Do personal taxes affect corporate financing decisions?

John R. Graham

Abstract

The traditional view is that interest deductibility encourages firms to use debt financing; however, some argue that the personal tax disadvantage to interest offsets the corporate tax advantage. This paper investigates the degree to which personal taxes affect corporate financing decisions. In cross-sectional regressions that control for personal taxes, debt usage is positively correlated with tax rates in each year 1980–1994, with significant coefficients in almost every year. A specification that adjusts tax benefits for the personal tax penalty statistically dominates a specification that does not. The positive (negative) effect of corporate (personal) taxes on debt usage is distinctly identified.

Introduction

The trade-off theory of financing choice argues that firms choose unique optimal capital structures by balancing the benefits of debt finance with expected costs of financial distress (e.g. Scott, 1976, Bradley et al., 1984). A long-held belief is that the tax deductibility of interest payments provides one of the primary benefits of debt issuance, implying that debt usage should increase with tax rates. Although it took some time to find empirical evidence consistent with this belief (Myers' (1984) 'capital structure puzzle'), recent research shows that taxes affect financing decisions in the manner predicted by the trade-off theory.

MacKie-Mason (1990), Trezevant (1992), Graham (1996a), and Shum (1996) document that incremental financing choices involve relatively little debt for firms with effectively low corporate tax rates. Gordon and MacKie-Mason (1990), Givoly et al. (1992), and Rajan and Zingales (1995) find that, following changes in tax rates that make debt more attractive, firms incrementally increase the portion of capital structure comprised by debt. Graham et al. (1998) use before-financing tax rates to document that firms with high tax rates have relatively high levels of debt. Schulman et al. (1996) find that debt levels are positively correlated...
to tax rates in Canada and New Zealand, while Desai (1997) finds a positive cross-sectional correlation between debt usage and taxes across a sample of 51 countries. Dhaliwal et al. (1992) find a positive relation between taxes and both debt levels and tax shielding ratios.

Implicit in all these papers is the notion that a principal benefit of debt finance is the interest deduction, perhaps net of the personal tax disadvantage. However, (with the exception of Gordon and MacKie-Mason and Desai) these capital structure papers do not emphasize the personal tax disadvantage to debt financing. Investigating whether personal taxes affect corporate financing decisions is important because some researchers (e.g. Miller, 1977) argue that, at the margin, the personal tax penalty completely negates the corporate tax advantage to debt; this implies that tax-induced, firm-specific optimal capital structures should not exist in equilibrium.

This paper focuses on the measurement and importance of personal taxes in the context of corporate financial decision-making. If investors are taxed heavily on interest income (relative to taxation on equity income), they demand higher risk-adjusted returns for holding debt (relative to holding equity), thereby discouraging the use of debt at the corporate level. The personal tax burden on interest income is generally higher than that for equity income because (1) long-term capital gains are often taxed at a rate below statutory personal rates, (2) taxes on capital gains can be deferred until the gain is realized, and (3) capital gains taxes can be avoided altogether if equity shares are held until death. This paper investigates whether the intensity of corporate debt financing varies with the personal tax burden and whether the personal tax penalty is better measured as a single value across all firms in a given year, or allowed to vary across firms depending on their dividend policy. The paper's primary contributions are the documentation that personal taxes provide a disincentive to use of debt, the relatively precise measurement of corporate tax effects, and the variety of specifications that document tax effects that are consistent with firm-specific optimal capital structure. This last finding indicates that personal taxes do not completely negate the corporate tax advantage to debt.

When the personal tax penalty is measured on a firm-specific basis, there is strong evidence that the firms that reap the largest benefit from interest deductions use the most debt. This finding is robust to a number of different specifications:

- pooled cross-sectional time-series analysis of debt levels, and separately, for changes in debt;
- annual debt-level (and separately, debt-changes) regressions for each year, 1980–1994;
- regressions in which marginal tax rates are simulated in a manner that accounts for carrybacks, carryforwards, and other major features of the tax code, and also with ‘average marginal’ tax rates calculated by Poterba (1997);
- subsets of firms with and without credit ratings.

Further analysis distinguishes a separate positive effect of corporate taxes from the negative effect of personal taxes on debt usage. A non-nested regression test indicates that a firm-specific personal tax adjustment statistically dominates a specification that ignores personal taxes.

When the personal tax penalty is measured as a single value across all firms in any given year, the results are weaker: positive and significant tax effects in only 11 of 15 years. Thus, it is advantageous to use firm-specific information when adjusting for personal taxes. This result can be interpreted as implying that firms have tax clienteles (in contrast to the idea that there is one marginal investor between debt and equity for
the entire economy) similar to the dividend clientele results of Elton and Gruber (1970), Auerbach (1983), and Scholz (1992).

In addition to being statistically significant, the results are economically important. Using mean 1994 data for the non-tax variables, but allowing the tax rates to equal their largest 1994 values (0.277 federal (net of personal taxes), 0.099 state), the hypothetical ‘highest tax rate firm’ debt-to-value ratio is 24.1%. When the tax rates are equal to their smallest 1994 values, the ‘lowest tax rate’ debt ratio is 18.1%. Thus, the estimated tax coefficient implies that high tax rate firms will, on average, have debt-to-value ratios that are 600 basis points higher than debt ratios for low tax rate firms. The effect of the personal tax penalty is less important economically: if there were no personal tax penalty, the ‘high tax rate’ debt ratio would be 24.9%. The results also imply that the 1997 tax legislation (reducing the capital gains tax rate on equity, thereby increasing the personal tax penalty associated with debt) will result in a very small reduction in debt financing.

