Essays on Empirical Corporate Finance

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Overview

This doctoral dissertation is composed of three papers and it is submitted to the Department of Finance at the Norwegian School of Economics, in partial fulfillment of the requirements for the Doctor of Philosophy degree. The papers empirically investigate the following three issues: the first examines whether managers manipulate earnings prior to seasoned equity offerings (SEOs) and if manipulation is able to predict the under-performance of SEO firms; the second paper, focusing on leverage decreasing recapitalizations, revisits the question of why firms performing SEOs have abnormally low stock returns post-issue and provides evidence for the market timing interpretation; the third paper studies how the financial condition affects the firm's decision to undertake leverage decreasing recapitalizations and how the market reacts to their announcements. I provide a short summary of these three papers in the following.

Earnings management around seasoned equity offerings: evidence from non-investment accruals

This paper identifies a simple channel for earnings manipulation: managers strategically modify particular components of their long-term accruals to boost share prices and mislead investors. Afterwards they exploit the temporary mispricing through seasoned equity offerings (SEOs).

Loughran and Ritter (1995), Spiess and Affleck-Graves (1995) and Eckbo et al. (2007) show that SEO firms experience pre-issue stock price run-ups and post-issue stock return underperformance compared to the stock market. There are mainly two explanations for these well-established patterns: an investment-related explanation and a market-timing explanation. The former suggests that stock price and stock return patterns are a reflection of changes in risk resulting from the exercise of growth options (Carlson et al. (2006, 2010)). The latter argues that managers exploit their information advantage relative to outsiders to time their SEOs (Baker and Wurgler (2002), Huang and Ritter (2017)). The apparent long-run under-performance would then be a result of slow learning of investors.

In this paper I provide support for the market timing explanation focusing on how managers manipulate earnings to influence investor's beliefs prior to the issue. Consistent with the view that managers use earnings management to mislead investors and issue overvalued shares, Teoh et al. (1998) find that firms which perform SEOs have lower post-issue performance if they aggressively modify their pre-issue current accruals. Nevertheless, there is disagreement in the literature regarding the estimation of earnings manipulation's proxies, and in particular regarding the existing correlation between the proxies and investment. The contribution of my paper is employing non-investment accruals as a proxy for income manipulation.

Using this measure comes with two advantages: first, the proxy is directly observable and there is no need for assumptions on estimation methods or regressors. Second, it reflects discretionary choices of the management which by definition are unrelated to growth and investment.

I find that my proxy for earnings management is able to predict post-SEO stock returns better than any other control. In addition I investigate the marginal effect of earnings management on the financing decision. I predict that firms which are financially constrained and depend heavily on equity financing will manage the pre-SEO earnings the most. This prediction is based on the simple intuition that the effect of the capital market inefficiencies on corporate financing should be the most pronounced among firms incentivised to be opportunistic. Results provide evidence consistent with this prediction: firms which highly depend on equity financing mismanage accruals more before issuing.

This paper advances our understanding of the underlying determinants of the timing of SEOs as well as the reasons behind strategic management of earnings by firm managers. While investment and exploiting mispricing are not mutually exclusive neither for the SEO pre- and post-issue performance, nor for the accrual's negative relation with future returns, we test which factor is dominant. The results suggest that market timing is the dominant channel.

Equity issues, creditor control and market timing patterns: evidence from leverage decreasing recapitalizations

The second paper revisits the question of why firms performing seasoned equity offerings have, on average, abnormally low stock returns. While the facts that SEO firms experience pre-issue stock price run-ups and post-issue stock return underperformance are widely shared in the empirical literature, there is little agreement regarding their interpretation: an investment interpretation argues that growth opportunities and investment can rationalize such stock price dynamics (Carlson et al. (2006, 2010)) while a market-timing interpretation asserts that equity issues are driven by managerial attempts to exploit temporary overvaluation of stocks (Baker and Wurgler (2002), Bradshaw et al. (2006)).

To better understand the two competing arguments, our research design focuses on a sample of equity issuers which are unlikely to be driven by investment. Specifically, we identify firms that issue equity and use a significant amount of the proceeds to actively retire debt (a so-called leverage decreasing re-capitalization, LDR). The focus on LDRs is motivated by a large literature suggesting they may be the result of creditors exercising control rights (Smith and Warner (1979), Nini et al.(2009)) whereas when creditor control rights are absent, shareholders would never find it optimal to retire debt early (Fischer et

al. (1989), Admati et al. (2018)).

Our main empirical analysis can be summarized as follows. First, we verify that investment of LDR firms is low and hence is unlikely to be the driver of the equity issue. Second, we provide detailed evidence that LDR periods occur after stock price run-ups and in periods of high valuation which subsequently decrease. These findings occur both when exploring annual dynamics of the market-to-book ratio (Fama and French(1998)) or when investigating monthly stock return dynamics (Fama and MacBeth (1973), Fama and French (2015)). In the period after the rebalancing, LDR firms perform worse than those choosing not to rebalance capital structure. Third, after showing that firms performing LDRs exhibit high financial reporting conservatism and frequently violate financial covenants, we provide novel insights by exploring cross-sectional differences. We observe similar valuation patterns among the sample of firms exhibiting a high degree of financial reporting conservatism or those that violate financial covenants.

Finally, we corroborate the market timing interpretation of these valuation patterns by computing pro-forma cash balances. We show that these dynamics are robust to controlling for (changes in) leverage and other standard risk factors and that these firms could further reduce discretionary expenses or sell assets to generate cash.

The found patterns do not allow us to reject a market timing interpretation of the data. Instead, the findings are consistent with the idea that the high temporary valuation of shares aligns incentives between existing shareholders and the controlling creditors as both groups benefit from the underlying equity issue: controlling creditors are repaid early while the overvaluation of shares makes the capital structure rebalancing profitable for existing shareholders.

Leverage decreasing recapitalizations: one size doesn't fit all

Admati et al. (2018) show that once debt is in place, shareholders pervasively resist leverage reductions no matter how much such reductions may enhance firm value. Dynamic trade-off models of capital structure, in which leverage adjustments are infrequent, suggest that it might be optimal to reduce leverage only when close to default or strategic renegotiation.

However, recently, contrasting empirical evidence has emerged. DeAngelo et al. (2017) find that firms deleverage through retiring debt or retaining earnings, to restore ample financial flexibility even though this result is difficult to reconcile with trade-off theory's positive leverage targets. Related, Kisser and Rapushi (2020) find that on average, one out of five equity issues is part of a leverage decreasing recapitalization. In this paper, we consider four alternative ways firms can implement to diminish leverage: the

equity for debt swaps, seasoned equity offerings (SEOs) which state 'leverage reduction' as intended use of the proceeds, SEOs followed by actual buyback of debt and SEOs followed by cash hoarding. We find that – contrary to dynamic trade-off models – leverage reductions happen in financially sound firms. In addition, they happen more frequently than the dynamic trade-off models would suggest.

Yet, for a number of reasons the leverage decreasing recapitalizations (LDRs) may be quite costly for shareholders. Theory suggests that among the various stakeholders of a firm, the shareholders are the ones who have no interest in lowering the indebtedness through 'early' recapitalizations because of the wealth transfer to debt-holders (Titman and Tsyplakov (2007)). In addition, the fact that managers have better information about the firms prospects compared to outsiders might scatter a negative reaction in the markets when leverage decreasing recapitalizations are announced (Myers and Majluf (1984)).

We investigate whether stockholders get harmed from the management's decision to recapitalize downwards through an examination of stock price reactions to different types of LDR announcements. Aligned with the literature, we find that the reaction of the market at leverage decreasing recapitalization announcements is on average negative.

However, by looking at the mid-term comparison between debt buyback strategy and cash hoarding strategy, the retirement of debt after equity issues is perceived worse by the markets compared to the equity issuance and subsequent liquidity buffer increase. In fact, the cumulative abnormal returns in six months and one year, turn positive and significant for cash hoarding firms while remaining negative for buyback firms. This result is consistent with a financial flexibility objective, as in DeAngelo et al. (2018) according to which the decision of the firm to increase liquidity and diminish the leverage is a voluntary effort of the managers to improve the capital structure.

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Earnings management around seasoned equity offerings: evidence from non-investment accruals.

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Abstract

Managers appear to inflate non-investment accruals and then adjust financing decisions to capitalize on such inflation. Using a large sample of corporate seasoned equity offerings for the period 1972 - 2017, we find that firms which adjust non-investment accruals to inflate pre-issue earnings have lower stock returns in the following years. Our evidence is consistent with investors being overly optimistic at the time of the issue, while in the long run revaluing the firm downwards because high reported earnings are not justified by fundamentals. Quantile analysis indicates that firms aggressively inflating non-investment accruals have a 12% stock return under-performance in the post-issue year compared to their conservative counterparts, and have a 15% higher probability of issuing equity in the following quarters. We find that managers are more aggressive with the pre-issue inflation of their non-investment accruals when the firm is highly dependent on equity finance.

Keywords: Earnings management; Market efficiency; Long-run stock returns; Discretionary accruals; Non-investment accruals; Equity issues; Equity dependent firms.

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1 Introduction

This paper identifies a simple, economically important channel for strategic earnings management: managers strategically modify particular components of their long-term accounting accruals to boost share prices and mislead investors. Afterwards they exploit the temporary mispricing through seasoned equity offerings (SEOs).

Net income figure includes not only actual cash flows but also non-cash accruals, some of which can be fairly discretionary. In addition, net income is periodically exposed to the investors' attention[1]. These facts, make the most discretionary part of net income, i.e the non-cash accruals, a prolific area for earnings (mis)management. Related, the survey of Graham, Harvey and Rajgopal (2005) suggests that CFOs believe that investors care more about earnings per share than cash flows.

Sloan (1996) shows that a hedging strategy that invests in low accrual firms and sells high accrual firms earns a significant yearly return. The result suggests that earnings management may be successful in inflating share prices (or at least in maintaining existing overvaluation). Related research shows that prices react strongly to earnings surprises on the announcement day and continue to drift in the direction of the surprise for approximately forty trading days (Azi, Zhi and Ryan (2016)). Managers of SEO performing firms that promptly time the market may then exploit such mispricing.

Consistent with the view that managers use earnings management to mislead investors and issue overvalued shares, Teoh, Welch and Wong (1998a, 1998b) find that firms which perform initial public offerings (IPOs) and SEOs have lower post-issue performance if they aggressively modify their pre-issue current accruals. Similarly, Erickson and Wang (1999) and Bergstresser, Desai, and Rauh (2004) report that earnings management activity increases prior to stock acquisitions.

The use of non-investment long-term accruals as a tool to boost earnings relates to the existing literature on earnings management, which typically employs measures of the discretionary part of accruals as an indication of earnings mis-management. However, this tool has two clear advantages: it is directly observable and there is no need for assumptions on estimation methods or regressors as in the commonly used modified (Jones, 1991). Second, it reflects discretionary choices of the management which by definition

[1] Mandatory financial reporting and voluntary disclosure are two channels of corporate disclosure by which managers communicate private information with capital markets and both are relevant, as evidenced by stock price as well as trading activity associated with the two types of disclosures (Easton and Zmijewski (1989), Gennotte and Truemann (1996), Leuz and Schrand (2009) and Balakrishnan, Billings, Ljungqvist, and Kelly (2012)).

are unrelated to growth and investment.

The tight connection between accruals and investment has been the main empirical challenge in testing whether the well documented negative relation between the accrual component of earnings and future returns is driven by firms investment opportunities or the manager's discretion in reporting accounting data[2]. In fact, a large body of the earnings literature is divided between two alternative explanations as to why this negative relation would exist. Supporters of the earnings management hypothesis (Sloan (1996), Xie (2001), Barth and Hutton (2004), Richardson et al. (2005)) suggest that investor's misunderstanding of errors and reliability level in accruals make them weight unproperly the earnings components in generating their estimates. In contrast, the hypothesis of diminishing marginal returns to new investment links accruals to investment and growth and finds that firms that have grown the most, experience lower levels of future profitability (Thomas and Zhang (2002), Fairfield et al. (2003), Zhang (2007)). By focusing on a different informational content of accruals, our approach gives us the possibility to formulate distinct predictions under the earnings management hypothesis and under the investment hypothesis, and test them.

The issue of whether investment/growth or mis-evaluation explains the pre-SEO stock price run-up and the post-SEO under-performance is also controversial because mis-evaluation and investment/growth have the same prediction for the relation between equity financing and future stock returns[3]. The investment-related interpretation suggests that stock price and stock return patterns are a reflection of changes in risk. Carlson et al. (2006, 2010) explain the pre-issuance price run-up using growth options (moving sufficiently into the money) and the post-issuance underperformance with the reduction in asset risk (as a result of exercising growth options). According to the market timing explanation managers exploit their information advantage relative to outsiders to time their SEOs (Loughran and Ritter (1995), Baker and Wurgler (2002), Kim and Weisbach (2008) and, Huang and Ritter (2017)). The apparent long-run under-performance would then be a result of slow learning of investors. Again, our earning's management

[2]The persistent negative relation between accruals and future stock returns is known as the accrual anomaly, and was first documented in Sloan (1996). A large body of follow-up studies shares a general consensus that accruals are negatively related to future stock returns (e.g, Xie (2001), Fairfield et al. (2003), Barth and Hutton(2004), Richardson et al. (2005), Zhang (2007), Dechow et al. (2011)).

[3]Loughran and Ritter (1995), Spiess and Affleck-Graves (1995), Ritter (2003), Carlson et al. (2006) and Eckbo et al. (2007) show that on average seasoned equity offering (SEO) firms overperform the benchmarks prior to the issue and underperform for a period of three to five years in the post-issue period. This atypical stock performance has presented so long a challenge to the efficient market hypothesis. From the evidence in the prior literature, there are two concurrent interpretations of these return facts: the investment theory and the market timing theory.

measure provides us with an advantage: splitting the long-term accruals in investment and non-investment accruals allows us to distinguish between these two competing views.

This paper advances our understanding of the underlying determinants of the timing of seasoned equity offerings as well as the reasons behind strategic management of earnings by firm managers. While investment and exploiting mispricing are not mutually exclusive neither for the SEO pre- and post-issue performance, nor for the accrual's negative relation with future returns, our goal is to test which factor is dominant. Decomposing net income into cash flow from operations and accruals, we find that the pre-issue long-term accruals component not related to new investment causes the at-issue peak and is able to predict the post-issue under-performance in the cross-section of SEO firms better than any other variable.

In particular, we present new evidence on the dynamics of the accruals components and their explanatory power for the firm's stock return performance throughout the SEO episode. Similar to Teoh et al. (1998) we question whether managers perform income-increasing accruals adjustments to increase the investor's optimism prior to the issue. Our work differs from theirs in that we decompose the accruals component differently and such consider a different measure of mispricing. For a sample of 8,068 seasoned equity issuers from 1972 to 2017, we document that equity-issuing firms with aggressive income-increasing accounting adjustments prior to the offering have lower abnormal stock returns in the years post-issue. That is, investors initially overvalue the new issues as they are misguided by the high stated earnings (the stock price run-up fact) and subsequently revalue the stock down when the fundamentals do not sustain pre-issue earnings (the long-run under-performance fact).

This result confirms our market timing prediction (aligned with the earnings management hypothesis) that firms opportunistically inflate their earnings in the quarters leading to the SEO. Surprisingly the main effect is due to long-term accruals components which by definition are mainly negative and adjust the earnings downwards. The post-issue under-performance predictive power of non-investment long-term accruals is much stronger than the discretionary current accruals component which has been considered the most mismanaged component in the past literature (Teoh et al. (1998), Richardson et al. (2005)). We find that issuing firms which manage accruals upwards pre-issue, under-perform the matched issuing firms by a stock return of -12% in the 12 months following the issue. Results are similar when adjusting returns by the market model or a Fama-French three factor (and five factors) model.

For robustness, we analyze other measures of financial conservatism used in the recent literature[4] and, in alignment with our predictions, we find that all the measures of financial reporting conservatism consistently go down in the pre-issue and issue year. The management is more generous in the gains recognition while more reluctant in the incorporation of bad news in the firm's prospects when heading to a SEO.

As a further robustness test we perform a short-term event study on the market reaction to SEOs announcement, to check whether investors are able to differentiate aggressive firms from conservative ones well before the accruals reversals, i.e, before the following financial reports disclosures. We find no evidence of investors being able to separate the firms that inflate pre-issue earnings as the market reaction is not statistically different across the two groups.

In the second part of the paper we focus on the marginal effect of earnings management on the financing decision. Based on the simple intuition that the effect of the capital market inefficiencies on corporate financing should be the most pronounced among those firms who have the means and incentives to be opportunistic we predict that firms who are financially constrained and depend heavily on equity finance will manage the pre-SEO earnings the most. We find evidence consistent with this prediction. Firms for which the change in non-investment accruals belongs to the upper quartile have a 15% higher probability to issue equity in the quarters that follow.

The second part of the paper is akin to Baker, Stein and Wurgler (2003) who outline the conditions under which corporate financing and investment is sensitive to non-fundamental movements in stock prices and find that equity-dependent firms will be the most affected. In our context, non-investment long-term accruals affect such non-fundamental component of the stock prices[5] through earnings announcements. The main prediction is that the impact of earnings' inflation on the issue decision will be positive on average and increasing in the external-finance dependence. Using the interest coverage ratio, the size-age index proposed by Hadlock and Pierce (2010) and the market leverage as proxies of external-finance dependency we find support for our hypothesis. The influence of upwards earnings management over the issues decision is indeed positive and in the most financially constrained group, much larger than that of financially unconstrained firms. The results are statistically significant across all regression estimations.

[4] Khan and Watts (2009) and Tan (2012)

[5] Theorists as early as Keynes(1936) argue that stock prices have an irrational component so that they diverge from fundamental information about the firm.

