

The second main linkage is between the Bank of Japan and the city banks. The Bank of Japan has kept the discount rate below the interbank loan rate. In addition, it has given city banks preferred access to low-rate funds. This combination of policies has guaranteed a relatively high degree of control over the total amount of credit available to large industrial corporations. The close working relationships between the banks and the corporations are also responsible for lower agency costs and for lower expected bankruptcy costs.

Financial Liberalization

In the mid-1970s, significant changes began that may decrease the ability of the Japanese government to funnel low-cost funds to its large corporations. The ongoing process of change in the financial markets has been referred to as financial liberalization.

The first change of note occurred with the oil price shock of 1973, which led to massive government deficits. With the sudden increase in deficits, a large amount of government debt had to be floated. A secondary market in government debt sprang up, and with it came a market-determined interest rate that made it more difficult to enforce deposit-rate ceilings. Also, as a result of the slowdown of growth, there was a reduced need for external financing by the corporate sector. This reduced corporate dependency on the banking system and, hence, weakened the effectiveness of the low-interest-rate policy.

The changes that followed the declining growth in the mid-1970s set in motion a series of policy changes. Interest-rate ceilings are gradually being removed, and the remaining ceilings are now adjusted more frequently to reflect market rates. A greater variety of securities is now available. Additionally, restrictions on international capital movements are gradually being removed. Whether these changes imply that the rate-of-return advantage enjoyed by Japanese corporations will disappear is unclear. However, the mechanism through which the Bank of Japan will operate must change.

Summary

We have examined evidence of whether particular financial factors could explain a Japanese edge in investment over the U.S. While the tax codes differ between the two countries, there is no consensus that Japanese corporations are less burdened by taxes. Evidence is mixed on the question of leverage and, in any case, we argue that greater leverage could not explain a Japanese edge. Pre-tax required rates of return, agency costs of debt, and the expected bankruptcy costs of debt, however, are lower in Japan. In large part, these advantages are a result of unique relationships in Japan among the banks and the larger corporations.

The lower required rates of return have largely been the result of capital market controls and of the low-interest-rate policy followed by the Bank of Japan. The ongoing process of financial liberalization, however, may tend to further equalize capital costs between the U.S. and Japan.

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ECONOMIC COMMENTARY

The dramatic loss of U.S. international competitiveness in manufacturing industries has been of increasing concern to U.S. policymakers. A particular focus of this concern has been the relative success of Japanese manufacturers. Proposed policy actions to offset the loss have ranged widely, from manipulation of exchange rates, to tax reform, to policies aimed at altering the level of interest rates.

The loss of American competitiveness seems most acute in capital-intensive industries: industries in which cost reduction and product improvement require high rates of investment in both tangible and intangible assets. Possible explanations are that 1) the cost of capital is lower in Japan, 2) Japanese manufacturers utilize greater amounts of low-cost debt, 3) taxes are relatively burdensome in the U.S., and 4) interest rates and other pre-tax required rates of return are lower in Japan.

In this *Economic Commentary*, we discuss recent evidence on the importance of financial factors in explaining the Japanese edge. Overall, evidence on the importance of particular financial factors is mixed, due to the variety of ways that studies have gone about addressing these issues. We conclude that, contrary to popular belief, 1) there is no conclusive evidence that the cost of capital in Japan is low enough to explain a Japanese edge, 2) Japanese reliance on "low-cost debt" is not great enough to explain an advantage, and 3) the U.S. and Japanese tax codes are not that different.

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It is possible, however, that capital costs are lower in Japan because of other factors. In particular, there is evidence that agency costs and, possibly, pre-tax required rates of return are lower. Even so, ongoing changes in Japanese financial markets suggest that these differences may disappear in the near future, further equalizing capital costs between the U.S. and Japan.

Differences in Costs of Capital

The cost of capital incorporates many factors that influence investment. While it is often presumed that the cost of capital is lower in Japan, upon close examination, the evidence appears inconclusive. In part, this is because of the different ways in which economists attempt to measure the cost of capital.

