Japan's corporate groups

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In recent years, the Japanese economy has come under close scrutiny as the liberalization of both financial and nonfinancial international markets gained momentum and Japanese companies proved themselves to be successful competitors. The differences and similarities between the industrial structures in Japan and the U. S. are of interest to regulatory bodies as well as to companies that compete with Japanese companies in the international markets.

One distinctive feature of the Japanese economy that attracts considerable attention is the existence of well-diversified industrial groups, called keiretsu. The complex relationship among firms within these groups is characterized by cross-ownership of equity, close ties to the group's "main bank" (which provides the majority of the firm's debt financing), and product market ties with the other firms in the group.

Although such industrial groups are not unique to Japan (Germany, Korea, Spain, and France have similar industrial groups), Japan's corporate groups are larger. Furthermore, Japan, as the second largest trading partner of the U.S., attracts more attention and criticism. For example, during the Structural Impediments Initiative talks at the beginning of this year, the "main bank" system in Japan with its "captive" customer base was criticized for acting as a nontariff barrier, restricting entry by foreign competition.

These and similar criticisms of the keiretsu assume that its main function is to limit the activities of group firms' competitors. The results of recent studies, however, indicate that Japan's industrial groups provide other important services to their members. Therefore, understanding the characteristics of the keiretsu system has important implications for the competitiveness of American firms.

This study compares Japanese keiretsu and independent firms in terms of their ownership structure, assets, earnings per share, stock returns, dividend payments, and equity-related bond issues. The results point to significant differences between these types of firms. In addition, the study explores the implications of these differences for the U.S.

The six groups and their characteristics

The history of large industrial groups in Japan can be traced as far back as the 17th century. For around 300 years until the end of World War II, the Japanese economy was dominated by ten large industrial groups, called zaibatsu.[1] Companies belonging to these large conglomerates were vertically integrated and owned by families or holding companies. Although members of the zaibatsu spanned a wide range of industries, the most powerful tended to be banks and trading companies, which controlled the financial operations and the distribution of goods in the groups.

After World War II, under the direction of the Allied Occupation Forces, the zaibatsu were dissolved and the equity held by the

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controlling families was distributed to the public. During the restructuring of the Japanese economy in the 1950s and early 1960s, some of the old zaibatsu associations emerged in a new form, called keiretsu, and other new keiretsu were formed.

Today there are six major keiretsu in Japan: Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi. The first three are continuations of the pre-war zaibatsu, while the last three groups were newly formed.[2] The nature of the keiretsu relationships differs somewhat from the relationships among zaibatsu companies. Unlike the zaibatsu companies, keiretsu firms are not owned by one holding company or family. Furthermore, the keiretsu are characterized by significant cross-holdings of equity among members. While zaibatsu companies were vertically integrated, with the holding company or the family standing at the top of the hierarchy, the major keiretsu firms are related through customer/supplier relationships and ownership of each other's equity.

A common feature of the old zaibatsu and the new keiretsu is the central role of financial institutions, city banks in particular.[3] These institutions provide the majority of the group firms' bank loans and also hold significant amounts of equity in the member firms. In addition, the trading companies of the groups continue to play a major role in the distribution of goods and coordination of new ventures in overseas markets.

Similarities between the pre-war zaibatsu and today's keiretsu also exist in their personnel and management ties. Major member firms strengthen their ties with affiliates by exchanging top management and directors. In addition, each group has a Presidential Council that meets every month to exchange information and resolve disputes that may exist among member firms.

One feature that distinguishes keiretsu from industrial groups in many other countries is the scope of their business. Keiretsu firms are not concentrated in one or two industries; instead, in each group, such industries as chemicals, machinery, food, transportation equipment, and communications are well-represented.

