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The Structure of Corporate Ownership in Japan

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ABSTRACT

I examine the structure of corporate ownership in a sample of Japanese firms in the mid 1980s. Ownership is highly concentrated in Japan, with financial institutions by far the most important large shareholders. Ownership concentration in independent Japanese firms is positively related to the returns from exerting greater control over management. This is not the case in firms that are members of corporate groups (keiretsu). Ownership concentration and the accounting profit rate in both independent and keiretsu firms are unrelated. The results are consistent with the notion that there exist two distinct corporate governance systems in Japan —one among independent firms and the other among firms that are members of keiretsu.

WHO ARE THE LARGE shareholders of Japanese firms and how much of the firm do they own? How important are financial institutions, nonfinancial corporations, and individuals as large shareholders? How concentrated is corporate ownership in Japan and how does it compare with corporate ownership in the U.S.? Do large shareholders in Japan respond to incentives for corporate control in the same way that they appear to in U.S. firms? Does the structure of ownership and the behavior of large shareholders differ between firms in keiretsu groups and those that are independent of such groups? Does the ownership structure of a Japanese firm have any bearing on its profitability? This paper attempts to answer these questions by analyzing the ownership structure of a sample of large Japanese firms in the mid 1980s.

Many of these questions were addressed by Demsetz and Lehn (1985) and Morck, Shleifer, and Vishny (1988) for U.S. firms, and this paper borrows from both works in terms of methodology. The interest in addressing these questions for Japan stems from three factors. First, Japan differs from the U.S. because the legal and regulatory environment of Japanese financial institutions permits them to be what Jensen (1989) has termed "active investors" to a much greater extent in corporations. Institutional investors in

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Japan are generally given much more latitude to own shares in, and exert control over, firms than they are in the U.S.[1] These differences may be important in determining the firm's ownership structure and the importance of financial institutions as large shareholders.

Second, within Japan there exist differences between firms that are affiliated with keiretsu groups and unaffiliated, independent firms concerning institutional arrangements with suppliers, customers, and financiers. Japanese industrial organization is characterized by groups of enterprises (keiretsu) composed of firms based in different industries, but bound by ties of fractional ownership, and reliant on a large commercial bank as the major lender. The large shareholders of keiretsu firms often are also large creditors of the firm as well as important long-term commercial business partners. Keiretsu firms differ from independent firms that have more arms-length type relationships with other firms and financiers. These differences in institutional arrangements may influence the firm's ownership structure and the behavior of shareholders as monitors.[2]

Finally, the role played by shareholders in Japan is subject to some controversy. The belief that shareholders have little power to exercise control over management is widespread.[3] Recent work, however, has suggested that the large shareholders of keiretsu firms do monitor and influence management, albeit in different ways than in the U.S. Kester (1990) characterizes the corporate governance of a keiretsu firm as relying on a complex interaction between the shareholding, credit holding, and long-term business relationships that exist between the firm and its stakeholders. Prowse (1990) suggests that because large shareholders are also large debtholders in the same keiretsu firms, they may preclude policies that attempt to transfer wealth from debtholders to shareholders.

Existing research on the structure of corporate ownership in Japan does not extend much beyond the citation of the aggregate statistics on the shareownership of listed companies published by the Tokyo Stock Exchange (exceptions are Flath (1990), Prowse (1990) and Hoshi and Ito (1991)). This study uses data on shareownership for a sample of 734 companies to discern the relative importance of different types of shareholders (financial institutions, nonfinancial companies, and individuals) and to see how the structure and concentration of shareownership varies with the affiliation of the firm and other firm characteristics.

The rest of the paper is divided into five sections. In the first, I set out some of the basic characteristics of the ownership structures of my sample of

[1] See Jensen (1989), Roe (1990) and Prowse (1990) and (1991).

[2] Recent studies suggest that differences between keiretsu and independent firms are large enough to produce observable differences in behavior. For example, Hoshi et al. (1991) found that keiretsu firms' investment is less liquidity-constrained than is independent firms because of their closer ties to a major creditor and the lower cost of debt financing this implies.

[3] Abegglen and Stalk (1985) suggest that Japanese firms are run for employees and not shareholders. See also "Shareholder Rights Idea Grows in Japan," *Wall Street Journal*, August 28, 1989 and "Stakes, shares and digestible poison pills," *The Economist*, February 2, 1991.

Japanese companies. Comparisons are made with existing data for U.S. firms. The second section discusses the Demsetz and Lehn (1985) framework of the determinants of corporate ownership concentration and attempts to apply it to the different institutional and regulatory environment of the Japanese firm. The third section contains empirical work on the determinants of ownership concentration in Japan in keiretsu and independent firms. The fourth analyzes whether ownership structure influences the profitability of keiretsu or independent firms. The final section concludes.

