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Capital Structure and Taxes:
What Happens When You (Also) Subsidize Equity?

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EXECUTIVE SUMMARY

- Most tax systems around the world provide significant incentives towards debt and against equity financing. In particular, interest expenses are tax deductible, while no comparable deduction exists for equity financing, creating a tax wedge that favors the use of leverage.

- This paper shows that capital structure significantly responds to changing tax incentives. In particular, a drastic reduction in the tax subsidies towards debt leads to a significant increase in the equity ratios at the firm level.

- To identify the effect of taxes, the paper exploits the introduction of a novel tax provision (the notional interest deduction, or NID) as a sharp source of variation to the cost of using equity financing. The NID, introduced in Belgium in 2006, drastically reduces the tax-driven distortions that favor the use of debt financing by allowing firms to deduct from their taxable income a notional interest charge that is a function of equity. As a result, firms’ marginal financing decisions are provided with a significant tax deduction regardless of their source of financing.

- The main findings are four:

  1. The introduction of an equity-based interest deduction led to higher capitalization rates (lower leverage) at the aggregate level.

  2. Both incumbent and new Belgian firms significantly increased their equity ratios after the reform. The effects of the NID on capital structure are important for large standalone firms and not only for subsidiaries of multinational corporations.

  3. The largest responses to the new tax incentives are found among large and new firms.

  4. The increase in equity ratios of Belgian firms is explained by an economically large and statistically significant increase in the levels of equity. Moreover, higher equity ratios are partially explained by active equity issuance decisions.

- Overall, the evidence demonstrates that tax policies designed to encourage the use of equity financing are likely to lead to more capitalized firms.
INTRODUCTION:

Broadly defined, firms can finance their productive activities with either debt or equity financing. Most tax systems around the world induce firms to finance projects with debt rather than equity financing. Interest expenses are tax deductible, while no comparable deduction exists for equity financing, creating a tax wedge that favors the use of leverage. Furthermore, the excessive reliance on debt financing can have significant consequences at the firm level, increasing the fragility of the financial sector, and of the economy as a whole.

TAX REFORM

This paper investigates the impact of changing tax rules on firms’ capital structure decisions. To identify the effect of taxes, we exploit the introduction of a novel tax provision (the notional interest deduction, or NID) as an arguably exogenous source of variation to the cost of using equity financing. The NID, introduced in Belgium in 2006, drastically reduces the tax-driven distortions that favor the use of debt financing by allowing firms to deduct from their taxable income a notional interest charge that is a function of equity. More specifically, the NID allows firms to deduct from their taxable income a charge equal to the product of (a) the book value of equity times (b) a benchmark interest rate based on historical long-term government bonds. As a result, and in sharp contrast to traditional tax incentives, firms’ marginal financing decisions are provided with a significant tax deduction regardless of their source of financing.

RESEARCH DESIGN

To identify the effect of the tax reform on capital structure decisions, and to minimize the concern that other time-varying forces drive the results of this paper, this paper uses firm-level data from Belgium’s neighboring countries as a credible counterfactual. Firms in France, Germany, Luxembourg, and the Netherlands are geographically close, economically integrated, and share the same currency as Belgian firms. As such, they are likely to be exposed to common industry and aggregate shocks. Yet, these countries did not introduce equity deductions, such as the NID, or major tax reforms right around 2006. It is important to stress that firms incorporated in Belgium and in the control countries do not report significant capital structure differences before that introduction of the notional equity deduction.

RESEARCH QUESTIONS

This paper examines four specific research questions. First, does capital structure of Belgian firms change around 2006? Second, are these changing capital structure effects tax-driven? Third, what are the characteristics of those firms that react to the notional interest deduction? Fourth, what financing policies (equity or debt issuance, retention policies, etc.) change with the new tax incentives?
**Main Results:**

The main results of this paper are described below:

- The tax distortions against equity financing have a substantial effect on firms’ financing decisions. In particular, this paper shows that introducing an equity charge that is comparable to the existing tax deductibility of interest leads to higher equity ratios both at the aggregate and at the firm levels. Overall, the increase in the share of equity in the capital structure increases by at least 15% after the tax reform was introduced.

- The increase in equity ratios is widespread among Belgian firms. Both incumbent and new Belgian firms significantly increased their equity ratios after the reform.

- The largest responses to these changing tax incentives are found among large and new firms. This evidence is consistent with the idea that small firms may face significant refinancing costs, or that they may not rebalance their capital structure until they deviate substantially from their long-term targets.

- The effects of the notional interest deduction on capital structure are important for large standalone firms and not only for subsidiaries of multinational corporations (MNCs). Though subsidiaries of multinationals increased equity levels more aggressively than stand-alone companies, both groups of companies significantly increased their equity ratios.