Given these general features of keiretsu firms, what are some of the specific characteristics that differentiate them from other companies in Japan? This study examines the financial aspects of a sample of keiretsu and independent firms (see box) to answer this question. The particular questions that are addressed include: How does the structure of equity ownership differ between keiretsu and independent firms? Are there significant differences between these firms in terms of their size, earnings, stock market performance, and the issues of equity-like bonds? Are the characteristic of financial firms, which are subject to a greater degree of regulation and government guidance, different from those of nonfinancial firms? In addition, particular attention is paid to the period from 1986 to 1989 to determine whether the rapid deregulation and internationalization of Japan's financial markets affected keiretsu firms differently from independent firms. In the last section, the implications of the results presented here are discussed in view of the earlier studies on keiretsu companies and their economic role.

Description of sample firms

There are 471 companies in the sample; 361 keiretsu firms and 110 independent firms. Firms belonging to the six keiretsu were identified by the information given in *Industrial Groupings in Japan 1988/1989*, *Japan Company Handbook, Spring 1989*, and Nakatani (1984). The Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi groups have 66, 65, 64, 56, 59, and 51 companies, respectively. The sample of independent firms was obtained from a random sample of all companies listed in the Tokyo Stock Exchange (TSE), First Section in 1989 after firms identified as keiretsu companies were eliminated. The total sample size represents approximately 40 percent of all companies listed in TSE First Section.

The financial characteristics of keiretsu and independent firms

Members of keiretsu have strong financial ties. Table 1 shows the percentage of equity owned by the top ten shareholders of firms in each group in 1989, where shareholders are classified either as members of one of the six keiretsu or as independents. For keiretsu firms, the amount of equity owned by other firms in the same group (for example, percentage of stock of a Mitsui firm owned by other Mitsui firms) ranges from 14.8 percent for the Dai-Ichi group to 26.5 percent for the Sumitomo group. Moreover, this percentage is much greater than that owned by any one group outside each keiretsu. Although the table indicates that the six keiretsu hold equity in one another, there is no evidence to suggest that these cross-holdings play an economic role. For example, while the other five keiretsu own more than 22 percent of a typical Mitsui firm, it is not clear that their role is the same as the one played by the shareholders who are affiliated with the Mitsui group.

Table 1 also shows that the Mitsui, Mitsubishi, and Sumitomo groups, direct descendants of the pre-war zaibatsu, have stronger equity ties than the Fuyo, Sanwa, and Dai-Ichi groups, which were formed after the war. Finally, an analysis of ownership from 1979 to 1989 reveals the same basic pattern as in Table 1.[4]

The central role of financial institutions in keiretsu firms is reflected in their ownership of equity in other member companies. Table 2 presents the percentage of equity owned by each group's shareholders who are also members of the same group and is broken down by financial and nonfinancial firms (for example, financial shareholders of Mitsui company that are also Mitsui group members).

In each group, holdings by financial firms are significantly smaller than holdings by nonfinancial investors; however, financial shareholders are more pervasive than nonfinancial shareholders. The disparity between the amount of shares owned by financial and nonfinancial investors probably results from the fact that the majority of financial investors are banks, which are allowed to hold a maximum of 5 percent of the equity of any one company.[5] As was the case in Table 1, the structure of ownership by financial and nonfinancial investors is very stable over time; the percentages reported in Table 2 are not very different from those in 1979 or 1984.

In addition to being the major shareholders of group firms, affiliated financial institutions also are the single largest source for the group firms' loans. In 1989, keiretsu financial firms made between 19 percent (Dai-Ichi) and 35 percent (Sumitomo) of the loans to their member firms. As before, the three groups that