I. The Structure of Corporate Ownership in Japan

Table I shows how the ownership of all listed Japanese corporations in the aggregate breaks down between financial institutions, nonfinancial corporations, and individuals, with data for the U.S. provided as a standard of comparison. One major difference between the two countries is the far heavier weight of financial institutions (particularly banks) in the ownership of common stock in Japan. In 1984, commercial banks in Japan owned more than 20% of the outstanding stock of all firms. In the U.S., commercial banks

Table I

Percentage of Outstanding Corporate Equity Held by Various Sectors in the U.S. and Japan in 1984

	Japan	U.S.
All corporations	67.3	37.7
Financial institutions	43.3	26.6
Commercial banks	20.5	0.2
Insurance companies	17.7	4.6
Other financial	5.1	21.8
Nonfinancial corporations	24.0	11.1
Households	26.7	58.1
Foreign	5.0	4.2
Other	1.0	0.0

Sources: Federal Reserve Board, Flow of Funds Accounts, Financial Assets and Liabilities 1966–1989 (September 1990) and Japanese Securities Research Institute (1988). Commercial Banks for Japan refers to city banks, long-term credit banks and regional banks; for U.S., refers to commercial and mutual savings banks, and bank holding companies. Other financial includes pension funds, mutual funds, and securities companies. For both countries, trust holdings are counted among household holdings. For the U.S., nonfinancial corporations holdings are netted out of the Flow of Funds estimates. I follow French and Poterba (1991) in using IRS data on the ratio of dividends paid by U.S. corporations to domestic dividends received by U.S. corporations to estimate nonfinancial holdings.

have been prevented by law from holding any corporate stock on their own account. (Bank holding companies in the U.S. are allowed to hold up to 5% of the voting stock of any nonbank. However, the figures in Table I suggest that their holdings are minuscule). Insurance companies in Japan (life and non-life) held more than 17% of the outstanding shares of firms, more than three times the amount held by their U.S. counterparts. Holdings by nonfinancial corporations in Japan are more than twice what they are in the United States. Overall, corporate shareholdings in Japan are close to twice what they are in the U.S., where individual shareownership predominates.[4]

Aggregate ownership figures such as those in Table I do not reveal anything about the *concentration* of ownership, nor about who the largest shareholders are in a typical firm. Table II gives some information on the concentration of ownership in a sample of Japanese firms. Data on the five largest owners of 734 Japanese firms in 1984 were obtained from two

Table II

Panel A: Summary statistics of ownership concentration (S5) and market value of equity (MVE) for 734 Japanese nonfinancial corporations in 1984 and 457 U.S. nonfinancial corporations in 1980.[a]

	Mean	Median	Standard Deviation	Minimum	Maximum
Japanese sample					
S5	33.1	29.7	13.8	10.9	85.0
MVE ($millions)	990	327	1883	22.2	27182.1
U.S. sample					
S5	25.4	20.9	16.0	1.3	87.1
MVE ($millions)	1287.2	425	2833.4	22.3	40587.2

Panel B: Summary statistics of ownership concentration (S5) and its composition among financial institutions (F5), nonfinancial corporations (NF5), individuals (I5) and other agents (O5) in 734 Japanese firms in 1984.[b]

	S5	F5	NF5	I5	O5
Mean	33.1	25.0	4.9	3.0	0.2
Median	29.7	24.2	0.0	0.0	0.0
Standard deviation	13.8	8.3	8.3	6.6	1.0
Minimum	10.9	0.0	0.0	0.0	0.0
Maximum	85.0	48.8	42.1	35.2	8.9

[a] Data for the sample of U.S. firms is taken from Corporate Data Exchange directories. Market value of equity for Japanese firms is converted to dollars at an exchange rate of 225 yen = $1.

[b] F5 measures the percentage of outstanding shares held by financial institutions that are among the top five shareholders of the firm. NF5, I5, and O5 are the measures for nonfinancial corporations, individuals and other agents, respectively.

[4] Both the Japanese and U.S. financial systems changed somewhat in the 1980s, and in many ways have recently become more alike (see Jensen (1989) and Hoshi et al. (1990)). For example, the U.S. system has seen a significant increase in the shareholdings of corporations (financial and nonfinancial) at the expense of household holdings.

publications: *The Japan Company Handbook* (1985) and *Industrial Groupings in Japan* (1985). The sample consists of all nonfinancial firms listed on the Tokyo Stock Exchange for which shareholding data was available and whose market value of equity was greater than 5 billion Yen at year-end 1984 (roughly $22 million at the prevailing exchange rate in 1984). All major nonfinancial sectors (manufacturing, transportation, wholesale and retail, and services) are represented in the sample. As a measure of ownership concentration I use the percentage of outstanding shares held by the top five shareholders of the company (S5). The choice of the top five shareholders was dictated by the fact that data for larger numbers of shareholders were unavailable for many firms.

For these firms, Figure I and Table II gives the frequency distribution and other summary statistics of ownership concentration. Panel A of Table II also provides summary statistics for the same measure of ownership concentration for a sample of 457 U.S. nonfinancial corporations (collected from the Corporate Data Exchange directories) as a standard of comparison. Ownership concentration appears to vary quite widely in Japan; the percentage of outstanding shares held by the top five shareholders ranges from a minimum of 10.9% to a maximum of 85%, with a mean of 33.1%. Ownership concentration in Japanese firms is significantly higher than in U.S. firms; the mean concentration ratio in Japan is over 30% higher than in the U.S., a difference that is significant at the 1% level, while the median concentration ratio is over 40% higher in Japan.[5]

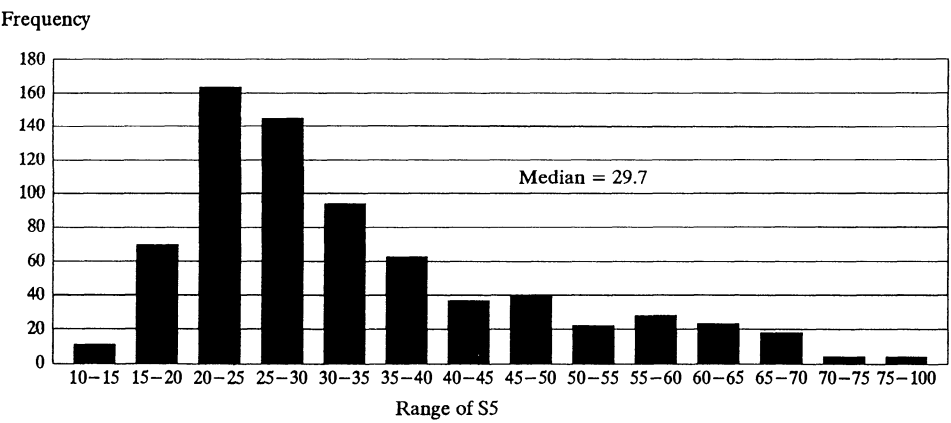

Figure 1. Frequency distribution of ownership concentration for 734 Japanese nonfinancial corporations in 1984. The measure of ownership concentration, S5, is the percentage of outstanding shares held by the top five shareholders of the firm.

