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Japanese Corporate Groups and Imports*

by

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Abstract

This paper reviews the main features of Japanese corporate groups, or keiretsu, and examines the impact of these groups on Japanese imports. It finds that notwithstanding the existence of extensive ties among keiretsu firms, available data do not show a clear intragroup bias in the behavior of keiretsu firms. The paper also reviews a recent empirical study that provides support for the view that keiretsu relationships impede Japanese imports. It argues that there are considerable questions regarding that study, and that it is premature to conclude that keiretsu relationships have trade-distorting effects.

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I. Introduction

The degree of "openness" of the Japanese market has been a long-standing issue that has received increased attention during the 1980s with the emergence of Japan's large trade surplus. With the successive reduction of tariffs and the liberalization of quantitative controls during the 1960s and 1970s, most formal barriers to trade were eliminated, and Japan became one of the most open trading nations in the world, except for agricultural products. Concern thus shifted to informal barriers--including government procurement practices, regulations such as standards and testing requirements, customs procedures, the distribution system, and traditional business practices--and especially since the mid-1980s, the Japanese Government has taken numerous steps to liberalize domestic procedures and regulations affecting imports.

Nevertheless, and despite a marked increase in imports during the latter half of the 1980s, the level of Japan's imports in relation to GNP has remained low in comparison with other industrial countries, particularly for manufactured goods (Table 1). The issue of Japan's low level of imports has been the subject of extensive empirical research during the past decade. This work tested for the existence of barriers to imports by estimating the extent to which Japan's low imports could be explained on the basis of factor endowments and other fundamental determinants. 1/ Using a variety of techniques, some researchers concluded that Japan's imports were unduly

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1/ Surveys of this literature are Srinivasan and Hamada (1990), Takeuchi (1989), and Lincoln (1990).

Table 1. Imports to GDP Ratios of Major Industrial Countries, 1965-90

(In percent of GDP)

	1965	1970	1980	1985	1990
Total Imports					
United States	3.1	3.9	9.2	8.4	9.0
Japan	9.0	9.3	13.3	9.6	8.0
United Kingdom	14.4	15.8	19.8	22.8	21.9
Canada	15.0	15.6	21.9	21.5	20.2
France	9.6	12.6	19.6	19.8	18.9
Germany	15.4	16.2	23.1	25.3	21.0
Italy	11.0	13.9	22.2	21.3	16.6
Total Manufactured Imports					
United States	...	2.5	4.8	6.5	...
Japan	2.0	2.8	3.0	3.0	4.0
United Kingdom	...	7.9	13.6	16.4	...
Canada	...	13.4	17.4	19.2	...
France	...	7.7	11.0	12.3	...
Germany	...	8.9	12.6	15.0	...
Italy	...	6.0	10.1	10.0	...

Sources: IMF, World Economic Outlook and Lincoln (1990).

low, while others concluded that the level of Japanese imports was not unusually low given the underlying determinants.

With the academic debate not arriving at a definitive conclusion and the level of imports still comparatively low, the impression that significant obstacles to imports persist remains strong. The impact of Japanese corporate groupings, or keiretsu, on market access has been a particular focus of recent attention, and has been a major topic of discussion in the Structural Impediments Initiative (SII) talks between Japan and the United States. It has been argued that keiretsu engage in exclusionary business practices that impede entry by new firms and significantly reduce the share of imports in domestic consumption in Japan. This paper first reviews the evolution of corporate groups in postwar Japan and the main features of these groups, including possible efficiency gains usually associated with particular aspects of keiretsu relationships and summary indicators of the magnitude of intra-group business relationships. It then reviews recent work examining the impact of keiretsu relationships on Japanese imports.

II. Evolution and Characteristics of Japanese Corporate Groups

Interfirm relationships have given rise to two broad types of corporate groupings in Japan. The first are horizontal keiretsu, which comprise firms across industries grouped together through mutual shareholdings, either along the lines of prewar zaibatsu groups, or with major banks at their center. The second are vertical keiretsu, under which a number of subsidiaries and affiliated firms are tied to a central firm, number of subsidiaries and affiliated firms are tied to a central firm, usually a major manufacturer, through share holdings and long-term business relationships.