TABLE 1

Keiretsu's strong equity ties

	Percent of shares owned by top 10 shareholders, 1989					
	Mitsui	Mitsubishi	Sumitomo	Fuyo	Sanwa	Dai-Ichi
Shareholder						
Mitsui	**25.50**	3.61	3.45	4.31	3.21	4.31
Mitsubishi	4.02	**24.60**	3.38	4.63	4.07	4.48
Sumitomo	3.53	3.53	**26.51**	4.04	3.47	4.03
Fuyo	5.47	3.72	3.84	**17.24**	3.22	4.28
Sanwa	5.15	4.89	5.02	4.59	**18.61**	5.02
Dai-Ichi	4.16	4.37	5.48	4.90	8.51	**14.84**
Independent[a]	9.17	8.74	8.55	12.66	12.18	15.43
Same Group[b] / Independent	0.81	0.85	0.89	0.49	0.54	0.40

SOURCE: *The Japan Company Handbook* (1979-1990).
[a]Investors that do not belong to any of the six keiretsu groups.
[b]The ratio of the amount of shares owned by firms in each group to the amount of shares owned by independent firms.

TABLE 2

Within-group ownership of equity and debt

	Equity: Nonfinancial firms' ownership of other firms in the same group		Equity: Financial firms' ownership of other firms in the same group		Debt: Loans to other firms in the same group
	(% of total shares)	*(number of companies owned)*	*(% of total shares)*	*(number of companies owned)*	*(% of total loans)*
Keiretsu					
Mitsui	22	69	11*	170	29
Mitsubishi	15	68	15	212	33
Sumitomo	22	72	12*	182	25
Fuyo	15	32	12	155	28
Sanwa	17	35	10*	142	23
Dai-Ichi	15	42	7*	86	19

SOURCE: *The Japan Company Handbook* (1979-1990).

NOTE: *Indicates cases where the percentage of equity owned by financial shareholders is different from that owned by nonfinancial shareholders at the 5 percent significance level.

are the historical extensions of the former zaibatsu, Mitsui, Mitsubishi, and Sumitomo, on average have stronger debt ties than the newer groups.

Comparison of the performance of keiretsu and independent firms

Are the differences in the ownership structures of keiretsu and independent firms reflected in their performance? In particular, are these firms significantly different from each other in terms of their size, earnings, dividends paid, and stock market performance? Table 3 provides data on these variables and their statistical significance for the sample of keiretsu and independent firms. Financial and nonfinancial firms are examined separately because financial firms operate under stricter regulation and government guidance.

As the table indicates, nonfinancial keiretsu firms are larger than nonfinancial independent firms, as measured by their total assets. Although the asset growth rates among nonfinancial keiretsu and independent firms did not differ significantly in any one subperiod, during the overall period from 1977 to 1989, nonfinancial keiretsu firms grew at a slower rate than nonfinancial independent firms.

In contrast, total assets of financial keiretsu and independent firms are not significantly different, yet the growth rates do differ. Except for the period from 1986 to 1989, the assets of keiretsu firms increased at a greater rate. Furthermore, for both keiretsu and independent firms, nonfinancial firms had significantly lower growth rates, as well as lower levels of assets, than financial firms.

The differences between financial and nonfinancial firms can be attributed to the scope of businesses in each type of firm and the central role of financial institutions in the keiretsu. First, nonfinancial firms cover a wider range of businesses than financial firms so that the shocks they are subjected to are more varied. On the other hand, financial companies are subject to the same types of shocks, which tends to make them more uniform than nonfinancial firms. Second, the close, long-term ties between keiretsu financial institutions and other members of the group may play a role in their asset expansion. As the nonfinancial companies of the group grow, the demand for funds by these companies may result in asset growth for the financial firms. The results of a study by Dohner, Lowrey, and Terrell (1990) support this hypothesis. They compare the activities of keiretsu and inde-

