



Credit lines and leverage adjustments



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ABSTRACT

Adjustment costs play a prominent role in explanations of capital structure, but the extent of their economic importance is unknown. A credit line has institutional features important for this analysis, notably its sunk costs of access to the debt market, its revolving nature, and its covenant-sourced contingent nature. I find that the credit line is associated with cross-sectional variation in estimated speeds of adjustment to target leverage in patterns consistent with the importance of adjustment costs, and with the importance of maintaining financial flexibility for liquidity and investment needs.

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1. Introduction

Capital structure theory motivates a firm-specific leverage ratio that maximizes firm value given market imperfections such as taxes, bankruptcy costs, information asymmetries, and agency problems. Theory predicts that leverage rebalancing decisions will reflect the tradeoff of the marginal benefits and costs of a leverage change. Without important adjustment costs, firms will operate at their target leverage ratio. However, firms might operate for some time at suboptimal leverage levels if adjustment costs outweigh the marginal increase in firm value resulting from an adjustment toward target (e.g., Fischer et al., 1989). An alternative explanation emphasizes that minimizing transactions costs is primary to minimizing the distance from target leverage, when funding investment and liquidity needs (Myers, 1984).

In recognition of the potential importance of adjustment costs for leverage changes, researchers have estimated the speed of partial adjustment (“SOA”) to target leverage ratios, and concluded that the average firm adjusts slowly to the target, casting doubt on the target’s importance (Fama and French, 2002; Flannery and Rangan, 2006; Huang and Ritter, 2009; Shyam-Sunder and Myers, 1999). Others have sorted firms according to the likely importance of marginal adjustment costs and have found variation in estimated SOA consistent with the importance of targets and adjustment costs (Dudley, 2012; Faulkender et al., 2012). Still other researchers have posited that financial flexibility is managers’ first-order concern (DeAngelo et al., 2011). Under this explanation, firms prefer to operate under-levered in order to preserve debt capacity to fund the uncertain arrival of investment opportunities, at which point they might use “transitory” debt to fund investment shocks and rebalance to target in future years.

The potential importance of transactions costs and financial flexibility for the management of leverage makes the analysis of credit lines a novel setting for this research question. First, a credit line is established to provide revolving access to the debt market with fixed adjustment costs sunk, thus enabling the firm to implement increases or decreases in outstanding debt without substantial incremental adjustment costs. Second, a credit line is the debt market’s solution to the borrower’s demand for financial flexibility. A firm with “financial flexibility” is one that is able to fund investment and/or liquidity shocks without

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upsetting existing operating, investing, and financing policies, and the theoretical motivations for a credit line include the ability to fund investment opportunities as they arise and to fund liquidity needs for operations (e.g., Holmstrom and Tirole, 1998; Martin and Santomero, 1997).

The trade-off theory predicts that firms will operate at suboptimal leverage levels until the benefits of adjustment outweigh the costs, at which point firms will adjust leverage closer to target (Fischer et al., 1989). In other words, minimizing the “leverage residual” is first order. Alternatively, over-levered (under-levered) firms might choose to issue debt (equity) to meet investment or liquidity demands if the relative issuance cost savings is greater than the incremental cost of the resulting larger leverage residual (Fama and French, 2002; Myers, 1984). Consider the over-levered firm needing funds for investment. Issuing debt to fund the investment will attenuate SOA. But a credit line draw might be attractive, despite the resulting increase in the leverage residual, if equity issuance costs are relatively expensive. Importantly, adjustment costs are fundamental to both explanations of capital structure. However, the Myers (1984) explanation assumes that the relative issuance cost savings of a debt issue by an over-levered firm overwhelms the incremental costs of increasing leverage further from target (Fama and French, 2002).