1. Horizontal keiretsu

The horizontal keiretsu are represented by six leading corporate groups--Mitsui, Mitsubishi, Sumitomo, Fuyo, Daiichi-Kangyo, and Sanwa--that each include financial institutions, manufacturers across a spectrum of industries, and a large trading company. The combined share of firms belonging to the horizontal keiretsu in the Japanese economy is large: over the 1980s, the firms in these six groups and their majority-owned subsidiaries accounted for 17 percent of total assets and 19 percent of total sales of Japan's nonfinancial corporate sector. 1/

Several of these groups have their origins in the oligopolistic zaibatsu organizations that dominated Japan's economy prior to World War II. 2/ While the zaibatsu were formally dissolved as part of the postwar economic reforms, firms in three of the leading prewar zaibatsu--Mitsui, Mitsubishi, and Sumitomo--began to reassemble themselves after the occupation ended in 1952. In addition, three major groups emerged centered around the Fuji Bank

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1/ Japan Fair Trade Commission (JFTC), 1992.

2/ The zaibatsu were a key target of the economic reforms implemented during the postwar occupation of Japan. These organizations were controlled by wealthy families through holding companies, which in turn directed a set of subsidiaries in the financial, manufacturing, and distributive sectors. In order to reduce concentration and increase the competitiveness of Japan's economic structure, the occupation authorities sought to eliminate the zaibatsu organizations by dissolving the zaibatsu holding companies, confiscating and dispersing the shares of the owner families in the holding companies and operating firms, purging top executives, and prohibiting the use of zaibatsu trademarks.

(the Fuyo group, which included the firms in the former Yasuda zaibatsu), the Daiichi-Kangyo Bank, and the Sanwa Bank.

An important factor contributing to the establishment of the horizontal keiretsu was the capital shortage faced by Japanese firms and their heavy reliance on bank loans. During the so-called Dodge stabilization in 1949-50, banks were called upon to support specific businesses, with the result that the banks themselves became dependent on the financial well-being of their heavily indebted clients. 1/ Such "main bank" relationships intensified during the 1950s as firms relied primarily on bank credit to finance substantial expansion and upgrading of capacity.

The development of horizontal keiretsu was also prompted by the desire on the part of firms to protect themselves from takeovers through cross-holdings. At the end of 1949, following the disposal of the shares formerly held by zaibatsu holding companies, individual holdings amounted to nearly 70 percent of the total outstanding stock of equities of listed companies. 2/ With the onset of a new era of individual stockownership, firms sought stable shareholders among trusted companies, to protect themselves from users of greenmail tactics, as well as from legitimate takeover efforts. 3/ Thus, a substantial portion of ex-zaibatsu shares, as well as new stock issues of major firms, was subscribed mutually on the

1/ See Nakamura (1981) and Johnson (1982).

2/ Aoki (1988), page 125. Most of the confiscated zaibatsu shares, which amounted to about two fifths of the total value of outstanding stocks, were publicly sold at set prices with priority given to purchases by employees of the respective companies or residents of the areas where the firms were located. No individual was allowed to acquire more than 1 percent of any company.

3/ Imai (1990).

basis of ex-zaibatsu connections or with the main banks as intermediaries. 1/

The practice of mutual shareholdings accelerated following the Japanese stock market crash of 1964-65. In order to support prices, two public corporations were created to buy and hold shares, with the shares to be resold once the stock market had stabilized. At the same time, however, international capital flows were beginning to be liberalized following Japan's acceptance of the obligations of Article VIII of the Fund's Articles of Agreement and admission into the Organization for Economic Cooperation and Development (OECD). Major Japanese firms became concerned about the possibility of foreign takeovers, and increased the use of mutual shareholding to thwart such threats. Accordingly, mutual shareholdings rose substantially from the mid-1960s to a peak of one fourth of outstanding shares of horizontal keiretsu firms in 1981 (Table 2). During the 1980s, however, cross-shareholding declined in importance, as firms issued substantial new equities that were mainly acquired by nongroup firms and individual investors. Furthermore, it should be recognized that while cross-shareholdings are extensive within horizontal keiretsu, cross-shareholding patterns are not the only determinant of group membership.

1/ Existing stockholders did not have the pre-emptive right to subscribe to new stock issues. These shareholding arrangements were possible because banks were not a major target of anti-zaibatsu policies and remained able to own stocks of nonfinancial corporations: under the Anti-Monopoly Law of 1947, city banks could hold up to 5 percent of an individual company's outstanding shares, and this ceiling was raised to 10 percent in 1953. Further, the 1947 Law's prohibition of corporate shareholding by nonfinancial corporations was repealed in 1949. Such shareholding was subsequently allowed so long as it did not restrain competition.