[5] These differences appear too large to be explained by the $300 million greater market value of equity (MVE) exhibited by the sample of U.S. firms. Assuming the exchange rate used to convert the Japanese MVE to dollars is the correct one for these purposes, the regression results presented later indicate that a $300 million increase in the mean MVE for the Japanese sample would lower the mean concentration ratio by only about 1 percentage point to 32.1%.

Panel B of Table II provides information on the identity of the large shareholders. Each of the largest five shareholders in each firm was classified as either a financial institution, nonfinancial corporation, individual, or "other" agent.[6] Then the percentage of outstanding shares held by each shareholder class was calculated. For example, F5 measures the percentage of outstanding shares held by those financial institutions that rank among the top five shareholders. NF5, I5, and O5 measure the same thing for nonfinancial corporations, individuals and other agents, respectively. Panel B provides summary statistics for these measures. Financial institutions clearly predominate in importance as large shareholders. On average financial institutions ranking among the top five shareholders hold 25% of the firm's shares. This contrasts with the much smaller holdings of financial institutions in the U.S., and probably reflects the tighter U.S. restrictions on financial institutions' equity holdings and how they can use the shares they do own for governance purposes.[7]

Because I have recorded only the largest five shareholders of the firm, my data are not conducive to measuring the size of management's shareholdings. However, some tentative comparisons with U.S. data can be made. Two studies document significant management shareholding in U.S. firms. Demsetz and Lehn (1985) report that the largest five family and individual investors in their sample of U.S. firms owned a combined 9.1% of the firm's outstanding equity. Morck, Shleifer, and Vishny (1988) found that in a sample of Fortune 500 companies, the mean combined stake of all board members was 10.6%. While I have no figures directly comparable with those cited in these two reports,[8] the figures presented in Panel B for individual shareholdings suggest that management shareholding in Japanese companies may be rather less important. Individuals ranking among the top five shareholders of the firm hold on average 3% of the firm's outstanding shares. Even if we assume these individuals are all managers, this still appears low compared to the Demsetz and Lehn (1985) and Morck et al. (1988) numbers, notwithstanding the differences in definitions. This impression is bolstered by data recently reported by Kaplan (1992) that in a sample of large Japanese and U.S. firms, only 12.2% of Japanese presidents held more than 0.5% of their company's stock in 1981, compared to 22.6% of U.S. chief executive officers.[9]

[6] The "other" category consists primarily of holdings by employee stock ownership plans and foreigners.

[7] In the Demsetz and Lehn (1985) sample of 511 nonfinancial firms, the mean holdings of the *largest five* financial institution shareholders were 18.4%. I count the holdings of only those financial institutions *among the largest five* shareholders, so it is clear that equity holdings of financial institutions are much larger in Japan than in the United States.

[8] Morck et al. (1988) measure shareholdings by all board members holding a greater than 0.2% stake, and Demsetz and Lehn (1985) measure shares held by the largest five individuals, whereas I measure only those individual shareholding that *rank among the five largest*.

[9] There is also anecdotal evidence to suggest that management shareholding is less important in Japan. Kester (1986) notes that management shareholding is not widespread in Japan and that there are laws prohibiting officers of the firm from owning stock options.

In sum, Japanese firms exhibit much higher degrees of ownership concentration than do U.S. firms. Financial institutions predominate among the top five shareholders, and take significantly larger equity positions in firms than they do in the U.S. Management ownership appears to be rather less important in Japan.

These differences appear at least consistent with the notion that firms in Japan rely on different methods to discipline managers than do U.S. firms. For example, the market for corporate control in Japan appears much less active (at least among large firms) than in the United States.[10] In addition, if management shareholding in Japanese firms is indeed rather less important than it is in the U.S., then the structure of management compensation in Japanese firms by itself might plausibly give managers less incentive than their U.S. counterparts to follow value-maximizing policies.[11] Overall, there seems to be less scope in Japan for the promotion of managerial discipline through the market for corporate control or the structure of management compensation.[12] Kester (1990) and Prowse (1991) suggest that this may mean greater reliance in Japan on direct shareholder monitoring, which may be reflected in the higher levels of ownership concentration observed in Japan in Panel B.

There also seems to be a significant amount of variation in ownership concentration among firms in Japan. The next section attempts to explain some of this variation.

II. The Determinants of Ownership Structure in Japan

Demsetz and Lehn (1985) propose a number of potential determinants of ownership concentration in U.S. firms. This study uses their framework with some refinements where differences in the Japanese institutional or regulatory environment make it appropriate.

One determinant of ownership concentration is the value-maximizing size of the firm. The larger the firm, the greater is the cost of obtaining a given fraction of ownership. In addition, risk aversion implies that large shareholders will increase their ownership of the firm only at lower, risk-compensating prices. This increased cost of capital will discourage owners of large firms from attaining as highly concentrated ownership as owners of smaller firms. In order to control for the effects of leverage, firm size is measured by the market value of equity (MVE). I expect MVE to have a negative effect on ownership concentration in Japan, as Demsetz and Lehn (1985) found for U.S. firms.

