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7 The Japanese Financial System and the Cost of Capital

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This paper considers the role of "corporate finance" in contributing to Japan's economic performance. I highlight the role of the financial system while the "cost of capital" (typically expressed as a weighted average cost of capital [WACC]) is played down. The main reason for this is that, at least during the high growth phase of the Japanese economy (1945–74), a rationed capital allocation system was used in Japan in which the price mechanism played only a subordinated role. Not surprisingly, in such an environment models of capital budgeting do not conform to those that would obtain in a price-driven market. And while this does not mean that standard models such as discounted cash flow (DCF) analysis are obsolete, the appropriate inputs to a DCF model would be more difficult to ascertain.

With a focus on the institutional organization this paper shows how the Japanese financial system may have dealt effectively with problems currently associated in the finance literature with agency problems and information asymmetries. In this sense the institutional structure in which "corporate finance" took place may have given Japanese firms (with access to funds in the rationed system) a competitive advantage relative to their foreign competitors operating in institutional environments less well organized to deal with these issues.

In this paper I also show how, partly as a result of its own success and partly due to external forces, the distinctiveness of the institutional system would be eroded—in Japan the price system would start to play a more important role. In this sense, the emerging Japanese financial system allows for a much more

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meaningful comparison between the cost of capital of Japanese and foreign firms, even though this is happening precisely at a time when, due to an increase in capital mobility, it is more difficult to explain how the underlying interest rates for corporations in the various countries would differ.

Still, several corporate executives and business publications have taken the role of corporate finance in Japan to be *a*, if not *the*, major factor in understanding the "competitive decline" of the United States and the ascendancy of Japan. For example, in March 1989, Ken Olsen, president of Digital Equipment Corporation, told the New England Council of the American Electronics Association that, in contrast to small increases in the cost of energy or in taxes, the cost of capital was a major culprit in causing U.S. firms to lose international competitiveness: "With a 10, 11, 12, percent interest on capital, you just can't compete."[1] Olsen was not alone in attributing many of U.S. corporations' problems in competing for international market share to the cost of capital, nor did he point to a new phenomenon. A 1985 *Harvard Business Review* article had been titled "Capital Markets and Competitive Decline" (see Richard Ellsworth 1985), while a study by the Chase Manhattan Bank in 1980, had warned that for the semiconductor industry: "The lower cost of capital of the Japanese companies provides them with the advantage that their required return on investments are lower than those of the U.S. semiconductor companies" (Chase Manhattan Bank 1980, pp. 1–10; quoted in Abegglen and Stalk 1985).

It seems that finance has become a favorite "whipping boy," to explain Japan's impressive performance (especially in comparison to the remarkable loss of international assets observed in the United States). Apart from obvious misconceptions (such as Olsen's apparent confusion between nominal, and inflation and exchange rate adjusted interest rates), it is surprising that so many executives in U.S. industry take capital market effects to be so important. While there is little doubt that finance and the cost of capital play a role, it is not obvious how important these costs are in comparison to, for example, labor productivity, SGA expense control, and product quality. Perhaps it is easier to blame faceless capital markets for competitive decline than other issues more directly under the control of managers.

Still, there is little doubt that finance has played an important role in Japan's transformation from a war-exhausted, resource-poor country to an international economic superpower. Those who focus on finance in this transformation often paint a breathtakingly simple picture of the Japanese financial system: the authorities, after isolating the domestic financial markets from the international capital markets, kept interest rates low and allowed financial intermediaries to steer funds to preferred sectors of the economy so that the corporations, unimpaired by bothersome shareholders with short term-

1. Reported in *Electronic News* (March 20, 1989).

horizons, were free to enter into long-term strategies to gain market share. As in most appealingly simplistic explanations, this is nothing but a *caricature*—it contains some truths, but surely does not capture the complexity and trade-offs that underlay the Japanese financial environment.

To evaluate the importance of "finance" in contributing to Japan's success, especially in cross-national comparison, one should consider the role of the financial system, the method of capital budgeting, and the "cost of capital." Of course, apart from these "firm-specific" issues, the overall availability of financial resources (irrespective of the distribution mechanism) plays a role. With a surplus of national savings, the national income identity dictates a current account surplus, which can be translated to the firm level as showing "competitive" advantage in order to generate a trade surplus.[2] Given a certain amount of national savings, the institutional arrangements in the financial system provide a link between the micro- and macrolevels.

Many authors have pointed out that in cross-national perspective the Japanese savings rate was high, and papers such as Feldstein and Horioka (1980), and a veritable cottage industry of related investigations, have explored the link between national savings rates and national investment. For Japan both were high in comparison to the United States (See table 7.1). Given these macrophenomena it is usually the cost of capital that provides the link to the micro (firm) level, which leads to a natural focus on the interest rates.

I argue though, that at least for the high growth phase of the Japanese economy (1954–74), the very structure of the Japanese financial system makes measures of the (weighted average) cost of capital not very useful as indicators of the relative abundance of financial capital to industries or as the determinants of industry structure and "international competitiveness." What really mattered was that a financial system was created that allowed for guided capital rationing. While some may call this a form of "national capital budgeting," perhaps in line with the popular notion of a "Japan Inc.," this would be an oversimplification: it is increasingly understood today, not only in finance but also in other aspects of industrial policy, that a subtle set of dependencies, power relationships, and informal understandings was in operation rather than a system reliant on simple directives.

In this paper, I concentrate, therefore, first on the development of the financial system that operated in Japan until the mid-1970s. Focusing on institutional considerations, the preference for bank financing (and high leverage) is explained, while the role of the rationed capital market is explored. Next, the impetus for change is presented as a sudden and dramatic reversal in the flow of funds in the domestic economy toward the government. I conclude with a few remarks about the current cost of capital debate, as the Japanese financial system is moving toward a more price-driven capital market. This last issue—

2. For simplicity, the service account is ignored here or at least assumed to be less than totally offsetting the capital account.

Table 7.1 U.S. and Japanese National Savings

	United States				Japan			
	Net Savings as % of Net Investments	All as % of GDP			Net Savings as % of Net Investments	All as % of GDP		
		Net Savings	Net Investment	Current Account		Net Savings	Net Investment	Current Account
1960	114.6	9.18	8.00	.62	101.4	22.12	21.81	.60
1965	110.2	11.34	10.29	1.07	97.4	18.17	18.65	1.11
1970	106.9	7.84	7.33	.39	104.4	26.89	25.75	1.01
1975	125.4	5.96	4.75	1.36	97.5	19.45	19.95	−.10
1980	105.5	5.93	5.67	.44	99.2	18.32	19.45	−.03
1981	102.8	6.43	6.26	.31	99.4	17.88	17.98	.49
1982	98.9	2.68	2.71	−.03	102.1	17.03	16.68	.70
1983	65.8	2.22	3.37	−1.00	109.7	16.07	14.64	1.81
1984	62.9	4.38	6.97	−2.44	116.5	17.05	14.63	2.84
1985	53.1	3.15	4.95	−2.93	120.7	17.96	14.88	3.69
1986	42.7	2.47	5.79	−3.44	126.4	18.46	14.60	4.33

Source: OECD National Accounts, 1988, Paris, pp. 32–35.

Note: Net savings = gross savings minus consumption of fixed capital; net investment = gross capital formation minus consumption of fixed capital. Due to "statistical discrepancies," net savings minus net investment may deviate from current account.

the financial product's price and the interest rate question—is taken up in great detail by Frankel (in this volume).

7.1 The Traditional Financial System

Japan's traditional financial system, here taken as the system that prevailed between 1945 and 1975, has, like so many other aspects of modern Japan, roots that go back to the Meiji Restoration of 1868. Many descriptions can be found, such as Presnell (1975), Bronte (1982), Prindl (1981), Crum and Meerschwam (1986) and Wallich and Wallich (1976). They all confirm some basic characteristics of the system. When a rudimentary banking system was set up and the Bank of Japan attained a monopoly on the issuance of notes in 1882, Minister of Finance Count Matsukata argued for the establishment of specialized financial institutions. These institutions were to play an important role in attaining the objectives of Japan's new rulers: "a strong army and rich country." With the government actively supporting the financial institutions and direct involvement in targeted industrialization efforts, a second set of financial institutions would rise to prominence whose power derived from their central place in industrial groupings (*zaibatsu*).

In this sense three characteristics of the system were put in place early on: close relationships between the authorities and the financial institutions, seg-

mented financial product markets, and powerful banks at the center of networks of corporations. These three attributes of the system operated not always according to plan, but in essence provided the foundation for a financial system that would come to full bloom in the postwar years.

When the war ended, Japan's financial system was one part of the country's institutional framework that the Occupation powers reviewed. It was decided to remove the specialized financial institutions, to dissolve the powerful banks at the centers of the old business groups, and to stimulate a more active equity market as large corporations were sold to the public. Furthermore, in conformity with the U.S. financial system, Occupation planners imposed further segmentation between the commercial and the investment banking business.

The transformation of the system lasted only as long as the Occupation was in force. Soon after it ended, Japan's financial system started to resemble the old one again; specialized financial institutions, a heavy preference for indirect (i.e., bank intermediated) versus direct (i.e., corporate bonds and equity) financing, steering and guidance by central authorities, and suppression of the price mechanism in financial transactions. Central to all this was the development of a wide, deep, and sophisticated network of informally directed relationships, to which I return below. This system would operate for almost three decades.

