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Internal capital markets and the partial adjustment of leverage

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ABSTRACT

Prior literature provides support both for the existence of target capital structures and internal capital markets (ICM). The issue of whether firms use internal capital markets to reduce deviations from target capital structures, however, has yet to be examined. We provide the first empirical evidence of a link between deviations from target leverage and ICM activity. Based on data that allow us to trace intra-group capital market transactions for property–casualty insurers, our findings provide the first joint evidence that affiliated insurance companies have target leverage ratios and that ICM activity is used to manage deviations from target leverage.

1. Introduction

The question of whether firms actively manage capital structure has been investigated since the proposition of the Modigliani and Miller irrelevance theorems in 1958. Subsequent research has examined whether firms actively manage the level of leverage given the costs and benefits of leverage, where support for active management is implied through evidence of a target capital structure (e.g., Flannery and Rangan, 2006; Huang and Ritter, 2009; De Haan and Kakes, 2010; Cheng and Weiss, 2012). Prior literature also provides evidence that firms deviating from target capital structure may make partial adjustments toward the target rather than immediate adjustments due to adjustment costs (e.g., Hovakimian et al., 2001; Flannery and Rangan, 2006; De Haan and Kakes, 2010).

A second stream of literature[1] explores the unique benefits of capital allocation within the group organizational structure. Specifically, this literature finds that conglomerates have the benefit of internal capital markets (ICMs), whereby the headquarters of the group has the ability to allocate capital across the various group members. The benefits of the internal allocation of capital include lower monitoring costs, reduced agency problems, greater efficiency of capital allocation and, ultimately, lower cost to obtain internal capital (compared to external capital).

Given the potential for target capital structures and deviations from the target, one may expect that ICMs are used to reduce deviations from target capital structure – particularly if deviations from the target are costly (e.g., Flannery and Rangan, 2006). However, to our knowledge, this relation has not been examined empirically. While limited reporting requirements in most industries restrict the ability to test the relation between these two streams of literature, we contend that the property–casualty insurance industry provides a natural setting to test this relation for a number of reasons, including: (1) property–casualty insurance companies may have target capital structures (e.g., Cummins and Doherty, 2002; Cummins and Nini, 2002; Harrington and Niehaus, 2002; Klein et al., 2002; De Haan and Kakes, 2010; Shim, 2010; Cheng and Weiss, 2012); (2) firms in the property–casualty insurance industry have the ability to operate in groups, which allows for an examination of ICM transactions (e.g., Powell and Sommer, 2007; Powell et al., 2008); and (3) property–casualty insurers are required to prepare statutory filings that detail financial transactions between insurance group members (i.e., ICM transactions).

We test for the existence of target capital structures in the property–casualty insurance industry using a partial adjustment model. Evidence of a target leverage ratio would suggest that insurers actively manage their capital structure. We then analyze ICM activity among affiliated insurers to determine if the extent of ICM activity (in particular affiliated reinsurance activity) is related to deviations from target capital structure. Our results indicate that insurers have target capital structures and that there is a statistical relation between deviations from target leverage and ICM activity.

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[1] E.g., Gertner et al. (1994), Stein (1997), and Powell et al. (2008).

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We make a number of contributions. First, we build upon the capital structure literature and provide further evidence of management actively adjusting toward a target. Second, given the availability of intra-group capital transfer data in the property–casualty insurance market, our examination of ICMs with respect to capital structure adjustments provides a greater understanding of the mechanisms used to reduce deviations from target capital structures. Most importantly, this is the first study to provide an empirical link between the existence of a target capital structure and how deviations from the target are related to capital flows among group members.

The remainder of this paper is organized as follows. Section 2 discusses the prior literature's examination of target leverage, the costs and benefits of leverage, and how firms may adjust leverage. Section 3 describes internal capital markets and both the costs and benefits associated with ICMs compared to their external counterparts. The primary hypotheses of interest are provided in Section 4. Section 5 discusses the data, methodology, and the variables employed in the study. A discussion regarding the results and implications is provided in Section 6, and Section 7 concludes.

2. Adjustments toward target leverage

Many studies examining capital structure maintain that firms have a target capital structure (e.g., Hovakimian et al., 2001; Harrington and Niehaus, 2002; Leary and Roberts, 2005; Flannery and Rangan, 2006; Kayhan and Titman, 2007; Antoniou et al., 2008; Huang and Ritter, 2009; De Haan and Kakes, 2010; Shim, 2010; Cheng and Weiss, 2012). This finding is important because it implies that firms actively manage capital structure, considering both the tax benefits of using debt and the increasing costs of bankruptcy associated with debt. It also suggests that firms make adjustments toward the target capital structure, although much of the evidence suggests that partial adjustments are made rather than immediate adjustments given the costs associated with making such adjustments. For example, Leary and Roberts (2005) report that firms in their sample make capital structure adjustments approximately once per year.