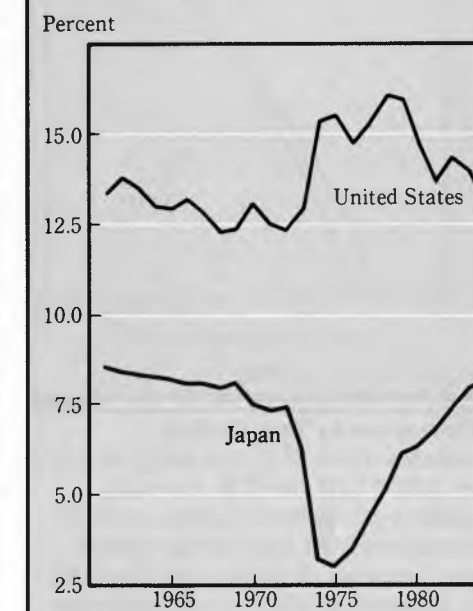
In a widely cited study, Hatsopoulos (1985) measures the cost of capital as defined by Hall and Jorgenson (1967)¹ and concludes that from 1961 to 1984, the cost of capital was much lower in Japan (see chart 1). This conclusion is consistent with the results of a study done for the U.S. semiconductor industry in 1980.

More recent studies, however, have contradicted earlier conclusions. Ando and Auerbach (1985), for example, estimate costs of capital by utilizing balance-sheet data. As they admit, they are thus calculating ex-post (realized) rates of return rather than ex-ante (expected) rates of return. Ex-ante rates would be more consistent with the concept of the cost of capital. They find that, for the companies in their sample, the median costs of capital are 7.5 percent for Japan and 9.4 percent for the

The Japanese Edge in Investment: The Financial Side

by William Osterberg

Chart 1 Costs of Capital for the United States and Japan



SOURCE: Hatsopoulos (1985).

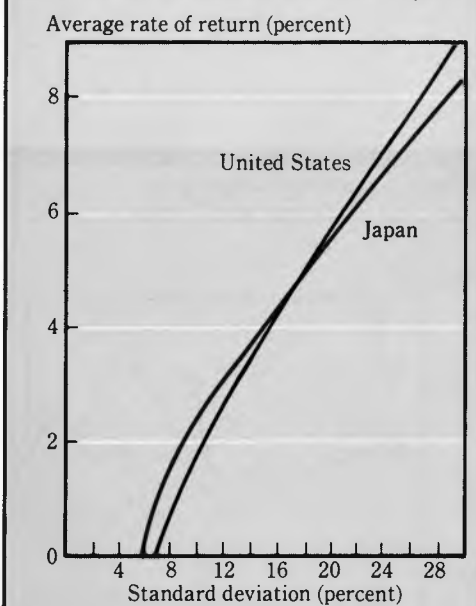
U.S. However, when they use market data on equity earnings rather than book earnings, the Japanese edge disappears. When they adjust for the effects of corporate taxation, they still conclude that the Japanese do not have a lower cost of capital.

In a 1986 study, Carliss Baldwin takes yet another approach to measuring costs of capital, focusing on the opportunities of multinational corporations to take advantage of potential differences in national costs of capital.

1. See Robert E. Hall and Dale W. Jorgenson, "Tax Policy and Investment Behavior," *American Economic Review*, vol. 57, no. 3 (June 1967), pp. 391-414. For a discussion of the concept of the cost of capital, see Alan Auerbach, "Taxation, Corporate Financial Policy, and the Cost of Capital," *Journal of Economic Literature*, vol. 21, no. 3 (September 1983), pp. 905-40.

Baldwin calculates risk-adjusted rates of return on portfolios comprising stocks and bonds for both Japan and the U.S. and finds no significant differences between the two countries (see chart 2). Taking into account differences in national tax systems does not alter this conclusion.

Chart 2 Risk-Adjusted Rates of Return for the United States and Japan



SOURCE: Baldwin (1986).

Differences in Tax Codes

In debates about U.S. tax policy, it has been stated that the U.S. tax code imposes a competitive burden on U.S. corporations.² At least in the case of Japan, however, it is not clear that the U.S. tax code is relatively burdensome. Finance theory suggests that both corporate and personal tax rates influence investment by affecting investors' after-tax rates of return. Any lowering of the after-tax rates of return received by investors will decrease the prices of the firm's stocks and bonds. Increases in corporate tax deductions and credits reduce the tax payments of corporations and thus increase the after-tax distributions to investors. A number of differences in tax codes would seem to imply a Japanese edge. First, in Japan, 20 percent of all corporate dividends can be deducted from corporate taxable income. Thus, the greater the reliance on dividends ver-