The contribution of our paper to the existing literature is threefold. First, we document trend changes in the use of discretionary accruals to manage earnings. Cohen, Day and Lys (2004) document that accrual-based earnings management increased steadily from 1987 until the passage of the Sarbanes Oxley Act (SOX) in 2002, followed by a significant decline after the passage of SOX. Similarly, Kisser and Rapushi (2019) find that after 2001, there is no evidence of pre-issue inflation of discretionary current accruals in firms issuing net equity. The survey of Graham, Harvey and Rajagopal (2005) suggests that 97% of managers in their sample choose income smoothing[6] and worry about starting disclosure precedents that are difficult to maintain. Even-though in the last two decades the average firm in the cross-section prefers a smooth earnings path, we find strong evidence that managers temporarily increase income before raising equity. We occasionally compare the discretionary current accruals and the non-investment long-term accruals as two alternative proxies of the manager's discretion over a firm's announced earnings. We find that on average firms increased the strategic use of long-term accruals while gradually diminishing the strategic use of current accruals in the second half of our sample period (2000 to 2016).

Second, a key contribution is that we are able to clearly disentangle the market timing hypothesis from the investment hypothesis, decomposing the accruals in investment versus non-investment accruals. The accrual's components in our analysis have a very different predictive power for the post-issue stock returns. Following the suggestion in Richardson et al. (2005) about the ideal use of a more extended definition of accruals[7] we consider not only working capital accruals but also the long-term accruals. When focusing on these long-term accruals we find that non-investment long-term accruals are opportunistically inflated by managers prior to the issue. Our findings are related to and supported by other research. Bradshaw et al. (2001) and Wu et al. (2010), for example, have shown that firms with high accruals tend to be subject to more SEC enforcement actions and class action lawsuits. This association between accruals measures and ex-post accounting problems is consistent with managerial manipulation of financial statements that investors do not perceive immediately.

Finally, we contribute to the literature by shedding light on the earnings management's effect on the firms' financing decision. Using an equity finance channel, we examine the circumstances under which the income-increasing strategies matter the most for the corporate external financing and find that firms

[6] Income smoothing is commonly understood as the management's use of discretionary accounting to reduce earnings variability. The main income smoothing measure in the literature is the negative correlation between the change in a firm's discretionary accruals proxy and the change in its pre-discretionary income (Tucker and Zarowin (2006)).

[7] Richardson et al. (2005) suggest that many of the accruals that are omitted from the accruals' measure used in previous studies are of low reliability and have been at the heart of some accounting scandals.

which highly depend on equity mismanage accruals more before issuing. In this regard our paper is related to Campello and Graham (2013) who find that the high stock prices help firms relax their financial constraints, such that they can issue equity and use the proceeds to invest.

The remainder of the paper is organized as follows. Section II describes the motivation for this study and develops our hypothesis in the context of prior research. Section III presents our sample selection procedures and describes firm's selected characteristics. Section IV investigates the relation between earnings management and firm performance pre- and post-SEOs. In section V, with a focus on financially dependent firms we evaluate the effect of earnings management in the equity financing decision. Section VI summarizes our results.

2 Hypothesis

This paper is related to two lines of research: one considering the information content of SEOs and the other examining the information content of earnings releases. Existing research establishes that investors use the information contained in earnings to make their trading decisions. Ball and Brown (1968), Kross and Schroeder (1984), Easton and Zmijewski (1989), and Gennotte and Truemann (1996), just to mention some, find that stock prices and trading activity respond positively to announcements of increase in earnings[8]. It is likely that this is the explanation behind an established positive relation between earnings announcements and security issues – that is, firms tend to issue debt and equity after good earnings' news releases (Korajczyk, Lucas and McDonald (1992)). This evidence is supported by the market timing theory. The same conventional view of market timing confirms also that firms with overvalued stock issue more equity all the rest equal[9]. Taken together the above findings build the ground for our first testable hypothesis.

H1: Managers strategically use the income-increasing strategies to elude investors and contribute to the overvaluation of the stock. Because overvaluation is revealed when the announced earnings are not sustained by fundamentals, then the relation *equity issue – future stock returns* should be increasingly negative in the income-increasing strategies.

Sloan (1996) and Bradshaw et al. (2001) show that accruals reverse very quickly. Allen, Larsen

[8] Kothari, Lewellen and Warner (2006) provide a review of many articles published on the subject.

[9] An extensive literature supports this view: Korajczyk, Lucas and McDonald (1990), Loughran and Ritter (1995), Rajan and Zingales (1995), Graham and Harvey(2001), Baker and Wurgler (2002).

and Sloan (2013) find that accrual reversals happen on average in a year and are positively related to contemporaneous earnings changes. So, if managers boost the announced earnings through altering long-term accruals and succeed in fooling investors pre-issue, it will not persist post-issue cause the true value of the firm will be revealed as the accruals have to reverse.

The manipulation in earnings management is not a typical measure of the security mispricing in the market timing literature. Indeed, supporters of the market timing theory have widely used the book-to-market ratio to measure misevaluation[10]. Nonetheless, the several interpretations of the ratio M/B (Q ratio) are the main drawback of using that measure[11]. Earnings mismanagement as a measure of mispricing was introduced by Teoh, Welch and Wong (1998) who focus on the discretionary accruals at times when firms undertake IPOs or SEOs. They find evidence consistent with opportunistic managerial manipulation of accruals' components. An important limitation of Teoh et al. (1998) is that they do not test whether investment does (or does not) explain part of their result. Furthermore, to the early discussion of whether investment or market timing is behind the stock return patterns around SEOs, another discussion has been added of whether the commonly used modified Jones (1991) correctly captures the discretionary part of accruals. In our paper, we overcome both obstacles using the non-investment accruals as a measure of misevaluation and try to prove the mispricing at the time of the issue looking at the long-run future stock returns. The latter is common in the market timing literature. The intuition is that overpriced stocks have lower expected returns going forward as mispricing is corrected, while undervalued stock have higher returns.

Focusing on the firms' financing and investment decision, Baker, Stein and Wurgler (2003) find that stock prices shocks matter the most for firms that depend heavily on equity finance. Using the same model Gao and Lou (2013) show that non-fundamental changes in stock prices influence issuance choices differently in firms that have internal resources and firms that depend on equity finance. Intuitively, a firm with a low net leverage (low debt, high cash holdings) can undertake investment and financing decisions not concerning about the non-fundamental component of the stock price. However, when the firm depends

[10] Loughran and Ritter (1995) document greater equity issuances during periods of relatively high market values, where market values are assumed to be negatively correlated with ex post returns. More recently, Baker and Wurgler (2002) argued that the past patterns of book-to-market embed evidence of past market misvaluation.

[11] Stulz (1990), for example uses book-to-market to measure growth options and find evidence that firms with many growth options issue equity to mitigate the under-investment problem that arises from greater leverage. In the Lucas and McDonald (1990) paper built over Myers (1985) setup, firms will time equity issuances relative to adverse selection costs. If book-to-market measures variations in adverse selection, equity issues are more likely when book-to-market (adverse selection costs) is (are) low.

on equity finance to fund its projects, the non-fundamental component becomes important. In the spirit of the model in Stein (1996), Baker, Stein and Wurgler (2003) and Gao and Lou (2013), we focus on a specific external-financing channel and derive predictions about earnings management influence on stock issues. The main prediction is that if earnings (mis)management is causing an increase in the stock price then is the equity-finance dependent firms that have the highest sensitivity of equity financing to earnings (mis)management.

In the conventional view of market timing, the equity and debt markets are totally segmented. According to this view, the debt is assumed to be fairly priced so the behavioral part of the stock price is assumed to hit only equity costs. Our aim is to study the effect of earnings management (through equity mispricing) on equity issues, therefore, for simplicity, we assume that the debt market is totally segmented from the equity market[12].

In the framework created from the above reasoning we develop the following prediction about the financing decision.

H2: The effect of income inflating accounting adjustments on SEOs decision is predicted to be positive on average and increasing in equity-finance dependence.

The co-existence of H1 and H2 predict that within the subset of firms that highly depend on equity financing, the ones that manage accruals upwards will have the worst long-run future return performance. In the same way that the relation *equity issue - earnings mismanagement* is predicted to be positive on average and increasing in financial constraints, the *equity issue - future stock returns* will be negative on average (which is not a novel result) and increasingly negative in financial dependence.

3 Data and descriptive statistics

3.1 Sample selection

The initial sample consists of all U.S corporate seasoned equity offerings between January 1972 and December 2017 in the security data corporation (SDC). We eliminate firms in regulated industries (SIC

[12] Baker, Stein and Wurgler (2003) relaxes this assumption through a binding leverage level, i.e the firms can issue additional debt as long as the firm issues more overpriced equity. Gao and Lou (2013) further relaxes the assumption of the segmented markets, suggesting that since equity and debt are claims on the same underlying asset they are mispriced in the same direction. While Baker et. al (2003) studies the effect of equity mispricing on equity issues, Gao and Lou (2013) study the effect of equity mispricing on equity issues and the spillover effect of equity mispricing on debt issues.

codes between 4400 and 5000) and financial institutions (SIC codes between 6000 and 6500). Because we require one-year changes in some of the variables, our usable sample starts in 1973 and ends in 2016. For inclusion in the final sample we require available monthly stock returns data from Crisp such that we can calculate annual returns in the year prior to the issue and in the two years following the issue. Of these only those issues are considered for which we find full coverage yearly fundamental data in Compustat. In the case of multiple equity issues that occur within the same year, we combine the proceeds of the issues, use the first filing date, and treat them as one offering. The above filters, leave us with 8,068 security offerings.

In addition, because we do stock returns analysis in the pre-issue and post-issue period, to avoid using overlapped data we require that the issues of the same firm are distant at least 3 years one from the other. Furthermore, the firms are required to have at least ten other firms in the same two-digit SIC code industry group such that we can estimate the expected accruals through the intra-industry regressions as explained in section 3.2. The final sample consists of 140,067 firm-year observations from 13,799 different firms and 5,619 seasoned equity offerings. On average, the equity issuing firms in our sample issue common stock once during their lifetime. The sample size might vary during our different analysis depending on the empirical tests we perform.

Since our initial tests regard the first hypothesis we describe the relevant variables related to the H1 tests here and discuss the proxies for equity finance dependence (needed for H2) later.

3.2 Measuring the earnings (mis)management

Discounting the expected future cash flows at the cost of capital (DCF) is among the most used methods to estimate the value of a firm. Related, Shepherd (2012) infers that cash should be a more accurate measure of company's performance because the earnings can be manipulated. Still the vast majority of the investors in the markets focuses on information about the earnings (net income) even though they do not directly enter the equation of the DCF. In contrast to Shepherd (2012), Dechow (1994) and later, Bradshaw and Sloan (2002) long established that earning's explanatory power is higher than that of dividends or cash flows[13].

What drives a cut between earnings and cash flows is enclosed in the accruals. Accruals include certain

[13] Actually, among the performance benchmarks most used by investors are the previous year's earnings or seasonally lagged quarterly earnings (Burgstahler and Dichev (1997); DeGeorge et al. (1999)).

non-cash expected future benefits and obligations providing a better basis for assessing the firm's past and future performance (Richardson, Sloan, Soliman, and Tuna (2005)). Still they have a key drawback. Whereas the cash flows cannot be modified, the accruals are subject to discretion and measurement error. In fact, the belief that managers mismanage earnings numbers is widely shared in the literature[14]. Earnings mismanagement can incorporate both fraud and aggressive inflation within GAAP. We investigate only the actions permitted within the bounds of GAAP excluding financial fraud.

We define a firm's total accruals for a given year as the earnings before discontinued operations and extraordinary items less operating cash flow.

$$\text{Total Accruals} = \text{Net Income} - \text{Cash Flow from Operations} \tag{1}$$

Following Teoh et al. (1998), Richardson et al. (2005) and Lewellen and Resutek (2016) we express total accruals as the sum of current accruals and long-term accruals, namely:

$$\text{Total Accruals} = CA + LTA = \Delta WC + \Delta LTNOA \tag{2}$$

where CA is current accruals which equals ΔWC, the change in non-cash working capital and LTA is long-term accruals which equals $\Delta LTNOA$, the change in long-term net operating assets. Current accruals are the change in noncash current assets minus the change in operating current liabilities:

$$CA = \Delta(\text{Current Assets} - \text{Cash}) - \Delta(\text{Current Liabilities} - \text{Current Maturity of LT Debt}) \tag{3}$$

Long-term accruals are calculated as the difference between total accruals and current accruals:

$$LTA = \text{Total Accruals} - \text{Current Accruals} \tag{4}$$

We split the current accruals in the part related to fundamentals and the part at the discretion of managers, while the long-term accruals we divide in those related to new investment and those unrelated to new investment. Teoh et al. (1998) perform the same split on both current and long-term accruals and find

[14] Friedlan (1994), for example, found that accruals had turned losses into profits in 94% of the cases just before the IPOs in a sample of 277 IPOs of US firms. Burgstahler and Dichev (1997) provided evidence that firms with net profit close to zero or even negative manage reported earnings upwards.

that among the four components, the current discretionary part is driving the increase in net income prior to the issue. They conclude that managers increase the earnings through managing current discretionary accruals before issuing securities. The evidence of a decrease in the strategic management of discretionary accruals after the introduction of SOX, suggests that firms in part abandoned the income increasing strategies they used before the passage of the act. For this reason we check whether firms switched their object of manipulation to other types of accruals.

In fact, differently from the literature's widespread focus on working capital accruals, Richardson et al. (2005) suggest that many of the accruals in the long-term component are of low reliability and can be object of manipulation by the management. Following their advice we focus on the long-term accruals and most importantly, use a non-transaction accrual measure introduced in Lewellen and Resutek (2016) that distinguishes between long-term accruals related to new investment and long-term accruals unrelated to new investment. The tight connection between accruals and investment make it difficult to distinguish which part of the accruals is due to investment and which part is not but Lewellen and Resutek (2016) strategy is based on the observation that this relation is imperfect. Using Compustat's variable names, they define non-investment accruals as:

$$\begin{aligned} \text{Non Investment LTA} = {} & \text{Depreciation and Amortization (SCF account)} \\ & + \text{Deferred taxes (SCF account)} \\ & + \text{Equity in Net Loss (Earnings) of unconsolidated subsidiaries} \\ & + \text{Loss (Gain) on Sale of Property, Plant and Equipment and Investment} \\ & + \text{Funds from operations - Other} \\ & + \text{Extraordinary items and Discontinued operations.} \end{aligned} \tag{5}$$

Lewellen and Resutek (2016) argue that these items who represent all accruals identified as distinct from investments are mainly long-term accruals. They split the long-term accruals in the part unrelated to investment (the above measure) and the investment accruals. So, the investment related component of long-term accruals would then be the remaining component of LTA.

We exploit the non-investment accruals measure and the pre-SEO change in this measure will become our main proxy of (mis)management. The items composing the measure are considered unrelated to the new investment but they can also be viewed as items whose value is at high discretion of the management. They are not much related to the core business of the firm and have an ambiguous reliability considering

that they can be opportunistically altered by managers. The alteration can come from changing the used accounting method or estimations, undertaking transactions that increase the reported earnings for the period or combinations of both (Bartov, 1993).

The measure is dominated by the depreciation and amortization component. Considerable subjectivity is embedded in the estimation of these accruals. The depreciation/amortization method adopted by the firm, the useful life and the salvage value are all based on subjective decisions that impact both PP&E and intangibles. In addition, PP&E and intangibles are subject to possible write-downs when they are determined to have been impaired. Richardson et al. (2005) state that such write-downs are typically made in large discrete amounts so they might inevitably introduce periodic distortions into the earnings. The other items have lower weights but they have undoubtedly high potential for measurement error and the timing of their approval or recognition is a manager's choice.

To obtain the discretionary and non-discretionary current accruals we use the cross-sectional modified version of the Jones (1991) model as in Teoh et al. (1998)[15]:

$$\frac{CA_{it}}{Assets_{i,t-1}} = \beta_0 \frac{1}{Assets_{i,t-1}} + \beta_1 \frac{\Delta Sales_{i,t-1;t}}{Assets_{i,t-1}} + \epsilon_{it} \tag{6}$$

where current accruals is scaled by lagged total assets and $\Delta Sales$ is the change in sales from t-1 to t. The model for discretionary accruals is estimated by every year and industry. The two-digit SIC code is used to identify an industry. We require at least 10 observations for each industry-year grouping. The scaled variables are winsorized annually at their first and the ninety-ninth percentile to reduce the influence of outliers. Once obtained the parameter estimates from the above equation we plug them into equation 5 to calculate non-discretionary current accruals (NDCA).

$$\hat{NDCA}_{i,t} = \hat{\beta}_0 \frac{1}{Assets_{i,t-1}} + \hat{\beta}_1 \frac{\Delta Sales_{i,t-1;t}}{Assets_{i,t-1}} \tag{7}$$

The remaining current accruals are the scaled discretionary current accruals, which according to Teoh et al. (1998) are the component more subject to manipulation.

$$\hat{DCA}_{i,t} = \frac{CA_{it}}{Assets_{i,t-1}} - \hat{NDCA}_{i,t} \tag{8}$$

[15] For a detailed explanation see Appendix A.1 in Teoh et al. (1998).

The decomposition of the accrual components that we make implies that the total accruals will be equal to:

$$TACC = NDCA + DCA + ILTA + NILTA \tag{9}$$

where NDCA is the non discretionary current accruals, DCA is the discretionary current accruals, ILTA is the investment related long-term accruals and the NILTA is the long-term accruals not related to investment. This will be the baseline accrual specification that we will use in empirical tests.

For robustness tests, we will use additional measures of financial conservatism and accounting choices made my managers. Khan and Watts (2009), for example, establish a firm-year measure of conservatism (CScore) and are the first to apply it to study events involving a change in conservatism. Tracking the CScore, they show that conservatism increases in response to a rise in information asymmetry or in the likelihood of litigation. This measure expresses the incremental timeliness of bad news. The higher the CScore the higher the conservatism. We measure the firm-year specific CScore as in Khan and Watts (2009) and observe the changes in the score through the SEO event.

Following Tan (2012), in addition to the CScore, we examine specific transactions that reflect conservatism more directly, such as write-downs, goodwill impairment, restructuring charges and discontinued operations. These accrual measures of reporting conservatism are all deflated by lagged shareholders' equity. The means of those variables are negative, representing losses or expenses.

3.3 Descriptive statistics

[Insert Table 1 here]

Table 1 reports the distribution over time and across industries for seasoned equity offerings and two different earnings management's proxies - the long-term accruals management (LTAM) measure and the current accruals management (CAM) measure. We calculate the yearly change in non-investment long-term accruals and the yearly change in current discretionary accruals for each firm-year, assign each firm-year to a quintile according to the value of each proxy. We define a firm as managing the long-term accruals when it belongs to the upper quintile of changes in non-investment accruals; similarly, a firm is managing the current accruals if for a given year it belongs to the fifth quintile of the changes in discretionary current accruals.