- The increase in equity ratios of Belgian firms is explained by an economically large and statistically significant increase in the levels of equity, and is not driven by a reduction in the value of non-equity liabilities. Moreover, the higher values of equity cannot be exclusively explained by higher profits that resulted from the notional interest deduction or by increased retentions. Higher equity ratios are partially explained by active equity issuance decisions.
**POTENTIAL POLICY IMPLICATIONS**

Most tax systems around the world induce firms to finance projects with debt rather than equity financing. Such asymmetric treatment is difficult to justify in economic terms due to the following distortions:

- Debt financed projects are not only not generating tax obligations, but creating substantial tax savings for firms. For example, the United States Treasury Department estimates that the effective marginal tax rate on new equipment financing is 37% if a company uses equity financing. In contrast, if the firm borrows uses debt financing the tax rate is negative 60%. The corresponding tax rates for G-7 countries (excluding the U.S.) are 34% and -17%, and 36% and -22% for Spain. In other words, taxpayers are literally paying companies to borrow, which seems puzzling, at best, as a policy goal.

- The tax system discriminates against new projects and other highly innovative firms. New projects and other innovative firms are intensive in human capital and possess relatively unpredictable cash-flows. In contrast, debt capacity is highly determined by the level of tangible assets and the reliability of cash-flows. The resulting asymmetry can lead to substantially lower effective tax rates for activities with lower growth potential.

- While such distortions are not new and are widely understood in the corporate finance literature, the recent financial crisis, has stressed the crucial role of leverage in amplifying the magnitude of economic shocks. As a result, several practitioners and academics have questioned the economic and social benefits of having a tax system that may induce excessive levels of leverage at the firm level.

Broadly defined, there are two policy tools to achieve tax neutrality with regard to financing decisions: (a) reducing the existing tax advantage of debt, and (b) increasing the tax benefits to equity.

Advocates of tax neutrality frequently make the case for eliminating the tax deductibility of interest payments as a viable alternative to eliminate the debt bias in the existing tax systems. Yet, getting rid of this deduction is likely to face substantial opposition by interest groups. Moreover, such proposal is likely to increase the cost of investment to highly-levered firms at a time where economies around the world are relatively weak. Lastly, dropping such deduction is challenging because competing tax jurisdictions offer similar deductions, which reduces the relative attractiveness of those countries or states that eliminate them.

The evidence in this paper suggests that a notional interest deduction may be an alternative plan to address these challenges. The results indicate that allowing a comparable deduction to equity as the one that currently exists for debt financing, leads to significant increases in the equity ratios at the firm level. In terms of policy, the potential benefits of eliminating the tax distortions that incentivize debt financing need to be evaluated relative to the fiscal cost of introducing such an equity deduction. The current paper does not examine the welfare costs of introducing an equity deduction; it only focuses on the impact of such equity deduction on the composition of the firms' capital structure.
CONTRIBUTIONS TO THE EXISTING LITERATURE

Relative to the existing literature, the main contributions of the paper are the following:

- The paper provides sharp evidence that capital structure significantly responds to changing tax incentives. There is a large and established literature examining the impact of corporate taxes on firms’ financing decisions. Despite the prominence of tax incentives in the literature, establishing the effect of taxes on financing decisions has been difficult.

- The paper explores the consequences of introducing a novel tax tool explicitly aimed at reducing the debt bias of corporate taxation. Most existing evidence relies on changes in corporate tax rates whose effects on the relative tax treatment of debt and equity are arguably less salient for economic agents, relative to a direct equity deduction. As such, the paper provides striking evidence that a direct equity subsidy, analogous to the widespread debt subsidy in traditional tax systems, significantly affects leverage decisions. Such evidence is potentially informative for prospective tax reforms that consider alternative policies to achieve tax neutrality towards debt and equity.

- The tax reform studied in this paper alleviates concerns that changing macroeconomic or fiscal conditions affect the estimates of the impact of taxes on capital structure. The introduction of the NID followed an independent ruling by the European Union directed to ending an advantageous tax regime favoring the treasury centers of multinational corporations in Belgium; it was not enacted to address changing macroeconomic conditions or a domestic fiscal challenge, a common feature of the majority of tax reforms.

- The magnitude in the time-series variation in the tax treatment of equity relative to debt is significantly larger, and arguably cleaner from the tax perspective, than previously analyzed tax reforms. An important empirical challenge is finding settings where the relative tax advantage of debt changes substantially while other tax margins are left unaffected. Most significant tax reforms also affect the corporate tax base, introducing biases in the estimated coefficients.

- The paper provides the first estimates to date of the impact of a major tax reform on the financing decisions of a sample of firms that is representative of an entire economy. Previous studies have mostly concentrated in analyzing the effect of taxes on the financing decisions of publicly traded firms. To the extent that taxes have heterogeneous effects on firms, as we show in this paper, extending the analysis to the broader set of firms, allows us to sharpen our understanding of the impact of taxes on capital structure decisions.