Because credit lines are available to fund investment and/or liquidity needs, their importance for leverage adjustments will depend in part on the firm's investment plans and liquidity needs. I find that the credit line is associated with estimates of SOA, consistent with the importance of transactions costs for leverage rebalancing for under-levered firms. Specifically, among under-levered firms likely needing external funds for either investment or liquidity, those with a credit line in place have estimates of SOA 63% to 106% greater than the SOA for firms without a credit line. This line effect on the SOA for under-levered firms with demand for external funds remains even after restricting the regression to firms not likely to face important financial constraints. I also find evidence consistent with the hypothesis that funding investment or liquidity via a low-cost means of issuance is primary to adjusting to target. Specifically, over-levered firms likely in need of external financing have 17% to 25% lower SOA if there is a credit line in place. These firms can avoid costly equity issues by accessing the credit line, which will moderate leverage rebalancing. I also find evidence consistent with the importance of the contingent nature of the credit line availability for leverage changes. Specifically, firms with a low correlation between cash flows and investment opportunities (i.e., with high liquidity hedging needs) rely less on the credit line for a leverage adjustment if over-levered with high cash flows. Instead of using excess cash flows to de-lever toward target via a credit line repayment (when investment funding needs are low), the lower SOA for these “high hedging needs” firms is consistent with their storing of cash from cash flow for use in future states of the world when cash flows are low but investment needs are high. This dynamic cash management intuition is modeled by Acharya et al. (2007), and its interplay with the covenant-sourced contingencies of the credit line is emphasized by Sufi (2009).

The paper is organized as follows. The next section discusses the importance of credit lines for leverage adjustments and makes predictions for credit line effects on SOA. Section 3 discusses the data, the estimation of target leverage, and univariate results. Section 4 presents and discusses the results. Section 5 considers alternative explanations for robustness, and Section 6 concludes.

2. Credit lines and leverage adjustments

Theoretical explanations of capital structure emphasize the importance of marginal benefits and costs of leverage and the importance of adjustment costs for leverage changes. The existence of a credit line provides the firm with a low marginal cost means of adjusting leverage. However, theory (e.g., Martin and Santomero, 1997; Tirole, 2006) and survey evidence (Lins et al., 2010) suggest that firms maintain credit lines primarily for investment and liquidity needs. In this section, I discuss the importance of a credit line for leverage changes, and provide predictions for cross-sectional variation in estimated SOA.

2.1. Current leverage relative to target

The relative benefits and costs of a leverage change are different for under-levered and over-levered firms. Under-levered firms can gain from a leverage increase by capturing greater interest tax shields and moderating potential manager-shareholder agency costs of excess cash flow. However, a leverage increase has a potential cost too, as operating with greater leverage can limit debt capacity, complicating the firm's ability and incentive to fund investment or liquidity needs that might arise. On the other hand, over-levered firms have a relative high level of interest tax deductions and, with a leverage decrease, can gain some ability to fund future investment or liquidity needs with debt. This overhang problem or rationing risk – the inability to fund investment if over-levered – is an increasing function of leverage. The more important is the ability to fund investment and liquidity needs relative to the capturing of interest tax shields, the more unhappy managers/shareholders will be with a leverage ratio exceeding its target.¹ Thus, the marginal benefits and costs of a leverage change, which according to finance theory should impact SOA, can be different according to whether the firm is over-levered or under-levered.

Transactions costs are important for the theoretical predictions of the tradeoff and Myers (1984) theories. Firms wishing to increase (decrease) leverage can do so by issuing debt (equity) or repurchasing equity (debt). Thus, firms face a tradeoff of not

¹ This is formalized in DeAngelo et al. (2011) whereby firms choose to operate with low leverage – forgoing interest tax shields – because the inability to fund investment opportunities has more firm value impact than does the failure to capture the marginal interest tax shield. As discussed below, it is also consistent with the Faulkender et al. (2012) results that over-levered firms have greater SOA compared to under-levered firms. This finding is consistent with over-levered firms expecting greater benefit from decreasing leverage than under-levered firms expect from increasing leverage.

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