As we can see from Panel A, the manufacturing industry alone makes for approximately 60% of the

issues in equity. It is very interesting to see that also the earnings management proxies, LTAM and CAM, are concentrated in the manufacturing group of industries where most of the equity issues happen, suggesting they might be related to the equity issues timing. Within this large industrial group, electronics and chemicals firms are those who issue more and manage earnings more. Follows the services industry with equity issues that make 19% of the total and earnings management that make up for almost 20% of the total for each proxy. Earnings management may be prevalent in these industries because of the high competitiveness. In addition, the fact that they are relatively new, without a history record might make it difficult to judge their accounting choices.

Panel B reports frequency of issues and earnings management proxies by time periods. Four of the sample years (1983, 1996, 2003, 2004) contain more than 17% of the sample equity issues. Earnings management in current accruals have an increasing trend from the start of the sample until 1998, with the years 1995-1998 having about 17% of all cases of earnings management in current accruals. After 1998 the trend switches to decreasing. The trend is very similar if we look at the unconditional long-term accruals management. When focusing on accruals management pre-equity issue the trend looks different for long-term accruals and current accruals. Firms that undertake seasoned equity offerings managed mainly the current accrual components in the first two decades of the sample period while after 2000 the use of long-term accruals management becomes prevalent. Becoming more conservative in the unconditional earning's management after 1998 might have been a voluntarily decision of the firms in the light of a growing list of accounting and corporate scandals, or alternatively might be an early adaptation to the Sarbanes-Oxley Act (SOX). Using long-term accruals more in the process of inflating pre-issue earnings compared to the often used current accruals might be an attempt of firms that find it hard to loose the habit of manipulating earnings to find new uncaptured ways of boosting accruals.

In Table 2 we report averages of the main firm characteristics for the full sample, for firms that do not issue equity and for issuing firms (SEO-firms). For SEO-firms we distinguish between those performing pre-issue long-term accrual strategic management and those who do not.

[Insert Table 2 here]

Firms that issue equity have a slightly lower book leverage compared to the average firm in the full sample while a considerably lower market leverage suggesting possible stock overvaluation. In fact the Q ratio for SEO-firms is 2.7 compared to an average of 1.5 in both the full sample and the non-issuing firms. Firms that issue are not profitable and with a higher investment in capital and R&D expenditure. They are smaller on average and with an operating cash flow that is negative and much lower than the not

issuing firms. When focusing among SEO-firms, those who manage long-term accruals to inflate earnings pre-issue are slightly smaller, less profitable and with lower operating cash flows than SEO-firms who do not manage accruals. Capital structure is very similar among the two groups suggesting that is mainly the lowest profitability that pushes management into handling the reported data. According to our proxy for earnings strategic management one out of four issuing firms manages long-term accruals.

4 Earnings management and the pre- and post-performance of equity issuers

In this section we perform a first examination of the stock price, the stock return patterns and the investment activity surrounding the seasoned equity offering for all SEO-firms and for those only who inflate earnings upwards through long-term accruals management. The provided evidence in Figure 1 emphasizes the stock price run-up fact and the post-SEO stock return under-performance in firms that undertake seasoned equity offerings. Figure 1(b) shows that the same patterns are shared when the issuing firm is one who voluntarily mismanaged the long-term accruals to increase pre-issue income.

[Insert Figure 1 here]

In fact in both cases the stock price peaks in the year of the event and the market-adjusted abnormal returns turn negative after the event year. As argued in the previous sections this evidence could be a sign of market timing patterns as well as an indication of exercising growth opportunities. Considering that to define the proxy for the earnings mismanagement we use the part of long-term accruals unrelated to new investment, this component of the accruals will not covary with other growth related variables so by definition cant be the driver of growth patterns. Put differently, the discussion between market timing theory and investment theory is clearly cut based on the information content of the accruals. An increase in not investment related accruals cannot be evidence of an increase in investment di per se, but if firms manage this component of accruals before getting equity finance then the proceeds can be used to invest.

[Insert Figure 2 here]

To distinguish among the investment story and market timing around the SEO, in Figure 2 we report the market to book of the two groups and their investment activity in the years around the event. In tracking the investment we follow Kisser and Rapushi (2019) and use three different measures of investment into fixed assets: capital expenditure, cash investment which also includes cash outlays for patent purchases and acquisitions, as well as net reductions resulting from asset sales and, total investment which is computed

from yearly changes in fixed assets in the firm's balance sheet like in Lewellen and Lewellen (2016).

Figure 2(a) and 2(b) suggest that the overvaluation at the event year is higher for issuing firms that inflate earnings than those who do not inflate. The market to book ratio is 2.8 in the issuing firms that manage accruals compared to 2.5 of the average issuing firm. The total investment peak around the issue year is firm for the average SEO-firm while not so evident for the SEO-firms that inflate earnings. We can notice a steeper increase in cash investment but the absolute value for firms that manage accruals is lower than the rest of the issuing firms. For example, the total investment in the issue year, is 35% of the assets value for the average SEO-firm while 16% for the firms that inflate earnings through long-term accruals. Whilst the overvaluation story seems stronger than the investment explanation one for issuing firms that handle income, with the evidence so far we are not able to make inferences related to the first hypothesis. In the next section we focus on specific tests related to hypothesis one.

4.1 Net income analysis

[Insert Table 3 here]

Our tests regarding H1 start with the time profile of the net income components. Table 3 presents the net income, operating cash flow, total, current and long-term accruals of firms undertaking seasoned equity offerings from the three years before to the three years after the offering. The net income slightly increases in the year preceding the issue but not in the year of the event. The main negative contribution in the net income value comes from the operating cash flows that has on average a bad performance in the years from -1 to +2 with year zero being the year of the SEO. The total accrual stays negative across all the observed period but it has an evident improvement in the pre-issue year and the issue year. Both current accruals and long-term accruals contribute to this improvement with the long-term accruals jump being more substantial.

The next step will be identifying to which accruals component the pattern is due to, the fundamental part or the discretionary part. To be able to infer whether much of the increase in accruals is dictated by the economic conditions or by the reporting choices driven by management, we split each component of the accruals in the 'reliable' part (not discretionary current accrual, investment related long-term accrual) and the 'less reliable' part (discretionary current accrual, non-investment long-term accrual). All variables are scaled by the book value of equity in order to properly measure the contribution on the firms capital. In Table 4 we report only the long-term accruals (LTA) decomposition considering that our earnings management proxy is based on long-term accruals and is therefore the main focus of the paper. We

will occasionally compare the discretionary current accruals with the non-investment long-term accruals to confront our paper with past contributions. Table 4 shows that the increase in long-term accruals is mainly driven by the increase in non-investment accruals, so the component that we consider at the higher discretion of management.

[Insert Table 4 here]

For issuing firms, non-investment LTA are negative both in mean and median across all the period under analysis but they show an increase in the year of the issue. In Panel B of the same table we report the evolution of an alternative measure of accruals, defined as in Teoh et al. (1998). The latter's adopted the measure from Barber and Lyon (1997) since recommended for removing the normal mean reversion in net income and its components. This measure is the difference between the issuer's yearly change in the equity scaled accounting variable and the change in the equity scaled accounting variable of a matched non issuer. The matched firm is in the same Fama-French industry and has the closest net income with the issuing firm in the pre-issue fiscal year. We also match based on both industry and size, defined as log(Assets). The results do not change. The Panel B, reports the mean and median of the this measure for long-term accruals and its components. The patterns indicate a pre-issue improving performance and a deteriorating post-issue performance in long-term accruals. The difference between the issuer's LTA and the LTA of a matched non issuer goes from -2,2% in year -1 to 6,3% in year 0. Similarly the difference in each of the components turn from negative to positive with the SEO-firm having lower accruals before the issue compared to the matched non-issuing firm while higher accruals in the year of the event. The improving pattern of accruals in the pre-issue and issue year is obvious in this measure. Again the main driver of the changes is the non-investment LTA.

Overall, the patterns look similar across both levels and differences of the long-term accruals. There is an improvement in the pre-financing performance and a decline in the post-financing performance of firms that demand equity finance. New equity issues occur when cash flows are declining while accruals are at a peak; non-investment long-term accruals (NILTA) are the main driver of the observed profiles in accruals.

[Insert Figure 3 here]

The evidence in Figure 3 strengthens the results in Table 4.

Figure 3(a) illustrates the difference in changes of non-investment long-term accruals (blue line), difference in changes of depreciation accruals (red line) and difference in changes of other long-term accruals (green line) of a SEO-firm and the median firm in the same Fama&French industry and year. For ad-

ditional insight, we further split this component of the long-term accruals in depreciation and accruals other than depreciation. In 'Other' different items like deferred taxes, the unremitted portion of earnings of unconsolidated subsidiaries, gains and losses on PP&E sales, accruals related to extraordinary items and discontinued operations and miscellaneous Funds from Operations are included. The only 'Funds from Operations–Other' encompasses a diverse set of accruals including accruals related to special items, stock-based compensation, provision for bad debt ecc. However the Other component does not drive most of the change in our proxy for earnings mismanagement. Interestingly amortization has the biggest change in the year of the issue.

Figure 3(b) plots the difference in changes of non-investment accruals (blue line), difference in changes of depreciation accruals (red line) and difference in changes of other accruals (green line) between an issuing firm and a matched non issuer. The matched firm is in the same 2digit Sic code and has the closest net income and size with the issuing firm in the pre-issue fiscal year.

Both plots reveal that NILTA accruals of the firms that issue common stock, increases as the year of the issue approaches. The increase takes place especially in years -1 and 0, arriving at a peak in year zero, to decline then to the pre-issue values. The full reversion takes place in the year immediately after the stock issue. Both plots clearly suggest that the non-issuing firms do not perform accruals handling of accruals.

The peak is reached in the year of the event suggesting a relation of these reporting choices with the equity finance decision. Overall, the previous accruals-based tests suggests that firms engage in earnings management before offering, presumably in an effort to move towards a better stock price. As a robustness check, we now look at the patterns in the years surrounding the event for other measures of reporting conservatism.

[Insert Figure 4 here]

Figure 4 displays the performance of six financial reporting conservatism measures, in the years surrounding the issue. We plot the values for the average SEO-firm and a matched non-issuing firm. The first five measures of financial conservatism include specific transactions such as goodwill impairment, write-downs, restructuring charges, discontinued operations and special items. The higher these measures the lower the financial reporting conservatism. In the last graph is plotted the CScore (Khan and Watts (2009)) which measures the bad news timeliness. The lower the CScore the lower the financial reporting conservatism. All the plots confirm the robustness of our previous results. The issuing firms become less conservative as the event year approaches to reverse to the previous values in the two years that follow

the seasoned equity offering. The result is robust across all six measures. The patterns for the matched firms are different from the issuing firms and unrelated to the event.

Now we try to evaluate whether the post-issue underperformance can be predicted by pre-issue earnings mismanagement. To check the effect of earnings mismanagement activity around equity issues to the future net income under-performance we perform regressions of post-issue net income performance on pre-issue non-investment LTA. We want to shed light on the lower persistence of accruals compared to the full earnings figure and reveal important differences among the different types of accruals. Our tests start with standard persistence regressions which study how the different components of earnings correlate with firm's subsequent performance.

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + \beta_1 CA_t + \beta_2 LTA_t + \nu_{t+1} \tag{10}$$

Sloan (1996) claims that this equation is misidentified because it constraints the coefficients on the current accruals and long-term accruals components to be equal. Considering that we are interested at the effect of investment-related long-term accruals (ILTA) versus non-investment long-term accruals (NILTA) we apply also the below specification:

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + \beta_1 CA_t + \beta_{2a} NILTA_t + \beta_{2b} ILTA_t + \nu_{t+1} \tag{11}$$

Because we occasionally compare the long-term accruals discretionary component with the current accruals discretionary component we split also the current accruals in two terms.

$$Earnings_{t+1} = \alpha_0 + \alpha_1 Earnings_t + \beta_{1a} DCA_t + \beta_{1b} NDCA_t + \beta_{2a} NILTA_t + \beta_{2b} ILTA_t + \nu_{t+1} \tag{12}$$

Hypothesis 1 predicts β_{2a} to be negative in the pre-issue earnings management.

In Table 5 we report the results of the regression's estimation for the full sample of firms. Table 5 reports OLS coefficient estimates, Fixed Effects estimates and Fama-Macbeth estimates from equation (11) and shows that there is actually a strong relation between earnings mismanagement in previous periods with net income in the following periods. The dependent variable is net income at time t+1 for equations (1), (2) and (3) and the average net income of years t+1 and t+2 in equation (4), (5) and (6). The net income is the Compustat item, income before extraordinary items scaled by the lagged book value of assets. The independent variables are the values at time t of: net income, current accruals, investment-related accruals and non-investment accruals. All variables are scaled by lagged total assets and winsorized at the first

and 99th % level to remove the influence of outliers.

[Insert Table 5 here]

Results in Table 5 confirm the findings in Lewellen&Resutek (2016): earnings are persistent but the level of persistency is different for different earning's components. In fact higher accruals at time t forecast lower net income at time t+1. Compared to the operating cash flow the accruals are far less persistent and interestingly the coefficient in front of NILTA is the most negative compared to other accruals. The result is robust across all specifications and does not depend on the future net income measure that we use. NILTA has strong predicitive power for future earnings in the full sample. We now want to check if this relation is stronger for firms that match timing of NILTA strategic management with external financing. Table 6 reports the results of estimations of Equation (11) for the SEO-firms only.

[Insert Table 6 here]

For equity issuers the coefficient in front of the non-investment accruals for the OLS regression is -0.52 compared to the -0.36 of the full sample. The result is highly significant and holds for all specifications. The fixed effects model and the Fama-Macbeth regressions give similar results. The future net income predictive power of NILTA is the strongest among the different accruals components and is clearly stronger for firms that issue equity. The lowest persistence of NILTA (negative relation with future income) is consistent with the argument that this long-term accrual component includes items of low reliability and high management discretion. On the other hand, the fact that NILTA has high predictive power for the future net income goes to support the market timing hypothesis considering that by definition they represent accruals not driven by new investment.

In the following tests we compare the long-term accrual's and current discretionary accrual's power in predicting future earnings focusing on the firms whose managers misreport accounting accruals most aggressively. The results reported in Table 7 are based on estimations of Equation (12). In this table we further display current accruals as the sum of two components. The discretionary current accruals are estimated through the modified Jones model as explained in section 3.2. We assign each issuing firm to a quartile according to its estimated value of non-investment accruals in the pre-issue year. Firms that fall in the first quartile (conservative) are those who have the lowest level of the non-investment long-term accruals in the pre-issue year, firms in the fourth quartile (aggressive) have the highest level of the non-investment long-term accruals in the pre-issue year. We run OLS regressions, fixed effects models and Fama-Macbeth regressions of $Earnings_{t+1}$ on regressors as in the previous tables, but for each quartile separately. The independent variables are net income, non discretionary current accruals, discretionary

current accruals, investment-related long-term accruals and non-investment long-term accruals in the year of the SEO (year t) and are all scaled by lagged total assets.

[Insert Table 7 here]

The effect of NILTA on future net income is much stronger in equity-issuing firms that boost earnings upwards through strategic increase of NILTA (columns 2, 4 and 6 in Table 7). In fact, the coefficient in front of the non-investment long-term accruals is twice as large in the aggressive firms compared to the conservative ones. This result holds across all specifications in Table 7. In addition, the coefficient of NILTA is stronger than the coefficient in front of the investment accruals or the discretionary current accruals. This comparison becomes more powerful when focusing on the aggressive quartile only. In equation (2) of Table 7 the coefficient of NILTA is -0.95 compared to the -0.43 of the investment accruals component and an even lower -0.26 for the DCA component. Multiple factors such as discretion in current accruals, investment activity and discretion in long-term accruals play a role in the future net income realization. The main issue here is to establish which factor has a dominant effect. Our analysis tell us that the effect of pre-issue NILTA on after-issue income is prevailing the other two effects.

[Insert Table 8 here]

The results reported in Table 8 are similar to those in Table 7, but this time the quartiles are defined based on changes in non-investment accruals instead of levels. Firms that fall in the first quartile (conservative) are those who diminuish earnings the most in the issue year, firms in the fourth quartile (aggressive) is the group that strategically increases earnings the most. The measure that we use as a proxy for earnings inflation is again the change in non-investment long-term accruals from the pre-issue year to the issue year t.

4.2 Stock return analysis

In addition, we will examine the relation between pre-issue NILTA accruals and post-issue stock return performance. The intuition is that if pre-issue unreliable accruals are able to predict future stock returns, we can derive that the earnings mismanagement caused misevaluation of the stock price at the time of the offering. To test our hypothesis we require future stock returns. We use different measures for future returns: the excess 12-month return relative to the risk free rate or relative to the market return, beginning at the end of the fiscal year in which the security issue is performed; the market adjusted abnormal returns net of the expected return calculated using the market model, the Fama-French three factor model and the Fama-French five factor model, respectively. The stock return data are from monthly Crisp database.

We consider only the stock issuing firms which we divide in four groups based on the amount of NILTA handling they do in the pre-issue period. Table 9 reports the stock returns for the two extreme quartiles, the conservative group (q_1) and the aggressive group (q_4) in the year before the issue and the three years after the issue. We have approximately 3000 seasoned equity offerings from firms in the conservative group and 1300 SEOs from the aggressive ones. The choice of the horizon is based on evidence brought by Baker and Wurgler (2000) which suggest that the misevaluation in the stock price related to equity-issuance loosens over approximately three years.

In Panel A, we report annual returns compounding them from monthly returns, for each firm and year. We average those annual returns across quantile portfolios to compute the compound excess return in the three years that follow the issue. We also see the annual compound stock return in the year prior to the issue. For the market-adjusted return, we detract from the stock return the market index return and then we compound monthly data into yearly data. For the abnormal return measures in Panel B, the first column for each category shows the annual returns formed from the monthly returns, while the second column reports the cumulative stock return for year +1, years +1 and +2, years +1, +2 and +3. We subtract the market index returns, Fama-French three-factor portfolio returns and Fama-French five-factor portfolio returns from the SEO-firms stock returns as explained below.