In Japan, financial institutions faced an environment that segmented the product market according to maturity and purpose of finance. For example, long-term credit banks were the only institutions allowed to raise long-term funds and did not engage much in maturity transformation. City banks, the successors to the old banks that had stood at the center of the industrial groupings, again started to play a role as both repositories of deposits and active suppliers of bank finance to the rapidly growing industrial corporations. Specialized institutions dealt with foreign-exchange-related transactions, others with agricultural enterprises or fisheries, and yet others with forestry. Trust banks and various forms of mutual institutions looked after their dedicated markets, while regional banks functioned in particular geographic areas, often as gatherers of funds for the cash-hungry city banks, which in turn lent to the industrial sector. Special financial institutions for small business were in existence, while yet a whole other set of institutions operated in the securities industry (see table 7.2). Of course, segmentation by product market was also seen in other countries such as the United States. However, a comparison of the two systems in Crum and Meerschwam (1986) shows Japan's system more tightly controlled than that in the United States.

The highly segmented Japanese system operated under price controls. Both cooperative agreements in setting lending rates as well as official policies through a "temporary interest rate adjustment law" (instituted in 1947 but still partially in effect today) were observed, while several institutions, such as the Postal Savings System and other (semi-)official intermediaries allowed the

Table 7.2 Selected Japanese Financial Institutions (1988)

1. **The Bank of Japan**
2. **Banks**
   - City banks
   - Regional banks
   - Trust banks
   - Long-term credit banks
3. **Foreign banks**
4. **Financial institutions for small businesses**
   - Mutual loan companies
   - Credit cooperatives
   - Urban credit associations
   - Commercial and industrial cooperatives
   - Labor credit associations
5. **Financial institutions for agriculture, forestry, and fisheries**
   - Cooperative bank for agriculture and forestry
   - Prefectural agricultural associations
   - Fishery cooperative associations
   - Fishery credit cooperatives
6. **Securities finance institutions**
   - Securities finance companies
   - Securities companies
7. **Insurance companies**
8. **Government financial institutions**
   - Peoples Finance Corporation
   - Housing Loan Corporation
   - Export-Import Bank
   - Japan Development Bank
   - Agriculture, Forestry, and Fisheries Finance Corporation
   - Small Business Finance Corporation
   - Hokkaido and Tohoku Development Corporation
   - Environmental Sanitation Business Finance Corporation
9. **Government**
   - Trust Fund Bureau
   - Postal Savings System
   - Postal Life Insurance

Source: Economic Statistics Annual, 1988, Research and Statistics Department, Bank of Japan, pp. 1–6.

government to influence the prices of funds in the economy.[3] But the system cannot be fully appreciated without considering the informal, unwritten, traditions and customs that were an essential feature and caused dependencies, trade-offs, and negotiations.

Several examples point to these dependencies. Take the "over-loan" prob-

3. In spite of the many price regulations some price freedoms did exist. For example, a call (interbank) market was observed. Similarly, many observers point to the system of "compensating

lem (see, e.g., Wallich and Wallich 1976, pp. 284–90). During the high growth phase of the Japanese economy, the authorities decided to keep the regulated interest rates low, apparently in order to stimulate investments (but, in reality, to create a rationed capital market). And while banks were not able to aggressively compete for funds, due to the interest rate restrictions, savings seemed to have remained high, partly due to the elaborate Postal Savings System and partly due to cultural and historical norms.[4] With low, regulated rates, banks were faced with many more lending opportunities than they could satisfy, even after allowing for the funds gathered through the interbank market from the regional banks. It was the Bank of Japan that supplied the city banks with funds to make up for their overlending at rates that did not reflect "market conditions." And while the absolute amount of these loans was never very large, the banks' dependence on the central bank for marginal funding made them much more receptive to following the wishes of the authorities (see table 7.3).

These wishes were expressed during frequent reviews of bank balance sheet growth and composition. But there were further avenues to enforce the communications and dependencies. A system of "parachuting" executives from a higher organization in the financial hierarchy to a lower one was standard. Thus, bureaucrats from the most prestigious Ministry of Finance and Bank of Japan often ended their careers as executives at the financial institutions. The institutions themselves often "parachuted" their (older) executives to related corporations and subsidiaries.

Dependencies were also seen in other financial interactions. The funding of the public sector, a relatively unimportant demand on the total funds generated (initially due to the Occupation-imposed Dodge-line of balanced budgets), was not the outcome of a price-competitive auction. Instead, a well-instituted system of "forced" absorption of the issues by financial firms existed at prices set by the authorities (see, e.g., Feldman 1986, p. 51). Such a system is not totally unique. In the United Kingdom, the discount houses were, in effect, "forced to cover the tender" after price consultation with the Bank of England (Revell 1973, pp. 223–27). In Japan, without an active secondary market, the financial institutions typically held on to issues for one year, after which the Bank of Japan mostly monetized them, clearing the balance sheets of the institutions for the next round of the forced tender.

Even in the market for direct finance (corporate bonds and equities), methods were devised to enhance relationships. Some observers suggest that the method of equity issue itself enhanced relationships by favoring long-term

balances" (observed in many other countries as well), which allowed effective rates to differ from the officially quoted ones. See Bronte (1982, p. 17). Still, there is widespread agreement that in effect few price freedoms existed and that a highly regulated system operated.

4. Many authors have tried to explain the apparently high Japanese savings rate. See, e.g., Hayashi (1986) and Frankel (in this volume).

Table 7.3 **Overloans and the City Banks: City Bank Data (in Trillions of Yen)**

	Total Deposits	Loans from Bank of Japan	Call Money	Total Liabilities
1955	2.4	.03	.07	2.9
1960	5.6	.4	.2	6.9
1965	12.5	1.1	.9	16.3
1970	24.3	2.1	2.0	32.6
1975	52.9	1.5	2.4	71.7
1980	85.4	1.8	4.5	110.4
1985	125.6	3.5	6.8	191.4

Source: Economic Statistics Annual, various issues, Research and Statistics Department, Bank of Japan.

shareholders. In Japan, until the early 1970s, new equity issues were made at par rather than at the much higher market prices of the equity. Existing shareholders typically had "rights" to purchase the new shares at the par rate. This, according to some, favored long-term relationships, supposedly since shareholders held on to their shares in expectation of future rights issues, again priced below the market rate. In this interpretation equity financing was "expensive to the corporation," since the issues were sold "cheap."

However, this is *incorrect.* Rights issues are not expensive "to the corporation," and a "good deal to the shareholders" since the two are interchangeable. Because a par issue with rights to existing shareholders can take place at any price this is most easily seen if one considers the par issue at a par price of zero. In this case a stock split takes place, and for other than signaling reasons associated with a possible dividend increase, no shareholder wealth effect is observed.[5]

With respect to this issue, Wallich and Wallich (1976), while still arguing that rights issues are "expensive to the corporation" and will inspire long-term shareholders, suggest a "juxtaposition" which, they argue, allows for the relationships in equity financing through the long-term shareholders:

> to believe that the shareholder is enriched by rights, stock dividends, and splits, a different interpretation is required—one in which the corporation is an entity with a life of its own and the stockholder is a kind of subordinated creditor. This interpretation is not irrational so long as it places the corporation and the old stockholders in juxtaposition with the new stockholders from whom the funds are obtained. To view old stockholders in that way raises the fundamental question of what, if anything, the corporation maximizes and on whose behalf. (p. 301)

5. In fact, finance models that rely on information asymmetries between managers and investors actually show how the effective increase in the dividends may be viewed as a positive signal about the future cash flows of the firm, therefore increasing the market valuation of the firm. See Asquith and Mullins (1986) and Miller and Rock (1985).

The above rationale for the relationships in the equity market relies, therefore, on the failure of full identification of the shareholder and the corporation. Aoki (1984), as outlined below in the context of Japanese leverage, shows how, in a model with special shareholder groups, such as banks, it is indeed not possible to apply the simple shareholder-wealth/share-price maximization paradigm. However, even without having to rely on the "long-term" holdings of the individual retail investor, a simpler way to find indications of relationships in equity finance is to look at the importance of the crossequity holdings between major corporations. Bank of Japan data suggest that such equity holdings (excluding financial institutions) increased between 1966 and 1974 from 18.6% to 27.1% (after which period the share stabilized). These equity holdings were traditionally extremely stable and reflected much of the prewar *zaibatsu* structure.

The corporate bond market used another method to deal with informational problems that afflict the securities markets. Only fully secured bond issues were acceptable, while an inactive market placed a large portion of the relatively few issues in the hands of financial institutions (see table 7.4). It can be no surprise that in this system there was no role for "rating agencies." Their mission and business purpose is precisely to convey information between lenders and borrowers in the absence of a relationship between the two; in Japan this was of little concern. The relationships facilitated information sharing, while fully secured bonds reduced the risks even further and excluded potential newcomers, who lacked assets. The absence of a commercial paper market, or a CD market (where transactions occur purely on a price-driven basis) fits naturally within the system that relied so heavily on relationships.