TABLE 3

Financial performance

	Nonfinancial		Financial	
	Keiretsu	Independent	Keiretsu	Independent
Average total assets *(in billions of yen)*				
1977-1989	319.3*	109.5	9,458.7	6,085.6
1977-1981	254.5*	85.7	5,003.0	3,758.6
1982-1985	332.5*	117.1	9,592.3	6,328.9
1986-1989	407.8*	183.3	16,292.3	9,581.5
Average annual change in total assets *(percent)*				
1977-1989	7.22*	8.72	16.35*	12.39
1977-1981	6.80	7.86	14.69**	10.83
1982-1985	5.40	5.92	18.43*	11.81
1986-1989	8.87	9.92	16.34	14.95
Average level of earnings per share *(in yen)*				
1976-1989	16.69*	24.29	28.63	37.73
1976-1980	14.67*	23.61	21.77	30.14
1981-1985	17.21*	26.01	25.01	32.16
1986-1989	18.72	23.57	41.73	55.02
Average annual stock returns *(percent)*				
1977-1989	22.72	23.00	22.92	21.06
1977-1980	17.67*	10.02	4.91	2.10
1981-1985	14.87	14.60	31.07	25.27
1986-1989	37.22*	44.91	31.13	34.59
Payout ratios[a] *(percent)*				
1980-1989	47.77	39.99	34.47	34.22
1980-1984	46.04	42.51	40.84	37.13
1985-1989	49.48	37.46	28.11	31.21
Price-earnings ratios[a] *(in yen)*				
1980-1989	58.88	58.34	56.17*	41.97
1980-1984	28.75	27.41	34.88*	23.06
1985-1989	89.90	89.33	77.45**	61.31

SOURCE: *The Japan Company Handbook* (1976-1990); *Handbook on Stock Prices* (1976-1990).

[a]The denominator of these ratios is the five-year moving average of earnings per share.

*Denotes cases where keiretsu firms are different from independent firms at the 5% significance level.

**Denotes cases where keiretsu firms are different from independent firms at the 10% significance level.

pendent banks that operate in the U.S. They find that lending in the U.S. by keiretsu banks is sensitive to Japan's GNP, while it is not for independent banks. It is likely that keiretsu banks are sensitive to Japan's GNP because of the demand for loans by their "captive" clientele, the other keiretsu firms.

Table 3 also shows that while earnings of nonfinancial keiretsu companies in general are significantly lower than earnings of nonfinancial independent firms, there are no significant differences in earnings between financial keiretsu and independent firms.

Comparing financial and nonfinancial firms within keiretsu and independent groupings does reveal significant differences. Within keiretsu, the earnings of financial firms were significantly higher than the earnings of nonfinancial keiretsu firms during the overall period, as well as the 1986-1989 subperiod. For independent companies, the earnings of financial firms were significantly higher than those of nonfinancial firms only during the 1986-1989 period. These results suggest that financial firms benefited more from the deregulations that took place in the late 1980s than nonfinancial firms. Given that most of the liberalization occurred in the financial markets, it is not surprising that earnings of financial firms experienced greater growth than those of nonfinancial firms.

In addition, the data presented in Table 3 show that during the whole period from 1977 to 1989, there are no significant differences in the stock returns of keiretsu and independent firms—financial or nonfinancial. But an interesting pattern emerges in the subperiod comparison. From 1977 to 1980, keiretsu nonfinancial firms had significantly higher returns than independent firms. These differences disappeared in the period from 1981 to 1985 and reversed their pattern in the 1986-1989 period. During the bull market of 1986-1989, when the Nikkei 225 index rose from 13,113 to 38,916, nonfinancial keiretsu firms had significantly lower returns than independent firms. In effect, since 1981 the stock prices of independent nonfinancial firms appreciated more than the stock prices of keiretsu firms.

Table 3 also shows that the price-earnings (p-e) ratios of keiretsu financial firms are significantly higher than those of independent financial firms. There are two possible reasons for higher price-earnings ratios of keiretsu firms. First, if keiretsu financial firms have more extensive shareholdings than independent firms, then their stock prices would reflect not only the value of the firms' ongoing operations but also the value of any equity they hold. The stock prices of firms with more extensive equity holdings would capitalize the earnings of companies that they own stock in, resulting in higher p-e ratios. Second, the earnings of keiretsu financial firms may be expected to grow faster. In that case, the stock prices and the p-e ratios would reflect the higher growth potential of these firms.

