

## Comments

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Questions of the effects of taxation on decisions by firms regarding organizational form and capital structure have traditionally been a bread-and-butter research topic for public finance economists. Empirical evidence has not always been illuminating, however. In part, this is because there have been few identifiable tax regime shifts to provide variation for econometric analysis. Loosely speaking, the requirement for such an experiment is that the nontax part of a model of economic behavior stays constant while there is a significant change in the tax price of certain activities. Examples from the past include the Undistributed Profits Tax of 1936-37 and the introduction of the investment tax credit in 1962.

The implicit claim here is that the Tax Reform Act of 1986 is such an experiment. Like the undistributed profits tax or investment tax credit experiments, there is of course debate about what the appropriate underlying model is (and the influence of the choice of underlying model on the estimated or predicted tax effects). Roger Gordon and Jeff MacKie-Mason have taken a sensible approach here—to analyze the effects of tax reform on corporate financial decisions within the framework of consensus models. I want first to review their approach and then to suggest an alternative underlying model for analyzing corporate financial choices.

Let me begin by saying that this is a very well expounded paper, and the careful reader will benefit not only from the analysis of bread-and-butter issues but also from the discussion of thoughtful tangents, many of which are topics for future study.

### *Taxation and Firms' Leverage Decisions*

#### **The Authors' Approach**

Gordon and MacKie-Mason begin by going back to the traditional theory in which the (corporate) tax benefits of leverage are traded off against bankruptcy costs. At this juncture the standard complaints are three:

1. The underlying model cannot be right. There was, after all, "debt" before "taxes."
2. Pure bankruptcy costs are not usually estimated to be large (though, of course, agency costs of financial distress may well be).

3. Personal taxes—which carry with them a different set of incentives for *holding* debt or equity—are ignored.

The authors address the third reservation most directly. In the first part of their chapter, they incorporate personal taxes and calculate the total tax advantage to debt (to finance a hypothetical new investment project) prior to and following the Tax Reform Act of 1986 (TRA86). They are very careful in calibrating the tax parameters, building on recent work that tries to estimate effective corporate and personal tax rates.

The chapter's conclusion is that debt finance became more attractive after TRA86. (If anything, this estimate is probably an understatement because the effective tax rate for bondholders is likely to be less than the average rate they use.) The strategy here is to calculate the predicted fraction of debt issues in 1987 and 1988 using the observed values for firm characteristics. Then the authors forecast what the fraction of debt issues would have been if there had been no tax reform.

I like the approach taken here (and in earlier work by MacKie-Mason 1989), which considers incremental financing choices. In that approach finance contracts can be considered along alternative dimensions—such as debt versus equity or public versus private. In previous work MacKie-Mason found that the *public* debt-equity choice (the choice we usually consider) is sensitive to variation in firms' effective marginal tax rates.

At this point Gordon and MacKie-Mason review the predictions of one alternative to the traditional model—the "financing hierarchy" approach suggested by the work of Myers and Majluf (1984) and others. In that approach, because of particular problems of asymmetric information, managers (in financing an investment project) *prefer* internal funds to debt issues and debt issues to new equity issues. The prediction for the effects of TRA86 on leverage would be that—holding constant investment opportunities—since internal funds decreased (i.e., since the average corporate tax burden increased), leverage should increase.

The authors find that the ratio of debt to the market value of equity did increase after 1986 but by substantially less than their approach would have predicted. They review a number of potential explanations, including (1) slow adjustment to changes in desired leverage, (2) poor estimates of tax parameters, and (3) changes in bankruptcy risk. I will focus my remarks on the following points: the likely effects of shifts in the bankruptcy cost function, the measurement of the effective tax rate on capital gains, and the complications introduced by new rules on borrowing for multinational corporations.

With respect to the first, the authors calibrate bankruptcy costs relative to firms' debt-to-value ratios—in a function  $C(D/V)$ . Shifts in this function could explain movements in leverage. For example, development of more efficient debt markets could lower these costs, increasing allowable leverage. One must be careful here. Private debt has a lower  $C(D/V)$  than public debt (because it is monitored), yet most of the increase in borrowing has been public. In fact private debt has declined sharply after 1986 as a source of funds for the nonfinancial corporate sector.

With respect to the second issue, there are certainly problems in measuring the effective fraction of gains that are long-term (the  $\alpha$  parameter in their model). The trading-strategy points here are noteworthy and would help explain a smaller increase in leverage than the authors predicted. It is difficult to know whether the transactions costs faced by most taxable investors would have permitted full tax arbitrage.

Third, the discussion of potential changes in foreign versus domestic borrowing by U.S. multinationals is interesting. After TRA86 affiliated corporations eligible to file a consolidated return allocate worldwide interest deductions across the various companies in proportion to their assets to determine domestic and foreign source income. For a firm with *excess* foreign tax credits, borrowing overseas can decrease total tax payments. This is potentially important. A number of firms had excess foreign tax credits prior to TRA86, and more were likely to afterward because of the reduction in the U.S. statutory corporate tax rate (see Hines and Hubbard 1990). To the extent that overseas borrowing by multinationals is imperfectly documented in domestic data, observed leverage data could be misleading.

I have three general quibbles with the approach taken by Gordon and MacKie-Mason, the last of which I elaborate below:

1. In gauging firms' responses to tax prices, uncertainty about future tax policy is ignored. To the extent that tax regimes alternate between high and low tax prices for particular activities, observed responses would be lower than a simple model might predict.
2. The leverage experiment is the correct one for the decision to finance a new investment project. The tax wedge (in favor of debt finance) on pure corporate restructurings is smaller.
3. There are important questions about the underlying model of leverage, which depends critically on taxation. There was leverage prior to taxation. In fact debt-equity ratios were higher in 1913 than until after World War II (Taggart 1985). Understanding leverage decisions will in general contribute importantly to an analysis of the effects of tax incentives.