Table 2. Intra-group Shareholdings of the Horizontal _Keiretsu_, 1965-89

(_In percent_)

	1965	1970	1981	1989
Average of 6 groups	...	21.7	25.5	21.6
Average excluding Sanwa Bank group	19.9	23.5	26.6	22.7

Source: Japan Fair Trade Commission, _The Actual Conditions of the Six Major Corporate Groups_, February 1992.

Group firms also hold significant shares of firms in other groups, as well as those of independent firms, and vice versa. 1/

Notwithstanding the substantial cross-shareholdings within horizontal _keiretsu_ groups, there is no evidence that the firms in such groups collude to maximize joint profits. Such a profit-maximizing arrangement would require effective and centralized decision making to administer internal and external pricing. In contrast to the prewar _zaibatsu_, the postwar _keiretsu_ do not appear to have operated as coordinated groups. In fact, empirical work by Caves and Uekusa (1976) and Nakatani (1984) suggest that profit rates have tended to be lower for firms affiliated with the horizontal _keiretsu_, compared with independent Japanese companies.

The studies analyzing the benefits of horizontal _keiretsu_ stress the insurance function of these groups. 2/ It is argued that, in the presence

1/ See Haley (1990) for an example of a pattern of cross-shareholding among major firms in different horizontal _keiretsu_.
2/ Aoki (1988) and Nakatani (1984).

of uncertainty regarding cyclical and longer-term demand conditions, reciprocal trading and intragroup financing of both existing and prospective new ventures leads to a reduction in collective risk. This function may also be applied to the relationship between group banks and nonfinancial borrowers, with banks granting financial and other forms of assistance in periods of business adversity in exchange for firms maintaining loan levels in excess of actual requirements in more favorable times.

The desire to reduce risk may be especially strong in Japan because of the prevalence of employment practices that link the permanent wealth of employees to the performance of the firms over the longer term. Under the lifetime employment system, junior employees bear part of the cost of the firm's investment in human capital in exchange for a subsequent wage premium for seniority. Furthermore, a significant component of lifetime earnings is accounted for by a separation payment that is made at the time of retirement. 1/ Unlike employer contributions to pension funds that may be invested in a diverse financial portfolio, this separation payment is subject to firm-specific risk.

Additional benefits of horizontal keiretsu are associated with the "main bank" system, whereby each group has a major city bank that serves as the primary lender to firms within the group. Given the cost of collecting necessary information on borrowers, as well as the risk of dealing with new

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1/ The separation payment is a function of years of service, salary at retirement, and whether or not retirement was voluntary. According to a 1982 study, this separation payment was, on average, equivalent to about 70 percent of all retirement benefits provided by firms (see Aoki 1988, page 146).

customers, it is advantageous for the banks to establish long-term relationships with their borrowers. Imai (1990) argues, furthermore, that the accumulation of detailed information regarding borrowers under the main bank system has contributed significantly to innovation by enhancing the willingness of financial institutions to support activities and investments related to new technologies.

Finally, it is commonly argued that the cross-shareholdings of horizontal keiretsu allows managers to pay less attention to satisfying external stockholders, thereby enabling them to pursue longer-term strategies with less emphasis on showing short-term profits. 1/ As evidence for this, the low rate of dividend payments for group firms is cited. 2/ The practice of cross-shareholding does appear to have reduced takeovers and, thus, made management of group firms relatively independent. However, this tendency does not necessarily imply that the concerns of external shareholders are disregarded. First, as Aoki (1988) argues, the close monitoring of firms by banks may be viewed as an optimal delegation of surveillance rights by external stockholders who recognize the information advantages available to banks. Second, it can be argued that the persistence of low dividends is consistent with the desire of shareholders to maximize the long-term value of the firm through the reinvestment of earnings or, in other words, to substitute capital gains for dividends.

1/ See, for example, Yamamura (1990).

2/ Nakatani's (1984) results suggest that member firms of the horizontal keiretsu have lower dividend payout rates.