To sum up, nonfinancial keiretsu firms are larger companies that have slower rates of growth and lower earnings than nonfinancial independent firms. On the other hand, financial keiretsu firms are comparable in size to financial independent firms, but have higher asset growth rates. Moreover, financial keiretsu firms have higher price-earnings ratios then independent financial firms. There are also significant differences among financial and nonfinancial firms within the keiretsu and independent groups. In general, financial firms are larger, faster growing companies with higher earnings than nonfinancial firms.

The corporate bond market

During the 1980s there have been several developments in the Japanese bond markets that have the potential to weaken keiretsu ties. Until the late 1970s, regulations severely restricted the size of the corporate bond markets in Japan. Consequently, banks were the major source of external funds for corporations. The pattern of financing, however, has changed in the 1980s.

Beginning with the relaxation of interest rate ceilings on corporate bonds in 1978, the government has steadily loosened many of the restrictions that made it difficult to raise capital in the bond markets. Probably the most important deregulatory move was in 1983 when firms were allowed to issue unsecured bonds.[6] Since 1981 Japanese firms also have been permitted to issue warrant bonds that give the investor the option to buy the company's stock at the "exercise price" during a specified period of time.[7]

During the 1980s Japanese firms also gained greater access to the offshore debt markets. Regulations requiring government permission before issuing foreign bonds were removed. Consequently, funds raised overseas as a proportion of total funds raised in the capital markets increased from approximately 26 percent in 1980 to 55 percent in 1986. As Japanese firms started to issue bonds in the overseas markets in increasing numbers, the government relaxed the restrictions on the issuance of domestic bonds to attract some of the issues back to Japan.[8]

As a result, the percentage of funds raised in the bond markets, both domestically and overseas, increased from 58 percent of all funds raised in the capital markets in 1980 to 84 percent in 1987. The largest increases were in the issues of convertible and warrant bonds; the share of these equity-related bonds in all bond issues increased from 34.4 percent in 1980 to 84.6 percent in 1987.

At the same time, corporations reduced their bank borrowings. Hoshi, Kashyap, and Scharfstein (1989) report that total bank borrowing by keiretsu firms as a proportion of total debt decreased from 93 percent in 1977 to 88 percent in 1986. During the same period, the proportion of borrowing from group firms decreased from 31 percent to 29 percent of total bank borrowing.

The liberalization of financial markets in Japan during the 1980s and the resulting changes in corporate behavior might have direct implications for the keiretsu system. The decline in the importance of bank loans, coupled with the increase in the convertible and warrant bond issues, has the potential to weaken the strong keiretsu ties. First, the reduction in bank loans from group banks means that one of the most distinctive features of the keiretsu ties is loosened. Second, if convertible and warrant bonds issued by the keiretsu firms are purchased by investors outside the keiretsu system, then as the warrants are exercised, the cross-holdings of shares among keiretsu firms are diluted. If, on the other hand, these bonds are purchased by the members of the keiretsu, then the equity ties among keiretsu firms would not be altered. In that case, keiretsu firms would be changing the composition of their debt portfolio without weakening their group ties. The equity holdings of keiretsu firms over the past five years indicate that there has not been a significant decline in their equity ties.

Another interesting question is: Who benefited the most from the deregulations that took place in the bond markets? Table 4 indicates nonfinancial independent firms issued more bonds, as a percentage of assets, than nonfinancial keiretsu firms. For convertible

TABLE 4

Convertible and warrant bond issues
(Percent of assets)

	Nonfinancial		Financial	
	Keiretsu	Independent	Keiretsu	Independent
Average issues				
Convertible bonds				
1976-1989	19.20	20.27	1.85	2.05
1976-1979	6.78	7.75	0.00	0.00
1980-1984	4.24*	6.39	1.55	0.00
1985-1989	8.25*	11.23	0.32	0.47
Warrant bonds				
1980-1989	13.70*	20.69	2.55	1.69
1980-1984	2.92	2.66	1.63	1.62
1985-1989	7.37*	10.98	1.36	.98