The rest of the paper proceeds as follows. Section 2 discusses issues related to measuring debt policy in level- and difference-form. Section 3 describes how the marginal tax rates are estimated and how personal and state taxes are factored in. Section 4 describes the data sources and defines the variables used in the analysis. Section 5 performs capital structure regressions, and Section 6 concludes.

Section snippets

Debt levels or changes in debt?

In an influential paper, MacKie-Mason (1990) examines 1747 debt and equity issues from 1977–1987 and finds that firms with effectively high tax rates are more likely to issue debt than are firms with low tax rates. MacKie-Mason argues that studying incremental financing choice is advantageous relative to examining debt levels (such as debt ratios), because the latter reflect the cumulation of many historical decisions, which may obscure whether taxes influence current-period financing choice....

Simulating corporate marginal income tax rates

Recent research indicates that when estimating a firm’s tax rate, it is important to consider the effect of net operating losses (NOL), the investment tax credit (ITC), the alternative minimum tax (AMT), the progressivity of the statutory tax code, and uncertainty about future taxable income (see Shevlin, 1987, MacKie-Mason, 1990, Graham, 1996a, Graham, 1996b. For example, consider a firm that pays taxes today at the top federal rate of 35%. Assume that the firm (1) had zero taxable income in...

Data sources and debt definitions

The data are gathered from all three annual Compustat tapes: Full-Coverage; Primary, Secondary, and Tertiary; and Research. The Compustat sample contains observations for the years 1973 through 1994. This time frame is consistent with the availability of the state tax information in Fiscal Federalism (1981–1995), from which data ceased to be available after 1994 due to governmental budget cuts. As mentioned in Section 3, the tax rate calculation uses historically estimated drift and volatility...

Capital structure regressions
As stated in Section 1, there is mounting evidence that taxes affect the decision to finance with debt. The extant literature, however, does not focus on how the personal tax penalty affects individual firms' capital structure decisions. Indeed, Gordon and MacKie-Mason (1990, p. 96) state that 'no one has attempted to estimate directly the relationship between the debt incentive of Eq. (3) and firm debt ratios' (equation number changed to be consistent with mine). In this section, regressions...

**Conclusion and discussion**

In this paper, marginal tax rates are simulated to account for uncertainty in taxable income, as well as the tax-loss carryback and carryforward, ITC, and AMT features of the tax code. The simulated tax rates are then adjusted for the personal tax penalty associated with interest income and used to test whether tax incentives affect corporate financing decisions. When firm-specific information is used to calculate the personal tax penalty, the capital structure regressions show strong tax...

**Acknowledgements**

I thank Peter Fortune for providing the bond return data and Ron Bagley, Rick Green, Mike Lemmon, Ed Maydew, Philip O'Conner, Mitchell Petersen, Jim Poterba (the editor), Oded Sarig, two anonymous referees, and seminar participants at the Eighth Annual Conference on Financial Economics and Accounting for helpful feedback. Jane Laird provided research assistance. All errors are my own. The simulated tax rates that are used in this paper are available at http://www.duke.edu/~jgraham....

**References (62)**

A. Auerbach

*Stockholder tax rates and firm attributes*


R. Bali *et al.*

*Ex dividend day stock price behavior: discreteness or tax-induced clienteles?*


M. Frank *et al.*

*Why do stock prices drop by less than the value of the dividend? Evidence from a country without taxes*


R.H. Gordon *et al.*

*Tax distortions to the choice of organizational form*


R.H. Gordon *et al.*

*Taxation and the stock market valuation of capital gains and dividends*
J. Graham
Debt and the marginal tax rate

J. Graham
Proxies for the corporate marginal tax rate

S. Myers
Determinants of corporate borrowing

S. Myers et al.
Corporate financing and investment decisions when firms have information that investors do not have

J. Poterba
Tax reform and the market for tax-exempt debt
Regional Science and Urban Economics (1989)

Cited by (132)

VAT rate cut and enterprise deleveraging: Evidence from China
2023, Economic Analysis and Policy

Financial leverage and stock return comovement
2022, Journal of Financial Markets

Citation Excerpt:
...Kim et al. (1979) and Harris et al. (1983) find evidence that is consistent with the theoretical prediction of financial leverage clienteles. Others examine U.S. statutory changes in corporate and personal tax rates and report evidence suggesting that firms adjust their debt policies to suit investors' preferences for leverage (e.g., Givoly et al., 1992; Graham, 1999; Heider and Ljungqvist, 2015). Faccio and Xu (2018) study more than 300 corporate and personal tax reforms across 29 OECD countries and find that these tax changes affect the value of corporate interest tax shields, which subsequently induce investors to adjust the equity value of firms....

Inflation, tax integration and company valuation: The Latin American case
2019, Journal of Business Research
Financial sector debt bias
2019, Journal of Banking and Finance

The debt tax shield in general equilibrium
2019, Journal of Banking and Finance

Personal taxes, cost of insurer equity capital, and the case of offshore hedge fund reinsurers
2023, Journal of Risk and Insurance

View all citing articles on Scopus

Copyright © 1999 Elsevier Science S.A. All rights reserved.