Although the literature finds evidence of target leverage ratios in a variety of industries, some multi-industry studies remove insurers from the sample because insurance is a highly regulated industry (e.g., Leary and Roberts, 2005; Flannery and Rangan, 2006; Huang and Ritter, 2009). However, prior literature suggests that in the presence of regulation, insurer capital structure is not bound by regulated capital requirements (i.e., insurers hold more capital than what is required by regulation) *and* that insurers have target capital structures. For example, De Haan and Kakes (2010) show that when regulatory solvency requirements do not consider insurer risk characteristics, insurer solvency margins are still related to insurer risk characteristics. The authors show that most insurers hold significantly more capital than what regulatory authorities require, and that non-risk-based capital requirements are non-binding.[2] Furthermore, Shim (2010) and Cheng and Weiss (2012) provide support of the existence of target capital structures in the insurance industry.[3]

Similar to other industries, leverage in the insurance industry may be considered beneficial or costly depending on the level of leverage utilized. For an insurer, increased leverage reduces surplus, meaning an increased level of leverage can increase the likelihood of financial distress if the insurer faces higher than expected claims, higher than expected operating costs, or lower than expected investment returns (Staking and Babbel, 1995).[4] While an increase in leverage may negatively impact policyholders, it can have either a positive or a negative effect on the owners of the firm. From the owner's perspective, an increase in leverage can allow the firm to maximize the benefits of both the leverage tax shield and the insolvency put option. However, like most industries, too much leverage can increase the probability of insolvency and reduce the value of the firm.

The previous discussion suggests that firms in the property–casualty insurance industry behave in a manner similar to other industries with respect to the existence of a target capital structure. However, unique data advantages exist within the industry that allows us to not only test for the existence of a target capital structure, but also to track internal capital market transactions among group members. The ability to track financial transactions across group members while accounting for important firm-specific factors such as risk-based capital requirements allows us to study issues surrounding target leverage and internal capital markets in a way that is not possible given the opacity of accounting reporting in other industries. Below we further discuss the role of internal capital markets both in an insurance context and beyond.

3. Internal capital markets

Gertner et al. (1994) describe internal capital markets as a setting where "...corporate headquarters allocate capital to their business units." The existence of internal capital markets is of particular importance because they can represent an available source of funding that is less costly and more efficient than external capital markets. The lower cost of capital is generally attributed to reduced information asymmetries and lower agency costs within the ICM, which allows for a more efficient deployment of capital among group members (Gertner et al., 1994).

Much of the ICM literature evaluates the potential costs and benefits of ICMs and the efficiency of ICMs. Gertner et al. (1994) compare internal capital markets with external capital markets (i.e., bank lending) and argue that ICMs have a stronger ability to monitor how funds are used and a greater ability to reallocate assets from poorly performing projects to more successful projects. Stein (1997) also argues that reallocation is a benefit for the ICM, as the corporate headquarters has the ability to reallocate capital from projects or divisions that are "losers" to those that are "winners."[5] Additionally, authors generally argue that internal capital should represent a lower cost option than external capital, given a reduction in agency costs and informational asymmetries. For instance, Desai et al. (2004) provide empirical evidence that firms use internal capital in place of external borrowing when firms are located in countries where the acquisition of external capital is costly and show that internal capital may act as a substitute for costly external capital.

While there are benefits to ICMs, the potential exists for additional agency problems and inefficiencies resulting from the use

[2] Similarly, Cummins and Doherty (2002) state that insurers have a target capital structure because of a desire to meet consumer demand for "safe insurance."

[3] A number of studies examine the existence of target capital structures in the insurance industry (i.e., Cummins and Nini, 2002; Harrington and Niehaus, 2002; De Haan and Kakes, 2010; Shim, 2010; Cheng and Weiss, 2012), and some provide direct support in favor of the existence of target capital structures in the insurance industry. For instance, De Haan and Kakes (2010) find that insurers have target capital ratios and that those targets are higher than what is required by regulators. They also report that insurers reduce the deviation between actual and target capital ratios by approximately one-third each year. Cheng and Weiss (2012) examine the existence of target risk-based capital (RBC) ratios in the property–casualty insurance industry and report that insurers exhibit a tendency to adjust toward a target RBC ratio.

[4] In an insurance context, "surplus" refers to any remaining value once liabilities have been deducted from assets (as with owners' equity). Surplus is often viewed as the financial cushion that is available to the insurer in instances where losses are greater than anticipated, expenses are greater than expected, or investment income is less than expected.

[5] For example, Houston and James (1998) find that bank holding companies create ICMs for the purpose of allocating capital across various subsidiaries.