Here we explain the FF three factor model only and the other two measures are constructed in the same way substituting the regressors according to the used measure. For each firm-month, we run a time series regression of the excess return over the risk-free on the monthly Fama-French factors from month -36 to month -12 relative to the filing month of the offering. Once we have estimated the coefficients we compute the expected returns for months from -11 to +36 using the estimated coefficients from the factor regression, the relevant month three factors, and replacing the intercept with the risk-free rate of return. The abnormal return will then be the realized return minus the expected return.

[Insert Table 9 here]

When looking at the excess returns in Panel A, we see that the stock return of the aggressive group firms over-performs the conservative group firms in the year leading to the seasoned equity offering while under-performs in the three years following the issue. In Panel B, the picture looks similar but most of the under-performance of SEO-firms that inflate pre-SEO earnings is concentrated in the years t+1 and t+2. The aggressive firms have an abnormal return that is 10% lower in the first year after the issue compared to the firms who increase NILTA the least, it continues with a further 4% in the second year and then stops. We don't find the under-performance extends to the third year after the SEO.

Table 10 reports OLS regressions results of the four sets of year 0 through year 3 annual stock returns, on accruals components and their interaction with the equity issue dummy. We generate four quartiles of the non-investment long-term accruals which is our measure of earnings inflation pre-issue. We interact each NILTA quartile to the SEO dummy which takes the value one when there is a seasoned equity offering and zero otherwise. The independent variable of main interest in these regressions is the EI=1 $\times$ NILTA$_q$=4 which represents the subgroup of SEO-firms that boost pre-SEO earnings through the long-term accruals inflation. We will compare the accruals-returns relation of this subgroup with the rest of the population, especially with firms who don't issue equity and those who issue but do not inflate earnings.

[Insert Table 10 here]

The regressions include a firm's size calculated as the firm's market value of equity and book to market value as control variables because both were shown to be good predictors of return. The independent variables are measured at the year of the equity issue while the dependent variable is measured at t-1 for column (1); at year t+1, the year following the equity issue for column (2); at year t+2, two years after the issue for column (3) and at year t+3, three years after the issue for column (4). With this tests we compare the explanatory power of the accruals variables between issue periods and non issue periods. The results on Table 10 show that each quartile of NILTA has predictive power for future returns, for both issuing and non issuing firms. The negative relation of pre-SEO NILTA with the post-SEO stock returns becomes gradually stronger as we move from the lowest quartile of NILTA to the upper quartile. The relation is stronger for firms that issue equity compared to the non-issuing with the biggest coefficient for firms that issue and inflate earnings. This results confirm an already established result in the empirical literature, the over-performance of SEO-firms pre issue and their under-performance in the years following the issue. In addition the results confirm our first hypothesis regarding managers who adjust accounting data to mislead investors before getting external financing. The other components of accruals, with the exception of investment accruals, have coefficients which are economically important and statistically significant. Consistent with other research both size and book to market are significant across all regressions, with book to market being economically more important than size.

4.3 Short-term valuation effects of a seasoned equity offering

In the previous section we show that, firms who aggressively manage accruals to inflate their pre-issue earnings, underperform the conservative firms by an annual return of 10% on average. The key idea

underlying this finding is that discretionary accruals do ultimately reverse at the end of the fiscal year[16] and the true net income of the firm is revealed to investors. This interpretation assumes that investors are not able to identify aggressive managers earlier than accruals reversals made public. Alternatively, investors can gather information from filing prospects or additional sources and be able to nail aggressive earnings' managers, well before the net income reversals.

In fact, US investors might have a higher alert on alternative signals about firm performance when a SEO is announced. This because in the US setting the management typically needs only board approval to issue common stock and seasoned equity offerings to the public dominate (Capstaff and Fletcher, 2011) while in most countries, by law or stock exchange rule, shareholders must vote to approve equity issuances (Holderness, 2018). US firms' managers have higher incentive to produce misleading or uninformative disclosure such as hiding that the firm is timing the market (Holderness, 2018). On the other hand, because of the managers' freedom in the SEO decision investors could be more cautious and identify misreporting.

Relatedly, in this section we perform a short-term event study to check for differences in the market reaction to SEO announcements for different quantiles of changes in non-investment accruals. We split the SEO firms in four quartiles according to the change in non-investment long-term accruals, which is our measure of earnings inflation pre-issue.

In the typical event study, the market is supposed to jump straight away after the equity offering announcements and according to the efficient market hypothesis [Fama (1991)] the market should absorb the new information fully within at most two days. Empirical results in Vermaelen (1981), Dann and Mikkelson (1984), Asquith and Mullins (1986), Masulis and Korwar (1986) and Eckbo (1986) indicate that the market reaction to capital structure changes occurs almost entirely within a two-day period. In contrast with the efficient market hypothesis, Antweiler and Frank (2006) argue that two days after the news, there is typically a significant drift in the opposite direction of the initial jump.

Following the mentioned literature, we use (-1, 0) window for the base procedure. Additionally, we use larger windows spanning to 0, +3 days ; 0, +10 days and 0, +30 days taking in consideration that investors might call for information outside of the SEO filings prospects. Investors probably fail to immediately recognize the information content of the composing items of released earnings and relate it

[16] Accruals' reversals happen in six months up to a year time, on average (Allen, Larson, Sloan 2013).

to the subsequent financing event. As such, the information might not be quickly incorporated into prices but rather gradually. For this reason, we analyze the cumulative abnormal returns for different event windows.

To assess the average magnitude and statistical significance of stock price changes following announcements, we want to separate the effect of the news from the unrelated effects. We assume that the stochastic process generating security rates of return is:

$$Ret_{i,t} = \mu_{i,t} + \epsilon_{i,t} \text{ where } E(\epsilon_{i,t}) = 0 \text{ and the } cov(\epsilon_{i,t}; \epsilon_{i,t-1}) = 0 \tag{13}$$

for all firms and dates. The non-stochastic term is a component determined based on the assumed asset pricing model and the assumed normal distribution of the stock returns. In order to evaluate the impact of new information on security prices, we detach the error term from an estimation for $\mu_{i,t}$. Because the error term includes both security specific effects and market wide influences, the estimation is done through CAPM, Fama-French three-factor model, Fama-French three-factor model with momentum which specifies the statistical relationship between stock return and possible risk factors. We then subtract the estimated value from the realized return on the stock to have a value for the abnormal returns. In Panel A of Table 11 we show the two-day, three-day and 10-day announcement returns for the lower quartile and the upper quartile of earnings mismanagement proxy. The CARs are similar and most importantly not statistically different when testing for differences in mean. Finally, we regress the cumulative abnormal returns (CAR) on the earnings (mis)management proxy and different control variables. In panel B of Table 11 , we report results of the examination of the impact of earnings inflation on SEOs announcement day return and the short-run post-SEO announcement effect using panel regressions. Aligned with the results in Panel A, the short-term CARs are not related to the aggressiveness of the managers in increasing earnings prior to the financing event.

According to the results in Table 11, there is no significant difference in the short-term market reaction to seasoned equity offerings of aggressive managers and conservative ones. The findings are aligned to the following scenario: managers who strategically increase their non-investment accruals prior to the issue, positively influence the markets beliefs about firm performance. This helps to mislead investors in buying an overvalued stock. Investors will learn the stock was overvalued in at most a year form the issue. When the accruals will reverse, both investors and analysts will revalue the firm down. This interpretation is aligned with the long-term abnormal returns findings in section 4.2.

5 Earnings management and the issue decision in equity-finance dependent firms

5.1 Measuring the equity finance dependence

The second hypothesis predicts that firms will have a higher probability of issuing stock after inflating their earnings and that this probability will be higher for firms who heavily depend on equity finance. Said differently, the relation $\Delta NILTA$ - *equity finance* will be increasingly positive in equity finance dependence. To test this hypothesis we first need a proxy for equity finance dependence. In corporate finance theory, a dependent firm would normally be a small, young firm, which relies largely on equity finance. In fact, Morck, Shleifer and Vishny (1990) use firm size as a proxy for equity dependence. In our analysis, this proxy would leave out of the sample, just to mention one, big consolidated firms who have high level of debt and low cash balances. To study the role of financial constraints in firm behaviour, researchers have used different measures. Kaplan and Zingales (KZ) index and Whited and Wu (WW) index are among the many suggested possibilities but a large debate has been going on relative to each. Hadlock and Pierce (2010) cast doubt on the usefulness of KZ index and WW index. They consider the five variables included in the KZ index and the six variables in the WW index separately and find that only cash flow and leverage variables emerge as factors that consistently predict constraints after size and age has been controlled for. Therefore they propose an alternative measure using size and age directly, the Size-Age index.

In this paper we use the market leverage, the interest coverage ratio (ICR) and the Size-Age index (SA) proposed by Hadlock and Pierce (2010) as proxies for equity finance dependence. All measures give us a level of equity finance dependence for every firm-year in our sample. The market leverage defined as the ratio of book value of debt and the sum of book value of debt and market value of equity is our baseline proxy of dependence on equity finance. As firms use their debt capacity they are left with limited choices of financing, mainly stock issues.

The traditional interest coverage ratio is calculated as earnings divided by expense. We follow Lamont, Polk and Saa-Requejo (1997) and use a slightly different one since for some firms interest expense is zero and the ratio wouldn't make sense. We partition the firms into three groups and rank them based on the principle that high interest expense means a more constrained firm while high earnings means a less constrained firm. The first group are the most constrained firms with zero or negative earnings. We rank them in order of decreasing (interest expense - earnings) / net PPE. We then rank all firms with positive

earnings and positive interest expense in increasing order of (earnings + interest expense)/interest expense which is the traditional way of calculating interest coverage ratio. The last group is the less constrained group with positive earnings and zero or negative interest expense. Firms in this group are ranked in decreasing order of (interest expense - earnings)/net PPE. In the end, we have a full ranking of all firm-years.

The second alternative proxy we use as a metric for financially constrained firms is the SA index calculated as in Hadlock and Pierce (2010): $SAindex = -0.737 * Size + 0.043 * Size^2 - 0.040 * Age$ where size is log(Assets) and age is the number of years from the first year a firm has full data on Compustat.

5.2 Tests of H2

Baker, Stein, and Wurgler (2003) find that both equity issues and investment depend the most on changes in non-fundamental components of stock prices when the firm has undervalued stock and the internal funds are low. In our paper, Hypothesis 2 does not condition on whether firms are undervalued or overvalued before the inflated earnings releases. Not taking a stand on whether the firm is initially undervalued or overvalued is an interesting feature of this empirical prediction considering that the level of Q, which has commonly been used in the literature as a proxy for mispricing, might actually have other interpretations. On the other hand we do consider the internal funds of the firm indirectly through our proxies of equity finance dependency. Assuming that the release of inflated earnings causes an increase in the non-fundamental component of the stock price we expect firms to inflate more prior to the issues, to capitalize on the inflation.

We rank our firms based on the market leverage level and test whether those that are the most dependent on equity finance will have the strongest correlation between non-reliable accruals and security issues. After assigning a ML-quintile to each firm-year in our sample we estimate the following equation for each quintile:

$$IssueDummy_{i;t} = \delta EM_{i;t-1,t} + \beta OCF_{i;t-1} + \alpha Q_{i;t-1} + e_t \tag{14}$$

where $EM_{i;t-1,t}$ is the yearly change in NILTA accruals, $OCF_{i,t-1}$ is the lagged operating cash flow of the firm and $Q_{i,t-1}$ is the lagged Tobins' Q of the firm.

We follow Baker, Stein, and Wurgler (2003) and run regressions of SEO dummy on earnings management, Q and cash flow by equity dependence quantiles. H2 predicts that δ will be positive and increasing

in market leverage quartiles. The first column in Table 11 runs equation (13) for the full sample while columns from (2) to (5) show results of the logit regression run separately for each ML quartile. The results in Table 11 show that there is indeed a positive relation between managing earnings upwards and getting equity finance through SEOs. The more firms inflate their earnings in a given period the higher the probability they will issue equity in the next period. When we split the firms in four groups according to the lagged market leverage level the relation between the issue decision and the earnings management proxy is positive and highly significant only for the upper quartile. This means that this positive relation is concentrated in firms with high level of leverage. Is the firms with no debt capacity who will mismanage earnings through accruals before undertaking a SEO and not the other groups. This result is aligned with the descriptive statistics in Table 2 which describe the typical SEO-firm that inflates accruals as a firm with negative cash flows, lowest profitability and limited debt capacity.

[Insert Table 12 here]

The pattern in the δ coefficients is our main result but as an aside is interesting to look at the coefficients in front of the cash flow and Q. Independently from the ML quartile the higher the cash flow the lower the chances to issue equity, and the higher the overvaluation of the stock the higher the odds to issue equity. For the highly leveraged firms, the financing decision is affected the most by Tobin's Q while the influence of the cash flow into the decision turns out to be not significant. To test the robustness of our basic result we switch now to other proxies for external-finance dependent firms and run similar logit regressions. We report the results on Table 12.

Overall the results seem aligned with the ones in Table 11. The firms in the lowest quartile (ICR_q1) which are the most financially constrained have a *EM - SEO* relation which is positive and significant at 5% level; for the firms in the upper quartile (ICR_q4), the ones with the highest level of interest coverage thus the less constrained the relationship is not significant. In Panel B of Table 12 we report the logistic regression results for SA index quartiles. The firms in the upper quartile of size-age index (SA_q4) are the smaller in size and younger firms, thus the most constrained ones. For these firms managing earnings at time t increases the chances of issuing equity at time t+1. The coefficient is positive and highly significant.

[Insert Table 13 here]

Surprisingly the coefficient is positive and significant for the opposite quartile as well. This suggests that firms mismanage accruals the most before issuing equity when they are small and have not yet a reputation on the markets or in the opposite case when they are big, highly indebted firms who probably have used up all their debt capacity. This result sheds light also on the fact that none of the proxies exactly

captures the dependence on external fiance and it would be unrealistic to consider them in isolation.

Overall we find support for Hypothesis 2. Firms that rank among the most dependent on equity finance have a correlation of *earnings inflation - stock issue* that is 3 times stronger the one of the firms in the bottom quintile of equity finance dependence.

6 Conclusions

In this paper, we investigate the intentional mismanagement of the long-term accruals around seasoned equity offerings and its reflection on the pre-issue and post-issue performance of the stock offerings. Firms who adjust their long-term accruals prior to equity offerings have a stronger stock price run-up prior to the issue and a stronger stock return under-performance after the issue. We analyze the investment theory and the market timing theory as two concurrent explanations of the observed patterns and provide evidence for the market timing theory of Baker and Wurgler (2002) where investors do not always have rational expectations. The source of non rationality in our paper stands in giving accruals the same weights with operating cash flows of firms, as investors value the whole figure of released earnings and not its composition. We show that there are unreliable/discretionary items in the long-term accruals component which investors should take in account when allocating resources. We find that the pre-issue long-term accruals adjustments predict the post-issue performance of the SEO-firms. Market timing can explain such prediction as by definition our measure of long-term accruals adjustments is not related to new investment and cannot as such be explained by growth theory.

Focusing on long-term accruals and equity issues is innovative as most of the earnings management literature focuses on working capital accruals, which are considered easier to manipulate. Our findings agree with previous literature on a decrease in the use of current accruals adjustments after the SOX 2002 and we further suggest that long-term accruals adjustments have been used as a substitute where possible.

Finally, focusing on an equity-finance channel we show that firms who are dependent on equity finance inflate their pre-issue long-term accruals more. Within the full sample of firms, those who aggressively adjust their non-investment accruals upwards, have on average a 15% higher probability to issue equity afterwards compared to the conservative firms. Within the subsample of firms that are highly dependent on equity financing, the aggressive firms have a 40% higher probability to issue equity afterwards compared to the conservative firms.

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Table 1: Distribution of seasoned equity offerings and earnings management over time and across industries

This table reports the distribution of seasoned equity offerings (SEOs) and firm-year pairs that manage earnings upwards across industries (Panel A) and across years (Panel B). The full sample of SEOs consists of 8,068 issues between January 1972 and December 2017 from the Securities Data Corporation. We indicate a firm as a long-term accruals manager (LTAM) if in a given year the change in non-investment long term accruals belongs to the upper quintile for that year. As explained in section 3.2 the non-investment long term accruals are defined as in Lewellen & Resutek (2016). Non-investment LTA = Depreciation and Amortization (SCF account) + Deferred taxes (SCF account) + Equity in Net Loss (Earnings) of unconsolidated subsidiaries + Loss (Gain) on Sale of Property, Plant and Equipment and Investment + Funds from operations - Other + Extraordinary items and Discontinued operations. Similarly, we indicate a firm as a current accruals manager (CAM) if in a given year the change in discretionary current accruals of the firm belongs to the upper quintile for that year. The discretionary current accruals are estimated through the modified Jones model as explained in section 3.2. Total sample of 13,799 firms and 140,067 firm-years.