[10] Kaplan (1992) reports that only 2.5% of his sample of Japanese firms was taken over or merged between 1980 and 1989, in contrast to 22.6% of his sample of U.S. firms over the same period.

[11] Kester (1986) notes that explicit profit sharing contracts with management are rare among Japanese firms.

[12] On the other hand, higher management shareholdings in the U.S. could conceivably give managers more scope to become entrenched.

A second factor influencing ownership concentration is what Demsetz and Lehn (1985) term the control potential of the firm—the profit potential from exercising more effective monitoring of managerial performance by the firm's owners. They postulate that a firm's control potential is likely correlated with the instability of the firm's environment, and proxy this by the variation of the firm's profit rate (measured by both stock and accounting returns). A firm with a more volatile profit rate is more likely to be operating in a less predictable environment, where managerial behavior is both more difficult to monitor and also is likely to be more crucial in affecting profitability. The less stable is the firm's environment therefore, the larger is the potential benefit to shareholders from maintaining tighter control over managerial behavior via more concentrated ownership structures.

I expect the influence of control potential to differ between keiretsu and independent firms. Within a keiretsu, large shareholders typically have a variety of relationships with the firm, including credit and trading contracts. For example, a large shareholder of a keiretsu firm is also typically a large creditor of that firm. In my sample of 85 keiretsu firms (described in Section III), the largest shareholder is also the largest creditor (in terms of the share of outstanding bank and bond debt held) in 55 cases. The largest creditor, which is almost always either the main bank or an insurance company in the same keiretsu, holds on average 21.9% of the firm's outstanding debt and 6% of its outstanding equity. The firm's largest five creditors (that are members of the same keiretsu) hold 49.8% of its debt and 18% of its equity. Moreover, the simultaneous holding of a keiretsu firm's debt and equity is not restricted to the financial institutions within the group. Many nonfinancial firms within the keiretsu extend large amounts of trade credit to those firms in which they have equity interests.

Large shareholders of keiretsu firms also typically have strong commercial and trading relationships with them. Trading ties between keiretsu firms are strong. Most keiretsu firms do much of their buying and selling within their own group through implicit reciprocal trade agreements. Kester (1990) cites some examples of the shareholding and commercial relationships between firms in the Mitsubishi keiretsu. Mitsubishi Heavy Industries is the largest shareholder in Mitsubishi Steel (with a 7% interest in the firm) and also is a large purchaser of its output and important supplier of its equipment and construction services. Similarly, Mitsubishi Bank holds 3.7% of Mitsubishi Electric's shares, more than 15% of its debt and in addition is a major purchaser of its computer equipment.

In contrast to these tight financial and commercial relationships between customers, suppliers, and financiers, independent firms are much more similar to U.S. firms in their arms-length relationships with financiers and trading partners. These differences between keiretsu and independent firms in their relationships with stakeholders suggest differences in the way in which their corporate governance systems work. For example, the tight, long-term commercial and financial relationships that exist between keiretsu members mean that there may exist a number of methods of monitoring and

influencing a firm's management aside from simply exerting influence as a large shareholder. A main bank or major corporation may be able to obtain information about a firm's prospects and policies and influence management just as easily through its role as a large lender or long-term commercial partner of the firm as it can in its role as a large shareholder.[13] In contrast, the weaker ties that exist between independent firms and their stakeholders suggest that methods of monitoring and influencing management may rely more directly on the size of the shareholder's equity holdings, as is the case in the U.S.

Ownership concentration by itself may thus not be a good proxy for the control shareholders have over management in the keiretsu firm because they are also typically creditors and long-term business partners of the firm and may be able to monitor and influence management through these alternative channels. Ownership concentration may be a much better proxy for the control shareholders have over management in the independent firm. This issue is addressed in the empirical section, where the sensitivity of ownership concentration to control potential is examined in keiretsu and independent firms separately.

Regulation is another factor that may influence the concentration of a firm's ownership. Demsetz and Lehn (1985) propose that in the U.S. regulation restricts the options available to owners, thus reducing the profit potential from exercising more effective control. It may in addition provide some subsidized monitoring of management by regulators, thereby reducing the need for shareholders themselves to engage in monitoring. Demsetz and Lehn account for this factor by using dummies that identify regulated industries such as utilities and financial companies in their regressions for ownership concentration. They find that regulated industries in the U.S. exhibit significantly less ownership concentration than unregulated firms.

I do not include a proxy for regulation in my regressions for two reasons. First, some regulation in Japan takes the form of informal "administrative guidance" by the Ministry of Trade and Industry (MITI).[14] Consequently, it is difficult to identify the degree to which particular industries are subject to such informal regulation and monitoring. Second, while it is possible that some forms of more explicit regulation in Japan may lessen the need for high levels of ownership concentration in firms, it is plausible that firms subject to informal guidance by MITI may depend crucially for their success on how the managers of the firm respond to such guidance. High ownership concentration might help owners monitor and influence the way in which the managers

[13] This is not to say that shareholders are not the legal owners of the firm in Japan with ultimate power over who runs it, merely that there are more avenues for monitoring and influencing the firm open to the typical shareholder in Japan who is also a creditor and long-term business partner than there are in the United States. Note, however, that there is no doctrine of equitable subordination in Japanese corporate law, which effectively means that creditors are much less reluctant to exert influence over the firm's management when they feel the need to do so (see Kester (1990) and Prowse (1990)).