2. Vertical keiretsu

The vertical keiretsu consists of a dominant parent manufacturer connected to a large number of affiliates that may include subcontractors of parts production, suppliers of raw materials, subsidiaries created (or acquired) to spin off specific activities, and firms to market the output of the parent corporation. 1/ The use of subcontractors and spin-off firms has been considerable, and thus these corporate groupings are extensive. There are 17 such readily identifiable vertical groups; 2/ they include such well-known firms as Hitachi, Matsushita, Nippon Steel, Nissan, and Toyota. 3/ In the late 1970s, firms associated with the ten largest vertical keiretsu are estimated to have accounted for 6 percent of both the total assets and total sales of the Japanese nonfinancial corporate sector. 4/

As firms in vertical keiretsu are also tied through mutual shareholdings, the earlier discussions regarding the protective and insulating properties of such shareholding arrangements would apply to these groups as well. In addition, it is argued that membership in vertical keiretsu allows smaller and less-diversified subcontractors to pass on risk to larger parent firms in exchange for which they would offer lower prices and accept lower profits. 5/

1/ Franchise and distribution networks linking wholesalers and retailers to manufacturers have also been referred to separately as distribution keiretsu.
2/ Yamamura (1990).
3/ A 1982 study identified the number of member firms in those five corporate groups as 151, 64, 231, 190, and 611, respectively. See Aoki (1984).
4/ Estimated on the basis of Aoki (1984) and Fung (1991).
5/ Aoki (1988).

The most important advantage attributed to vertical <u>keiretsu</u>, however, appears to be that it allows for an appropriate mix of integration and autonomy in its network of relationships between the large manufacturing firms and their subcontractors. In his extensive study of subcontracting groups, 1/ Aoki argues that, compared with higher forms of integration, quasi-independent subcontracting groups enhance quality control and also reduce overall administrative costs. Also, this looser form of vertical integration may increase flexibility by facilitating the provision of corporate goods and services to outside (nongroup) firms, for example in a situation of weak internal demand. In addition, Imai (1990) emphasizes the key role of long-term relationships between producers and suppliers in promoting innovation and technological change. He points to continuous innovation as the essential feature of developments in Japanese industry during the 1970s and 1980s, and argues that interaction between users and producers in the areas of research and development, manufacturing, and marketing have been indispensable to that process.

3. <u>Importance of intragroup business relationships</u>

A recent study by the Japan Fair Trade Commission (JFTC) presents extensive information on the business transactions and financial structure of the six leading horizontal <u>keiretsu</u>. 2/ Looking first at new investments, the study indicates that horizontal <u>keiretsu</u> firms undertake a majority of such investments with outside firms. Of the new joint-venture companies established by horizontal <u>keiretsu</u> firms during April 1988-

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1/ Ibid., Chapter 6.
2/ JFTC (1992).

December 1990, 77 percent were created with outsiders, 16 1/2 percent were formed with both outsiders and other group firms, and only 6 1/2 percent were established solely with other group firms.

With regard to financial relations, the JFTC data show that financial relationships also are not exclusive: borrowing by group firms from financial institutions within the group accounted for about 17 percent of total borrowing during the 1980s. It may be noted here that there also has been significant fluidity in main bank relationships for some time: 32 percent of sample firms changed main banks during the 1962-72 period, and 26 percent did so during 1973-83. 1/

Regarding trading transactions, the JFTC study indicates that, in FY 1989, 2/ intragroup transactions amounted to only 7 1/4 percent of total sales of nonfinancial corporations in the six horizontal _keiretsu_; with regard to total purchases, intragroup transactions amounted to 8 percent (Table 3). Moreover, most of these transactions represent transactions involving general trading firms belonging to the same group. General trading companies continue to play a significant role in Japan, undertaking a significant share of marketing, procurement, and distributional functions. Most sales by trading companies to other group firms are likely to be of goods originating outside the group, and most group purchases by trading companies are likely to be resold to firms outside the group. Thus, the share of intragroup transactions excluding these distributional operations is likely to be quite small. Data provided in the JFTC

1/ Horiuchi, Packer, and Fukuda (1988).
2/ The fiscal year begins on April 1.

Table 3. Share of Intra-group Trading Among Horizontal Keiretsu Firms, FY 1989 1/

(In percent)

Sales to group firms	
All firms	7.3
Trading companies	2.6
Others	14.5
To group trading companies	11.7
To other group firms	2.8
Intra-group sales of others, adjusted for trading company intermediation	3.1
Purchases from group firms	
All firms	8.1
Trading companies	7.6
Others	9.2
From group trading companies	5.7
From other group firms	3.6
Intra-group purchases by others, adjusted for trading company intermediation	4.0

Source: Japan Fair Trade Commission, The Actual Conditions of the Six Major Corporate Groups, February 1992.