In short, in Japan during the high growth phase of the economy, a financial system operated that segmented the financial product market and that restricted price competition both through regulation as well as through the lack of financing alternatives. With the markets for public securities restricted through traditions, a high growth rate naturally drove the corporations to the banks, for both long-term (long-term credit banks) and short-term (city banks) financing (see table 7.5). There, access to funds was facilitated through long-established relationships. The many restrictions that were used to close the domestic market from foreign influences are well known and will not be presented here—they closed any escape route for those companies outside the relationship system. In combination, all of this gave the authorities influence to steer the system through a rationed capital market that favored established corporations to rely more heavily on "cheap" indirect debt financing and thus high leverage.

7.2 Direct versus Indirect Finance

The Japanese financial system favored indirect (bank) financing over direct (securities) financing. This would therefore not only lead to high leverage, but

Table 7.4 **Industrial Bonds and the Banking Sector: Bond and Bank Asset Data (100 Million Yen)**

	Industrial							
	Nonconvertible Bonds (A)	Convertible Bonds (B)	A + B Industrial Bonds (C)	Industrial Bonds at Banks (D)	Total Bank Assets (E)	D as % of E (F)	D as % of C (G)	D as % of A (H)
1955	2,273	. . .	2,273	1,695	51,028	3.3	74.6	74.6
1960	6,927	. . .	6,927	4,555	129,480	3.5	65.8	65.8
1965	17,493	. . .	17,493	9.969	313,249	3.2	57.0	57.0
1970	26.983	1,043	28,026	15,870	631,661	2.5	56.6	58.8
1975	55,153	11,323	66,476	21,154	1,444,280	1.5	31.8	38.4
1980	89,635	11,986	101,621	19,834	2,308,461	.9	19.5	22.1
1985	96,435	44,261	140,696	19.958	3,762,367	.5	14.2	20.7
1986	96,700	66,188	162,888	22,022	4,215,506	.5	13.5	22.8
1987	99,187	98,327	197,514	22,721	4,755,789	.5	11.5	22.9
1988[a]	106,300	138,098	244,398	24,399	5,265,417	.5	10.0	23.0

Source: Economic Statistics Annual, 1988, Research and Statistics Department, Bank of Japan, pp. 44–45, 203–4.

Note: The Bank of Japan does not supply exactly matching figures and several rows rely on the author's calculations.

[a]Several of the 1988 figures are estimates.

Table 7.5 **Financing of Nonfinancial Corporation: Direct and Indirect Financing**

	Direct Financing as % of Total	Indirect Financing as % of Total	External Financing as % of Total	Indirect Financing as % of External	Internal Financing as % of Total
1961–64	14.0	44.6	58.6	76.1	32.1
1965–69	7.2	43.7	50.9	85.9	38.0
1970–74	6.1	47.1	53.2	88.5	32.9
1975–79	8.2	37.9	46.1	82.2	46.3
1980–82	6.5	38.0	44.5	85.4	45.6
1982–85	7.9	36.8	44.7	82.3	48.5

Source: Tamura (1987), p. 3

Note: Direct financing = equity and bond issues; indirect financing = long- and short-term borrowing; external financing = direct + indirect financing; internal financing = retained earnings + depreciation.

to a heavy reliance on bank debt (see table 7.6, "Borrowed Funds"). While stock exchanges were established in 1878 in both Tokyo and Osaka, the role that the equity and fixed income market were to play in Japan would be highly restrictive. It was only for a brief period, between the two world wars, that the markets for direct finance provided funds roughly equal in magnitude to those generated through internal funds and loans (see Japan Securities Research Institute 1986). In 1937 all three sources of funds accounted for approximately ¥2 billion. After the Second World War, however, the role of the securities market as a supplier of funds would be vastly surpassed by the banking sector, despite early attempts of the Occupation powers to dissolve the old industrial groupings by selling their shares to the public.[6]

The preference for bank financing can be explained in various ways. As far as the bond markets were concerned, the fully secured nature of the securities and inactive secondary trading made it, in effect, an underdeveloped market (see, e.g., Presnell 1975, pp. 427–30). For the relative unimportance of the equity market, Monroe (1973) returns to the par issue method and suggests that Japanese investors were focused on dividend yield, while he implicitly seems to assume that Japanese firms consider dividend yield the relevant cost of equity indicator. With par issue, and a dividend traditionally maintained as percentage of the par price, the stock price reduction after the issue in effect raises the overall dividend yield. Hodder (1985), in a similar vein, notes that the dividend yield on stocks was greater than the cost of bank borrowing, and thus reliance on bank debt could be expected. Note that such arguments have

6. A Securities Coordination Liquidation Committee oversaw the Securities Democratization Movement. However, this only concerned a transformation of ownership rather than the raising of new funds.

Table 7.6 **Sources of Funds (% of Funds Raised by Nonfinancial Corporation)**

	Internal		External			
	Retained Earnings	Depreciation	Equity	Bond	Borrowed Funds	Other
1961–64	7.9	24.2	12.1	1.9	44.5	9.4
1965–69	15.3	22.7	5.2	2.0	43.7	11.1
1970–74	13.3	19.6	4.5	1.6	47.2	13.8
1975–78	10.7	35.6	4.6	3.6	37.9	7.7
1979–82	13.4	32.2	4.4	2.1	38.0	10.0
1983–85	10.8	37.7	4.6	3.3	36.8	6.8

Source: Tamura (1987), p. 3.
Note: This table is directly copied from the Fair Fact Series.

to consider the dividend yield as the relevant cost of equity measure. And indeed, anecdotal evidence suggests that Japanese executives may have viewed dividends in such a way. Still, some doubt can be cast on the "par issue–dividend yield" argument: table 7.7 shows that, even when the system changed in the early 1970s from par issue to market issue, there was no appreciable effect on the relative funding importance. Between 1965 and 1969 equity financing accounted for 10.2% of external funding; between 1970 and 1974 for only 8.4%.

While Hodder's argument would lead to a straightforward relative price story, other reasons for the relatively high leverage ratio's may have to be considered too. Aoki's (1984) model shows that it may be in the interest of the corporation to "overleverage" if significant share ownership rests with a bank that also supplies borrowed funds to the corporation. Another, simpler explanation would be in conformity with Modigliani-Miller; in a system with low bankruptcy probability (see below) for the established players, the expected costs of financial distress was low—thus debt financing was preferred for those with *access in the rationed system.* In the absence of a well-developed bond market, this meant bank borrowing.

Still, the reliance of the Japanese major firms on bank financing cannot only be a function of relatively favorable bank interest rates due to price controls and cartels in the banking sector; no government can regulate the rates down for all potential demanders of funds. Instead, the price regulations allowed the "preferred" corporations access to the bank loans. Note that such a distribution mechanism itself may explain in part why Japanese firms built higher leverage than most American counterparts (see Table 7.7). Remember that the relationship between the Bank of Japan and the city banks was strong. This meant that implicitly approval was granted of the balance sheet structure of the banks. In turn, banks may have reasonably expected that the likelihood of serious problems with a loan portfolio, which reflected the Bank of Japan's approval, would be less, thus allowing for higher leverage of their clients.

And indeed, institutional features of the Japanese system helped to "socialize" some of the risks and costs associated with high leverage and financial distress. For example, an "anti-recession cartel law" operated, which reduced cash-flow concerns. Similarly, the strong relationships inside the industrial groupings assured assistance to the weakest from the strongest (see, e.g., Abegglen and Stalk 1985, pp. 166–67). Finally, the role of the main bank was to help in the reorganization of a client during times of financial distress. All of the above facilitated information sharing. Hoshi, Kashyap, and Scharfstein's (1988) recent empirical investigation of the role of information sharing through relationships between established corporations and their banks confirmed this. They showed that the investment behavior of those firms

Table 7.7 **Leverage of U.S. and Japanese Manufacturing Industry: Equity as a Percentage of Total Liabilities plus Equity**

Year	United States	Japan	United States/ Japan
1960	65.9	32.3	2.0
1961	64.8	30.6	2.1
1962	61.1	30.9	2.0
1963	61.0	29.6	2.1
1964	60.8	28.1	2.2
1965	59.7	26.9	2.2
1966	56.4	26.3	2.1
1967	58.5	25.5	2.3
1968	54.8	23.8	2.3
1969	54.6	23.0	2.4
1970	53.8	22.1	2.4
1971	53.4	20.7	2.6
1972	52.3	20.4	2.6
1973	49.0	20.3	2.4
1974	53.1	19.9	2.7
1975	52.5	18.5	2.8
1976	53.4	18.4	2.9
1977	52.4	19.3	2.7
1978	51.8	20.4	2.5
1979	50.2	20.6	2.4
1980	49.5	21.8	2.3
1981	48.9	22.7	2.2
1982	48.5	24.1	2.0
1983	49.1	26.3	1.9
1984	47.7	27.6	1.7
1985	45.1	29.6	1.5
1986	44.0	31.5	1.4
1987	42.8	33.1	1.3

Sources: Economic Statistics Annual, various issues, Research and Statistics Department, Bank of Japan; and U.S. Federal Trade Commission, *Quarterly Financial Report for Manufacturing, Mining and Trade Corporations.*

with access to the group banks differed indeed from those without such access.

