Leverage Dynamics without Commitment

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We analyze equilibrium leverage dynamics in a dynamic tradeoff model when the firm is unable to commit to a leverage policy ex ante. We develop a methodology to characterize equilibrium equity and debt prices in a general jump-diffusion framework, and apply our approach to the standard Leland (1998) setting. Absent commitment, the leverage ratchet effect (Admati et al. 2015) distorts capital structure decisions, leading shareholders to take on debt gradually over time and never voluntarily reduce debt. On the other hand, asset growth and debt maturity cause leverage to mean-revert towards a long run target. In equilibrium, bond investors anticipate future leverage increases and require significant credit spreads even when the distance to default is large. As a result, the tax benefits of future debt increases are fully dissipated by the resulting bankruptcy costs, and equilibrium equity values match those in a model where the firm commits not to issue new debt.

In our model, leverage is dependent on the full history of the firm’s earnings. Despite the absence of transactions costs, an increase in profitability causes leverage to decline in the short-run, but the rate of new debt issuance endogenously increases so that leverage ultimately mean-reverts. The target level of leverage, and the speed of adjustment depends critically on debt maturity; nonetheless, in equilibrium shareholders are indifferent toward the debt maturity structure.

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The Leverage Ratchet Effect

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Abstract

Firms’ inability to commit to future funding choices has profound consequences for capital structure dynamics. With debt in place, shareholders pervasively resist leverage reductions no matter how much such reductions may enhance firm value. Shareholders would instead choose to increase leverage even if debt levels are already high and new debt must be junior to existing debt. These asymmetric forces in leverage adjustments, which we call the leverage ratchet effect, cause equilibrium leverage outcomes to be history-dependent. When forced to reduce leverage, shareholders are biased toward selling assets relative to potentially more efficient alternatives such as pure recapitalizations.

1. Introduction

In this paper we show that the inability of firms to commit to future funding choices has profound and previously unexplored consequences for understanding capital structure outcomes and dynamics. Once debt is in place, shareholders will resist any form of leverage reduction no matter how much the leverage reduction may increase total firm value. At the same time, shareholders would generally choose to increase leverage even if any new debt must be junior to existing debt. The resistance to leverage reductions, coupled with the desire to increase leverage creates asymmetric forces in leverage adjustments that we call the leverage ratchet effect.

We first study shareholders’ attitudes toward one-time changes in leverage accomplished by buying back or issuing debt of various seniorities. We show that the leverage ratchet effect is

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