## A "Modified View" of Corporate Financial Decisions

By the late 1980s it is difficult to talk about leverage in the sense of pure debt and equity. Many interesting real-world finance contracts involve features of both, suggesting that the notion of a debt-equity measure may be hard to evaluate.

Much of the concern about traditional descriptions of leverage has been cast in economic models in which there is asymmetric information among firm claimants. The authors talk about one such approach, the "lemons" model of Myers and Majluf (1984). Additional discussions in the financial and academic communities have centered on agency problems between firms' insiders and outsiders. One feature has been to evaluate the use of financial contracts to mitigate incentive problems in corporate governance. When some inside activities and components of firm expenditures are not observable to outsiders, financial contracting patterns may be determinate, even apart from tax considerations.

In particular, if all risk were firm-specific, payments from outsiders to insiders should be fixed relative to common (industry or economywide) movements in earnings. That is, debt is the efficient contract. In the more general case in which there is a mixture of firm-specific risk and common risk, payments from the firm will be both fixed (debt) and common state contingent (equity). Discussions of recent financing patterns in this respect can be found in Jensen (1989) and Gertler and Hubbard (1990).

The effect of taxation on leverage is more subtle in this framework than in the traditional model. For example, the threat of reorganization is less a cost than an important device for corporate control. Asymmetric tax treatment of debt and equity leads to a choice of contract that fits the tax-favored definition. The distortion is as follows: If debt were costlessly renegotiable ex ante or ex post (the former ruled out by the tax code and the latter by real-world complications), there would be no distortion, even though "leverage" would be higher. If this renegotiation is complicated, a debt overhang can be motivated endogenously. It may be in a firm's interest to cut production, investment, or employment during a downturn because of excessive leverage.

Such a view can be called upon to rationalize the greater reliance on interest to get funds out of the corporate sector, the realignment of debt and equity in corporate capital structures, and the recent concern that many new corporate debt contracts (e.g., junk bonds) may not be easily renegotiable during a business recession. This view also stresses the need to distinguish among secured debt, public (arm's-length) debt, and private (more closely monitored) debt in making debt-to-value calculations.

Problems in testing the predictions of the generalized agency-cost view complement those put forward in the empirical evidence in the Gordon-MacKie-Mason chapter. It is likely that tax and nontax factors have changed in recent years—the latter corresponding to fundamental changes in debt markets, including, but not restricted to, the development of secondary markets for risky debt. Measurement issues are nonetheless important. The appropriate measure of leverage may be model specific; just looking at debt-to-value ratios per se may be too narrow. Much more empirical work is needed here.

### ***The Tax Reform Act and Corporate Distributions***

To justify the payment of dividends in the presence of more tax-favored means of getting corporate funds back to shareholders, one must appeal to some intrinsic valuation of dividends (for liquidity reasons, to minimize agency cost, etc.). In such a framework (the so-called traditional model), the perceived benefits of dividend distributions are traded off against the tax cost. Hence the lower dividend tax rate after 1986 should stimulate dividend payout. The alternative tax capitalization view of dividends make such distributions a residual, equaling aftertax cash flow less new investment. Since average corporate tax burdens increased after TRA86, dividend payout should decrease.

Gordon and MacKie-Mason find that both the level of dividends and dividend payout rates increased after 1986, casting doubt on the tax capitalization view. Share repurchases went up by even more.

The agency-cost approach I sketched previously has implications for distributions as well. First, large-scale share repurchases facilitate realignment of the optimal payout pattern (loosely speaking, between debt and equity contracts). Second, depending on the mixture of firm-specific risk and common risk, firms have some target level of dividends (i.e., a pattern desired by suppliers of funds). In that sense the required return hinges on the payout decision as in the traditional model. Lowering the tax price of dividends would lead to greater payout, as Gordon and MacKie-Mason find.

### ***The Tax Reform Act and Organizational Form***

A number of organizational-form questions are of interest here. Largely for reasons of data availability, Gordon and MacKie-Mason focus on the effects of changing tax incentives for ordinary corporations versus sub-

chapter S corporations. In favor of the S corporation are the considerations that (1) personal tax rates were reduced by more than corporate tax rates, (2) repeal of the General Utilities doctrine means double taxation of gains on the sale of assets in corporate form, and (3) S corporations would not be subject to the alternative minimum tax. Working in the other direction, ordinary corporations will incur personal tax obligations, for most fringe benefits that are deductible from income. On net, Gordon and MacKie-Mason find a large increase in S corporation filings after 1986, as well as a significant increase in income reported by S corporations.

What might be the implications of the agency-cost-incentives approach? One should expect the greatest responsiveness to tax price changes here; indeed, the margin of organizational form may well become increasingly sensitive to changes in taxation. The past decade has witnessed a trend toward more active investors and concentrated ownership of firms (in part for reasons of monitoring and aligning incentives). Hence it may become easier for partnerships or S corporations to be an alternative to larger-scale ordinary corporate activity.

### **Summary**

I liked the Gordon-MacKie-Mason chapter very much for both its scope and details, and I concur with the authors' concluding remarks that much more work needs to be done here. Incorporating considerations of tax policy uncertainty and refining underlying (nontax) concepts of corporate financial policy will be important future steps.

### **Notes**

1. A cautionary note is in order here. Estimates based on the work in MacKie-Mason (1989) were from a sample of firms with greater leverage than the population of firms. Hence in table 4.2, it may not be appropriate to adjust means (intercepts) if sample firm characteristics are materially different from the rest of the population.

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