SOURCE: *The Japan Company Handbook* (1976-1989), and *The 1989 Handbook on Bonds and Debentures* (1989).
NOTE: These figures are normalized by total assets of the firm.
*Denotes cases where keiretsu firms are different from independent firms at the 5% significance level.

bond issues, the differences were significant in all periods; for warrant bond issues, the differences were significant in all periods except for the 1980-1984 period. In contrast, there are no significant differences among financial keiretsu firms and financial independent firms with respect to their average issues of convertible and warrant bonds.

The economic role of keiretsu

Industrial groups played an important role in the rebuilding of the Japanese economy after WW II. Group banks were the major source of funds for member firms when capital was in short supply. Trading companies were instrumental in the overseas expansion of group firms by obtaining imported raw materials and developing overseas markets for group firms. In other words, the industrial groups were important in developing Japan's infant industries during a period when the Japanese economy was highly regulated and was isolated from the international markets. Today, Japan is one of world's strongest economies and Japanese companies are some of the most competitive in their field. Therefore, it is unlikely that the current economic role of keiretsu is the same as it was during the high growth period.

The keiretsu system can play three possible roles. First, the keiretsu system may be a cartel-like organization that limits competition. Group firms may act in concert to maximize joint profits and earn monopoly rents. For example, they may organize a network of buyer-supplier relationships and differentiate between group firms and outsiders in their business deals. Such a cartel-like organization requires a high degree of coordination and enforcement, since some of the firms would be hurt by the arrangement, at least some of the time.

The keiretsu system may also serve to diversify industry-specific shocks. In a group where members are from a wide range of industries and hold each other's equity, the costs of a negative industry-specific shock would be shared by all firms in the group, minimizing the cost to any one company. If keiretsu firms minimize the costs of such industry-specific shocks, then their earnings will be more stable. Managers of firms may prefer more stable earnings if their performance is judged not only on the level of earnings but on their variance also. Furthermore, volatile earnings, through the uncertainty they create, may lead to higher transaction costs for the firm.

Finally, the results of recent studies indicate that the keiretsu system may play an important role in reducing costs associated with capital market imperfections. In perfect capital markets, all agents would have the same information so that they can write enforceable contracts that are contingent on all possible actions of the agents. In reality, however, some agents are better informed than others which increases the cost of transactions. The agency theory of firms, for example, predicts that shareholders of a leveraged firm have incentives to transfer wealth from debt-holders to themselves by taking on excessively risky projects.[9] Recognizing the potential for transfer of wealth, debtholders would require a higher return on their investment; that is, they would raise the cost of capital to borrowers.

Kim (1990) shows that in a financial system where debtholders can also hold equity, the optimal contract between a firm and its creditors is one that comprises both debt and equity holdings. With the optimal contract, creditors can monitor the activities of the firm more effectively. Through their role as shareholders, creditors can be better informed about the decisions of the management. In addition, if lenders hold equity, then the incentives for wealth transfers by other shareholders are reduced, since the lender would share the benefits of any such transfer.

Prowse (1990) presents evidence on the effectiveness of the keiretsu system in reducing agency costs. He argues that the financial organizations in keiretsu avoid agency costs by taking both equity and debt positions in group firms. Prowse finds a strong correlation between variables that proxy for measures of agency costs (such as R&D expenditures and amount of assets that are not tied up in fixed plant and equipment) and the amount of wealth invested in group firms in the form of equity and debt. Prowse's results also indicate that agency costs are reduced to a greater extent in Japan than in the U.S.