[14] See, for example, Wheeler et al. (1982).

of the firm negotiate with MITI bureaucrats in order to maximize shareholder wealth.[15]

Demsetz and Lehn (1985) also refer to the amenity potential of the firm's output as a potential determinant of the degree to which ownership is concentrated in an individual's or family's hands. They define amenity potential as the ability to influence the type of goods produced by the firm, and identify two industries that are likely to generate concentrated ownership so that the owners can indulge their personal preferences: professional sports clubs and mass media firms. The sample of 143 firms on which I perform regression analysis (described in Section III) are in the manufacturing and mining sectors of the economy and do not include firms that I could clearly identify as having high degrees of amenity potential. Consequently, I do not attempt to measure this variable. However, since the firm's amenity potential is likely to be strongly governed by personal tastes, it is likely that it is a less important factor in determining ownership concentration in Japan, where individual shareholders are rarely of importance among the top five shareholders.

III. Data and Measurements

From the original sample of 734 firms, a smaller sample was constructed consisting of all firms for which I was able to obtain consolidated accounting data (from the NEEDS tapes), stock price data (from the NEEDS monthly stock price tapes for firms listed on the Tokyo Stock Exchange), and which Nakatani (1984) classifies as either a keiretsu member or an independent firm.[16] This smaller sample consists of 143 firms from the mining and manufacturing sector of the economy: 85 keiretsu and 58 independent firms.

In the following regressions I apply a *log* transformation to the percentage of outstanding shares held by the top five shareholders, using the formula.

$$LS5 = \log \frac{S5}{100 - S5}$$

The transformation follows Demsetz and Lehn's methodology and is used to convert an otherwise bounded dependent variable into an unbounded one.

[15] Wheeler et al. (1982) identify three industries: shipbuilding, aluminum refining, and petroleum refining, that are subject to regulation by explicit bills passed in the Diet. Unfortunately, my sample contains only one or two firms in each of these industries. When dummy variables for these industries are included in the regressions, the coefficient on each dummy is negative, but insignificant. I leave a fuller examination of the effects of regulation on Japanese ownership concentration for a later time.

[16] Membership of a keiretsu is not clearly definable. There are no dues or other formalities that classify a firm as a group member. Several publications attempt to make this classification. I use Nakatani's (1984) refinement of the *Keiretsu no Kenkyu* classification, which has previously been used by Hoshi et al. (1991) to compare differences between keiretsu and independent firms.

The measure of firm size (MVE) is the market value of the firm's common equity at the end of 1984 measured in millions of dollars.[17] The instability of the firm's environment is proxied by three measures of the instability of the firm's profit rate. Two of these measures, (SE and STDS, see Table III) are based on stock market rates of return as determined by 72 monthly stock

Table III

Description of Variables

S5	Percentage of outstanding common shares owned by the top five shareholders in 1984.[a,b]
F5, NF5, I5, O5	Percentage of outstanding shares held by those financial institutions (F5), nonfinancial corporations (NF5), individuals (I5), and other agents (O5) ranking among the top five shareholders in 1984.[a,b]
MVE	Market value of common equity in millions of dollars at year-end 1984.[c,d]
SE	Standard error of estimate from market model in which firm's monthly returns for 1979–1984 are regressed on the monthly returns of the market portfolio for the same period.[d]
STDS	Standard deviation of monthly stock market rates of return, 1979–1984.[d]
RETURNA	Accounting rate of return (annual average of net income to book value of shareholders' equity 1979–1984).[d]
STDA	Standard deviation of annual accounting rates of return, 1979–1984.[d]
CAP	Ratio of capital expenditures to total sales (annual average 1979–1984).[d]
ADV	Ratio of advertising expenditures to total sales (annual average 1979–1984).[d]
RD	Ratio of research and development expenditures to total sales (annual average 1979–1984).[d]
ASSET	Value of total assets in millions of dollars (annual average 1979–1984).[c,d]
D5	Percentage of outstanding bank and bond debt held by the top five debtholders of the firm who are members of the same keiretsu in 1984.[b]

[a] Source: *Japan Company Handbook* (1985).

[b] Source: *Industrial Groupings in Japan* (1985).

[c] Yen values are converted to dollar values at the approximate exchange rate existing in 1984 of 225 Yen = $1.

[d] Source: *NEEDS* consolidated accounts tape and monthly stock price stape.

[17] All yen values in this study are converted to dollars at the approximate exchange rate existing in 1984 of 225 Yen = $1.

market returns during the 6-year period 1979–1984. SE is calculated as the standard error of the regression of each firm's monthly returns on the returns to the market portfolio. STDS is the standard deviation of the firm's monthly stock market rates of return. The third measure of profit instability is the standard deviation of accounting profit rates of the firm (STDA) and is based on six annual profit rates over the period 1979–1984.

Table III provides definitions of all variables in the study and Table IV provides their summary statistics for 85 keiretsu and 58 independent firms. Table IV suggests little difference in levels of ownership concentration between keiretsu and independent firms. Financial institutions appear more

Table IV

Means and Standard Deviations of Variables for 143 Japanese Firms[a]

Variable	For 85 Keiretsu Firms	For 58 Independent Firms
S5	33.2	32.8
	(8.8)	(8.0)
F5	26.1	22.9
	(7.0)	(6.2)
NF5	5.1	5.3
	(6.5)	(4.4)
I5	1.9	4.4
	(4.4)	(5.1)
O5	0.1	0.2
	(0.7)	(0.1)
MVE ($millions)	1019	624.2
	(1964)	(1689)
SE	0.086	0.088
	(0.036)	(0.031)
STDS	0.091	0.094
	(0.036)	(0.031)
STDA	0.015	0.021
	(0.017)	(0.018)
RETURNA	0.032	0.042
	(0.037)	(0.089)
CAP	0.026	0.027
	(0.027)	(0.039)
ADV	0.144	0.184
	(0.065)	(0.095)
RD	0.026	0.023
	(0.022)	(0.019)
ASSET ($millions)	2239	1505.0
	(3725)	(3848)
D5	49.8	NA
	(17.0)	NA

NA = not applicable.