sus retained earnings as sources of equity finance, the greater the after-tax payout to investors for a given pre-tax corporate return. Second, capital gains on transactions involving securities are not taxed. This reduces the corporation's cost of purchasing shares as a method of financing investment. Third, the definition of interest-bearing debt, whose returns can be deducted from taxable income, is more permissive. In the U.S., the largest stockholder would rarely be the largest debt-holder, because the IRS would not allow interest deductions. In Japan, however, the largest stockholders are often the largest debt-holders. Thus, by utilizing debt instruments with tax-deductible interest payments, the corporation can reduce the pre-tax rate of return it must earn. In addition, tax-deductible reserves are more available than in the U.S. Such reserves are considered tax-free loans from the government, since the amount deducted from the corporate taxable income for one year can be added back to the following year's income. For some reserves, the amount to be added back to income is spread over several years. On the other hand, the investment tax credit in Japan is much smaller than in the U.S., and the statutory corporate tax rate is higher. Also, as Baldwin has pointed out, any perceived advantage is diminished once we focus on the strategies available to multinational corporations. These entities are able to minimize home-country taxation of foreign income. While Hatsopoulos and others are convinced that the Japanese tax code promotes investment relative to the U.S. tax code, some researchers find no evidence to support that contention. Ando and Auerbach compare before-tax and after-tax rates of return and find that, if anything, Japanese companies are taxed more heavily on real income. Baldwin calculates effective corporate tax rates for a variety of assumed dividend payout rates. She demonstrates that, for a wide range of payout rates, the effective corporate tax rate is higher for Japanese corporations.

Table 1 Debt-Equity Ratios for the United States and Japan

Ratios	United States	Japan
Book Value Equity		
Gross Debt	0.745	2.703
Net Debt	0.577	1.910
Market Value Equity		
Gross Debt	0.882	1.416
Net Debt	0.687	0.976

SOURCE: Kester (1986).

Differences in Leverage

Another common perception is that Japanese corporations are more highly leveraged. Greater reliance on debt versus equity finance would give the Japanese an edge if debt were cheaper than equity. In table 1 we present debt-equity ratios calculated by Kester (1986). Debt-equity ratios based on book values are higher than those based on market values. In addition, Japanese companies are more reliant on bank loans and so-called "interest-free debt." Interest-free debt refers to items such as accounts payable and trade credits that do not entail explicit interest payments. A greater reliance on interest-free debt in Japan has also been documented by Hatsopoulos. Some forms of interest-free debt are peculiar to the Japanese financial system. Japanese corporations can utilize a variety of tax-free reserves that can be considered interest-free loans from the government. According to Hayashi (1985), in 1981 the six largest reserves available to Japanese corporations amounted to 10.7 percent of the total market value of debt. A greater reliance on interest-free debt and, possibly, a greater reliance on debt in general cannot explain a Japanese edge in investment for two reasons. First, although some forms of debt are free of explicit interest payments, they nonetheless entail opportunity costs. Thus, studies that give Japanese corporations an edge because of their reliance on free debt have overstated any advantage. Second, once all the costs of debt are considered, at the margin the costs of debt and equity to the corporation should be equal.

Two types of financial costs that may not be fully incorporated into the interest rates or equity yields measured above are *agency costs* and *expected bankruptcy costs*. Agency costs arise from a divergence in the interests of creditors and owners.³ Investment decisions are usually viewed as being made by managers on behalf of the owners (stockholders). To the extent that creditors (bondholders) are a separate group from stockholders, it is likely that managers will make investment decisions to the benefit of the stockholders and to the detriment of the bondholders. The bondholders, however, recognizing this possibility, will require higher yields on the debt or will impose restrictions on the firm's activities. Both the difference in yield and the lost opportunities can be viewed as agency costs. The structure of corporate ownership and the nature of lending practices imply lower agency costs in Japan. Unlike U.S. banks, Japanese banks can own up to 5 percent of the equity of manufacturing corporations. Another difference is that in Japan, banks and companies are by far the dominant owners. In fact, equity ownership of any given company is highly concentrated among several parent companies and one of the major banks. Thus, creditors and owners are not as separate as in the U.S. Expected bankruptcy costs should also be lower in Japan because of the institutional relations among companies, lenders, and the government. Expected bankruptcy costs are the costs associated with reorganization that investors may be expected to bear from bankruptcy. These costs are lower in Japan because financial adversity is likely to be met by extension of credit or managerial assistance within the group of companies and banks. In serious cases, the main bank will take an active role in the rescue and will perhaps even absorb all losses itself. In addition, it is widely believed that industries targeted for growth by the Japanese government will not be allowed to fail.

