Corporate financing and target behavior: New tests and evidence

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ABSTRACT

This study addresses the recent concerns in the capital structure literature about the reliability of tests of the target-following behavior. Using a novel testing strategy, we examine whether and to what extent firms' financing choices–rather than the movement of their debt ratios *per se* – concur with the target-following behavior. We find that firms' financing decisions are not generally consistent with systematic target-following. Our results remain similar when we examine an extended period of time and also when we consider that firms may have a range of target debt ratios rather than a unique target or varying financial constraints. Our results are also robust to different target specifications and our methodology can reliably distinguish the target behavior from random financing. Further tests also confirm our results by suggesting that the firms' financing decisions are not primarily driven by deviations from the firms' target debt ratios.

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1. Introduction

Do firms follow a target capital structure, and if so, how do they respond to deviations from their target debt ratios? Recent studies that estimate the speed of adjustment to examine the mean reversion of firms' debt ratios to a target debt ratio mostly suffer from several econometric challenges.[1] Additionally, the speed of adjustment may not be an economically meaningful measure of the firms' target-following behavior (Hovakimian and Li, 2012). Their findings may also be affected by the mechanical mean reversion of debt ratios due to factors such as inter-temporal patterns for external financing needs (Shyam-Sunder and Myers, 1999) and debt ratios that are bounded between zero and unity (Chen and Zhao, 2007). Chang and Dasgupta (2009) show that the results of partial-adjustment, dynamic trade-off models can be obtained even if firms follow a random financing behavior that is independent of a target debt ratio. They argue that using leverage ratios in these tests may be misleading and that future tests should focus on the firms' issuance activities in order to reject alternative, non-target behavior successfully. The authors also suggest that a firm's financing choice to use debt versus equity should be conditioned on whether the firm faces a positive or negative financing deficit.

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[1] See, for example, Fischer et al. (1989), Hovakimian et al. (2001), Hennessy and Whited (2005), Flannery and Rangan (2006), Strebulaev (2007), and Huang and Ritter (2009) for a discussion of these models as well as Flannery and Hankins (2013), Hovakimian and Li (2011), and Welch (2007) for a discussion about the econometric challenges.

Our paper develops a new testing strategy to examine the firms' target behavior such that intentional target behavior can be successfully differentiated from the random financing behavior. Unlike previous studies, where the target behavior was inferred from the movement in the debt ratios per se, we focus on the firms' financing choices to draw such inferences. Because the movement in debt ratios could be misleading, we consider a firm's financing choice as a conscious attempt to move its debt ratio toward the intended target level. To measure the intensity of target-following, we examine whether a firm's financing choices are consistent with the reversion to a target. The intensity of target-following is strong (weak) when a firm issues or retires the intended or the "right" (the unintended or the "wrong") security to a greater extent. Although we utilize different methods to estimate the target debt ratios, we merely use these ratios to determine the intended direction of the movement in actual debt ratios rather than to identify target behavior, per se. Because our empirical analysis is less sensitive to the functional forms of target debt ratios, we are able to use simple empirical models to test the target behavior in a robust and intuitive manner.

We apply our testing methodology by using financial-statement data for U.S. firms during the period between 1988 and 2013. We focus on firms with moderate debt ratios because Chen and Zhao (2007) argue that firms with debt ratios that are too low or too high may not be very concerned about financing choices because their debt ratios tend to mechanically mean revert unless they make extraordinary financing decisions.[2] To begin, we separate firms into four categories based on whether they are under-levered or over-levered with respect to their target debt ratios and based on whether they subsequently issue or retire capital (debt and/or equity). Therefore, we are able to identify, in each category, the specific financing choices that are consistent with the target behavior. We expect that under-levered firms, which are seeking the net issuance (retirement) of capital in subsequent periods, issue (retire) more debt (equity) than equity (debt). Likewise, we expect that over-levered firms, which are seeking the subsequent net issuance (retirement) of capital, issue (retire) more equity (debt) than debt (equity).

We find that the financing choices for the firms in our sample are not generally consistent with the systematic target behavior. Contrary to the prediction about issuing or retiring the specific "right" security for the firm's respective category, a greater proportion of firms tend to issue or retire more debt than equity across all categories. Furthermore, the proportion of firms that do not conform to the target behavior, issue or retire the "wrong" security quite intensely when they are not predicted to do so. This behavior primarily suggests that adjustment-cost concerns are not primarily driving the issuance or retirement of these "wrong" securities. For example, while the majority of the over-levered firms that resort to net issuances prefer debt to equity, they also issue debt quite intensely or use equity to a minimum extent in the financing mix, contradicting the predictions of the target-following behavior. Although our results suggest that a greater proportion of firms predominantly issue or retire debt, the findings may not suggest a pecking order proposed by Myers (1984). Consistent with Frank and Goyal (2003), we also find that a significant proportion of firms predominantly issue or retire equity.[3]

Following Chang and Dasgupta's (2009) suggestions, we compare our findings to the results obtained by using simulated datasets for an intentional target behavior with varying intensity, as well as simulated datasets for random financing. We show that our testing methodology successfully differentiates between the target and random financing behavior. We also confirm that our results remain similar even after considering the effect of the adjustment costs and frictions in the financial markets that may prevent immediate reversion.[4] The firms' aggregate financing behavior remains unchanged and inconsistent with the target-following for several subsequent financing rounds after experiencing a deviation from the target debt ratios. Furthermore, a significant proportion of firms that exhibit the target behavior for a given period do not seem to pursue it further in the following periods. Our results remain similar even when firms do not have a strictly defined target, but instead follow a range around their target debt ratios. These findings suggest that adjustment costs may not be the prime deterrent to the firms' target-following.

Our results are robust to different measures of the target debt ratio. For example, along with the target debt ratios that are estimated through the linear regression models, we estimate the debt ratios using non-linear regression models, such as the two-part fractional logistic model suggested in Ramalho and Vidigal da Silva (2013), to address the bounded nature of debt ratios. Moreover, aggregate financing behavior remains the same even when the targets are replaced by the respective contemporary median debt ratios for a particular industry and also when we use seemingly unrelated target debt ratios.

Although the aggregate financing behavior is inconsistent with the systematic target-following, as a primary condition for target-following, firms' financing choices should be largely driven by the extent of deviation between the actual and the target debt ratios. Larger deviations should motivate firms to issue or retire a significant amount of the predicted security in each category in order to effectively close the gap between the actual and target debt ratios. We formally investigate the extent to which deviations from target debt ratios, among other determinants, drive the firms' predicted financing choices for each category. We find that deviations from the target debt ratios do not significantly influence the firms' financing decisions, an important finding because the primary reason to follow the systematic target behavior is missing. However, other firm-specific characteristics seem to significantly influence the firms' debt-equity choice. Factors, such as size, profitability, and growth opportunities, have a significantly higher impact on firms' financing choices when compared to the deviation from target debt ratios. Specifically, larger, profitable, and high-growth firms tend to significantly retire more equity than debt when facing a financing surplus. For firms that have a financing deficit, high-growth firms issue more equity while firms with very low ex-ante distress costs tend to issue

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[2] Later, as part of the robustness tests, we discuss our results and include firms with extremely low or high debt ratios, too.

[3] Further, merely finding a higher proportion of firms that use debt may not suggest the pecking order proposed by Myers (1984) unless we carefully examine several postulates of such a pecking order, as shown in Leary and Roberts (2010).

[4] Leary and Roberts (2005), among others, argue that adjustment costs could prevent firms from rebalancing small deviations from their specified target debt ratios.