[a] For descriptions of variables see Table III. Standard deviations are in parentheses.

important as large shareholders in keiretsu firms, reflecting the closer financial ties between them, whereas individuals appear more important in independent firms. Table IV also indicates that keiretsu firms are on average larger and less profitable than independent firms. They also show less volatility in their profit rates. However, none of the differences in the means are statistically significant and so caution should be used in drawing conclusions from them.[18]

Table V provides OLS regression estimates of LS5 on the three alternative measures of profit instability and the market value of equity for keiretsu and independent firms separately.[19] The two samples exhibit markedly different behavior. For independent firms, all three measures of profit instability are positively and significantly related to ownership concentration. Firm size (MVE) enters with the expected sign (negative) and is significant in all three specifications of the model. In contrast, for keiretsu firms none of the measures of profit instability are significant and one coefficient (on STDA) is negative. Firm size enters with the expected sign (negative), but is not significant in any specification of the model. Overall, the variation in LS5

Table V

Regression Results for the Log of Ownership Concentration (LS5) for 85 Keiretsu Firms and 58 Independent Firms on Measures of Profit Instability (SE, STDS, STDA) and the Market Value of Equity of the Firm (MVE).

Absolute values of t-statistics are in parentheses.

Independent Variables[a]	Keiretsu Firms			Independent Firms		
Intercept	−1.2	−1.2	−1.1	−1.3	−1.3	−1.0
	(8.8)	(8.4)	(19.7)	(10.2)	(9.7)	(13.4)
MVE[b]	−2.8	−2.8	−3.1	−17.3	−17.3	−19.4
	(1.6)	(1.6)	(1.8)	(3.3)	(3.3)	(3.9)
SE	0.7	—	—	4.3	—	—
	(0.7)			(3.2)		
STDS	—	0.4	—	—	3.6	—
		(0.8)			(3.0)	
STDA	—	—	−0.1	—	—	1.7
			(0.05)			(2.2)
N	85	85	85	58	58	58
Adjusted R^2	0.02	0.02	0.02	0.24	0.24	0.26
F-statistic	1.7	1.7	1.6	9.8	9.4	9.7

[a] See Table III for descriptions of variables.

[b] All coefficient estimates on MVE should be multiplied by 10^{-5}.

[18] Nonetheless, the differences are in accord with Nakatani (1984), who found that keiretsu firms exhibited less volatile, though lower, profitability over time than did independent firms.

[19] Demsetz and Lehn include in some of their regressions the squared value of the measure of profit instability. This variable proved insignificant for my samples of Japanese firms. I also included two-digit industry dummies in my regressions. These proved insignificant and did not affect the results presented here.

explained by these equations is markedly higher for independent firms than for keiretsu firms.

The estimated coefficients of all three profit instability variables are much larger for independent firms than for keiretsu firms, more than six times as large in the SE and STDS regressions, and also much larger in the STDA regression (where the coefficient enters with a negative sign for keiretsu firms). The differences in the SE and STDS coefficients between samples are statistically significant at the 10% confidence level.[20] Note also that the absolute size of the MVE coefficient is much larger for independent firms than for keiretsu firms, roughly six times as large. The differences in these coefficients are also statistically significant at the 1% confidence level.[21] Thus I can reject the null hypothesis of equality of the profit instability coefficients in two out of three cases, and also of the firm size coefficients between independent and keiretsu firms.

These results suggest that the shareholders of independent and keiretsu firms behave differently in two respects. First, large shareholders in keiretsu firms show no sign of a wealth constraint, whereas they do in independent firms. This may be due to the greater importance of individuals as large shareholders of independent firms, who face a tighter wealth constraint than corporate investors. Second, in independent firms, the top shareholders take larger positions in firms where there appear to be greater returns from exerting control over management. In keiretsu firms, the top shareholders do not seem to take larger positions in those firms where greater control over management might imply improved firm performance.

Table VI attempts to identify the type of shareholder that is producing the behavior observed in the independent firms. It provides OLS estimates of a regression on measures of the importance of financial institutions (F5), nonfinancial corporations (NF5), and individuals (I5) among the top five shareholders of the firm on a measure of profit instability (SE) and firm size (MVE).[22] The results indicate that financial institutions are largely responsible for the positive relationship between ownership concentration and profit instability in independent Japanese firms. The coefficient on SE is positive and significant in the F5 regression, positive and marginally significant in the NF5 regression, and negative and insignificant in the I5 regression.[23] These results suggest that financial institutions' equity investments in independent firms are particularly sensitive to the benefits that exist from exerting control over firms with unstable environments. Nonfinancial firms' equity investments in independent firms show less sensitivity to these benefits, and individual equity investments show none at all.

[20] The t-statistic of the difference in the coefficients is 2.1 for SE and 2.0 for STDS.

[21] The t-statistic of the difference in the MVE coefficients ranges from 2.6 to 3.0 in the three specifications.