Panel A: Industry distribution

Industry	2Digit SIC	SEOs		LTAM		SEOs & LTAM		CAM		SEOs & CAM	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Agr. & Forestry	01 - 09	29	0 %	131	0 %	6	0 %	114	0 %	10	0 %
Construction	15 - 17	58	1 %	475	2 %	16	1 %	402	1 %	10	0 %
Manufacturing	20 - 39	4,696	58 %	16,803	53 %	1,234	61 %	18,774	59 %	1,468	62 %
Mining	10 - 14	570	7 %	2,257	7 %	159	8 %	1,476	5 %	134	6 %
Retail Trade	52 - 59	498	6 %	2,058	7 %	70	3 %	2,448	8 %	151	6 %
Services	70 - 89	1,555	19 %	6,689	21 %	402	20 %	5,553	18 %	438	18 %
Public Utilities	40 - 49	412	5 %	2,042	6 %	101	5 %	1,124	4 %	74	3 %
Wholesale Trade	50 - 51	250	3 %	1,112	4 %	43	2 %	1,676	5 %	99	4 %

Panel B: Time distribution

	SEOs		LTAM		SEOs & LTAM		CAM		SEOs & CAM	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
1973	16	0,2 %	183	0,6 %	2	13 %	326	1,0 %	9	56 %
1974	10	0,1 %	229	0,7 %	0	0 %	532	1,7 %	2	20 %
1975	23	0,3 %	378	1,2 %	1	4 %	578	1,8 %	4	17 %
1976	44	0,5 %	256	0,8 %	4	9 %	629	2,0 %	14	32 %
1977	14	0,2 %	285	0,9 %	0	0 %	666	2,1 %	6	43 %
1978	40	0,5 %	297	0,9 %	4	10 %	624	2,0 %	17	43 %
1979	44	0,5 %	339	1,1 %	7	16 %	614	1,9 %	14	32 %
1980	128	1,6 %	380	1,2 %	23	18 %	606	1,9 %	50	39 %
1981	159	2,0 %	417	1,3 %	25	16 %	663	2,1 %	53	33 %
1982	110	1,4 %	488	1,5 %	11	10 %	644	2,0 %	31	28 %
1983	346	4,3 %	514	1,6 %	51	15 %	792	2,5 %	121	35 %
1984	78	1,0 %	606	1,9 %	13	17 %	792	2,5 %	22	28 %
1985	135	1,7 %	557	1,8 %	20	15 %	825	2,6 %	48	36 %
1986	160	2,0 %	689	2,2 %	27	17 %	822	2,6 %	52	33 %
1987	130	1,6 %	782	2,5 %	28	22 %	875	2,8 %	37	28 %
1988	53	0,7 %	852	2,7 %	16	30 %	932	3,0 %	19	36 %
1989	84	1,0 %	770	2,4 %	16	19 %	923	2,9 %	35	42 %
1990	75	0,9 %	781	2,5 %	18	24 %	836	2,6 %	31	41 %
1991	190	2,4 %	762	2,4 %	41	22 %	842	2,7 %	68	36 %
1992	192	2,4 %	734	2,3 %	38	20 %	822	2,6 %	70	36 %
1993	242	3,0 %	919	2,9 %	42	17 %	832	2,6 %	64	26 %
1994	196	2,4 %	985	3,1 %	35	18 %	994	3,1 %	66	34 %
1995	242	3,0 %	954	3,0 %	48	20 %	1,033	3,3 %	75	31 %
1996	334	4,1 %	1,059	3,4 %	61	18 %	1,041	3,3 %	120	36 %
1997	280	3,5 %	1,109	3,5 %	48	17 %	1,081	3,4 %	80	29 %
1998	172	2,1 %	1,151	3,6 %	36	21 %	1,099	3,5 %	60	35 %
1999	181	2,2 %	1,171	3,7 %	52	29 %	1,099	3,5 %	51	28 %
2000	250	3,1 %	976	3,1 %	53	21 %	984	3,1 %	65	26 %
2001	303	3,8 %	1,029	3,3 %	97	32 %	821	2,6 %	78	26 %
2002	281	3,5 %	1,171	3,7 %	96	34 %	821	2,6 %	83	30 %
2003	344	4,3 %	1,229	3,9 %	125	36 %	756	2,4 %	106	31 %
2004	391	4,8 %	972	3,1 %	135	35 %	690	2,2 %	126	32 %
2005	267	3,3 %	1,010	3,2 %	100	37 %	632	2,0 %	65	24 %
2006	268	3,3 %	746	2,4 %	58	22 %	622	2,0 %	65	24 %
2007	244	3,0 %	770	2,4 %	71	29 %	592	1,9 %	66	27 %
2008	140	1,7 %	567	1,8 %	25	18 %	560	1,8 %	37	26 %
2009	254	3,1 %	996	3,2 %	102	40 %	498	1,6 %	84	33 %
2010	218	2,7 %	794	2,5 %	72	33 %	618	2,0 %	77	35 %
2011	195	2,4 %	619	2,0 %	67	34 %	490	1,6 %	42	22 %
2012	193	2,4 %	664	2,1 %	63	33 %	413	1,3 %	61	32 %
2013	232	2,9 %	639	2,0 %	72	31 %	387	1,2 %	52	22 %
2014	238	2,9 %	554	1,8 %	69	29 %	388	1,2 %	55	23 %
2015	276	3,4 %	534	1,7 %	63	23 %	374	1,2 %	57	21 %
2016	244	3,0 %	649	2,1 %	95	39 %	399	1,3 %	46	19 %

Table 2: Descriptive statistics

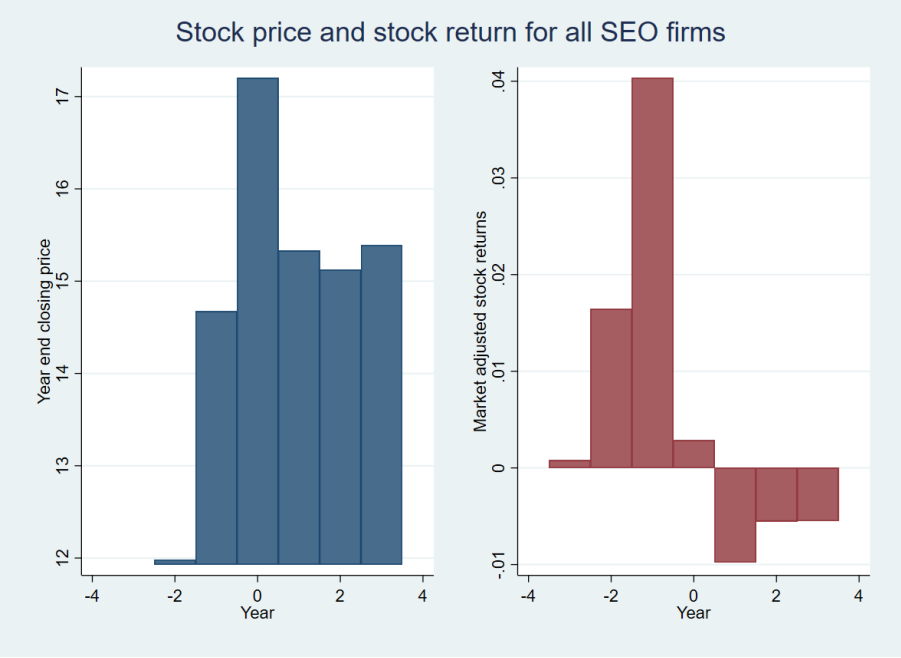
The table displays firm characteristics for years in which firms do not issue stock (Non-SEO firms, column 1), for years in which firms issue stock (SEO firms, column 2), for years in which firms issue stock but do not inflate earnings (SEO &No EM firms, column 3) and last, for years in which firms issue and inflate earnings upwards through long-term accruals strategic management (SEO & EM firms, column 4). Columns (5) shows the differences and significance levels between the issuing firms that inflate earnings upwards and issuing firms who do not. We define a firm as managing the earnings upwards if in a given year the change in non-investment long-term accruals belongs to the upper quintile for that year. The non-investment accruals definition is given in Table 1. The table displays average values of the following variables: the market leverage ratio defined as the ratio of book value of debt over the sum of book value of debt and market value of equity; book leverage ratio defined as book value of debt over the book value of assets; profitability defined as operating income before depreciation over book value of assets; R&D and Capex are the respective Compustat items scale by total assets; Tobin's Q defined as the sum of market value of equity and book value of debt over book value of total assets; size which is the log of total assets; Total Accruals are defined as the difference between earnings and operating cash flow; Operating cash flow is the Compustat item of operating activities (NCF) over lagged total assets; net equity issues is calculated as the difference between equity issues and distributions to shareholders based on Compustat items (sstk - (dv + prstkc)); net debt issues are calculated as the difference between the sum of long-term and short-term debt issues and debt retirements based on Compustat items (dltis + dlcch - dltr). All variables are winsorized at the 1st and 99th % percentile to remove the influence of outliers.Total sample of 13,799 firms and 140,067 firm-years. The full sample of SEOs consists of 8,068 issues between January 1972 and December 2017 from the Securities Data Corporation.

	Non-SEO firms (1)	SEO firms (2)	SEO &No EM firms (3)	SEO & EM firms (4)	Difference (4) - (3)
Market Leverage (lagged)	0.243	0.152	0.148	0.162	0.014^{***}
Book Leverage (lagged)	0.225	0.213	0.208	0.228	0.020^{***}
Profitability	0.075	-0.117	-0.098	-0.171	-0.073^{***}
R&D	0.043	0.128	0.120	0.150	0.030^{***}
Capex	0.066	0.074	0.078	0.064	-0.014^{***}
Q	1.512	2.703	2.678	2.775	0.096^{**}
Size	4.913	4.595	4.620	4.523	-0.097^{**}
Total Accrual	-0.051	-0.051	-0.056	-0.036	0.020^{***}
OCF	0.047	-0.144	-0.132	-0.181	-0.049^{***}
Net equity issues	0.006	0.381	0.381	0.380	-0.001
Net debt issues	0.014	0.009	0.014	-0.006	-0.020^{***}
Observations	131,999	8,068	6,037	2,031	8,068

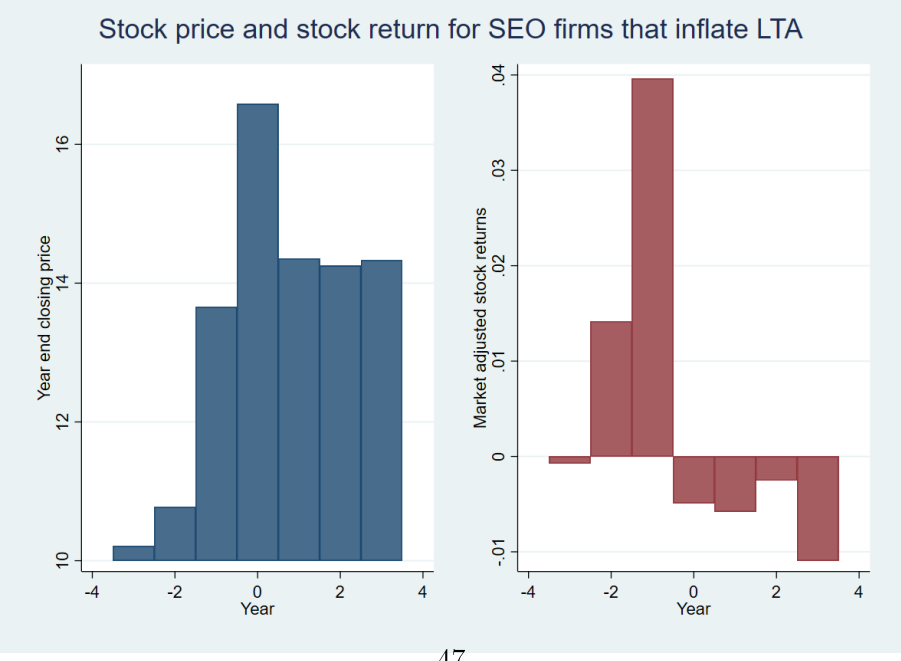
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1: Pre-issue stock price run-up and post-issue stock return underperformance

The blue graph in figure (a) shows year end closing price in the years surrounding the issue for all firms which undertake seasoned equity offerings (SEO, year=0). The red graph in figure (a) displays market-adjusted abnormal returns in the years surrounding the event for all firms that undertake seasoned equity offerings (SEO, year=0). Similarly to figure (a), the graphs in figure (b) show year end closing price (blue graph) and market-adjusted abnormal returns (red graph) in the years surrounding the issue, for SEO firms that inflate long term accruals in the pre-issue year. We define a firm as one inflating the accruals upwards if the change in non-investment long term accruals, from the pre-issue year to the issue year is positive and belongs to the upper changes quintile for that year. Both stock return and prices data are from CRSP database for the period 1973-2017. The number of SEOs under analysis in figure (a) and figure (b) consists of 5,619 and 2,031 issues, respectively, between January 1972 and December 2017 from the Securities Data Corporation.



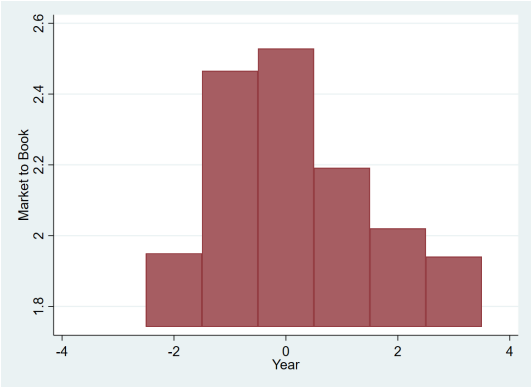
(a)



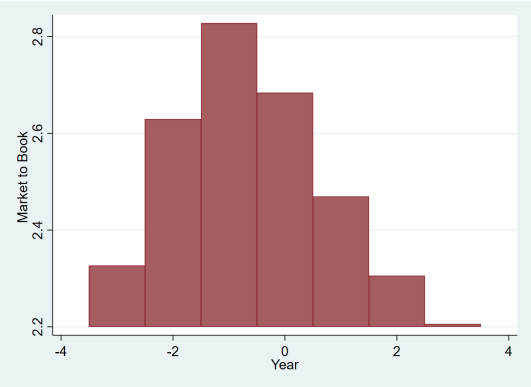
(b)

Figure 2: Tobin's Q and Investment: all SEO firms vs SEO firms inflating pre-issue earnings

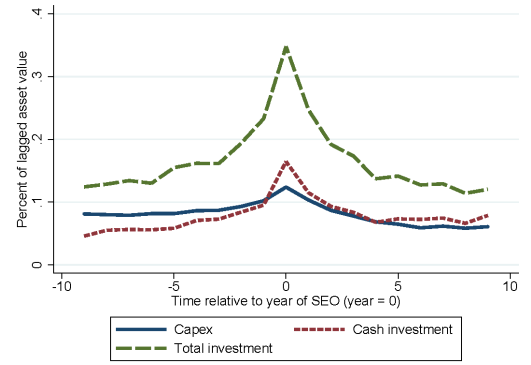
Figure (a) displays the market to book ratio in the years surrounding the event for firms that perform seasoned equity offerings (SEO, year=0). Figure (b) displays the market to book ratio in the years surrounding the event for firms that perform seasoned equity offerings (SEO, year=0) and strategically increase earnings upwards in the pre-issue year. We define a firm as strategically inflating the earnings upwards if the change in non-investment long term accruals, from the pre-issue year to the issue year is positive and belongs to the upper changes quintile for that year. Figure (c) shows three different measures of investment in the years surrounding the event for firms that perform seasoned equity offerings (SEO, year=0). Figure (d) displays the market to book ratio in the years surrounding the event for firms that perform seasoned equity offerings (SEO, year=0) and strategically increase earnings upwards in the pre-issue year. In measuring investment we follow Kisser & Rapushi (2019): Capex= Capital expenditure /lagged Total Assets; Cash Investment = (Investing Activites (NCF) + Change in short-term Investments) / lagged Total Assets; Total Investment= (Fixed Assets - lagged Fixed Assets + Depreciation + Equity in net loss + Sale of Property, Plant and Equipment and Investment (gain(loss)) + Funds from operations (other) + (Extraordinary Items and Discontinued Operations (CF) - Extraordinary Items and Discontinued Operations (IS)) /lagged Total Assets. All the above items are from Compustat for the period 1973 - 2016. Total sample of 13,799 firms and 140,067 firm-years. In graphs (a) and (c) we plot results for 5,619 issues while in graphs (b) and (d) we plot results for 2,031 issues.



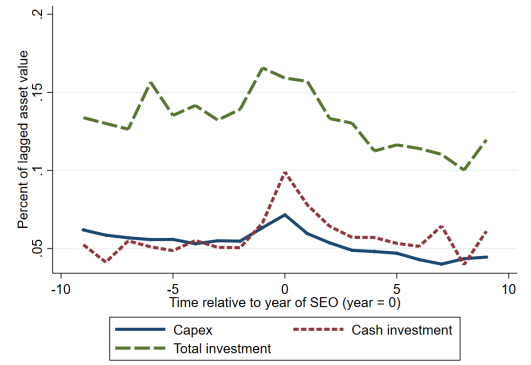
(a) SEO firms



(b) SEO firms that inflate



(c) SEO firms



(d) SEO firms that inflate

Table 3: Pre-issue and post-issue equity scaled net income, operating cash flow and accruals

In this table is presented the performance of five accounting variables, net income, operating cash flow, total accruals and the main components of total accruals, long-term accruals and working capital accruals. We plot the performance of the variables in the years from -3 to +3 where zero is the year of the equity issue. Earnings is the Compustat item Income Before Extraordinary Items; Operating cash flow is Operating Activities (NCF); Total Accruals is defined as the difference between earnings and operating cash flow; Current accruals = Current Assets - Cash - Current Liabilities - Current Maturity of long-term Debt; Long-term accruals = Total Accruals - Current Accruals. All variables are scaled by the book value of equity and winsorized at the 1st and 99th % percentile.

Earnings

	-3	-2	-1	0	1	2	3
Mean	-0.137	**-0.226**	**-0.221**	**-0.226**	**-0.251**	**-0.204**	-0.250
Median	0.057	0.050	0.068	0.045	0.036	0.028	0.030
Obs	2,195	2,761	3,717	5,619	5,157	4,580	4,065

OCF

	-3	-2	-1	0	1	2	3
Mean	0.054	**0.006**	**-0.043**	**-0.130**	**-0.090**	**-0.034**	-0.025
Median	0.114	0.108	0.095	-0.000	0.058	0.080	0.097
Obs	2,195	2,761	3,717	5,619	5,157	4,580	4,065

Total accruals

	-3	-2	-1	0	1	2	3
Mean	-0.178	**-0.232**	**-0.178**	**-0.099**	**-0.149**	**-0.179**	-0.222
Median	-0.094	-0.104	-0.094	-0.046	-0.080	-0.092	-0.098
Obs	2,195	2,761	3,717	5,619	5,157	4,580	4,065

Working capital accruals

	-3	-2	-1	0	1	2	3
Mean	0.008	**0.015**	**0.041**	**0.058**	**0.027**	**0.009**	-0.001
Median	0.021	0.025	0.030	0.035	0.026	0.018	0.014
Obs	2,174	2,732	3,677	5,559	5,091	4,524	4,014

Long-term accruals

	-3	-2	-1	0	1	2	3
Mean	-0.191	**-0.230**	**-0.214**	**-0.150**	**-0.178**	**-0.175**	-0.209
Median	-0.117	-0.130	-0.137	-0.085	-0.106	-0.111	-0.113
Obs	2,174	2,732	3,677	5,559	5,091	4,524	4,014

Table 4: Pre-issue and post-issue equity scaled levels and differences in accruals

This table reports two measures of performance of the total accruals and their current and long-term components in the years surrounding the SEO. The first measure (Panel A) is the level of the three accounting variables scaled by book value of equity and winsorized at the 1st and 99th % percentile. The second measure (Panel B) is the difference of the issuer's equity scaled accounting variable and the equity scaled accounting variable of a matched non issuer. The matched firm is in the same 2digit Sic code and has the closest net income and size with the issuing firm in the pre-issue fiscal year.Total sample of 13,799 firms, 140,067 firm-years and 5,619 SEOs.