Applying models of imperfect information (and corporate incentive schemes) the role of indirect finance attains high significance. The Japanese financial system, where, due to severe product market segmentation and price regulation, relationships flourished, seems to have been able to deal with many of the information problems in an effective way. Here the role of the financial institutions is important and reflects insights such as those offered by Bernanke (1983) in the context of the Depression in the United States.

In this line of reasoning the traditional Japanese financial system was distinct in its method of "capital rationing." The system allowed the authorities "guidance maximization," and those with access to the funds indeed faced "below-market rates." But the system relied not only on providing favored corporations with access, it also had to ensure that those excluded could not mount a credible threat against the system, for example, by accessing well-developed, price-driven, public securities markets.

An emphasis on growth, starting with the Meiji Restoration, and consultation between various bureaucracies helped the system to produce outcomes that were favorable to all established players. While this is not the place to reevaluate the role of organizations like MITI,[7] there can be no doubt that in cross-national comparison the Japanese policies reflected a production- rather than consumption-growth bias. With rapid growth, the financial system rewarded the established players. Those with access in the rationed model benefited from preferential prices, the intermediaries were able to attain their growth objectives as their client showed an appetite for funds, and the authorities maximized their guidance. The "losers" in this environment were those with no established relationships—the outsiders to the system. However, precisely because they had no established relationships they were unable to break the system as it produced Japan's high growth rates. Thus, high leverage became feasible as long as the system operated with rewards for all who held power.

The high leverage record of the Japanese firms was not only a result of the availability of bank finance to the preferred players; the high growth rates themselves skewed the financing structure this way, due to an absence of equity financing. In looking at leverage in Japan, I first assume that sales growth is the corporate objective (as will be seen, this is not necessarily inconsistent with standard notions of shareholder value maximization). Here I do not try to show formally why such an objective may have been followed, but anecdotal and empirical evidence suggests that sales growth and market share played a major role for Japanese firms. Abegglen and Stalk (1985) quote a survey study contrasting corporate objectives in Japan and the United States. In conformity with popular perception, the number one goal for Japanese cor-

7. The classic reference is Chalmers Johnson (1982).

porations was Market Share (4.8 on a 1–10 scale of ranking by importance) with Return on Investment (RoI) following in second place (4.1). For U.S. firms, RoI dominated with 8.2 while Market Share followed in distant third place with 2.4.

Given the exposition so far, the emphasis on growth and market share may have been fully "rational" in the context of the system described. With an interaction of national goal development and guidance power by the authorities and banks, the firms eager to attain the preferential funds had to forge a consistency between their own goals and those of the authorities; here a "market-share goal" leading to funds access may be synonymous with (corporate) wealth maximization. McCraw and O'Brien (1986) present an account of how, in the steel industry during the high growth phase of the 1960s, growth and efficiency achievements were in effect rewarded with license to increase capacity.

If indeed market share and growth objectives are taken seriously, then high leverage is a natural outcome; rapid sales growth typically leads to asset growth. With the equity base of a company growing at the rate of retained earnings, any sales growth in excess of the growth of the equity base will lead to higher leverage. Only with repeated equity issues can the leverage be contained, an avenue unpopular in Japan, as discussed before. Thus, given a particular corporate return on assets and a fixed dividend pay-out ratio, the more highly levered firm can grow its sales more rapidly since it has a higher return on equity.[8] While the financial risk of the typical shareholder increases in this scenario, it was already been shown how the Japanese system "socialized" some of these risks.

In this interpretation the high leverage would be most advantageous for the members of the large industrial groupings with the best growth opportunities and the relatively low risk of financial distress. They would also be the least likely firms to find themselves to be capital (borrowing) constrained. Such a system would provide many incentives for the various players to "play along." If indeed the growth would be established, the established players coopted into the system would benefit. But here a problem of interpretation arises: for the successful high growers, unsuccessful "low" growers had to be found if we assume, for simplicity, that market size was exogenously determined. While external markets might provide an opportunity to gain market share at the cost of foreign firms, the internal markets would, in effect, only allow for zero-sum games. It is, in this light, not surprising that Japanese internal market dynamics were often described as "viciously" competitive. For the overall

8. This is a result of the "sustainable growth" concept, which shows the relationship between sales growth (g), Return on Equity (RoE), and the dividend payout ratio (p): To sustain a particular capital structure, in the absence of equity issues, sales growth cannot exceed the growth rate of the equity base: $g = \text{RoE} \times (1-p)$. Applying the Dupont decomposition of RoE, it follows that $g = [\text{RoS} \times S/A \times A/E] \times (1-p)$, where RoS is the return on sales, S/A represents the asset intensity of the firm, and A/E (the ratio of assets to equity) can be thought of as the leverage.

success of the country though, external growth markets had to be found to earn in the international markets the resources required for the domestic developments.

In this interpretation, the role of bank finance is essential. It provided the authorities the means to influence the distribution of capital along lines consistent with favored sectors of the economy, while internal competition would guarantee efficiency. Here, the role of the internal investment decisions of the firms plays a different role, and there is no reason to believe that anything like "discounted cash flow" models would be extensively used. And indeed there is no evidence that this method of capital budgeting was prevalent in Japan. Several authors have looked at the method of investment decisions in Japan. Hodder (1985) concludes that, in quantitative analysis, NPV or DCF models play at best a very subordinated role. Gultekin and Taga (1987) produce survey results from 1986 that show that only 11% of 87 major corporations in Japan consider DCF evaluations, 18% IRR, 20% ARR, while 41% employ pay-back techniques. Hodder (1986) provides an excellent evaluation of investment decision-making practices in the United States and Japan. And while he concludes that there is evidence that managers use the concept of time value of money in their decisions, there is no evidence to support the "simple" application of NPV or DCF models. In short, not only is it not clear how important the cost of capital was as an internationally competitive weapon; the whole method of investment decision making should be seen in light of a fundamentally different institutional environment.

This brings back the question of the difference between reliance on direct and indirect financing. With direct financing, the performance of the corporation is directly judged by arm's length investors. And while we do not suggest that such relationships always force "short-term" profit maximization at the cost of long-term profits, Stein (1989) showed in a theoretical model under information asymmetries how long-term profit considerations, especially in markets where long-term market-share power may be built, may be compromised due to a short-term investor horizon. Thus, perhaps somewhat surprisingly, a perfectly decentralized and disintermediated market for direct finance may not generate a first-best outcome; informational and commitment problems may be more efficiently solved in an indirect, intermediated, bank market with strong relationships. In the international economics literature, papers such as Krugman (1988) on "strategic trade policy" essentially refer to similar phenomena.

What this does point to is that the Japanese financial system, by allowing a complex form of rationed capital allocation within the context of steering and guidance by authorities (without a rigid capital allocation plan), provided the beneficiaries of the preferential funds to embark on growth strategies without having to rely, to a large extent, on impersonal capital markets. Here the real importance seems to rest more in the method of financing (direct vs. indirect) than in the high leverage per se.

The implication of the above is not to suggest that the cost of capital played no role in explaining the success of various Japanese firms in attaining world market share. It does, however, point to three caveats. One applies to the individual firm level. Here I suggest that, for those with the access to the preferential funds, the actual cost of capital advantage seems unambiguously low relative to those *inside* Japan without such access. Compared to firms *outside* Japan, taking into account the relatively closed nature of the Japanese financial market until the 1970s, many different evaluations can be found, and they are discussed in greater detail by Frankel (in this volume).

The second caveat applies to the importance of the cost of capital calculation. If many of the prices charged for funds by the intermediaries reflected the relationships with the firms, then there is little reason to believe that, given the possibly different corporate objectives, the cost of capital had a major influence on investment decisions as would be expected from standard models such as DCF. Again, the results from Hoshi et al. (1988) provide evidence.

Third, one should consider the importance of the cost of capital on the overall national performance of Japan (especially in the cross-national perspective). As noted, it seems that a rationed capital market was created; here there should be no a priori presumption that, even if standard models of investment analysis are used, the economywide cost of capital was low. Instead, the argument should revert back to overall saving behavior and the national income identity. What could be argued, though, is that if the relationship system was effective in dealing with capital market imperfections due to information problems in financial transaction (see, e.g., Myers and Majluf 1984), then the financial system, rather than the cost of capital per se, may have contributed to the extraordinary performance of Japan.

Still, even here the relative importance of the financial system has to be judged compared to the impact of the saving behavior, the proverbial work attitude of the Japanese, the methods of conflict resolution, the "reverse engineering abilities," and so on. More important, I show next how the "traditional" relationship system in finance is being eroded as internal and external pressures force a transition toward a system more reliant on impersonal prices, thus making the Japanese system less distinct.

7.3 From Relationships to Transactions

The relationship system described above functioned well. It assisted Japan in rapid rebuilding, high growth, low inflation, and low unemployment—the country seemed to have been doing everything right. Yet change was to come to the system. Many observers have, during the 1980s, described the "liberalization" of the Japanese financial markets, but I suggest that the impetus for change occurred much earlier: it was in the wake of the oil shock that many of the carefully designed dependencies of the system started to break down. Later, with pressures exercised from abroad to "open up" Japan's financial

system, further change occurred (see, e.g., Frankel 1984), in a system that had already started to let prices play a more active role due to domestic pressures.