1/ Excluding financial institutions. Percentages represent shares of sales to group firms in total sales of group firms, and shares of purchases from group firms in total purchases of group firms.

study permit adjustment of the share of intragroup transactions for the intermediary transactions of trading firms. On this basis, it is estimated that just about 3 percent of final sales of nonfinancial horizontal keiretsu firms (excluding trading companies) was accounted for by intragroup transactions.

Similar calculations with regard to purchases of group firms show that a very small share of purchases by horizontal keiretsu firms is accounted for by goods produced by within-group firms. Adjusting for the intermediary operations of general trading companies, it is estimated that purchases of within-group products by nonfinancial group firms (excluding trading companies) represented 4 percent of their total purchases.

It should be noted that these data exclude the activities of subsidiaries; the importance of intragroup transactions could be higher once these transactions were incorporated. In FY 1989, the total sales of subsidiaries of horizontal keiretsu firms--with at least 50 percent ownership by parent group firms--were equivalent to about one fourth of the total sales of parent firms. If one made the extreme assumption that all sales of such subsidiaries were to group firms (other than trading companies), the share of intragroup transactions in total sales of group firms would still amount to only 25 percent. Even this estimate, however, would be broadly comparable to the combined share of 20 percent of total sales of the nonfinancial corporate sector that these horizontal keiretsu firms accounted for in FY 1989. Thus, there is little to suggest here that horizontal keiretsu firms conduct an unduly high proportion of their trading with the other firms within the same corporate group.

Regarding vertical keiretsu, since they comprise firms with hierarchical supplier-user relations of a long-term nature within the same industries--as opposed to the horizontal keiretsu firms that are involved in different activities--one would expect relatively high shares of intragroup transactions. Nevertheless, these relationships are also neither exclusive nor fixed over time. A 1983 survey indicated that small- and medium-sized subcontractors supplied about four fifths of their output to parent purchasing firms, but each subcontractor had an average of 6 1/2 such parent firms. 1/ Furthermore, there has been a tendency for subcontractors to supply an increasing number of firms since the mid-1970s. 2/ More generally, compared with formal vertical integration, this less formal type would be expected to result in more transactions with outsiders. As noted above, increased flexibility through the promotion of transactions with outsiders is considered an important benefit of vertical keiretsu.

III. The Impact of Keiretsu on Japan's Imports

The discussion in the previous section has presented data that suggest that horizontal and vertical keiretsu are not unduly closed to outsiders. Nevertheless, there is a perception among many observers that keiretsu impede new entry by both domestic and foreign firms, with a cost to welfare and resource allocation. In particular, it is argued that keiretsu relationships contribute to reducing imports, particularly of manufactured goods. This section reviews work that has recently emerged in this area.

1/ Shoko Chukin Bank, 1983, as cited in Aoki (1984).
2/ Economic Planning Agency, (1990).

Until recently, there were no studies that specifically investigated the impact of keiretsu relationships on access to the Japanese market. 1/ In response to the increased attention paid to the issue of keiretsu, however, Lawrence (1991) built a model that sought to estimate the direct impact of such relationships on Japanese trade behavior. Briefly, while the study produced some interesting results, there are a number of serious concerns regarding the methodology employed in the study and the interpretation of the results, and thus the work may not be regarded as conclusive. The following discussion reviews the study in further detail.

Lawrence analyzes Japanese trade structure in a cross-industry framework, expanding on a model developed by Petri (1991). Under this approach, an industry's imports as a share of domestic consumption, and its exports as a share of world exports, are explained by the relative intensities of factor use and variables that measure the influence of trade barriers and market structure, including keiretsu relationships. Lawrence investigates the influence of keiretsu relationships on exports as well as imports, to test their impact on efficiency and market access.

Lawrence estimates the import and export share model on sectoral data for 1985. The influence of keiretsu relationships is measured according to the share of total industry sales accounted for by keiretsu firms; regressions are run with the sales shares of horizontal and vertical keiretsu

1/ None of the studies during the 1980s that addressed the question of Japan/s low imports tested specifically for the impact of informal trade barriers.

included both separately and as a combined share. 1/ The estimation results indicate the following:

a. The sales shares of both horizontal and vertical *keiretsu* have a statistically significant negative impact on *imports*; and

b. Horizontal *keiretsu* do not affect *exports*, but the vertical *keiretsu* positively influence export shares.

