	(0.85)	(0.89)	(0.59)
TA (¥ billion)	479	515	284
	(949)	(981)	(725)
LEV	0.29	0.30	0.26
	(0.13)	(0.13)	(0.15)
TOTAL	0.10	0.10	0.13
	(0.06)	(0.03)	(0.15)
SYS	0.02	0.02	0.01
	(0.02)	(0.01)	(0.02)
NONSYS	0.10	0.10	0.13
	(0.06)	(0.03)	(0.15)

TABLE B3. NONFINANCIAL FIRMS -- TOTAL SAMPLE N=314

Regression results for the ownership concentration by all shareholders (T5), financial shareholders (F5), and nonfinancial shareholders (NF5) on size and risk.

Independent Variables	All Shareholders	Financial Shareholders	Nonfinancial Shs.
INTERCEPT	-0.699*	0.239*	0.145
	(0.048)	(0.013)	(0.057)
MVE	-0.153*	-0.002	-0.014*
	(0.003)	(0.008)	(0.004)
NONSYS	1.761*	-0.129	1.561*
	(0.308)	(0.111)	(0.480)
SYS	-12.559*	1.234*	-11.672*
	(2.336)	(0.489)	(2.258)
Adj. R^2	0.19	--	--
F-Value	24.80*	--	--
Condition Num.	4.78	4.78	4.78
Censored Obs.	--	2	133
LR Test	--	1.56	29.94*

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.

*Indicates significance at the 5 level.

TABLE B4. NONFINANCIAL FIRMS -- KEIRETSU AND INDEPENDENT FIRMS
Regression results for the ownership concentration by all shareholders (T5), financial shareholders (F5), and nonfinancial shareholders (NF5) on size and risk.

	All Shareholders		Financial Shareholders		Nonfinancial Shs.	
Independent Variables	Keiretsu Firms (n=237)	Independent Firms (n=77)	Keiretsu Firms (n=237)	Independent Firms (n=77)	Keiretsu Firms (n=237)	Indepen. Firms (n=77)
INTERCEPT	-0.772*	-0.626*	0.231*	0.191*	0.057	0.307
	(0.140)	(0.086)	(0.028)	(0.018)	(0.126)	(0.091)
MVE	-0.147*	-0.156*	-0.002	0.004	-0.012*	-0.020
	(0.038)	(0.064)	(0.009)	(0.018)	(0.004)	(0.012)
NONSYS	2.333*	1.308*	0.189	-0.132	1.808	1.218*
	(1.236)	(0.599)	(0.258)	(0.144)	(1.139)	(0.699)
SYS	-12.708*	-9.996	0.758	1.234	-10.509*	-9.719*
	(2.468)	(5.440)	(0.575)	(0.899)	(2.626)	(4.489)
Adj. R^2	0.21	0.06	--	--	--	--
F-Value	22.03*	2.58	--	--	--	--
Condition Num.	9.25	4.22	9.25	4.22	9.25	4.22
Censored Obs.	--	--	1	1	113	20
LR Test	--	--	0.20	0.35	20.07*	5.77*

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.
*Indicates significance at the 5 level.

Table B5. Regression results for the ownership concentration by all shareholders (T5) on size and standard measures of risk.

	All Firms			Keiretsu Firms			Independent Firms		
INTERCEPT	-1.129*	-0.715*	-0.702*	-1.494*	-0.841*	-0.797*	-0.865*	-0.585*	-0.577*
	(0.138)	(0.052)	(0.056)	(0.190)	(0.140)	(0.468)	(0.171)	(0.092)	(0.097)
MVE	-0.093*	-0.233*	-0.233*	-0.042*	-0.223*	-0.228*	-0.487*	-0.216*	-0.213*
	(0.022)	(0.045)	0.045)	(0.019)	(0.052)	(0.053)	(0.151)	(0.062)	(0.061)
NONSYS	0.094*	--	--	0.127*	--	--	0.089*	--	--
	(0.029)	--	--	(0.050)	--	--	(0.032)	--	--
TOTAL	--	0.491*	--	--	1.354	--	--	0.201	--
	--	(0.237)	--	--	(1.243)	--	--	(0.171)	--
TOT	--	--	0.260*	--	--	0.653	--	--	0.087
	--	--	(0.452)	--	--	(1.124)	--	--	(0.203)
Adj. R^2	0.22	0.11	0.11	0.15	0.13	0.13	0.16	0.03	0.03
F-Value	9.89*	20.24*	19.89*	3.92*	18.42*	17.93*	3.83	2.14	2.10

Note: All risk variables are adjusted for leverage. The standard errors of estimates are shown in parentheses. The parameters for the relationship between ownership concentration by nonfinancial shareholders and the independent variables were estimated under Tobit specification.
TOT is *unadjusted* for the capital structure of the firms.
*Indicates significance at the 5 level.