It was Japan's response to the oil shock of 1974 that changed the financial system. With a dramatic reversal of the growth rates from almost 10% in 1973 to −1% in 1974, the Japanese authorities embarked on a Keynesian countercyclical expansion; they allowed for a large budget deficit to be generated. At the same time that domestic growth collapsed and a major international recession occurred, Japan's corporations saw their fund needs evaporate. With high depreciation charges and low investment appetite, cash flows burgeoned and the loan dependency was reduced (see table 7.6). This meant a basic reversal in the national flow of funds; the government became the net large absorber of funds, replacing the corporate sector (see table 7.8).

Table 7.8 **Government Financing Need**

Japan's Central Government's General Account (100 million Yen)

Year	Government Revenue (A)	Government Securities and Borrowing (B)	B as % of A (C)
1965	37,730	1,972	5.23
1966	45,521	6,655	14.62
1967	52,994	7,093	13.38
1968	60,598	4,620	7.62
1969	71,092	4,126	5.80
1970	84,591	3,471	4.10
1971	99,708	11,871	11.91
1972	127,938	19,499	15.24
1973	167,619	17,662	10.54
1974	203,791	21,599	10.60
1975	214,734	52,805	24.58
1976	250,260	71,981	28.71
1977	294,336	95,612	32.48
1978	349,072	106,739	30.58
1979	397,792	134,719	33.87
1980	440,406	141,702	32.18
1981	474,433	128,998	27.19
1982	480,012	140,447	29.26
1983	516,529	134,863	26.11
1984	521,833	127,813	24.49
1985	539,925	123,079	22.80
1986	564,891	112,549	19.92
1987	582,141	105,390	18.10
1988	566,997	88,410	15.59

Source: Economic Statistics Annual, 1988, Research and Statistics Department, Bank of Japan, p. 227.

Table 7.9 Bank Profitability[a]

Compound Growth Rates of Bank Profits and Assets		
	Assets (%)	Profits (%)
1960–65	19.7	9.0
1965–70	14.8	23.5
1970–75	17.4	3.4
1975–80	9.7	3.8
1980–85	9.5	13.0
1985–87	12.3	24.9

Source: Economic Statistics Annual, 1988, Research and Statistics Department, Bank of Japan, p. 104.

Note: Profits are reported on first half–last half basis until 1980; after 1980, fiscal years are used.

[a]Banks included are city banks and regional banks.

For the financial intermediaries, the world changed almost overnight. Now they had to absorb ever-larger public securities issues while the normally profitable lending opportunities to corporations shrank. The government, unwilling to allow for a competitive tender, instead focused on keeping its financing costs low. As a result, the (forced) bond subscription became a serious concern for the banks (see tables 7.9 and 7.10). Profitability at the city banks, the central players in this game, was compromised at the time that the power relationship between them and the authorities had changed—now the authorities had to ask for funding and no longer the overloaned banks.

The outcome of the changed relationship was that the banks asked for, and attained, new interest rate freedoms (see, e.g., Feldman 1986, pp. 50–56 and Bronte 1982, p. 21). At first only few interest rates of particular products were affected, but an unmistakable step was taken away from the strictly controlled price system. Similarly, new freedoms were granted in an incipient secondary market where the institutions could "unload" some of their holdings, as the Bank of Japan was no longer willing to repurchase the issue.

A second set of events furthered the transition toward more price-oriented financial transactions. With the breakdown of the international financial system after the Smithsonian agreement, new exchange-rate freedoms were observed. And while the Japanese financial authorities continued to try to isolate their domestic markets from foreign pressures, balance of payments pressures allowed for "leakages" to develop in this sector of the market as well, first in response to the current account deficit related to the oil shock, later in response to the current account surplus. For example, in 1975 Matsushita became the first Japanese corporation allowed to issue a dollar-denominated convertible debenture; in 1977 Euro-yen bonds were allowed (albeit only for nonresident issuers). Add to this that in the 1980s Japan's current account surplus started to show an embarrassment of riches with concomitant pres-

Table 7.10 **Government Bond Holdings by City Banks and All Banks as % of Total Assets**

	All Banks	City Banks
1965	.1	.1
1970	.9	.9
1973	1.4	1.1
1974	1.0	1.0
1975	2.3	2.2
1976	4.4	4.3
1977	5.9	5.7
1978	7.8	7.5
1979	7.4	6.6
1980	6.6	5.2
1981	6.3	4.6
1982	5.8	4.0
1983	5.6	4.0
1984	5.0	3.5
1985	4.3	3.0
1986	4.4	3.3
1987	4.6	3.4
1988	5.0	3.7

Source: Economic Statistics Annual, 1988, Research and Statistics Department, Bank of Japan, pp. 44–52.

sures for further liberalization, and the host of events that took place between 1977 and 1989 can only be seen as steps in a transition away from a relationship system toward a system that is increasingly driven by price transactions.

The increased reliance and popularity of the price-driven instruments has another reason as well. In financial transactions, "learning" by the market participants takes place. In this context the changes in the corporate finance structure of many U.S. firms, which have "discovered" the highly leveraged buy-out and merger transactions, are nothing but the acceptance of a new orthodoxy, or, as some skeptics may argue, nothing but the actions of newer participants who have forgotten some of the lessons of financial prudence, driven home to many older participants by memories of the 1930s. Such learning in Japan is seen in the eager experimentation with many of the highly price-sensitive products developed in foreign markets, where Japanese individuals and firms increasingly place their capital account deficit. The development of interest rate swaps and stock index futures are but two examples.

The impact of these changes can be profound. Take, for example, the new interest rate swap. Before, specialized financial institutions divided the financial product market by maturity of finance. In particular, only long-term credit banks could issue long-term debentures, while city banks could only fund on a short-term basis, while neither of the two types of institutions engaged in

much maturity transformation—the introduction of a swap market in effect renders such funding segmentation obsolete. Similarly, the introduction of a CD market with true interest freedoms has changed the funding behavior of the banks, while the introduction of a CP market has allowed corporations new funding opportunities and new investment outlets.

The changes that have occurred on the banking side of the financial system can only be interpreted as a move toward greater reliance on the price mechanism, a mitigation of the specialized financing functions of the various institutions, and a move toward greater convergence with the financial systems operative in other major financial centers, such as the United States and the United Kingdom. But the movement toward a less distinctive system was not only seen in bank finance. Change occurred in securities transactions as well.

While rights issues were popular in Japan, it was from the early 1970s that increasingly issues at market were to take place. After the first such market-priced issue had taken place in 1969 for a musical instrument maker, Nihon Gakki, this method of raising funds became more fashionable over time, and while the oil-shock's impact on funds needs slowed the growth of such market issues for some time, they would eventually come to dominate. In issuing at market, rather than at par, Japanese firms faced an interesting effect on their dividend policies. Typically, dividends had been set as a percentage of the par price of the shares; with the new issues at market, the corporations at first kept their dividend policies unchanged, thus vastly reducing the effective dividend pay-out ratio. A self-regulatory order of the securities industries changed this practice, and through a rule of "the Distribution of Profits" in effect set minimum dividend pay-out ratios.

The bond market also showed change. Traditionally, only fully secured debentures could be issued, since in 1905 a Secured Bond Trust Law had been enacted. The fully secured bonds did not only, in effect, enhance the relationship between the issuer and investor—traditionally, to a large extent, financial institutions—but such full collateralization also excluded many nonestablished players from the market. An example can be found in the financing moves of a company like Ito-Yokado, a nontraditional firm, started in the wake of the Second World War to become Japan's second largest supermarket chain. Without traditional relationships it was capital constrained in an industry that was, in Japan, capital intensive. With few assets (such as properties) that could be subsequently used as collateral for bond issues, Ito Yokado was constrained by the full collateral requirement and had to explore new ways of financing its operations. The company became one of the financial entrepreneurs eagerly embracing (and often trying to further) financial innovation that reduced the dominance of relationships from which they were excluded. Thus, Ito Yokado used, for example, innovative lease financing to attain asset use.

Other innovations in the bond markets took place as well. In 1979, a subsidiary of Sears Roebuck was the first issuer of an unsecured yen-denominated

debenture. A year later Matsushita Electronics was the second company to use the debenture format. While at first very rigid standards were employed in granting permission to issue such unsecured bonds, standards were relaxed, actually following the looser standards that had been approved for the earlier Euroyen unsecured bonds. Similarly, issuing standards for convertible bonds were relaxed as well. It can be hardly a surprise that, in this new environment, rating agencies have appeared that resemble their Western counterparts.

In the money market, change has equally been observed. Call money interest rates have been liberalized, RePos have found more price flexibility, the introduction of a CP market was noted, and the price sensitivity of CDs enlarged. In short, it is much more difficult than before to highlight the distinctive nature of the Japanese financial markets. This does not mean to suggest that the Japanese market is identical in structure to the market of, say, the United States. What is observed, though, is that the market is relying more on prices in distributing funds than it did before, while at the same time the interactions with foreign markets have increased as foreign financial institutions have entered the Tokyo market looking for opportunities to introduce new techniques and products and as Japanese financial firms have entered foreign markets.

