Journal of Corporate Finance 26 (2014) 182–200

Contents lists available at ScienceDirect

Journal of Corporate Finance

journal homepage: www.elsevier.com/locate/jcorpfin

Capital structure, equity mispricing, and stock repurchases

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ARTICLE INFO

Article history:
Received 4 January 2014
Received in revised form 22 March 2014
Accepted 25 March 2014
Available online 2 April 2014

JEL classification:
G30
G32
G35

Keywords:
Target leverage
Residual income model
Capital structure
Equity mispricing
Market timing
Share repurchase

ABSTRACT

We evaluate motives for share repurchases using a unified framework where a firm has a target capital structure and has equity that can be mispriced. We document that capital structure adjustments are a value-increasing motive for repurchases and that the extent to which adjusting capital structure through a repurchase creates value depends on the undervaluation of the firm. Underlevered and undervalued firms enjoy the greatest economic gains from a repurchase, as evidenced by the stock price reaction to the repurchase announcement, and these firms are more likely to announce a share repurchase program.

Published by Elsevier B.V.

1. Introduction

Firms repurchase stock for a variety of reasons, including signaling undervaluation, reducing the agency costs associated with excess cash, fending off takeover attempts, and mimicking industry peers. Repurchasing stock also alters a firm's capital structure as buying back shares decreases equity, which increases a firm's leverage ratio. Open market share repurchases, the most popular form of repurchase, are generally interpreted as good news by the stock market and hence are greeted with abnormal returns of approximately 2% to 3% on average (e.g., Comment and Jarrell, 1991; Stephens and Weisbach, 1998). There is, however, a non-trivial variation in the market reaction to share repurchases, implying that investors view repurchases as better news for some firms than for others.

This paper extends the previous research that investigates market reactions to share repurchases by studying the association between stock returns to repurchase announcements and capital structure policy. Capital structure theories predict how and why a firm could benefit from share repurchases. According to the tradeoff theory, underlevered firms can move towards their optimal debt ratio by either issuing debt or repurchasing equity, which implies that the benefits from a share repurchase should be greater for underlevered firms. Yet, underlevered firms must weigh the benefits of moving towards their target leverage ratio against the cost of repurchasing stock—a cost that depends on the perceived value of the stock. The market timing theory of capital structure predicts that undervalued firms should repurchase equity to exploit mispricing opportunities while overvalued firms should avoid repurchasing. If anything, these overvalued firms should issue stock.

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http://dx.doi.org/10.1016/j.jcorpfin.2014.03.007
0929-1199/Published by Elsevier B.V.

Previous research has attempted to differentiate among the explanations for repurchase announcements using various capital structure theories, including the signaling/market timing and trade-off stories. In this paper, we evaluate the motive for a repurchase in a more unified framework where a firm has a target capital structure and has equity that can be mispriced. We hypothesize that firms that are below their optimal leverage at the time of the share repurchase announcement will benefit more from the capital structure adjustment achieved by repurchasing stock. Further, the benefits to repurchasing will be more pronounced when a firm's equity is also undervalued, and thus the overall cost of repurchasing is low. Correspondingly, when the firm's stock is overvalued and repurchasing equity is relatively expensive, adjustments requiring stock repurchases will be more costly and hence less beneficial.

We study the effects of leverage and undervaluation on market reactions to open market share repurchase announcements from 1990 to 2010. Compared to previous studies evaluating the effect of capital structure on share repurchase announcement returns, we use more refined measures of leverage targets and equity mispricing. Our approach for estimating the target leverage is based on Blundell and Bond (1998), who employ system generalized method of moment (GMM) estimators. Rather than estimating a static model based on observed contemporaneous debt ratios, we estimate a dynamic panel model that produces an estimate of the unobserved target leverage. The benefit of this partial adjustment model is that it incorporates rebalancing costs that may slow down the firm's rate of adjustment to its optimal leverage. We use two quite different methods to estimate mispricing: the residual income model, as originally developed in the accounting literature (Ohlson, 1991, 1995), and the Rhodes-Kropf et al. (2005) model, which decomposes the market-to-book ratio to separate mispricing effects from growth options.