[22] Since F5, NF5, and I5 occasionally take on values of zero, for which the log transformation used in the Table V regressions is undefined, these variables are not logistically transformed.

[23] Similar results (not reported here) were obtained in regressions using the other two measures of profit instability (STDS and STDA).

Table VI

Regression Results for the Percentage of Outstanding Shares Held by Financial Institutions (F5), Nonfinancial Corporations (NF5) and Individuals (I5) that Rank Among the Top Five Shareholders of the Firm, for 58 Independent Japanese Firms.

Absolute values of t-statistics are in parentheses.

	Dependent Variables		
Independent Variables[a]	F5	NF5	I5
Intercept	13.2	3.4	4.2
	(4.5)	(1.1)	(1.9)
MVE[b]	−1.0	−1.0	−5.0
	(0.7)	(0.8)	(3.0)
SE	66.8	12.7	−11.7
	(3.2)	(1.5)	(0.5)
N	58	58	58
Adjusted R^2	0.10	0.04	0.04
F-statistic	3.2	1.5	1.5

[a] See Table III for descriptions of variables.
[b] All coefficients on MVE should be multiplied by 10^{-3}.

Note also the coefficient on MVE. For financial and nonfinancial corporations it is insignificant, suggesting that they are large enough so as not to have the size of their investment in a given firm be constrained by their wealth. As one might expect, individuals' equity investments in firms do show evidence of a wealth constraint.

The hypothesis outlined in the previous section suggests that the results in Table V for keiretsu firms do not necessarily imply irrational behavior on the part of their shareholders, since they may have means other than increased shareholding through which to assert influence over the firm, such as through a creditor or trading partner relationship. Unfortunately, these means are not as easily observable or measurable as a simple shareholding relationship.

One aspect of the relationship among keiretsu firms that is potentially measurable is the creditor relationship. For example, the more concentrated the outstanding loans of a keiretsu firm are in the hands of other group members, then the more influence these group members can plausibly have over the firm. My measure of the concentration of debt ownership is the percentage of outstanding bank and bond debt held by the five largest debtholders of the firm who are members of the same keiretsu (D5). I rerun the Table V regressions for keiretsu firms, using as the dependent variable the interaction variable S5*D5.[24] This variable attempts to capture *two*

[24] Since I am now considering share and debt ownership together, I use the total assets of the firm as the measure of firm size rather than the market value of equity.

margins along which stakeholders of the keiretsu firm may move in order to exert more or less control over the firm. It essentially assumes that share and debt ownership are substitute methods of exerting control over the firm.[25]

Table VII provides some limited support for the notion that large stakeholders in the keiretsu firm react to the control potential of the firm by adjusting share *and* debt ownership together. Compare the three regression results reported in Table V for keiretsu firms and those reported in Table VII. In the two regressions using SE and STDS, the level of statistical significance of their coefficients is markedly larger in Table VII (the t-statistics double). In the regression using STDA the sign changes from negative in Table V to positive in Table VII. It is still the case, however, that in the Table VII regressions the levels of statistical significance on the profit instability variables are somewhat above the 10% level. This is not surprising since many aspects of the firm's relationship with its stakeholders are still being left out in the dependent variable. Overall, I take these results as being suggestive (although certainly not conclusive) of the notion that stakeholders

Table VII

Regression Results for the Product of Ownership Concentration (S5) and Outstanding Debt Concentration (D5) for 85 Keiretsu Firms on Measures of Profit Instability (SE, STDS, STDA) and the Total Assets of the Firm (ASSET).

Absolute values of t-statistics are in parentheses.

Independent Variables[a]			
Intercept	636.3	666.2	535.1
	(5.0)	(14.9)	(11.4)
ASSET[b]	−2.9	−2.9	−2.9
	(3.3)	(3.4)	(3.5)
SE	853.9	—	—
	(1.5)		
STDS	—	1156.3	—
		(1.6)	
STDA	—	—	2110.3
			(1.5)
N	85	85	85
Adjusted R^2	0.20	0.25	0.24
F-statistic	7.5	7.6	7.2

[a] See Table III for descriptions of variables.
[b] All coefficients on ASSET should be multiplied by 10^{-2}.

[25] Of course, there are many other margins along which stakeholders of keiretsu firms may operate which are not captured by my measure. For example, my measure ignores the degree to which a keiretsu firm has long-term reciprocal trading contracts with other group firms which could plausibly yield access to information about the firm's prospects and some ability to influence firm policy.

of the keiretsu firm do act to increase their control over those firms within their group where there appear to be greater benefits from exerting control over management.

In addition, indirect evidence as to whether keiretsu shareholders are behaving irrationally may be found by examining the ownership concentration-profitability relationship among keiretsu firms. If keiretsu shareholders are behaving irrationally, then keiretsu firms with higher ownership concentration should perform better than keiretsu firms with lower levels of ownership concentration. This is examined in the following section.

IV. Ownership Concentration and Profitability

Table VIII provides OLS estimates of a regression of the accounting profit rate of the firm on the measure of ownership concentration (LS5) and other variables for the samples of keiretsu and independent firms. The dependent variable (RETURNA) is the mean value of annual net profit as a percentage of the book value of equity for the 6-year period 1979–1984.[26] Following

Table VIII

Regression Results for the Mean Accounting Profit Rate for 85 Keiretsu and 58 Independent Firms

Absolute values of t-statistics are in parentheses.