7.4 The Impact of Change

While it is impossible to present a complete list of the changes that have taken place in the Japanese financial system, especially as much change is still ongoing, the impact of the changes can be speculated upon. I suggested, in the description of the high growth phase of the Japanese economy, that the overall system design seemed to have fit very well with an industrial targeting policy, and that a combination of reliance on indirect finance, relative isolation from the securities market as far as corporate control is concerned, and close cooperation between the banks, authorities, and corporations helped along a remarkable performance.

In this interpretation, finance did provide Japan with a competitive advantage in its quest for world market share, but through a complex system rather than through simply keeping the cost of capital low. In the emerging environment other questions have to be raised, if indeed a move toward a price-competitive system in the allocation of capital is taking place. As the traditional "rationed-bank-finance" system is superceded, new techniques for investment decisions, capital allocation, and capital funding have to be found.

Such new techniques have to be developed at times when new pressures face the various corporations. For example, the impact of the newly established rating agencies has to be considered. Will they start to apply leverage targets in rating the publicly issued securities, and, if so, will the traditionally higher leverage of Japanese firms start to show costs associated with the attained ratings? Note that in the absence of the full collateralization, leverage

considerations should play a more important role, as it opens the markets for new, nontraditional borrowers.

But there are other considerations that should be taken into account as well. The financial system changed at a time when, and in this interpretation *because*, the high growth phase of the economic development of Japan came to a screeching halt. The success of the system had been in large measure defined as (as well as relied on) creating the high growth rates, this allowed all established players the rewards needed to assure their conformity with the system, while it facilitated the exclusion of the "outsiders." As the growth stopped, the financial structure of the corporations would change. Now, less asset growth had to be financed while retained earnings would augment the equity component of the capital structure. With more reliance on retained earnings, leverage was to come down, an outcome consistent with the lower growth opportunities from a risk perspective. Furthermore, as I already pointed out, the advantages of leverage are great when high growth strategies are being pursued. Note that, in traditional corporate finance, given a particular return on assets (RoA), the higher RoE associated with higher leverage does not necessarily translate to higher shareholder value, since the required return on capital (or the cost of equity capital) would typically rise with higher financial risk at the corporate level.[9] Depending on one's beliefs about the efficiency of the markets and the "value" of tax shields, in effect the debate is simply about the optimal capital structure. Assuming, for simplicity, no changes in the relationship between the market and book value of a corporation, the higher return requirement on equity, as leverage increases, can equally be seen in lower P/E ratios.

While many caveats should be made in considering Japanese P/E ratios—many investigations have stumbled on complex accounting issues and the values of "hidden assets"—in the low growth phase of the economy P/Es have indeed decreased, even though the surge in the stock market since 1984 has shown, for more recent periods, high ratios. At the time that these P/E ratios declined (1976–84), leverage declined as well.

Within a traditional corporate finance evaluation such a P/E decline is unusual; with lower financial risk the P/E ratio would normally be expected to rise. However, given the interpretation provided so far, the lower leverage of the Japanese corporations (between 1974 and 1984) cannot necessarily be identified with lower financial risk—the overall financial system changed away from the strongest relationships. Since these relationships provided implicit guarantees, the changes that have occurred may have, in effect, caused the financial risks of the corporations to increase despite their attempts to unlever. Of course, this argument cannot explain the remarkable increase in P/E ratios that has taken place since the early 1980s and is discussed by Frankel (in this volume).

9. This follows from: RoE = RoA × A/E.

In short, it seems that it was not only the financial system that lost some of its distinctiveness, but the financial structure observed in the corporations moved away from the characteristic very high leverage to lower ratios. Completely in conformity with this trend, the reliance on indirect financing declined, while direct financing became a more important source of funds. While between 1970 and 1974 corporations raised 33% of their funds internally (13% through retained earning and 20% through depreciation charges), borrowings accounted for 47%, with the equity market supplying 5% and the fixed income market 2% of all required funds. Between 1983 and 1985, this picture changed. Now 49% was raised through internal funds (11% through retained earnings and 38% through depreciation charges) and only 37% through borrowings, with the equity market still only supplying 4.6% of funds, but the bond market now accountable for 3.3% (see table 7.6).

Concentrating on nonfinancial corporations listed on the first section of the Tokyo Stock Exchange (TSE), the numbers are even more dramatic, as internal funds doubled to supply 71% of funds needs, up from 35% during the period 1970–74. Borrowings, on the other hand declined from 41% between 1970–74 to 6% for 1983–85. Note that this "magnification" effect for the listed companies on the TSE should be no surprise; the larger, well established corporations had been the primary beneficiaries of the relationship system.

It is difficult to avoid the conclusion that, as the financial system changed, the corporations' financing techniques also seem to have lost some of their unique characteristics. Of course, a question of causality may be raised; did the system change because the corporations had become unhappy with their capital structure or did the change in the system force corporations to change their capital raising procedures and their financial structure? Here the interpretation is that neither of the two suggestions is correct but that instead the two should be seen as outcomes of the same driving forces for change. Thus I do not suggest that the financial structure during the traditional phase was the result of the particular financial environment; the two interacted in complex ways with each other, one reinforcing the other.

Take, for example, the city banks. Without the rapid growth of the established firms, their loan demand would have been less. Without the loan demand, the banks would not have been required to be marginally funded by the Bank of Japan. Without the last dependence, the method of "window guidance" would have been less effective. At the same time, without the loan demand, the financial institutions would have found it more difficult to accept the forced-subscription method for the public government issues, which in turn would have forced more interest-rate freedoms. Many similar dependencies could be found.

If the above is correct, it is remarkable to note that, as Japan moved away from the traditional system, its overall performance has remained exceptional. Current account accumulation replaced high growth as the new enviable trait of the country. It seems that the hypothesis about the influence of the financial

system on Japan's performance cannot be correct for the traditional phase if, during the emergence of the new system, an equally successful performance is observed. On the one hand it should be emphasized that the changes toward a system more reliant on the price mechanism has not totally abrogated the old relationship system. On the other hand, a speculation may be made about the role the system is currently playing in achieving a different kind of success from what has been observed before.

As the primary role of the system was to ensure a particular allocation of capital during the traditional phase, in the newly emerging system more standard forms of competition for capital *within* Japan have occurred. Here relationships and a position of acceptance play less of a role. At the same time it is now the overall national saving behavior that reflects the most distinguishing feature of the Japanese economy. To put it differently: with high national savings and trading partners such as the United States, with negative national savings, the performance of the Japanese economy fits very simply within any standard, open macroeconomic framework. In contrast, during the traditional phase, growth was stimulated through a guided rationing system that may have been able to deal with certain information problems effectively.

This is the reason to suggest that careful measures of the cost of capital may provide, at best, marginal insights for the developments during that period. If, however, a financial system is currently observed that conforms more to standard notions and if, at the same time, the Japanese corporations face more standard financial trade-offs and are perhaps more driven to apply choice models in investment decisions that explicitly recognize a price-competitive capital market, then it is more likely that, in international competition, business decisions may today indeed be differentially affected for Japanese versus U.S. corporations, by cost of capital considerations.

Take, again, the impact of rating agencies on Japanese bond issuers. They will enforce, through their rating standards, new methods of firm evaluation. Similarly, with many corporations' equity investments currently residing in the so-called Tokkin funds, different pressures for stock performance can be expected. If, allowing for these developments, more traditional U.S. corporate objectives will be assimilated into Japanese business practice, models such as DCF analysis are bound to play a larger role. Again, I do not suggest that the Japanese corporate decision-making process will be identical to the one in the United States, but the direction of change will be such that a less rather than a more distinct structure will be seen.

7.5 The Cost of Capital

Since another contribution (Frankel, in this volume) deals explicitly with the cost of capital issues, I will only present the highlights of the controversy in relation to what has been argued before. With evidence being almost continuously produced (revised and refined), the investigation into a possible cost

of capital advantage for Japanese firms has proven to be a growth industry. Contributions such as Hatsopoulos (1983), Hatsopoulos, Krugman and Summers (1988), Baldwin (1986), Ando and Auerbach (1985) and (1987), Friend and Tokutsu (1987), Hodder (1988) and Luehrman and Kester (1988) have all looked at (aspects of) the cost of capital to explain differences in corporate performance between the United States and Japan. Not surprisingly, given the vastly different institutional environments in the two countries, the papers either had to try to account for specific national conventions (e.g., hidden reserves, pension fund liabilities, etc.) or to ignore them. A third avenue of pursuit rested on looking at a "stripped down" version of the controversy—ignoring the cost of capital for firms, but instead looking at one determining factor, such as the risk-free interest rate.

The ultimate purpose of these investigations, in contrast to macroeconomic explorations into the national saving behavior, was to explain corporate performance and investment decisions, and, mostly implicitly, the significant gain of world market share by Japanese firms, often at the cost of U.S. firms. Still, the investigation into possible different WACCs for Japan and the United States, has shown contradictory results after increasingly careful estimation, even for the same authors (cf. Ando and Auerbach 1985 and Ando and Auerbach 1987). But even recent studies are able to generate very different conclusions. Baldwin (1986) concludes that the cost of capital differences on a risk-adjusted basis are minor, while Ando and Auerbach (1987), in contrast, find significant cost advantages for Japanese firms. Hodder (1988) provides a synthesis between the two results, relying heavily on information problems and monitoring costs.