The cross-industry analysis does not, however, address the issue of whether any specific Japanese industry imports "too little" compared with other countries, and the extent to which *keiretsu* relationships may contribute to any "underimporting." To address this issue, Lawrence expands an earlier study in which he used a cross-country model to obtain results that suggested that Japanese import levels were unusually low. 2/ In that analysis, he obtained negative prediction errors for Japanese imports relative to what the model determinants predicted for other OECD member countries, but the model could not distinguish whether the source of the import shortfall was barriers to imports, a difference in tastes, or other factors. Thus, in this new paper, Lawrence presents regression results that estimate the extent to which the shares of horizontal and vertical *keiretsu* sales explain Japanese import shortfalls from the levels predicted by his 1987 model. His study finds a statistically significant positive relationship between the sales of vertical *keiretsu* and the shortfall in Japanese

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1/ In addition to the six major groups, the horizontal *keiretsu* include the smaller Tokai and Industrial Bank of Japan groups; the vertical *keiretsu* include firms in the Nippon Steel, Hitachi, Nissan, Toyota, Matsushita, Toshiba, Tokyu, Seibu Railway, and Seibu Saison groups.
2/ Lawrence (1987).

manufactured imports, but an insignificant (negative) relationship with regard to horizontal keiretsu.

Lawrence thus concludes that both horizontal and vertical keiretsu inhibit entry into the Japanese market. While horizontal keiretsu are not associated with higher exports, vertical keiretsu are found to boost exports, and he therefore concludes that only the latter may enhance efficiency. Finally, Lawrence concludes that vertical keiretsu are a significant factor contributing to the unusually low level of Japanese imports of manufactured goods by OECD standards. 1/

The Lawrence study, however, is subject to a number of shortcomings. At a fundamental level, the underlying factor intensity model is one that explains cross-country differences in trade structure, and therefore is not suitable for explaining cross-industry differences. The basic theoretical model specifies a country's trade share as a function of relative traded goods prices, with relative prices determined by the intensity of factor use and relative input costs. 2/ Applying such a model to a cross-section of industries (or products) would only be valid if the relative price elasticities were equivalent across industries between domestic and foreign goods. However, there is considerable empirical evidence that different types of goods have different degrees of substitutability across national borders. 3/

1/ As for horizontal keiretsu, the insignificant coefficient obtained in the cross-country regressions is interpreted as suggesting that to the extent that horizontal keiretsu inhibit imports in Japanese industries, similar effects may be present in other countries.

2/ See Petri (1991), page 67.

3/ See Goldstein and Khan (1985).

Thus, the model is likely to be misspecified, making it difficult to interpret the meaning of any of the estimated coefficients. 1/

Another basic problem noted by Saxonhouse (1991) is that the Petri model used by Lawrence assumes factor price equalization across industries. However, factor price differences have been shown to persist across sectors and across countries. 2/ With wage differentials in Japan having been positively correlated with keiretsu, and the results suggesting that labor-intensive industries have higher imports, this error could impart negative bias on the estimated coefficient of the keiretsu variable.

Furthermore, it can be argued that the import and keiretsu shares of domestic sales are jointly determined. If, as a result of comparative advantage, a large Japanese manufacturer decides to procure supplies from a domestic producer, it is quite likely that a long-term relationship will develop that will then progress further into a recognized vertical keiretsu relationship. In such cases, "keiretsu, rather than interfering with comparative advantage, are actually defined by it." 3/

There are a number of additional concerns with regard to the cross-industry estimation results. First, the model does a generally poor job explaining cross-industry differences in import and export shares, with low goodness-of-fit statistics and a number of statistically insignificant

1/ Moreover, it is possible that the associated errors will be correlated with the other explanatory variables and that the estimated coefficients therefore reflect differences in relative price elasticities. Petri recognizes this problem in his approach, but it seems highly questionable that his use of Zellner's seemingly unrelated regression method to estimate the import and export equations simultaneously will correct for such a fundamental specification error.

2/ Katz and Summers (1989).