Independent Variables[a]	Keiretsu Firms	Independent Firms
Intercept	−0.007	0.2
	(0.2)	(1.7)
CAP	0.46	0.95
	(1.6)	(2.3)
ADV	0.18	0.07
	(2.5)	(0.5)
RD	−0.1	0.2
	(0.5)	(0.3)
ASSET[b]	−0.73	−12.0
	(0.4)	(0.4)
SE	−0.21	−0.70
	(1.0)	(1.5)
LS5	0.01	0.11
	(0.6)	(0.6)
N	85	58
Adjusted R^2	0.16	0.24
F-statistic	2.5	2.2

[a] See Table III for descriptions of variables.

[b] Coefficients on ASSET should be multiplied by 10^{-6}.

[26] Stock market rates of return presumably adjust for any divergences between the interests of management and shareholders, so I rely on accounting rates of return to reveal such differences.

Demsetz and Lehn (1985) and Morck, Shleifer, and Vishny (1988), I include several other independent variables in the regression: capital, research and development, and advertising expenditures (all as a percentage of sales) and firm size measured by the book value of assets in millions of dollars. The instability of the firm's profit rate (SE) is also included in the regressions. Tables III and IV provide full descriptions and summary statistics for these variables.

Table VIII shows no significant relationship between ownership concentration and accounting profit rate for either sample, where in both cases the coefficient on ownership concentration is positive, but insignificant (and, for keiretsu firms, particularly small). In sum, there is little evidence of any relationship between ownership concentration and profitability for keiretsu or independent firms.[27]

Morck, Shleifer, and Vishny (1988) suggest that the failure of Demsetz and Lehn (1985) to find a relationship between ownership concentration and profitability among U.S. firms may be due to their use of a linear specification that does not capture an important nonmonotonicity. In their analysis of the relationship between management ownership and the market valuation of a sample of U.S. firms, Morck et al. find evidence of just such a nonmonotonic relationship. The results in Table VIII are potentially subject to a similar criticism. However, following the Morck et al. methodology and using various differently specified piecewise linear regressions, I find no evidence of any nonmonotonic relationship between ownership concentration and profitability in either sample of Japanese firms. This may not be surprising given the previous observation that management ownership is probably rather less important in Japan than in the U.S.

I conclude that, given there is no significant relationship between profitability and ownership concentration in keiretsu firms, then the behavior of their large shareholders observed in Table V cannot be explained by claiming they are not maximizing the returns from their equity investments. This provides some indirect evidence that large shareholders of keiretsu firms may have means to monitor and control management other than through their role as a shareholder.

V. Conclusion

The empirical work suggests the following:

1. Ownership concentration in Japanese firms is higher than in U.S. firms. Financial institutions are the most important large shareholders of the firm,

[27] An alternative hypothesis for the behavior of keiretsu shareholders shown in Table V is that keiretsu provide their members with an insurance mechanism that stabilizes their performance (see Nakatani (1984)). If high ownership concentration proxies for the strength of attachment to a keiretsu, then such a mechanism would produce a negative relation between ownership concentration and profit volatility, which may offset the shareholder monitoring effect that we would otherwise observe. However, Table VIII shows no evidence of an insurance premium paid by keiretsu members, since ownership concentration appears unrelated to profitability.

and hold larger equity positions in firms than do U.S. financial institutions. Management ownership appears rather less important in Japan than in the United States.

2. Ownership concentration does not differ significantly between keiretsu and independent firms. In independent firms, ownership concentration is sensitive to the returns from exerting greater control over management. This appears to be largely driven by the behavior of financial institutions. In keiretsu firms, ownership concentration appears unrelated to the returns from exerting greater control over management.

3. Keiretsu firms do exhibit a somewhat stronger (although only marginally significant) relationship between the returns from exercising greater control over management and a measure of the degree of concentration of *both* share and loan ownership.

4. Ownership concentration and profitability in both keiretsu and independent firms are unrelated. In particular, higher ownership concentration is not related to higher profitability.

These results are consistent with two notions. First, the corporate governance mechanism in Japanese firms (both keiretsu and independent) appears to rely more on direct monitoring of managers by shareholders achieved through concentrated ownership structures than in the U.S. This reliance appears to reflect a number of factors, including the greater latitude given Japanese financial institutions to be active investors in firms and the less active market for corporate control in Japan.

Second, within Japan there exist two distinct corporate governance systems. Among independent firms, which have more arms-length relationships with their suppliers, customers, and financiers, management appears to be disciplined in part by large shareholders taking larger equity positions in those firms where increased control brings the largest benefits.

Among keiretsu firms, a different governance system appears to operate, where management is disciplined through a complex interaction of monitoring and control conducted by suppliers, customers, and financiers who typically have long-term commercial relationships with the firm in addition to being major creditors and shareholders. In this system, there are other avenues through which shareholders can more intensively monitor and influence management than simply by increasing their shareholdings of the firm.

That these two systems appear to have existed side by side with each other in the postwar period suggests that neither system has had an overwhelming advantage over the other, although the fact that keiretsu firms have generally been much larger than independent firms suggests that the keiretsu system may have had a significant comparative advantage. However, as Kester (1990) points out, the dramatic changes in the Japanese corporate sector in the last decade, including improved access to global capital markets and the deregulation of domestic capital markets, the slowing of growth opportunities for Japanese firms in their traditional lines of business and the huge build-up of cash on Japanese firms' balance sheets, may have weakened the governance mechanism in the keiretsu groups. For example, there is

evidence that many keiretsu firms are becoming increasingly independent of their main banks as sources of capital.[28] This suggests that, if these trends continue, the corporate governance mechanism in keiretsu firms may in the future evolve into something more resembling the mechanism that appears to operate in independent firms.

[28] See Hoshi, Kashyap, and Scharfstein (1990).

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