FRBSF Weekly Letter

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Corporate Debt

In recent years, nonfinancial corporations have expanded debt and retired equity. This trend towards increased debt has raised concerns that U.S. firms are becoming more vulnerable to an economic downturn. The well-publicized problems of specific highly-leveraged corporations have added to this concern, and have led to increases in interest rates on speculative-grade, or junk bonds, which should limit issuance of this type of debt. For most corporations, however, the trend in debt issuance could continue, given the way U.S. tax laws favor debt over equity. One change in the tax laws that would redress some of this imbalance is a reduction in the tax on capital gains proposed by the Bush Administration.

Taxes and debt

U.S. tax policy generally favors the use of debt over equity financing by corporations. Owners of corporate stock in effect pay taxes on profits twice, once when the corporation pays taxes on its earnings and again when individuals pay taxes on dividends or capital gains. In contrast, interest on debt is a tax-deductible expense for businesses, and so, is taxed only once, as ordinary income to debt holders.

Tax considerations are not the only factors affecting a firm's leverage, or debt/equity mix. For example, the higher risk associated with heavy reliance on debt (relative to equity) tends to limit corporate leverage. By increasing the probability that a firm will not be able to meet promised payments, increased reliance on debt raises expected bankruptcy costs. Because debt holders require compensation for this increased risk, the cost of issuing debt should rise and offset tax benefits (and other factors) favoring debt financing.

In the long run, corporations can be expected to operate with a debt/equity mix that balances these and many other influences. Changes in the tax code that increase the tax advantage of debt financing, then, alter this balance and encourage corporations to increase leverage and realign their debt/equity mix.

The most recent major change in tax policy affecting the debt-related bias in tax policy was the 1986 Tax Act. By reducing the marginal tax rate on ordinary income (from 50% to 33%) and raising the maximum marginal tax rate on capital gains (from 20% to 33%), the Act increased the tax burden on equity income relative to that on interest income. The Act also reduced the maximum corporate tax rate from 46 to 34 percent, thereby diminishing to some extent the tax advantage of debt financing.

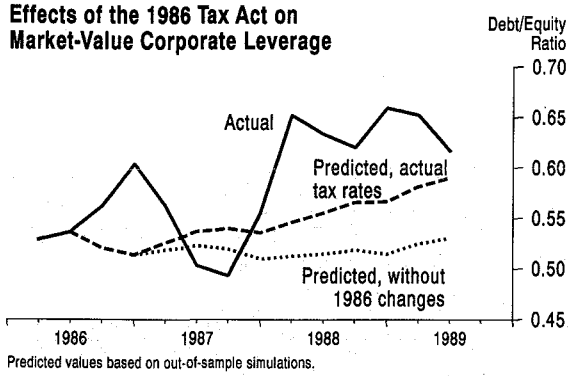
Analysts differ over the net effects of the Tax Act. Part of the controversy turns on which taxpayers' marginal tax rates are relevant for determining the balance between corporate debt and equity. The perspective taken here is that the *maximum* marginal tax rates are the appropriate measures. Given this perspective, the changes in tax rates following enactment of the 1986 Act likely have increased the bias in U.S. tax policy toward debt. This is because the reduction in the corporate tax rate was not enough to offset fully the changes in the maximum rates on ordinary income and capital gains.

Increase in leverage

To illustrate how much the Tax Act may have affected corporate leverage, a statistical model was used to predict the aggregate market-value debt/equity (D/E) ratio for nonfinancial corporations with and without the tax law changes that went into effect after 1986. This model assumes that changes in the maximum marginal tax rates on corporate earnings, ordinary income, and capital gains, as well as expected returns, expected inflation, and uncertainty, affect the relative attractiveness of debt and equity financing, and thereby cause movements in the aggregate D/E ratio.

Chart 1 compares the actual D/E ratio (solid line) with the two predicted D/E ratios obtained from the statistical model. The dashed line is the predicted ratio based on actual tax rates, and the dotted line is the aggregate D/E ratio that would have occurred if tax rates had not changed after 1986.

Chart 1:
Effects of the 1986 Tax Act on Market-Value Corporate Leverage



Predicted values based on out-of-sample simulations.

As the chart shows, the actual D/E ratio rose sharply and remained high following the stock market crash in October 1987. Although the dashed line does not capture all the movements in the actual D/E ratio, it does capture the general upward trend, suggesting that factors other than the stock market crash also may have influenced corporate leverage in recent years.

A comparison of the dashed and dotted lines indicates that a large portion of the rise in the D/E ratio may have been due to the 1986 Tax Act. For the second quarter of 1989, the difference in the estimated values with and without the tax rate changes is about six percentage points. This suggests that the Act facilitated higher leverage, which might explain why nonfinancial corporations' debt grew at only a slightly slower pace during the six quarters following the stock market crash than it did during the three years preceding the crash.

Moreover, because increases in stock prices since the second quarter of 1989 (the last date plotted in the chart) likely have lowered actual market-value D/E ratios, nonfinancial firms may have even more latitude to expand debt.

Risk

As indicated earlier, an increase in risk associated with higher leverage should raise the cost of issuing debt and offset the tax incentive to increase leverage further. Thus, it is useful to examine how risk has been affected by higher leverage. One commonly used measure of corporations' riskiness is the standard deviation of the return on market-value equity. This measure reflects the effects of leverage as well as non-leverage factors, such as asset risk and the general state of the economy.