Attempting to avoid the company specific problems in measuring the WACC, Luehrman and Kester (1989) focus instead on a central input of the WACC and concentrate on a real risk-free return comparison between the United States and Japan. They find that real returns are not equalized between the two countries, but that the deviations do not systematically favor Japan. Such differences in the real returns are consistent with findings by authors such as Frankel and Froot (1987) if one considers long-run, sustained deviations from purchasing power. The latter finding, however, suggests that the yen-dollar relationship has been characterized by a long-term appreciation of the yen, thus leading to suggest that the real return, even in the absence of barriers to capital mobility, should have remained favorable to Japan.

Since I argue that the institutional framework has been central in considering corporate finance in Japan, rather than a simple measure of the cost of capital (such as the WACC), it is more important to consider the cost of capital controversy with an eye toward the future. Two important trends have to be acknowledged; one is that the relationship system in Japan is receding—it may mean that many of the information-related problems, so effectively dealt with in the older system, will start to play a more traditional role. The other is

that increasingly international capital market integration is taking place and that thus the access of corporations from one country to another country's capital market is facilitated.[10]

However, even if one were to assume that the cost of capital was identical to Japanese and U.S. firms, that companies in both countries employed identical investment-decision models, that tax structures were similar, and that for all companies the same pressures from shareholders and debt holders obtained, it is clear that the U.S. "competitiveness" problem could still not be solved through the corporate cost of capital "equalization." Instead, the underlying reasons for the loss of U.S. world market share has to be acknowledged as a lack of national savings in the United States.

While some, such as Scott (1984), have argued about a possible loss of U.S. "competitiveness" early on, it is only more recently that the concept has captured popular attention. Clearly the large current account imbalances have aided in the recognition of the problem. Still, these very current account imbalances indicate that the cause of the problem cannot lie in the cost of capital difference; it has to rely on a national savings argument.

Thus, much of the debate about the cost of capital may be about the internal distribution of growth of corporations within the confines of the national savings behavior. In this respect, it is not surprising that a group of prominent U.S. economists asked their colleagues recently to petition for a sales tax to generate national savings; in contrast to individual executives who may concentrate on their cost of capital, for this group of professional economists it is the aggregate performance of U.S. industry that stands central. Similarly, it should be clear that, for Japan, a requirement of national dissaving becomes imperative, given its large (and sustained) current account surplus. To achieve such adjustments in the national saving rates will require policy initiative, as it seems clear that during the last half-decade automatic adjustment has been elusive at best. In particular, emphasis can be put on the U.S. government's saving behavior as a major influence on the national saving rate as shown by Summers and Carroll (1987).

7.6 Conclusions

This paper argues that both the financial system and the cost of capital matter in explaining the relatively extraordinary performance of Japan—not as the sole determinants but as important inputs. It is shown that Japan's distinct national financial system displayed characteristics that were established in a relatively short period of time after the Meiji Restoration (1868) and fully developed in a period of two decades (1954–74). The central feature of the

10. While international capital mobility may have increased, several authors have shown that due to a failure of purchasing power parity in the short term, this does not mean that real interest rate equalization takes place (see Frankel's contribution to this volume).

"relationship" system was that it allowed for guided capital rationing. It achieved this outcome through financial product market segmentation, price regulation, and hierarchical organization. Within the context of standard economic models, the system was organized in such a way as to deal effectively with many problems currently associated with terms such as asymmetric information, agency problems, and incentive compatibility.

A complex, rich, institutionally varied system undoubtedly helped Japan to focus on its growth strategy, reflecting a national consensus of objective and an inability of those excluded from access to preferential capital to seriously challenge the system. In Japan, indirect finance came to dominate and allowed for capital structures significantly different from what was observed in the United States. At the same time, there seems to have been built into the system an ability for corporations to avoid earnings performance pressure; access to financial capital was not the result of profit targets but instead was vested in the relationships with the suppliers of finance. Obviously investment decision making did not conform with simple models that stress share-price maximization through discounted cash flow. In this sense it is misguided to expect indicators such as the weighted average cost of capital to shed significant light on the relative performance of Japanese firms as compared to their U.S. counterparts.

It was argued that the Japanese financial system underwent significant change during the 1970s. Not, as is commonly suggested because of external pressures to liberalize the financial service sector, but simply because the aftermath of the oil shock broke some of the dependencies and carefully created balances that had allowed the Japanese relationship to flourish. Again, the importance of institutional factors is enormous. With a less important relationship system, the Japanese financial market started to more closely resemble that of the United States. With new institutional factors, such as a less heavy reliance on bank financing, which had incorporated many information-sharing advantages, and new corporate organization forms (such as the Tokkin funds), new pressures may come to bear on the Japanese firm. Not surprisingly, rating agencies have now surfaced in Japan. In this new environment, shareholder pressures may grow, and one may speculate that more traditional models such as DCF may gain in currency—now, cost of capital differences may start to play a more transparent role, but they will have to be related to either institutional differences that allow for differences in capital structure or to failures of international capital mobility.

As a result it may be surprising that Japan has been able to continue to perform enviably, even though it is now the international asset accumulation rather than the growth performance that commands the center of attention. Here, I argue, it is most useful to revert back to the basic national income identity: it is the national saving behavior of the Japanese economy rather than individual corporations cost of capital advantages that deserve attention.

References

Abegglen, J. C., and G. S. Stalk, Jr., 1985. *Kaisha, The Japanese Corporation.* New York: Basic Books.

Ando, A., and A. J. Auerbach. 1985. The Corporate Cost of Capital in Japan and the U.S.: A Comparison. Working Paper no. 1762. National Bureau of Economic Research, Cambridge, Mass., October.

———. 1987. The Cost of Capital in the U.S. and Japan: A Comparison. Working Paper no. 2286. National Bureau of Economic Research, Cambridge, Mass., June.

Aoki, M. 1984. Shareholders' Non-unanimity on Investment Financing: Banks vs. Individual Investors. In *The Economic Analysis of the Japanese Firm,* ed. M. Aoki. New York: North Holland-Elsevier.

Asquith, P., and D. W. Mullins. 1986. Equity Issues and Offering Dilution. *Journal of Financial Economics* 15:61–89.

Baldwin, C. Y. 1986. The Capital Factor: Competing for Capital in a Global Environment. In *Competition in Global Industries,* ed. M. E. Porter. Boston: Harvard Business School Press.

Bank of Japan. Various issues. *Economics Statistics Annual, Research and Statistics Department.*

Bernanke, B. 1983. Non-monetary Effects of the Financial Crisis in the Propagation of the Great Depression. *American Economic Review* 73:257–76.

Bronte, S. 1982. *Japanese Finance: Markets and Institutions.* London: Euromoney Publications.

Chase Manhattan Bank. 1980. Chase Financial Policy. Report prepared for the U.S. Semiconductor Industry Association. New York, June.

Crum, C., and D. M. Meerschwam. 1986. From Relationship to Price Banking: The Loss of Regulatory Control. In *America versus Japan,* ed. T. K. McCraw. Cambridge, Mass.: Harvard Business School Press.

Ellsworth, R. R. 1985. Capital Markets and Competitive Decline. *Harvard Business Review* (September-October), pp. 171–83.

Feldman, R. A. 1986. *Japanese Financial Markets, Deficits, Dilemmas, and Deregulation.* Cambridge, Mass.: MIT Press.

Feldstein, M., and C. Horioka. 1980. Domestic Saving and International Capital Flows. *Economic Journal* 90:314–29.

Frankel, J. 1984. The Yen Dollar Agreement: Liberalizing Japanese Capital Markets. Policy Analyses in International Economics, no. 9. Institute for International Economics, Washington, D.C.

Frankel, J., and K. Froot. 1987. Short-term and Long-term Expectations of the Yen/Dollar Exchange Rates: Evidence from Survey Data. *Journal of the Japanese and International Economies* 1:249–74.

Friend, I., and I. Tokutsu. 1987. The Cost to Capital to Corporations in Japan and the U.S. *Journal of Banking and Finance* 11:313–27.

Gultekin, N. B., and T. Taga. 1987. Financial Management in Japanese Corporations. Manuscript. Wharton School, University of Pennsylvania.

Hatsopoulos, G. 1983. High Cost of Capital: Handicap of American Industry. Study for the American Business Conference and Thermo Electron Corp.

Hatsopoulos, G., P. R. Krugman, and L. Summers. 1988. U.S. Competitiveness: Beyond the Trade Deficit. *Science* (July), pp. 299–307.

Hayashi, T. 1986. Why Is Japan's Saving Rate so Apparently High? In *NBER Macroeconomics Annual 1986,* ed. Stanley Fischer, 1:147–234. Cambridge, Mass.: MIT Press.

Hodder, J. 1985. Investment and Financial Decision Making in Japanese Firms: A Comparison with U.S. Practices. Manuscript. Stanford University.

———. 1986. Evaluation of Manufacturing Investments: A Comparison of U.S. and Japanese Practices. *Financial Management* 15, no. 1:17–23.

———. 1988. Capital Structure and the Cost of Capital in the U.S. and Japan. Manuscript. Stanford University.