In addition to the incentive problems emphasized by the agency theory, there are information asymmetries between managers of a firm and investors in the market, a capital market imperfection first emphasized in Myers and Majluf (1984). Sometimes, the managers, who are better informed about the prospects of the firm, may feel that the equity of the firm is underpriced. Such information asymmetries, along with potential conflicts of interest between debtholders and shareholders, would raise the cost of external finance relative to internal sources of funds. In such instances, a firm's investment would be highly sensitive to its cash flow.

The results of two recent studies show that the keiretsu system may be effective in circumventing such problems associated with information asymmetries. Hoshi, Kashyap, and Scharfstein (1990a) examine the investment behavior of keiretsu firms and independent firms. The authors find that investment by independent firms is more sensitive to liquidity than investment by keiretsu firms, suggesting that information asymmetries are important and that industrial groups are effective in avoiding problems associated with such capital market imperfections.

In a second study, Hoshi, Kashyap, and Scharfstein (1990b) analyze the investment behavior of keiretsu firms that recently loosened their ties with the group's main bank. They find that investment by these firms has become more sensitive to cash flow since they left the group. This result supports the authors' earlier conclusion that a keiretsu firm's ties with its ''main bank'' may mitigate information problems.

Furthermore, the data on bonds in Table 4 offer additional support. If independent firms are more cash constrained than keiretsu firms because they lack the close ties to the group banks, then it is not surprising that independent firms issue more bonds. It is likely that before the deregulation of the bond markets, the cost of funds for independent firms was higher. So they had more to gain from deregulation and took better advantage of it.

Hoshi, Kashyap, and Scharfstein (1990c) also examine the role of the keiretsu system in ameliorating the problems of member firms that are in financial distress. They argue that transaction costs in renegotiating the terms of financial instruments, information asymmetries, and free-rider problems among the different claimholders (suppliers, customers, and so forth) all work to exacerbate the cost of financial distress. The authors point out that the ties among keiretsu firms may help reduce the costs of distress. Since group banks hold both equity and debt in affiliated firms, they may not have the same information problems as the debtholders of unaffiliated firms. In addition, the financial institutions of keiretsu hold the majority of the group's debt. The concentration of debt among a small number of investors reduces the transaction costs of renegotiating. Furthermore, cross–holdings of equity among member firms that also have product market ties may reduce free-rider problems. Hoshi, et al. (1990c), analyze investment and sales in financially distressed keiretsu and independent firms to determine the costs of financial distress. They find that investment and sales of keiretsu firms are higher than those of firms that have dispersed claimholders. This result also holds true for independent firms that have small numbers of debtholders.

Given that Japan's ''main bank'' system provides important services to its members, what are the implications for the U.S.?

There are explicit and implicit restrictions on the ability of American firms to form groups like keiretsu. The most explicit restriction is the Glass-Steagall Act, which separates commercial and investment banking. The Act prohibits American banks from owning equity for their own accounts. (Although Article 65 of Japan was explicitly patterned after the Glass-Steagall Act, it allows a Japanese commercial bank to own up to 5 percent of any one company's equity.) Likewise, regulations limit the types of stock the large institutional investors, such as insurance companies and pension funds, can own.

Furthermore, there are implicit costs if debtholders of U.S. firms actively participate in the management of a company. For example, under U.S. law, creditors that participate in the management of a company lose their priority in the bankruptcy proceedings.[10] Similarly, creditors that are involved in the management of a company may be held liable for the actions of the management. These implicit costs may limit the ability of American banks to monitor the activities of the management.

Because of U.S. laws that impose explicit and implicit costs for holding both debt and equity in a firm, U.S. firms tend to face higher costs of debt and are likely, therefore, to have lower debt-equity ratios than Japanese firms in general, and keiretsu firms in particular. During the 1980s, however, the patterns of financing have been changing for both countries.

Increasingly, firms in the U.S. rely on private capital markets, where the ownership of equity is concentrated in a few institutions or manager/owner/creditors of leveraged buy-outs. In addition, American firms increasingly prefer private placement of their debt, as opposed to going directly to capital markets, which concentrates the debt of these firms in the hands of a few bondholders.