Chart 2:
Corporate Risk

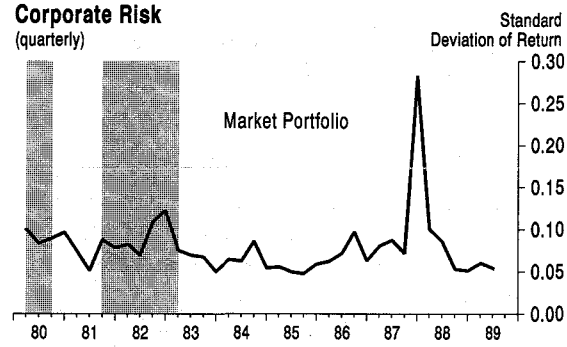


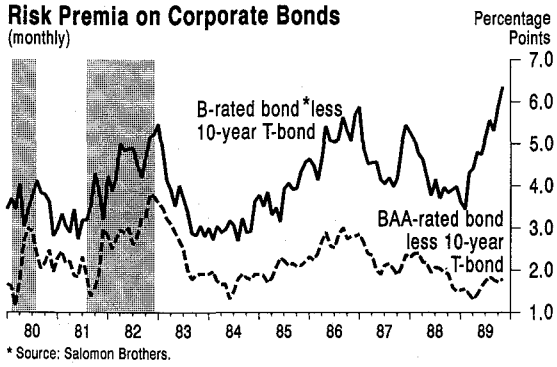
Chart 2 shows the quarterly average standard deviation of daily returns on a market portfolio of firms traded on the major stock exchanges. This measure indicates that corporate risk was relatively high in the quarters immediately following the stock market crash. However, by the second quarter of 1989, this measure of risk had fallen below the levels observed before the stock market crash, despite the rise in leverage shown in Chart 1. Whatever effect higher leverage had on corporate risk, it appears to have been swamped by the effect of the decline in "non-leverage" risk. One explanation is that the outlook for the economy improved through the second quarter of 1989, as the stock-market crash became more removed in time.

This decline in perceived risk after 1987 also is reflected in a decline in the risk premium on so-called investment-grade corporate debt. The solid line in Chart 3 shows that for BAA-rated bonds, the risk premium, as measured by the spread between the rate on BAA-rated bonds and the 10-year Treasury bond rate, has fallen sharply. As of early November, this spread was below the level observed even before the stock market crash. (The same is true for higher quality debt.) Despite higher leverage, then, risk premia for investment-grade debt are lower than before the Crash.

This decline in the relative cost of corporate debt, coupled with the recent appreciation in stock prices and the underlying tax-related bias towards debt, should facilitate debt issuance for many corporations.

At the same time, however, Chart 3 also indicates that perceived risk has not declined for all firms. For some firms, in fact, perceived risk has increased. The dashed line traces the recent movements in the risk premium on speculative-

Chart 3:
Risk Premia on Corporate Bonds
(monthly)



* Source: Salomon Brothers.

grade debt, as measured by the spread between the rate on B-rated corporate bonds and that on 10-year Treasury bonds. Responding to concerns over the problems of certain highly-leveraged firms, rates on speculative grade bonds rose relative to Treasury rates in 1989. The higher relative cost of debt for such firms counters other factors favoring the use of debt.

Reducing the bias

From the evidence examined here, as well as that presented in other research, it is clear that U.S. tax policy has contributed to higher corporate leverage. It is equally clear that changes in tax policy aimed at reducing the bias toward debt could greatly reduce leverage. With this in mind, Treasury Secretary Brady and others have called for reconsideration of the double taxation of corporate dividends.

Since about half of equity income historically is received in the form of capital gains, a reduction in the taxation of capital gains is another way to reduce the bias toward debt. One such proposal, considered in a House Ways and Means Committee bill, could have a significant effect on leverage. The bill calls for a reduction in the maximum marginal tax rate on capital gains to 19.6 percent for two years, with a maximum rate of 28 percent thereafter. That bill also would reduce tax rates by indexing capital gains for inflation. Inflation indexation reduces the effective tax rate by taxing the real, rather than the nominal, return on capital gains.

The effect of indexation on the expected effective tax rate on capital gains, and, thus, on leverage, depends on a number of factors, including the expected rate of inflation. The higher inflation is expected to be, the lower will be the expected effective capital gains tax rate on the nominal return. Assuming an expected inflation rate of 5.35 percent (based on the most recent Drexel, Burnham, Lambert survey of one-year ahead inflation expectations), expected capital gains of 10 percent over that year, and a statutory capital gains tax rate of 28 percent, the effective expected capital gains tax rate would be about 13 percent. Using the statistical model described earlier, this capital gains tax rate (holding other tax rates constant) would reduce the predicted aggregate, market-value D/E ratio by about six percentage points, fully offsetting the estimated effects of the 1986 Tax Act.

Significant changes in the tax laws that would eliminate or reduce taxes on dividends and/or capital gains, however, are not likely in the near future. Without such measures, the analysis presented here indicates that U.S. tax policy will continue to foster a market environment that is favorable to high corporate leverage.

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