Panel A: SEO firms accruals (levels)

Long-term accruals

	-3	-2	-1	0	1	2	3
Mean	-0.191	**-0.230**	**-0.214**	**-0.150**	**-0.178**	**-0.175**	-0.209
Median	-0.117	-0.130	-0.137	-0.085	-0.106	-0.111	-0.113
Obs	2,174	2,732	3,677	5,559	5,091	4,524	4,014

Investment-related accruals

	-3	-2	-1	0	1	2	3
Mean	0.010	**0.005**	**0.014**	**0.039**	**0.012**	**0.023**	0.027
Median	0.000	-0.000	-0.000	0.002	0.000	0.000	0.001
Obs	2,174	2,732	3,677	5,559	5,091	4,524	4,014

Non-investment accruals

	-3	-2	-1	0	1	2	3
Mean	-0.204	**-0.237**	**-0.231**	**-0.190**	**-0.197**	**-0.204**	-0.245
Median	-0.117	-0.121	-0.124	-0.088	-0.104	-0.111	-0.116
Obs	2,195	2,761	3,717	5,619	5,157	4,580	4,065

Panel B: SEO firms accruals - matched nonSEO firm accruals

LTA of Issuer - LTA of matched non issuer

	-3	-2	-1	0	1	2	3
Mean	0.016	**-0.022**	**-0.022**	**0.063**	**0.014**	**0.010**	-0.020
Median	-0.006	-0.028	-0.038	0.036	0.007	-0.003	-0.007
Obs	1,061	1,292	1,601	3,833	2,684	2,340	1,981

IA of Issuer - IA of matched non issuer

	-3	-2	-1	0	1	2	3
Mean	0.011	**-0.039**	**-0.010**	**0.029**	**-0.009**	**-0.004**	-0.008
Median	0.003	-0.009	-0.005	0.006	-0.001	-0.001	-0.003
Obs	1,061	1,292	1,601	3,833	2,684	2,340	1,981

NIA of Issuer - NIA of matched non issuer

	-3	-2	-1	0	1	2	3
Mean	0.013	**0.004**	**-0.025**	**0.042**	**0.014**	**0.009**	-0.036
Median	-0.009	-0.015	-0.020	0.023	0.012	0.005	-0.002
Obs	1,097	1,337	1,649	3,944	2,779	2,433	2,065

Figure 3: Changes in non-investment accruals: SEO firms vs matched non-SEO firms

Figure (a) plots the difference in changes of non-investment accruals (blue line), difference in changes of depreciation accruals (red line) and difference in changes of other accruals (green line) between an issuing firm and the the median change for firms in the same year and Fama-French industry. We follow Lewellen & Resutek (2016) in the definition of non-investment long term accruals. Non-investment LTA = Depreciation and Amortization (SCF account) + Deferred taxes (SCF account) + Equity in Net Loss (Earnings) of unconsolidated subsidiaries + Loss (Gain) on Sale of Property, Plant and Equipment and Investment + Funds from operations - Other + Extraordinary items and Discontinued operations. Figure (b) plots the difference in changes of non-investment accruals (blue line), difference in changes of depreciation accruals (red line) and difference in changes of other accruals (green line) between an issuing firm and a matched non issuer. The matched firm is in the same 2digit Sic code and has the closest net income and size with the issuing firm in the pre-issue fiscal year. Total sample of 13,799 firms, 140,067 firm-years and 5,619 SEOs.

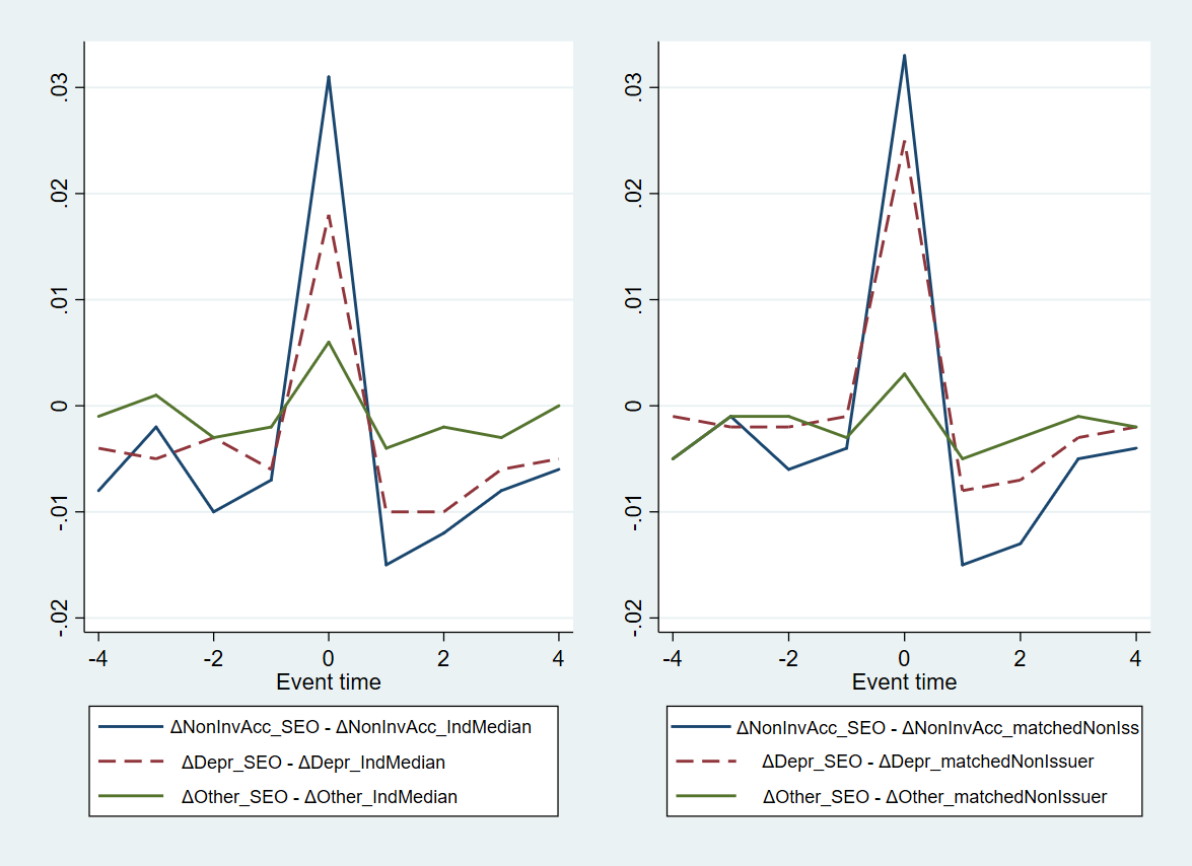


Figure 4: Measures of financial reporting conservatism: SEO firms vs matched non-SEO firms

The figure displays the performance of financial reporting conservatism measures in the years surrounding the issue for an issuing firm and a matched non-issuing firm. The matched firm is in the same 2digit Sic code and has the closest net income and size with the issuing firm in the pre-issue fiscal year. The measures of financial conservatism include specific transactions such as goodwill impairment, write-downs, restructuring charges, discontinued operations and special items. The higher these measures the lower the financial reporting conservatism. The measures of financial conservatism are all defined based on the respective items on Compustat. They are all deflated by shareholders' equity and winsorized at the first and 99th % level to remove the influence of outliers. In the last graph an alternative measure is plotted: the CScore as in Khan and Watts (2009) measures the bad news timeliness. The lower the CScore the lower the financial reporting conservatism. For the exact estimation of the variable see Khan and Watts (2009), page 135.

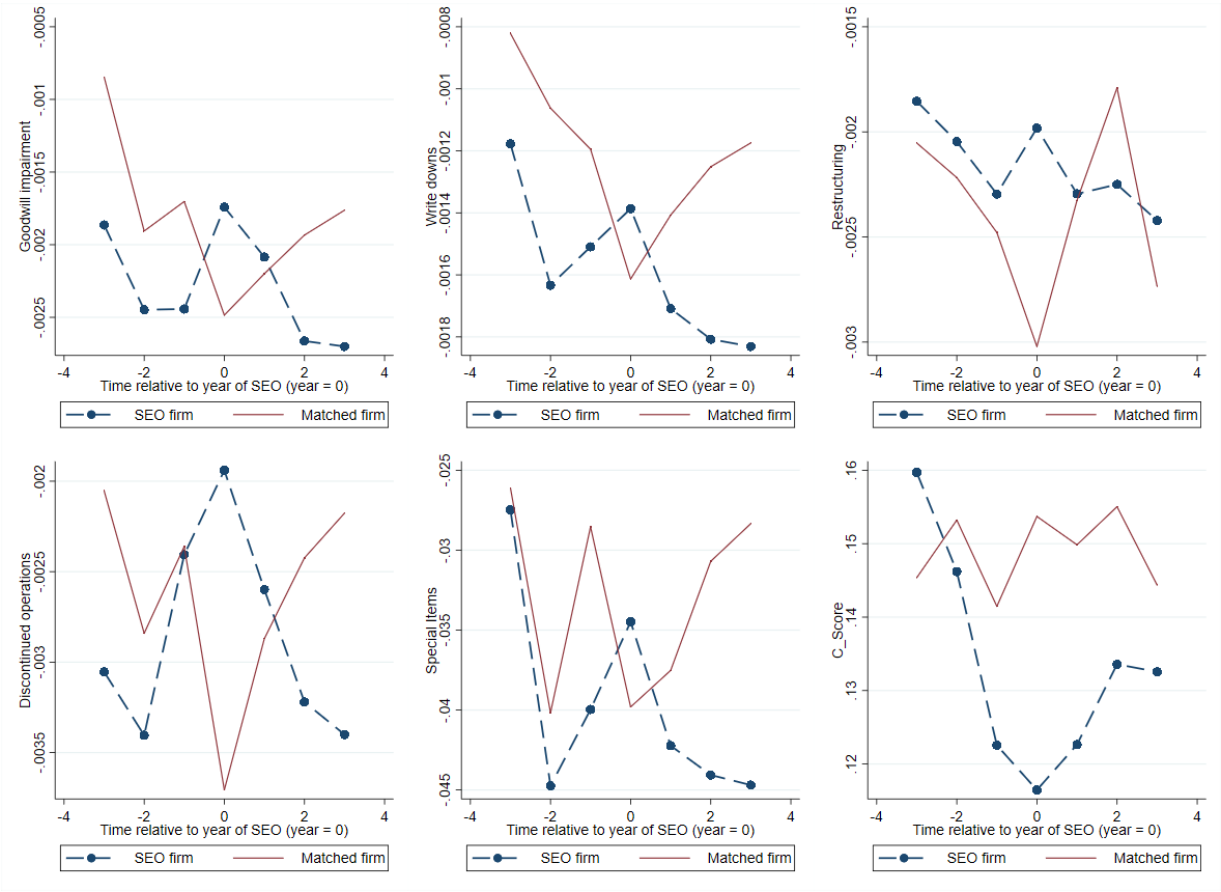


Table 5: Regressions of post-issue net income on pre-issue accrual's components: Full sample

This table reports OLS coefficient estimates in columns (1) and (4), Fixed Effects estimates in columns (2) and (5) and Fama-Macbeth estimates in columns (3) and (6) from regressions of the dependent variables on the right hand side variables. The dependent variable is net income at time t+1 for equations (1), (2) and (3) while the average net income of years t+1 and t+2 in equation (4), (5) and (6). The net income is the Compustat item, income before extraordinary items scaled by the lagged book value of assets. The independent variables are the values at time t of: Net Income (Earnings); Current Accruals (CA); Investment-related Accruals and Non-investment Accruals. The working capital accruals are calculated as CA = Current Assets - Cash - Current Liabilities - Current Maturity of long-term Debt; the Non-investment Accruals are defined following Lewellen & Resutek (2016): Non Inv. LTA = Depreciation and Amortization (SCF account) + Deferred taxes (SCF account) + Equity in Net Loss (Earnings) of unconsolidated subsidiaries + Loss (Gain) on Sale of Property, Plant and Equipment and Investment + Funds from operations - Other + Extraordinary items and Discontinued operations. As a consequence the Inv. LTA = Long-term accruals - Non Inv. LTA where Long-term accruals are the difference between Total Accruals and Current Accruals; while Total Accruals are the difference between Net Income and operating cash flow. All right hand side variables are scaled by lagged total assets and winsorized at the first and 99th % level to remove the influence of outliers.

	OLS (1)	FE (2)	FMB (3)	OLS (4)	FE (5)	FMB (6)
	$Earnings_{t+1}$	$Earnings_{t+1}$	$Earnings_{t+1}$	$E_{t+1;t+2}$	$E_{t+1;t+2}$	$E_{t+1;t+2}$
Earnings	0.842***	0.817***	0.810***	0.778***	0.744***	0.740***
	(398.49)	(362.07)	(64.81)	(381.22)	(343.51)	(31.75)
CA	-0.262***	-0.263***	-0.238***	-0.267***	-0.262***	-0.237***
	(-57.74)	(-57.82)	(-12.70)	(-62.33)	(-61.41)	(-7.75)
Inv. LTA	-0.308***	-0.305***	-0.274***	-0.291***	-0.282***	-0.255***
	(-88.94)	(-87.84)	(-9.97)	(-87.51)	(-85.08)	(-5.85)
Non Inv. LTA	**-0.366*****	**-0.390*****	**-0.334*****	**-0.344*****	**-0.359*****	**-0.302*****
	(-81.48)	(-84.29)	(-11.18)	(-80.29)	(-81.88)	(-6.16)
Constant	-0.0265***	-0.0201*	-0.0232***	-0.0226***	-0.0187*	-0.0185**
	(-52.08)	(-2.18)	(-6.37)	(-47.21)	(-2.16)	(-3.03)
Year FE	no	yes	no	no	yes	no
Industry FE	no	yes	no	no	yes	no
Observations	126,268	126,268	126,268	113,946	113,946	113,946
R^2	0.586	0.597	0.554	0.586	0.602	0.547

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Regressions of post-issue net income on pre-issue accrual's components: SEO firms only

This table reports OLS coefficient estimates in columns (1) and (4), Fixed Effects estimates in columns (2) and (5) and Fama-Macbeth estimates in columns (3) and (6) from regressions of the dependent variables on the previous year's values of right hand side variables. The dependent variable is $Earnings_{t+1}$, the level of the net income in the year following the seasoned equity offering in equations (1), (2) and (3) and $E_{t+1;t+2}$, the average net income of the two following years in equation (4), (5) and (6). The net income is the income before extraordinary items (ib Compustat item) scaled by lagged book assets. The independent variables values belong to the year of the SEO (year t). The definition of the independent variables is given in Table 5. All variables are scaled by lagged total assets and winsorized at the 1st and 99th % level to remove the influence of outliers.

	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
	$Earnings_{t+1}$	$Earnings_{t+1}$	$Earnings_{t+1}$	$E_{t+1;t+2}$	$E_{t+1;t+2}$	$E_{t+1;t+2}$
Earnings	0.844***	0.793***	0.778***	0.791***	0.718***	0.696***
	(116.61)	(90.49)	(21.23)	(111.78)	(84.34)	(15.92)
CA	-0.290***	-0.352***	-0.256***	-0.269***	-0.330***	-0.217***
	(-14.31)	(-16.94)	(-8.48)	(-14.05)	(-16.96)	(-6.66)
Inv. LTA	-0.406***	-0.436***	-0.336***	-0.357***	-0.383***	-0.283***
	(-30.20)	(-31.94)	(-9.89)	(-27.25)	(-29.01)	(-8.30)
Non Inv. LTA	**-0.520****	**-0.539****	**-0.385****	**-0.493****	**-0.494****	**-0.373****
	(-30.25)	(-29.81)	(-7.01)	(-29.56)	(-28.52)	(-7.38)
Constant	-0.0536***	0.0569	-0.0418***	-0.0592***	0.0850	-0.0444***
	(-17.37)	(0.28)	(-4.31)	(-20.43)	(0.47)	(-4.81)
Year FE	no	yes	no	no	yes	no
Industry FE	no	yes	no	no	yes	no
Observations	7,296	7,296	7,296	6,424	6,424	6,424
R^2	0.689	0.705	0.582	0.699	0.718	0.559

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Regressions of post-issue net income on pre-issue accruals by accrual level quartiles

This table reports OLS coefficient estimates in columns (1) and (2), Fixed Effects estimates in columns (3) and (4) and Fama-Macbeth estimates in columns (5) and (6) from regressions of the $Earnings_{t+1}$ on $Earnings_t$ and four accrual's components at time t, by discretionary accrual levels quartiles. Firms that fall in the first quartile (conservative) are those who have the lowest level of the Not Investment long-term accruals in the issue year, firms in the fourth quartile (aggressive) is the group that have the highest level of the Not Investment long-term accruals in the issue year. The dependent variable, $Earnings_{t+1}$, is the level of the net income in the year following the seasoned equity offering. The net income is the income before extraordinary items (ib Compustat item) scaled by lagged book assets. The independent variables net income, non discretionary current accruals (NDCA), discretionary current accruals (DCA), investment-related long-term accruals (Inv. LTA) and non-investment long-term accruals (Non Inv. LTA) belong to the year of the SEO (year t) and are all scaled by lagged total assets and winsorized at the 1st and 99th % level to remove the influence of outliers. The exact definition of current accruals, Inv. LTA and Non Inv. LTA is given in Table 5. In this table we further display current accruals as the sum of two components. The discretionary current accruals are estimated through the modified Jones model as explained in section 3.2.