Japanese firms, by contrast, have been moving away from concentrated bank loans toward diffuse bond financing. However, it is not clear that the trend toward increased bond financing during the 1980s has led to the weakening of keiretsu ties. Furthermore, the form of financing is still changing in both countries. During the first ten months of 1990, the stock prices in Tokyo (as measured by the Nikkei 225 index) have declined by approximately 36 percent. At the same time, Japanese issues of equity–related bonds have declined significantly and, for the first time since 1986, the level of bank loans have increased.

Conclusions

This study examined the differences between Japanese firms that are affiliated with the six major industrial groups called keiretsu and those that have no group affiliations. The results showed that keiretsu firms own a significantly higher percentage of group shares than independent firms. The financial institutions of the groups, which in 1989 supplied 28 percent of the total bank loans to group firms, were major shareholders in the other group firms, typically holding 21 percent of equity.

The study also found significant differences between nonfinancial keiretsu and independent firms with respect to their size (keiretsu firms are larger than independent firms), earnings (nonfinancial independent firms had significantly higher earnings per share), and stock returns. In effect, during the 1980s, the role of the independent firms in the Japanese economy has been increasing.

Moreover, the financial firms in each group display characteristics different from those of nonfinancial companies. Although asset size was similar between keiretsu and independent financial firms, keiretsu firms had significantly higher asset growth rates. In addition, financial keiretsu firms had significantly higher price-earnings ratios than financial independent firms.

The data also showed that within each group there are significant differences between financial and nonfinancial keiretsu firms. In general, financial firms are larger, faster growing companies with higher earnings.

The data on the convertible and warrant bond issues of these firms showed that keiretsu firms have been less quick to take advantage of the deregulation in these markets than independent firms.

In contrast to the popular belief that the only role of the keiretsu system is to restrict competition, the results of other studies reviewed here indicate that the keiretsu system, with its close financial ties among members, is effective in mitigating the agency costs and problems associated with asymmetric information. It is likely that the keiretsu system plays an important role in explaining the differences in the financial and investment behavior of Japanese and American firms.

FOOTNOTES

[1] The ten groups are Mitsui, Mitsubishi, Sumitomo, Yasuda, Nissan, Asano, Furukawa, Okura, Nakajima, and Nomura.

[2] The newer groups, however, include some of the companies from the former zaibatsu. For example, some of the Yasuda zaibatsu companies belong to the Fuyo group and Furukawa group companies are associated with the Dai-Ichi group.

[3] The Japanese financial system is highly compartmentalized into groups that traditionally have segmented business activities. There are four types of banks: city banks, long-term credit banks, trust banks, and regional banks. City banks supply short-term capital to large companies and have limited deposit activity. Long-term credit banks, on the other hand, provide long-term loans to business and raise funds through debentures. Regional banks provide funds to small to medium-size enterprises and have the most extensive retail deposit network. Trust activities are provided by the trust banks that also provide long-term credit to companies. For a detailed description of the Japanese banking system, see Federation of Bankers Associations of Japan (1989).

[4] See Genay (1990), where all the analyses here were also carried out for the years 1979 and 1984.

[5] For each group, the number of top ten shareholders that are banks is 104, 118, 110, 98, 91, 50, and 161 for the Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, Dai-Ichi, and Independent groups, respectively.

[6] Prior to 1983, all bond issues had to be collateralized by the assets of the issuing firm. Furthermore, the banks guaranteed all of the issues and were forced to buy all outstanding bonds at par in cases of reorganization.

[7] The warrants on these bonds have been detachable since 1985, although the secondary market for them is small and illiquid.

[8] For a concise description of the issue requirements, see Karp and Koike (1990) and Kaneko and Battaglini (1990).

[9] See Myers (1977) and Jensen and Meckling (1976).

[10] See, for example, Prowse (1990) p. 10.

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