ABSTRACT

Three Essays in Tax Policy and Firm-Level Investment

by

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This dissertation is comprised of three essays that concern the impact of government tax policies on firm investment behavior. Each chapter uses variations in investment incentives generated by policy changes in the depreciation allowance system, which has been one of the main policy targets over the past decades in the United States. Significant efforts have been made to investigate the effectiveness of such investment tax policies by economists and policymakers, but the results reported in the literature are largely mixed, primarily due to empirical challenges surrounding such tax policies. The huge gap between the empirical evidence and the theory is so puzzling that there now is a growing concern that such depreciation policies may inevitably be ineffective for providing investment incentives, because of the way firms treat depreciation deductions. The essays in this dissertation seek to provide new evidence on the effectiveness of investment tax policies with an emphasis on depreciation policies. The dissertation starts by examining the general effectiveness of a depreciation policy in an environment where such empirical challenges are minimized. It then proposes an alternative explanation for the puzzling inability of such policies to act as countercyclical tools. It also investigates financing distortions unintentionally caused by investment-tax policies.

The first essay investigates the effectiveness of depreciation policies as investment

incentives, by examining investment patterns surrounding the 1999 shortening of the Alternative Minimum Tax (AMT) depreciation recovery periods. With clean identification from the AMT, this essay provides strong evidence that firms subject to the AMT increase their investment, compared to firms subject to the regular tax. By contrast, the 2002 introduction of bonus depreciation, available both for firms subject to the regular tax and for firms subject to the AMT, appears to affect both groups of firms similarly, suggesting that the main result is not likely to be an artifact of firm heterogeneity. The estimation uses an empirical specification developed from the Summers (1981) tax-adjusted q model, and the results imply that the responsiveness of investment to the tax term is somewhat larger than previously estimated.

The second essay, co-written with James R. Hines, Jr., examines the investment effects of tax subsidies for which some assets and not others are eligible. Distortionary tax subsidies concentrate investments in tax-favored assets, thereby reducing the expected pre-tax profitability of investment and reducing payoffs to bondholders in the event of default. Anticipation of asset substitution encourages lenders to require covenants in bond contracts, which only imperfectly address asset substitution and impose their own distortions on the investment process. The result is that borrowing is made more expensive, which in turn discourages investment. Borrowing rates can react so strongly that aggregate investment may rise very little, or even fall, in response to higher tax subsidies. Bonds issued by U.S. firms in risk of default after the 2002 introduction of bonus depreciation for U.S. equipment investment contained many more covenants than in other periods, a pattern that reversed when bonus depreciation was discontinued after 2004; furthermore, it appears that firms at risk of default borrowed very little during that period.

The third essay derives the demand for leased capital as a function of tax parameters, and uses the model to estimate the responsiveness of leasing to the 2002 bonus depreciation, finding strong evidence that depreciation allowances influence leasing

patterns. Firms that stood to benefit the least from depreciation allowances were the most likely to lease capital after the introduction of bonus depreciation. The deadweight loss associated with the observed financing distortion is also calculated, and the results imply that the responsiveness of firms' leasing behavior to the policy renders the policy case of investment tax incentives weaker than one would expect absent the consideration of leasing response.

In sum, the results presented in this dissertation imply that firms appear to take tax incentives into account in making investment decisions, but that it is possible that the way investment tax policies are designed may generate unintended consequences in financial markets and leasing markets, making such policies less effective.