Hoshi, T. A. Kashyap, and D. Scharfstein. 1988. Corporate Structure, Liquidity and Investment: Evidence from Japanese Panel Data. Working Paper no. 2071-88. Sloan School of Management, MIT, Cambridge, Mass.

Japan Securities Research Institute 1986. *Securities Market in Japan*. Tokyo.

Johnson, C. 1982. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925–1975*. Palo Alto, Calif.: Stanford University Press.

Krugman, P. R. 1988. Introduction: New Thinking about Trade Policy. In *Strategic Trade Policy and the New International Economics*. ed. P. R. Krugman. Cambridge, Mass.: MIT Press.

Luehrman, T., and W. C. Kester. 1989. Real Interest Rates and the Cost of Capital: A Comparison of the United States and Japan. *Japan and the World Economy* 1:1–23.

McCraw, T. K., and P. O'Brien. 1986. Production and Distribution: Competition Policy and Industry Structure. In *America versus Japan*, ed. T. K. McCraw, pp. 77–116. Cambridge, Mass.: Harvard Business School Press.

Miller, M., and K. Rock. 1985. Dividend Policy under Asymmetric Information. *Journal of Finance* 40:1031–51.

Monroe, W. F. 1973. *Japan: Financial Markets and the World Economy*. New York: Praeger Publishers.

Myers, S. C., and N. S. Majluf. 1984. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do not Have. *Journal of Financial Economics* 13:187–221.

Presnell, L. S., ed. 1975. *Money and Banking in Japan*. New York: Macmillan Press.

Prindl, A. R. 1981. *Japanese Finance, A Guide to Banking in Japan*. New York: Wiley.

Revell, J. 1973. *The British Financial System*. London: Macmillan.

Scott, B. R. 1984. National Strategy for Stronger U.S. Competitiveness. *Harvard Business Review* (March-April), pp. 77–91.

Stein, J. 1989. Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior. *Quarterly Journal of Economics* 104:655–59.

Summers, L., and C. Carroll. 1987. Why Is U.S. National Saving so Low? *Brookings Papers on Economic Activity*, no. 2: 607–35.

Tamura, Tatsuro. 1987. Changes in Corporate Fund Raising and Management, pt. 2. *FAIR Fact Series: Japan's Finance Markets*, vol. 29.

U.S. Federal Trade Commission. *Quarterly Financial Report for Manufacturing, Mining and Trade Corporations*. Washington, D.C.: Government Printing Office.

Wallich, H. C., and M. I. Wallich. 1976. Banking and Finance. In *Asia's New Giant, How the Japanese Economy Works*, ed. H. Patrick and H. Rosovsky. Washington, D.C.: Brookings.

Comment

Koichi Hamada

Meerschwam discusses various historical, institutional, and policy-related factors that could have affected the cost of capital in Japan or that could have made the concept of the cost of capital itself less relevant in Japan than in Western countries. The topics covered are rather extensive so that the paper serves as a good introduction to this issue as well as an informative background paper on the quantitative study of the cost of capital by Frankel. The attempt to relate the issue to the incentive mechanism under asymmetric information is a very useful one. As an economist, I wish this paper were written in such a way as to enable the reader to see transparently what kind of theoretical model is behind various arguments contained in it. In any case, this paper let me reconsider several institutional features of the Japanese financial market. I will discuss some of these issues that came to my mind while I was reading this extensive work.

As the author argues, the Japanese financial system was a highly regulated system during the 1950s and 1960s. Already in the 1960s, the market mechanism became quite dominant. The author emphasizes the year 1974 as the turning point that marks the period when the high growth of the Japanese economy was halted and the resulting accumulation of government debt changed the structure of the flow of funds. The process of deregulation or liberalization had already started, however, during the late 1960s. One factor to which the author does not pay sufficient attention is the ceiling of nominal interest rate, like the Regulation Q in the United States. Large depositors were given implicit interest by various side payments; for example, the gift of furniture or tickets to an excursion trip. But the small depositors could only get such trifles as tissue paper, and even the amount of that was once limited by coalition talks among banks. This low cost of supply of funds to commercial banks must have been a factor to reduce the cost of capital to the insiders that had access to commercial lending from large *keiretsu* banks. Also, the existence of the very high interest rate (often more than 100 percent per annum) indicates that the outsiders had to be satisfied with the very high cost of capital. Certainly, the existence of a segmented financial market was a factor that makes the calculation, as well as the interpretation, of the cost of capital difficult. I cannot agree with the author to the extent that the discounted cash flow or the cost of capital was irrelevant, but I agree in that we should at least get an explicit account of the segmentation of the market.

It makes sense to argue that the traditional segmented system gave an advantage to insiders in terms of incentives to invest. Face-to-face customer relationships might have been a better way to cope with asymmetric information than the impersonal, standardized channel of funds through marketable

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securities. The questions remain, however. Why did this system develop in Japan and not, for example, in the United States? And why has it been replaced by the market system in the present Japan? The entry barrier to the insiders should have been very high. Then, these collusive activities might have been quite expensive from the standpoint of depositors and small customers of commercial banks.

Finally, let me discuss the author's concluding remark that not the cost of capital but the amount of savings is the crucial problem to understanding the relative decline of productivity growth in the United States. First of all, as the author admits in the introduction, such factors as labor productivity and quality control are important as well. Second, I do not think that the amount of savings and the cost of capital are alternative concepts. The cost of capital can be measured by the abscissa of the intersection of the demand and the supply curve of funds. If the supply curve shifts to the right, then the realized price of the funds will tend to be lower. If the world capital market is fully integrated, the cost of capital among countries will be equated by the flow of funds from high-saving countries to low-saving ones. If there exist impediments to international capital flows, as Feldstein and Horioka argue, then the high-saving countries will normally enjoy the lower cost of capital unless investment opportunities among countries are drastically different.

Comment

Robert Alan Feldman

David Meerschwam's paper contributes to our knowledge of Japanese financial markets by emphasizing two major themes, the role of the financial system as a risk bearer and the importance of the insider-outsider phenomenon. Rather than nitpick at arguments in the paper, I would like to offer some reflections that it stimulated.

The Financial System as Risk Sharer

The financial industry exists to transform assets, to disburse risk, and to provide a menu of combinations of return and insurance. In examining the evolution of a financial system, it is important to ask what types of asset transformation were carried out, whom this transformation benefited, how risks were disbursed, what combinations of return and risk were provided, and who were the providers and beneficiaries of the implicit or explicit insurance. The precise mix of risks faced by both firms and intermediaries is a critical determinant of financial structure. The types of contracts and risk-sharing formulas

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that are optimal for any system naturally reflect this structure of risks, which may change over time.

The high growth period in Japan was one of relatively great risks external to firms, the variability of growth being the key risk. However, international conditions, for example, external demand and oil and commodity prices, were stable. Risks internal to the firm were also mixed. The high educational level of the work force relative to the stage of development meant that labor shortages could be overcome; the ability to follow practices in other countries and improve on them was a source of growth without excessive R&D burdens. But management mistakes were inevitable in an economy changing so rapidly. For banks, credit risk was high but system risk low, especially with government policy playing so large a role in ensuring the safety of intermediaries.

With the end of the high-growth period, however, the mix if risk characteristics changed for both firms and intermediaries. The variability of the cycle has been much lower. But international conditions have been far more variable, with major oil shocks in both directions, exchange rate fluctuations, and changing growth patterns in the rest of the world. For banks, credit risk remains important, but the greater integration of world financial markets has increased system risk substantially. And event risk has raised the correlation of returns on assets held by intermediaries.

In light of this new mix of risks, it seems inevitable that the Japanese financial system would change its mode of operation. An economy with good long-term prospects but high short-term variability naturally lends itself to long-term banking relationships that preserve access to credit in lower growth periods in return for the banks' implicitly taking a piece of the action through equity positions. But with less variability and more worry about longer-term performance, it seems logical for firms to stop paying insurance premia for credit access in downswings and for banks to shift to shorter-term horizons in asset choice. Greater event risk would also tend to weaken long-term relationships, since, because of its international nature, the losers and the gainers from shocks cannot be brought into the same insurance pool.

The Insider-Outsider Problem

Many of the papers at this conference, including Meerschwam's, have touched on the insider-outsider problem. Even for Japanese firms, it can be difficult to penetrate established long-term relationships, and so it is important to understand the nature of such relationships. I think that *The Evolution of Cooperation*, by Robert Axelrod, has much to contribute to this understanding.[1]

Axelrod asserts that life is not a bowl of cherries but rather an iterated prisoner's dilemma game of unknown length. He then shows that, under reason-

1. Robert Axelrod, *The Evolution of Cooperation* (New York: Basic Books, 1984).

able payoff matricies, the optimal strategy is tit for tat, that is, to cooperate on the first move and then respond as your opponent acted on the previous move. He also shows that a colony of "tit for tat-ers" can, if sufficiently large, invade a world of mean-strategy opponents and not only prosper but grow. This model may hold the key to understanding insider-outsider (i.e., *keiretsu*) behavior in Japan. Even though members of a cooperating group tend to have lower average scores than some clever but mean opponents, they still thrive in the long run. This result suggests that one way for foreigners to crack the Japanese market is to become members of the insider groups. Such membership is particularly important in an age when information exchange is a key element in value creation.