	OLS		FE		FMB	
	(1) Conservative	(2) Aggressive	(3) Conservative	(4) Aggressive	(5) Conservative	(6) Aggressive
	$Earnings_{t+1}$					
Earnings	0.791***	0.876***	0.751***	0.799***	0.640***	0.783***
	(68.81)	(49.45)	(52.72)	(37.77)	(9.59)	(14.02)
NDCA	-0.178	0.0781	-0.251*	0.0113	-0.183	-0.0741
	(-1.96)	(0.64)	(-2.52)	(0.08)	(-1.51)	(-0.23)
DCA	-0.395***	-0.256***	-0.422***	-0.276***	-0.326*	-0.192*
	(-10.67)	(-5.21)	(-11.30)	(-5.40)	(-2.55)	(-2.51)
Inv. LTA	-0.414***	-0.434***	-0.430***	-0.453***	-0.284**	-0.384***
	(-19.82)	(-13.25)	(-20.18)	(-13.25)	(-3.53)	(-6.42)
Non Inv. LTA	**-0.505*****	**-0.954*****	**-0.511*****	**-0.817*****	**-0.396****	**-0.637*****
	(-18.66)	(-11.75)	(-18.04)	(-9.31)	(-3.43)	(-4.00)
Constant	-0.0795***	-0.0557***	-0.298	-0.108	-0.0567*	-0.0455***
	(-12.15)	(-8.31)	(-1.39)	(-0.47)	(-2.60)	(-4.22)
Year FE	no	no	yes	yes	no	no
Industry FE	no	no	yes	yes	no	no
Observations	3,088	1,277	3,088	1,277	3,088	1,277
R^2	0.649	0.715	0.756	0.726	0.674	0.726

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Regressions of post-issue net income on pre-issue accruals by accrual changes quartiles

This table reports OLS coefficient estimates in columns (1) and (2), Fixed Effects estimates in columns (3) and (4) and Fama-Macbeth estimates in columns (5) and (6) from regressions of the $Earnings_{t+1}$ on $Earnings_t$ and four accrual's components at time t, by accrual's changes quartiles. Firms that fall in the first quartile (conservative) are those who diminuish earnings the most in the issue year, firms in the fourth quartile (aggressive) is the group that strategically increases earnings the most. The measure that we use as a proxy for earnings inflation is the change in non-investment long-term accruals from the pre-issue year to the issue year t. The dependent variable, $Earnings_{t+1}$, is the level of the net income in the year following the seasoned equity offering. The net income is the income before extraordinary items (ib Compustat item) scaled by lagged book assets. The independent variables net income, non discretionary current accruals (NDCA), discretionary current accruals (DCA), investment-related long-term accruals (Inv. LTA) and non-investment long-term accruals (Non Inv. LTA) belong to the year of the SEO (year t) and are all scaled by lagged total assets and winsorized at the 1st and 99th % level to remove the influence of outliers. The exact definition of current accruals, Inv. LTA and Non Inv. LTA is given in Table 5. In this table we further display current accruals as the sum of two components. The discretionary current accruals are estimated through the modified Jones model as explained in section 3.2.

	OLS		FE		FMB	
	(1) Conservative	(2) Aggressive	(3) Conservative	(4) Aggressive	(5) Conservative	(6) Aggressive
			$Earnings_{t+1}$			
Earnings	0.793***	0.870***	0.739***	0.819***	0.477	0.761***
	(50.96)	(59.11)	(38.13)	(43.31)	(1.78)	(9.37)
NDCA	-0.286*	0.0338	-0.395**	0.000398	-0.458*	-0.587
	(-2.40)	(0.25)	(-2.97)	(0.00)	(-2.54)	(-1.30)
DCA	-0.359***	-0.334***	-0.389***	-0.331***	-0.235	-0.398***
	(-8.32)	(-7.05)	(-8.78)	(-6.75)	(-1.29)	(-4.45)
Inv. LTA	-0.429***	-0.461***	-0.440***	-0.458***	-0.209	-0.666*
	(-15.38)	(-15.31)	(-15.29)	(-14.75)	(-0.91)	(-2.61)
Non Inv. LTA	**-0.543****	**-0.656****	**-0.550****	**-0.618****	**-0.373****	**-0.617****
	(-15.33)	(-13.05)	(-14.64)	(-11.42)	(-2.74)	(-3.82)
Constant	-0.0789***	-0.0754***	0.140	0.101	-0.0352	0.00585
	(-9.38)	(-10.56)	(0.52)	(0.34)	(-1.44)	(0.12)
Year FE	no	no	yes	yes	no	no
Industry FE	no	no	yes	yes	no	no
Observations	1,886	1,521	1,886	1,521	1,886	1,521
R^2	0.629	0.716	0.648	0.734	0.650	0.727

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Post issue long-run stock returns by pre-issue Not-Investment Accruals quartiles

This table reports post-SEO stock returns by pre-issue Not Investment accruals quartiles. Firms that fall in the first quartile (conservative) are those who inflate earnings the less (diminuish the most) in the pre-issue year, firms in the fourth quartile (aggressive) is the group that inflate earnings the most. The measure that we use as a proxy for earnings inflation is the change in non-investment long-term accruals from the pre-issue year to the issue year t.
The top panel (Panel A) reports raw annual returns which were compounded from monthly returns relative to the risk free rate or to the market return. On the right are reported the cumulative stock returns. The cumulative stock returns are computed from the reported annual returns in the column to the immediate left. The bottom panel (Panel B) reports the market adjusted abnormal return, the Fama-French three-factor adjusted abnormal return and five-factor adjusted abnormal return for firms that undertake seasoned equity offerings. We run a time series regression for each firm-month of the excess return over the risk-free on the market excess return/ three Fama-French factors / five Fama-French factors , respectively from month -36 to month -12 relative to the filing month of the offering. Once we have estimated the coefficients we compute the expected returns for months from -11 to +36 using the estimated coefficients from the factor regression, the relevant month three factors (the relevant month five factors), and replacing the intercept with the risk-free rate of return. The return in our table will then be the realized return minus the market adjusted/ FF3/ FF5 expected return. As in Panel A, annual returns are compounded from the monthly level while cumulative abnormal returns are computed from the annual returns in the column to the immediate left.

Panel A: Stock returns

Return - Risk free

	Conservative			Aggressive			Difference
	Annual	Compound	SEOs	Annual	Compound	SEOs	Annual
[-12; -1]	0.401		3,531	0.443		1,359	**0.041*****
[0; 11]	-0.017	**-0.017**	3,246	-0.050	**-0.050**	1,309	**-0.033*****
[12; 23]	-0.001	**-0.018**	2,821	-0.031	**-0.080**	1,187	**-0.030*****

Return - Market return

	Conservative			Aggressive			Difference
	Annual	Compound	SEOs	Annual	Compound	SEOs	Annual
[-12; -1]	0.294		3,531	0.314		1,359	**0.020*****
[0; 11]	-0.083	**-0.083**	3,246	-0.113	**-0.113**	1,309	**-0.030*****
[12; 23]	-0.126	**-0.199**	2,821	-0.163	**-0.258**	1,187	**-0.037*****

Panel B: Abnormal stock returns

Market adjusted abnormal returns

	Conservative			Aggressive			Difference
	Annual	Cumulative	SEOs	Annual	Cumulative	SEOs	Annual
[-12; -1]	0.086		1,116	0.045		527	**-0.041**
[0; 11]	-0.042	**-0.042**	1,116	-0.164	**-0.164**	527	**-0.122*****
[12; 23]	-0.110	**-0.152**	1,318	-0.124	**-0.288**	597	**-0.014**

FF3 adjusted abnormal returns

	Conservative			Aggressive			Difference
	Annual	Cumulative	SEOs	Annual	Cumulative	SEOs	Annual
[-12; -1]	0.065		1,116	0.044		527	**-0.021**
[0; 11]	-0.026	**-0.026**	1,116	-0.133	**-0.133**	527	**-0.107*****
[12; 23]	-0.122	**-0.148**	1,318	-0.115	**-0.248**	597	**0.007**

FF5 adjusted abnormal returns

	Conservative			Aggressive			Difference
	Annual	Cumulative	SEOs	Annual	Cumulative	SEOs	Annual
[-12; -1]	0.076		1,116	0.061		527	**-0.015**
[0; 11]	0.043	**0.043**	1,116	-0.097	**-0.097**	527	**-0.140*****
[12; 23]	-0.109	**-0.066**	1,318	-0.139	**-0.236**	597	**-0.030**

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Monthly cross-sectional regressions of stock returns on lagged accrual's quartiles and controls

The independent variables are measured at the year of the equity issue while the dependent variable is measured at t-1 for column (1); at year t+1, the year following the equity issue for column (2); at year t+2, two years after the issue for column (3) and at year t+3, three years after the issue for column (4). EI is an equity issue dummy that takes the value one if there is a SEO in that firm-year pair and zero otherwise. NILTA is the non-investment long term accrual variable whose definition is described in Table 5. The other accruals components definitions are also described in Table 5. In addition to the accruals component there are two main controls: the natural logarithm of market value of equity and ln(Book Eq./Market Eq.) calculated as the natural logarithm of book equity minus the natural logarithm of market value of equity. Accounting data are from Compustat, and market data are from CRSP.

	OLS regressions			
	(1) $StockReturn_{t-1}$	(2) $StockReturn_{t+1}$	(3) $StockReturn_{t+2}$	(4) $StockReturn_{t+3}$
EI	0.219***	-0.0975***	-0.173***	-0.353*
	(25.49)	(-9.89)	(-10.47)	(-2.01)
quartiles of NDCA	0.0667***	-0.00645**	-0.00303	-0.102**
	(37.56)	(-3.13)	(-0.88)	(-2.81)
quartiles of DCA	0.0176***	-0.0102***	-0.0233***	-0.150***
	(9.45)	(-4.72)	(-6.44)	(-3.92)
quartiles of ILTA	0.000199	0.00524*	0.00417	-0.0214
	(0.10)	(2.37)	(1.12)	(-0.54)
quartiles of NILTA	**0.0300*****	**-0.0221*****	**-0.0450*****	**-0.304*****
	(16.33)	(-10.36)	(-12.53)	(-8.01)
ln(Market Eq.)	0.0179***	-0.0127***	-0.0250***	-0.228***
	(18.98)	(-11.41)	(-13.35)	(-11.53)
ln(Book Eq. /Market Eq.)	-0.199***	0.0848***	0.162***	0.593***
	(-85.38)	(30.60)	(34.34)	(11.78)
Constant	-0.388***	0.324***	0.648***	4.114***
	(-34.61)	(24.57)	(29.06)	(17.33)
Observations	135,804	126,237	113,475	102,051
R^2	0.015	0.021	0.021	0.005

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 11: Short-term market reactions to equity issues announcements by earnings mismanagement quartiles.

The table presents two day, three day and ten day cumulative abnormal returns for firms which aggressively inflate earnings prior to the issue and conservative firms which do not inflate (Panel A) and OLS regression results with short-term CARs as the dependent variable while the independent variables are: Total accruals, NILTA and ILTA defined in Table 5; Size as the natural logarithm of market value of equity and ln(Book Eq./Market Eq.), a momentum variable, Market leverage and Profitability as defined in Table 2, lagged investment in fixed assets and lagged cash investment both defined in Figure 2, the natural logarithm of proceeds and the main use of proceeds as provided on SDC. Accounting data are from Compustat, and market data are from CRSP. Additional data are from SDC.

Panel A: Short-run cumulative abnormal returns

	Conservative			**Aggressive**		
	CAR(-1;0)	CAR(0;+2)	CAR(0;+9)	CAR(-1;0)	CAR(0;+2)	CAR(0;+9)
MM	-0.039	-0.037	-0.032	-0.036	-0.040	-0.029
FF3	-0.039	-0.037	-0.034	-0.035	-0.041	-0.027
FFM	-0.039	-0.037	-0.035	-0.035	-0.041	-0.028
Observations	656	656	656	239	239	239

Panel B: Regression analysis - Short-run post-issue performance

	(1)	(2)	(3)	(4)
	CAR2days	CAR3days	CAR2days	CAR3days
Accruals	-0.0630	0.00206	-0.0637	-0.00434
	(-1.52)	(0.04)	(-1.54)	(-0.08)
NILTA	**0.0218**	**-0.0687**	**0.0238**	**-0.0690**
	(0.37)	(-0.92)	(0.40)	(-0.93)
ILTA	0.0167	-0.0248	0.0227	-0.0233
	(0.37)	(-0.44)	(0.50)	(-0.41)
ln(Market Eq.)	0.00809	0.00274	0.00749	0.00268
	(1.71)	(0.46)	(1.57)	(0.45)
ln(Book Eq. /Market Eq.)	-0.00443	-0.00592	-0.00410	-0.00591
	(-0.79)	(-0.83)	(-0.73)	(-0.83)
Momentum	0.796	0.678	0.782	0.653
	(1.83)	(1.23)	(1.79)	(1.19)
lagged (inv_FA)	0.0647*	0.0106	0.0641*	0.0149
	(2.05)	(0.27)	(2.03)	(0.37)
lagged(inv_CF)	-0.0945*	-0.0326	-0.0947*	-0.0341
	(-2.17)	(-0.59)	(-2.17)	(-0.62)
Leverage	-0.0268	-0.00912	-0.0280	-0.00554
	(-1.11)	(-0.30)	(-1.15)	(-0.18)
Profitability	0.0387*	0.0569**	0.0381*	0.0582**
	(2.37)	(2.76)	(2.33)	(2.82)
Use_Proceeds	0.00503	-0.00256	0.00530	-0.00231
	(0.90)	(-0.36)	(0.95)	(-0.33)
ln(Proceeds)	-0.00668	-0.00166	-0.00567	-0.00211
	(-1.34)	(-0.27)	(-1.14)	(-0.34)
Constant	-0.0698**	-0.0460	-0.0695**	-0.0461
	(-3.19)	(-1.67)	(-3.17)	(-1.67)
Observations	1121	1121	1121	1121
R^2	0.029	0.015	0.028	0.016

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 12: Regressions of SEO dummy on earnings management proxy and cash flow

The table displays logistic regressions of the equity issue dummy on the independent variables: pre-issue earnings management proxy (EM), pre-issue operating cash flow (OCF) and pre-issue Tobin's Q. All three independent variables are winsorized at the first and 99th % level to remove the influence of outliers. The equity issue dummy takes the value one if there is a SEO in that firm-year pair and zero otherwise. The earnings management proxy is the yearly change in non-investment long term accruals; the definition of the variable is given in Table 5. The Operating cash flow is the Compustat item of operating activities (NCF) over lagged total assets. The Tobin's Q is defined as the sum of market value of equity and book value of debt over book value of total assets. The column (1) shows the results for the logistic regression run on the full data sample while columns (2) to (5) show the regressions estimation for each of the quartiles of firm's dependence on equity finance. The measure we use for the financial dependence is the level of market leverage. Each firm-year is assigned to a ML_quartile; quartiles are updated each year. The firms in the lowest quartile (ML_q1) are those less financially constrained; the firms in the upper quartile (ML_q4) are the ones with the highest level of leverage thus the most constrained ones.

	All	ML_q1	ML_q2	ML_q3	ML_q4
	(1)	(2)	(3)	(4)	(5)
	Logit Regressions				
	Dependent variable : Issue dummy				
EM lagged	**0.114*****	**0.0783**	**0.0364**	**0.104**	**0.338*****
	(4.13)	(1.85)	(0.70)	(1.66)	(3.89)
OCF lagged	-1.300***	-1.199***	-1.618***	-1.088***	-0.179
	(-34.92)	(-25.86)	(-22.01)	(-9.04)	(-0.97)
Q lagged	0.210***	0.156***	0.109***	0.206***	0.475***
	(43.86)	(24.66)	(9.78)	(9.97)	(12.41)
Constant	-3.292***	-2.811***	-2.895***	-3.357***	-4.470***
	(-183.64)	(-90.37)	(-82.01)	(-76.91)	(-69.97)
Observations	140.067	35.017	35.017	35.017	35.016

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 13: Regressions of SEO dummy on earnings management proxy and cash flow by finance dependence quartiles

The table displays logistic regressions of the equity issue dummy on the independent variables for each finance dependence quartile. The independent variables are pre-issue earnings management proxy (EM), pre-issue operating cash flow (OCF) and pre-issue Tobin's Q. All three independent variables are winsorized at the first and 99th % level to remove the influence of outliers. The equity issue dummy takes the value one if there is a SEO in that firm-year pair and zero otherwise. The earnings management proxy is the yearly change in non-investment long term accruals; the definition of the variable is given in Table 5. The Operating cash flow is the Compustat item of operating activities (NCF) over lagged total assets. The Tobin's Q is defined as the sum of market value of equity and book value of debt over book value of total assets. We use two different measures to proxy for the financial dependence of the firm: the Interest coverage ratio in Panel A and Size-Age index as in Hadlock & Pierce (2010) in Panel B. The firms in the lowest quartile (ICR_q1) are those the most financially constrained; the firms in the upper quartile (ICR_q4) are the ones with the highest level of interest coverage thus the less constrained ones. The firms in SA_q1 are those less financially constrained; the firms in the upper quartile (SA_q4) are the smaller in size and younger firms, thus the most constrained ones. The calculation of the ICR and SA index is explained in section 5.1.

Panel A: Interest coverage ratio quartiles

	ICR_q1	ICR_q2	ICR_q3	ICR_q4
	Logit Regressions			
	Dependent variable : *Issue dummy*			
EM	**0.109****	**0.100***	**0.0639**	**-0.0403**
	(2.72)	(2.02)	(1.18)	(-0.53)
lagged OCF	-3.651***	-1.935***	-0.793***	-0.0103
	(-36.22)	(-25.40)	(-11.47)	(-0.40)
lagged Q	0.227***	0.203***	0.221***	0.212***
	(21.09)	(21.09)	(23.78)	(21.46)
Constant	-3.177***	-3.045***	-3.236***	-3.855***
	(-85.91)	(-91.41)	(-94.17)	(-87.60)
Observations	35.017	35.017	35.017	35.016

Panel B: Size-Age ratio quartiles

	SA_q1	SA_q2	SA_q3	SA_q4
	Logit Regressions			
	Dependent variable : *Issue dummy*			
EM	**0.219****	**-0.0212**	**-0.0141**	**0.280*****
	(2.88)	(-0.39)	(-0.29)	(5.10)
lagged OCF	-5.799***	-3.819***	-2.745***	-0.926***
	(-18.72)	(-25.56)	(-31.80)	(-19.10)
lagged Q	0.170***	0.259***	0.267***	0.170***
	(7.07)	(24.12)	(31.21)	(21.24)
Constant	-3.501***	-3.005***	-2.964***	-3.508***
	(-58.69)	(-85.46)	(-95.97)	(-94.36)
Observations	35.017	35.017	35.017	35.016

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Equity issues, creditor control and market timing patterns: evidence from leverage decreasing recapitalizations*

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Abstract

We show that periods during which firms retire debt and simultaneously issue equity reflect market timing patterns: such leverage decreasing recapitalizations (LDRs) occur after stock price run-ups and in periods of high valuation which subsequently decrease. These patterns are interesting as creditor control largely drives these transactions. Relatedly, we document that average investment of LDR firms exhibiting a high degree of financial reporting conservatism or violating financial covenants is close to zero. Finally, the valuation dynamics are robust and that these firms could further reduce discretionary expenses or sell assets to generate cash.