3/ Saxonhouse (1991), page 333.

explanatory variables. How to interpret the significance of the keiretsu variables in such a situation is open to question. Second, as Lawrence notes, the significance of the keiretsu variables depends on whether or not the aircraft industry--a keiretsu-dominated industry with an unusually high import share--is included in the sample. The aircraft industry is excluded on the grounds that it has been influenced by unusual historical and political factors, but it can be similarly argued that the transport industry--a keiretsu-dominated industry with an exceptionally low import share--faced special circumstances and therefore should also be excluded. Excluding the latter industry would be likely to substantially lower the estimated import-reducing effects of vertical keiretsu.

Finally, the cross-country results have been challenged by Saxonhouse. He reports that when he regresses the residuals from his 1988 model of import shares on horizontal and vertical keiretsu variables insignificant coefficients are obtained. Thus, his results do not support the view that keiretsu relationships are distorting the structure of Japanese trade. 1/ (It should also be noted that Saxonhouse's 1988 cross-country study concluded, in contrast to Lawrence's 1987 study referred to above, that Japanese import levels were not unusually low once national differences in factor endowments were taken into account).

1/ See Saxonhouse (1991).

IV. Conclusions

This paper has reviewed the evolution and main features of Japanese corporate groups. These groups do not appear to be a cohesive constellation of firms that collude to maximize joint-group profits. However, extensive ties do exist among keiretsu firms that appear to insulate firms from outside takeovers, serve to reduce collective risk, result in informational and operational efficiencies, and promote innovation.

Notwithstanding the existence of interfirm relationships, the keiretsu do not have well-defined and static organizational structures, and the data do not show a clear intragroup bias in the behavior of keiretsu firms. Patterns of corporate shareholdings cross group lines; the majority of financial relationships between lenders and borrowers are between non-affiliated institutions; and main bank affiliations have been subject to significant change over time. Furthermore, intragroup transactions among horizontal keiretsu firms constitute a small proportion of both new joint ventures and trade transactions.

Nevertheless, concern that keiretsu relationships impede Japanese imports has remained, and Lawrence's recent study provides support for that view. However, there are considerable conceptual and empirical questions regarding the Lawrence paper. Furthermore, empirical results obtained by Saxonhouse suggest that once national differences in factor endowments are taken into account the influence of keiretsu relationships on trade are not statistically significant. Thus, it would seem premature on the basis of Lawrence's work to conclude that keiretsu relationships have trade-distorting effects.

It should also be recognized that horizontal and vertical business relationships are not unique to Japan. In fact, the level of formal, vertical integration is considerably higher in the United States; Japanese subcontracting groups may be viewed as another, more flexible, form of vertical integration. For example, U.S. automobile firms rely much more on in-house production of parts than do their Japanese counterparts: on average, in-house production accounted for an estimated 45 percent of a U.S. car's value in 1983, compared with only 25 percent in Japan. 1/ Also, while the formal linkages between banks and nonfinancial corporations are less extensive in the United States, where banks are prohibited from owning shares, significantly more extensive bank shareholding prevails in Germany. Indeed, it has been argued that keiretsu relationships may result in lower entry barriers than the more closely and formally integrated corporate structures that prevail in other industrial countries. Haley (1990) notes: "A loosely organized confederation of industrial or vertically integrated firms is by definition less rigidly controlled than a conglomerate of wholly owned or controlled subsidiaries or a vertically integrated corporation." 2/

In sum, it is not evident that keiretsu relationships, per se, are a significant impediment to competition and market access. Efforts to remove any impediments to free and fair competition must, of course, continue. But these obstacles may not necessarily be defined by the existence of keiretsu relationships. Thus, reform efforts should be aimed more generally at

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1/ Cole and Yakushiji (1984), pages 153-4.
2/ Haley (1990), page 217.

ensuring effective enforcement of anti-trust legislation, including removal of exemptions from these laws; eliminating remaining obstacles to free competition in the distribution sector; making further progress in the liberalization of government regulations in various other areas; and strengthening the protection of intellectual property rights. A discussion of issues in these areas is beyond the scope of this paper, but the need for continued efforts is generally understood and indeed well recognized in principle by the Japanese Government, as reflected in numerous policy documents including those issued in the context of the SII talks. 1/

1/ In addition to recent staff documents that have covered structural issues, these issues are summarized in Uekusa (1990), and discussed in Haley (1990), OECD (1990), Yamamura (1982), and Yamamura (1990).

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