We document significantly lower announcement returns for overlevered firms relative to underlevered firms, consistent with the predictions of the trade-off theory. Using market debt ratios, repurchase announcements made by firms whose debt ratio is above their target are associated with three-day cumulative abnormal returns (CARs) of 1.3%, statistically different from the 1.9% three-day CARs for firms whose debt ratio is below their target. We find similar results when we use book leverage. We also find that undervalued firms experience significantly greater announcement returns, consistent with the predictions of the market timing theory. When using the Rhodes-Kropf et al. (2005) valuation method, the three-day announcement CARs are 1.4% for overvalued firms but 2.3% for undervalued firms. This difference in CARs is statistically significant. We find similar results using the residual income model to measure valuation.

To examine the interaction of valuation and capital structure, we condition on firms being over or underlevered and over or undervalued to form four groups (overlevered/overvalued, overlevered/undervalued, underlevered/overvalued, and underlevered/undervalued). Shifting from the overlevered/overvalued group of firms to the underlevered/undervalued group causes returns to repurchase announcements to approximately double—regardless of how we define leverage or measure misvaluation. In sum, firms that are above their target leverage ratio or overvalued have lower abnormal returns to repurchase announcements while firms that are below their target leverage ratio or undervalued have higher abnormal returns to repurchase announcements.

We also study the effects of capital structure and equity mispricing on repurchase announcements in a multivariate setting, where we control for firm characteristics and other plausible value-relevant motives for repurchasing stock. When we regress three-day repurchase announcement CARs on indicators for over/underlevered and over/undervalued, we find evidence that the market discounts announcements made by both overlevered and overvalued firms. However, the market only places a premium on repurchase announcements made by undervalued firms. While the cumulative abnormal announcement returns are significantly positive for underlevered firms, the difference is not statistically significant from our benchmark group (firms that are close to their target with little misvaluation).

Interacting leverage and valuation reinforces our prior results: Even after controlling for other potential value-relevant repurchase motives, we find that the market discounts repurchase announcements by firms that are both overlevered and overvalued and places a premium on announcements by firms that are underlevered and undervalued. In the more ambiguous cases, we document that the negative impact of being overvalued cancels out the positive impact of being underlevered. However, market reactions are stronger (i.e., more positive) for overlevered firms that are undervalued, indicating that the benefits of repurchasing undervalued stock outweigh the costs of being away from the target. In other words, being undervalued leads to greater announcement returns—regardless of whether the firm is over or underlevered.

Given that the benefits to repurchasing depend on capital structure and perceived valuation, our final analysis tests whether capital structure and misvaluation influence a firm's decision to announce a share repurchase. Specifically, we include standard controls for alternative repurchase motives, and we model the decision to announce a share repurchase as a function of being over/underlevered and over/undervalued. Consistent with firms understanding the economic benefits of repurchases motivated by capital structure, we find evidence that underlevered firms are more likely to repurchase while overlevered firms are less likely. The relationship between mispricing and the likelihood of announcing a repurchase is less clear. While undervalued firms are unequivocally more likely to announce a repurchase, overvalued firms are not necessarily less likely.

As before, we also interact leverage and valuation to study how these effects work together to influence the decision to repurchase. Conditional on being overvalued, the effect of being underlevered is ambiguous. However, firms that are both underlevered and undervalued are significantly more likely to announce a share repurchase. Overlevered firms are less likely to announce a repurchase if the firm is simultaneously overvalued, but more likely to announce a repurchase if the firm is undervalued. These results confirm that firms recognize that the interaction between capital structure and firm valuation impacts the economic benefit to share repurchases and incorporate this information into their decision to repurchase.

We improve upon the existing research by employing unique, precise measures of relative leverage and firm valuation when modeling a firm's choice to repurchase and the market's reaction to that choice. We contribute to repurchase and capital structure literatures by showing that capital structure is a value-increasing motive for a share repurchase and that the extent to which adjusting capital structure through a share repurchase creates value depends on the undervaluation of the firm. We also document that firms understand this relationship and consider their relative leverage and undervaluation when deciding whether to announce a repurchase.