Table 2 Real Interest Rates from 1970-1984 for the United States and Japan (percent's)

Years	United States	Japan
1970	3.3	1.6
1971	3.2	1.3
1972	3.5	1.2
1973	1.8	-2.1
1974	1.5	-14.0
1975	1.1	-2.0
1976	3.2	0.1
1977	2.2	0.3
1978	1.7	2.2
1979	6.6	5.2
1980	1.7	1.7
1981	5.5	3.5
1982	7.9	5.5
1983	8.3	6.1
1984	9.5	5.5

SOURCE: Hatsopoulos (1985).

Differences in Required Rates of Return

A common belief is that lower interest rates give Japanese manufacturers a competitive edge. More generally, however, investment is influenced by the after-tax rates of return required by investors. As there is little evidence that tax rates favor the Japanese, we examine the relative pre-tax required rates of return on debt and equity. At the margin, the total (explicit plus implicit) costs of debt and equity should be equal. We previously argued that the implicit, agency, or expected bankruptcy costs should be lower in Japan. In this section, we examine the relative size of the explicit costs. The explicit, real cost of debt can be measured as the nominal interest rate minus the expected inflation rate. In table 2 we present real interest rates calculated with high-grade bond yields and actual inflation rates (see Hatsopoulos, p. 11). From 1970 to 1984, the rates are clearly lower in Japan. The explicit cost of equity is more difficult to measure. Its two components are the dividend yield and the rate of capital gains. Hatsopoulos calculates that in 1983, the real rate of return to equity-holders was 8.6% in the U.S. and 5.4% in Japan.⁴

Explaining Lower Required Rates of Return

Explanations of the lower pre-tax required rates of return in Japan focus on lower interest rates. Lower interest rates should be accompanied by lower equity yields through an arbitrage process that equates the after-tax rates of return on alternative assets to investors. The low-interest-rate policy of the Japanese government has been well-documented.⁵ A key element in that policy, as of 1983, was the maintenance of controls on interest rates for savings deposits, dividend rates on loan trusts, yields on government bonds, and yields on five-year bank debentures. The other key element in the low-interest-rate policy is the structure of capital market controls, which has segmented Japanese capital markets both domestically and internationally. These controls include restrictions on the ability of Japanese corporations to borrow abroad as well as restrictions on the ability of foreigners to borrow in Japan. The restrictions weakened the tendency for Japanese domestic interest rates to move with comparable interest rates abroad and helped to maintain low interest rates and low required rates of return in general. The close linkages among the Bank of Japan, the major lending institutions, and the large industrial corporations are the institutional mechanisms through which the low-interest-rate policy operated. The first critical linkage is between Japanese corporations and their banks. In the postwar period, one of the most noted aspects of Japanese corporate finance has been the heavy reliance of corporations on banks as lenders as opposed to raising funds directly in capital markets. Most bank lending has been performed by "city banks," the largest private banks in Japan. These banks concentrate on lending to the largest corporations. In Japan, each corporation has a main bank on which it is highly dependent for credit and to which it would turn in the event of financial distress.

2. See *Tax Reform Proposals-XVI, Debate on International Competitiveness of U.S. Businesses*, Hearing before the Committee on Finance, United States Senate, 99th Congress, First Session, July 18, 1985 (U.S. Government Printing Office, 1985).

3. Jensen and Meckling (1976) provide an early detailed discussion of agency costs.

4. In theory, the cost of equity is the yield used to capitalize a "sustainable" level of dividends. Baldwin has criticized Hatsopoulos for ignoring that corporations set the dividend payout rate so that future dividend cuts are unlikely. She claims that this mistake overstates the U.S. cost of equity. Baldwin's study, however, can be criticized for utilizing ex-post rates of return. The cost

of capital corresponds to the ex-ante, or required, rates of return.

5. See, for example, Yoshio Suzuki, *Money, Finance, and Macroeconomic Performance in Japan*, New Haven: Yale University Press, 1986.