Keywords: equity issue; market timing; creditor control; financial reporting conservatism; covenants; pro-forma cash holdings

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1 Introduction

It is a well known fact that firms tend to issue equity when share valuations are high (Asquith and Mullins, 1986; Masulis and Korwar, 1986). Moreover, these firms experience pre-issue stock price run-ups that are large and positive, whereas (abnormal) returns following seasoned equity offerings (SEOs) are often negative (Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995; Eckbo et al., 2007). However, there is little agreement as to the underlying interpretation of these empirical findings.

In particular the literature is heavily split between two alternative explanations. The market timing view asserts that equity issues are driven by managerial attempts to exploit temporary overvaluation of stocks (Baker and Wurgler, 2002; Bradshaw et al., 2006; Kim and Weisbach, 2008; Dong et al., 2012; Lewis and Tan, 2016; Baker and Xuan, 2016; Huang and Ritter, 2019). On the other hand, the patterns described above can also arise when market participants are rational as time-variation in growth opportunities and investment can rationalize such stock price dynamics (Carlson et al., 2004, 2006, 2010; Leary and Roberts, 2005; DeAngelo et al., 2010; Butler et al., 2011).

To better understand the two competing arguments, our research design focuses on a sample of equity issuers which are unlikely to be driven by investment financing considerations. Specifically, we identify firms that issue equity and use a significant amount of the proceeds to actively retire debt (a so-called leverage decreasing recapitalization, LDR). The focus on LDRs is motivated by a large literature suggesting they may be the result of creditors exercising control rights (Smith and Warner, 1979; Aghion and Bolton, 1992; Dewatripont and Tirole, 1994; Nini, Smith, and Sufi, 2009). After all, it is well known that, in the absence of creditor control rights, shareholders would never find it optimal to retire debt early as such a rebalancing transfers wealth to bondholders (Fischer et al., 1989; Admati et al., 2018).

Our main results can be summarized as follows. First, we show that firms performing LDRs on average exhibit high financial reporting conservatism and more frequently violate financial covenants. Second, we verify that investment of LDR firms is low and hence is unlikely to be the driver of the equity issue. Third, we provide detailed evidence that periods during which firms retire debt and simultaneously issue equity occur after stock price run-ups and in periods of high valuation which subsequently decrease. Finally, we show that these dynamics are robust to controlling for (changes in) leverage and other standard risk factors and that these firms could further reduce discretionary expenses or sell assets to generate cash.

Our findings contribute to the literature in various ways. First, using a large Compustat sample of

13,799 firms over the period from 1971 to 2016, we define LDRs from a company's cash flow statement by requiring simultaneous net equity issues (NEIs) and net debt retirements (NDRs).[1] We then document that LDRs account for a fifth of all observed NEIs and become less frequent during stock market boom periods. Moreover, LDR firms report more conservative financial statements than the average firm or the average net equity issuer: they reflect negative stock returns more quickly in financial statements and are more likely to impair goodwill or recognize restructuring costs (Khan and Watts, 2009; Tan, 2013).[2] Relatedly, they are also more frequent among firms that violate financial covenants.[3] Thus, LDR firms differ significantly from the average equity issuer documented in Teoh et al. (1998) or Rangan (1998) which opportunistically uses accrual leeway. To further drive home this point, all findings in this paper are presented separately for all LDR firms as well as subsamples of those exhibiting high financial reporting conservatism or violating financial covenants.

Second, we verify that investment of LDR firms is low. Specifically, a decomposition of the firm's cash flow statement shows that investment of LDR firms is less than half of all other net equity issuers. Moreover, the absolute investment outlay approaches zero when focusing on subsamples of LDR firms exhibiting high financial reporting conservatism or those violating financial covenants. These descriptive findings make it unlikely that the subsequent valuation dynamics can be attributed to the exercise of growth options (Carlson et al., 2004, 2006, 2010). Moreover, the cash flow statement decomposition reveals that the average size of both LDR components (equity issues and debt retirements) is economically large. This is not only reassuring for our study design, but is also precisely what differentiates our paper from Bradshaw et al. (2006) who investigate the performance of firms raising both equity and debt financing.

Third, we provide detailed evidence that LDR periods occur after stock price run-ups and in periods of high valuation which subsequently decrease. These findings occur both when exploring annual dynamics of the market-to-book ratio (Fama and French, 1998) or when investigating monthly stock return dynamics (Fama and MacBeth, 1973; Fama and French, 1993, 2015). The former measure has the advantage of

[1] As detailed below, we impose a size threshold of at least 5% of the book value of assets for these transactions (Hovakimian, Opler, and Titman, 2001; Leary and Roberts, 2005). Because this definition also includes private equity issues, we also supplement results for a subsample of LDRs which issue public equity (information obtained from SDC, henceforth referred to as public LDRs).

[2] Moreover, we find that financial reporting conservatism is particularly strong for LDR firms with high leverage in the year preceding the recapitalization. In addition, for those firms the average size of the net equity issue and net debt retirement is highly economically significant (equal to 22% and 19% of book assets respectively).

[3] Data on covenant violations is provided by Becher, Griffin, and Nini (2018). These author employs a text-search algorithm to identify financial covenant violations in EDGAR for the period from 1995 to 2015, thereby significantly expanding the covenant violation database of Nini, Smith, and Sufi (2009). We are very grateful to the authors for sharing the covenant violation data with us.

reflecting firm value and is therefore unaffected by a potential wealth transfer from stock- to bondholders (Eberhart and Siddique, 2002), while the latter allows us to specifically control for leverage and other risk factors known to affect equity issuer returns (Lewis and Tan, 2016). Our analysis goes significantly beyond earlier small sample studies conditioning on the use of issuance proceeds (Autore et al., 2009; Hertzel and Li, 2010).[4] Relatedly, we provide novel insights by exploring cross-sectional differences among LDR firms. For example, similar valuation patterns also exist among the sample of firms exhibiting a high degree of financial reporting conservatism or those that violate financial covenants. In the period of (after) the rebalancing, LDR firms perform better (worse) than those choosing not to rebalance capital structure.

Finally, we corroborate the market timing interpretation of these valuation patterns by computing pro-forma cash balances (DeAngelo et al., 2010).[5] That is, we compare the available cash at the beginning of the LDR period to non-discretionary cash outlays the firm needs to cover during the year. In particular, we single out R&D and advertising expenditures in order to account for the empirical fact that management views them as discretionary costs they may be willing to reduce if necessary (Graham et al., 2005; Roychowdhury, 2006; Cohen and Zarowin, 2010). Our analysis suggests that reducing discretionary costs would allow LDR firms to cover other operating losses, perform all actual short-term debt retirements and investment outlays. Importantly, these results do not even consider the possibility of asset sales which are an important source of funding for financially distressed firms (Lang et al., 1995; Edmans and Mann, 2019) and which would mitigate the wealth transfer from shareholders to bondholders that arises in response to a leverage decreasing capital structure rebalancing (Arnold et al., 2018).

Taken together, we show that LDR periods exhibit low investment and occur after stock price run-ups and in periods of high valuation which subsequently decrease. These patterns obtain when using measures of firm value, stock returns and after controlling for leverage and other standard risk factors. Hence, neither investment nor the change in leverage is likely to explain these dynamics. Instead, our findings are consistent with the idea that the high temporary valuation of shares aligns incentives between existing shareholders and the controlling creditor(s) as both groups benefit from the underlying equity

[4]Autore, Bray, and Peterson (2009) investigate the relation between the stated use of proceeds and the subsequent stock and operating performance of the issuer. While they find significant negative performance if the SEO finances a recapitalization, the analysis is based on a relatively small sample of 257 issuers over the period from 1997 to 2003. Hertzel and Li (2010) decompose a firm's market-to-book ratio into components reflecting over-valuation and growth opportunities and find that debt reductions are more likely to follow SEOs in case the firm was estimated to be overvalued.

[5]DeAngelo et al. (2010) show that the average SEO firm would run out-of cash without the underlying equity issue.

issue: controlling creditors are repaid early while the overvaluation of shares makes the capital structure rebalancing profitable for existing shareholders.

The paper proceeds as follows. Section 2 summarizes the literature and develops the hypotheses. Section 3 presents the sample and provides descriptive evidence on LDRs. Section 4 investigates whether LDRs exhibit market timing patterns and Section 5 discusses whether those patterns are in fact evidence of market timing. Section 6 concludes the paper.

2 Related Literature and Hypothesis Development

2.1 Market Timing versus Growth Opportunities

The empirical literature has produced ample evidence that equity issues occur after stock price run-ups which level off or decrease following a seasoned equity offering (Asquith and Mullins, 1986; Masulis and Korwar, 1986; Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995; Eckbo et al., 2007). However, the interpretation of these patterns is subject to a long and ongoing controversy.

For example, Baker and Wurgler (2002) suggest that market timing efforts drive equity issues and thereby have a long-lasting impact on corporate capital structures. Leary and Roberts (2005), on the other hand, conclude that the high valuations reflect growth opportunities and the corresponding effect on capital structures can be rationalized with the existence of leverage adjustment costs. Kim and Weisbach (2008) observe that firms stockpile cash following periods of equity issues and argue this behavior is consistent with market timing efforts. DeAngelo et al. (2010) instead suggest that the increase in cash reflects asset growth effects and that - without the SEO - firms would have quickly run out of funds. Finally, Dong et al. (2012) control for both growth opportunities and a computed overvaluation measure and suggest again that mispricing drives financing decisions. Relatedly, Baker and Xuan (2016) provide evidence suggesting that the likelihood to issue equity in response to past stock return performance is higher when those returns are generated during the current tenure of the chief executive officer.

Empirical studies of stock returns are equally subject to disagreement. Bradshaw et al. (2006) show that external financing correlates negatively with future stock returns and positively with overoptimism in analyst forecast. On the other hand, Butler et al. (2011) find that investment based factor models explain the negative stock return of firms doing seasoned equity offerings. Lewis and Tan (2016) again show that managers are more likely to issue equity when analysts are optimistic about long-term growth

prospects and that abnormal stock returns become negative after controlling for research and development expenses. Finally, Huang and Ritter (2019) show that the frequency and size of equity (and debt) issues are negatively correlated with future abnormal stock returns, suggesting again a market timing story.

2.2 Capital structure choice, creditor control rights and investment

Trade-off theory of capital structure holds that firms choose levels of debt in order to balance the benefits from the interest tax shield at the corporate level with the expected costs of financial distress.[6] Introducing security issuance costs, dynamic models allow firms to recapitalize and hence to move leverage back to an internal optimum. A key insight of these models is that shareholders have little incentive to voluntarily reduce leverage back to its target as such a transaction transfers wealth from shareholders to bondholders (Fischer et al., 1989; Admati et al., 2018).

However, active leverage decreasing recapitalizations (simultaneous equity issues and debt retirements) can be rationalized using financial contracting theory (Hart, 2001).[7] For example, bond covenants or agreements with private creditors can induce shareholders to credibly commit to and execute active leverage reductions (Nini et al., 2009; Roberts and Sufi, 2009). Relatedly, financial reporting conservatism is typically thought to reflect financial contracts with creditors (Watts, 2003; Khan and Watts, 2009; Nikolaev, 2010). Consistent with the exercise of such creditor control rights, it has been shown that financial reporting conservatism increases following covenant violations (Tan, 2013).

Finally, the allocation (and subsequent exercise) of creditor control rights also impacts investment. For example, Nini et al. (2009) find that creditors impose investment restrictions when the borrower's credit quality deteriorates and Chava and Roberts (2008) show that investment declines sharply after covenant violations. The decline in investment is followed by improved stock price performance (Nini et al., 2012). Relatedly, Ersahin et al. (2019) document that covenant violating firms refocus on its core business and that these restructuring activities are associated with improvements in firm performance and value.

[6]The definition of costs and benefits of debt can also include agency considerations, see Frank and Goyal (2015).

[7]Debt retirements (as opposed to leverage decreasing recapitalizations) can occur for other reasons such as the desire to restore debt capacity in periods of low investment needs (Lemmon and Zender, 2010; DeAngelo et al., 2011; Eckbo and Kisser, 2018). This alternative explanation however does not predict that firms rebalance capital structure by simultaneously issuing equity (Eckbo and Kisser, 2019).

2.3 Hypothesis Development

The empirical analysis below will define leverage decreasing recapitalizations (LDRs), estimate measures of financial reporting conservatism and explore the frequency of financial covenant violations. Based on the discussion above, the paper then tests three main hypotheses which share the intuition that investment does not trigger the equity issue. To do that, they rely on consecutively stricter measures of creditor control (and hence smaller subsamples).

Assuming efficient markets, our null hypothesis is that valuation dynamics do not reflect market timing patterns (stock price run-up, followed by flat to slightly negative returns):

(H1) All LDRs do not exhibit valuation dynamics that are consistent with a market timing interpretation

(H2) LDRs of firms with high financial reporting conservatism do not exhibit valuation dynamics that are consistent with a market timing interpretation

(H3) LDRs of firms violating financial covenants do not exhibit valuation dynamics that are consistent with a market timing interpretation

The hypotheses will be explored for two different measures of valuation dynamics: the market-to-book ratio (Section 4.1) and stock return dynamics (Section 4.2).

3 Data and descriptive evidence

3.1 Sample Construction

The sample consists of U.S. public industrial corporations listed on Crisp/Compustat (CCM) over the period from 1971 to 2016. As usual, we exclude financial firms, utilities and government entities. In addition, we require the availability of one-year lagged information on our main variables (to be introduced below). Finally, we merge the CCM sample with Crsp (and SDC) and require the availability of trailing twelve months stock returns. All other sample selection criteria are standard and are listed in Table 1. The final sample consists of 13,799 firms and 140,067 firm-years.

We focus on leverage decreasing recapitalizations (LDRs) which we define as periods during which firms issue equity and use a significant amount of the proceeds to retire debt. Our definition is based

on information obtained from a company's cash flow statement which includes public and private equity issues (as well as public and private debt retirements):

$$\text{Leverage decreasing recapialization: } LDR_t = 1 \text{ if } Nei > s \text{ and } Ndi < -s \tag{1}$$

where Nei are common and preferred stock issues net of dividends and share repurchases, Ndi are short and long-term debt issues net of debt retirement and both variables are scaled by the book value of assets. Exact definitions of all variables are found in Table 2. The variable s is a size threshold which is set equal to 5%. While the magnitude of the threshold is standard (Hovakimian, Opler, and Titman, 2001; Leary and Roberts, 2005), the LDR definition also includes private equity issues. We therefore provide key results separately for LDRs that happen in periods when the firm issues public equity (information obtained from SDC, henceforth referred to as public LDRs).

We occasionally compare LDRs to either the full sample of net equity issues (NEI), net debt retirements (NDI) or orthogonalized subsamples of net equity issues (NEI^0) and net debt retirements (NDR^0) which are not classified as LDRs. Equations 2 to 5 summarize the corresponding definitions:

$$NEI_t = 1 \text{ if } Nei > s \tag{2}$$

$$NDR_t = 1 \text{ if } Ndi < -s \tag{3}$$

$$NEI_t^0 = 1 \text{ if } NEI_t = 1 \text{ and } LDR_t = 0 \tag{4}$$

$$NDR_t^0 = 1 \text{ if } NDR_t = 1 \text{ and } LDR_t = 0 \tag{5}$$

Table 3 displays annual values for the number of U.S. publicly listed firms (column 1), net equity issues (NEIs) and LDRs. Column 2 shows that NEIs vary substantially over time and peak in the late 1990s. The dynamics are similar for public NEIs (column 3), though the absolute frequency is reduced by approximately 60 percent. Columns 4 and 5 show frequencies of LDRs (all and public) and columns 6 and 7 the fraction of LDRs relative to NEIs. On average, every fifth NEI finances a major debt retirement (irrespective of whether the equity issue involves public or private equity). Finally, columns 4 to 7 suggest that LDRs become relatively less frequent during periods of high net equity issue activity. These patterns raise the possibility that LDRs are driven by other factors than the average net equity issue.

Figure 1 displays the evolution of leverage around the capital structure rebalancing. Specifically, Panel A shows average leverage (market and book) over a five-year window surrounding the year of the LDR. It reveals that leverage increases significantly ahead of the capital structure rebalancing, for then to decrease substantially from 30% (38%) to 18% (24%) when market (book) leverage is used. After the LDR, leverage exhibits a modest upward trend. Panel B displays the corresponding leverage dynamics for all other net equity issuers (NEI^0). Compared to LDRs, leverage is much lower and does not increase in the year of the NEI^0 (it stays flat around 13% (19%) for market (book) leverage). Afterwards, leverage increases slightly over the remaining event window.

Firms performing LDRs also appear highly levered when compared to the full sample of firms. That is, when categorizing firms based on their lagged market leverage ratio, we find that approximately half of all LDR firms fall in the two highest leverage quintiles with an average market (book) leverage ratio of (48%) (49%) in the year prior to the LDR. For these LDR firms, the impact of the rebalancing is even larger as leverage drops to 31% (33%) for market (book) leverage.

3.2 Financial reporting conservatism and covenant violations

The leverage dynamics of LDR firms raise the possibility that creditors drive the capital structure rebalancing decision. Below, we provide descriptive evidence consistent with the idea that LDRs likely reflect the exercise of creditor control rights. First, we document that financial reporting conservatism is higher during periods of LDRs. Second, we show LDRs are more likely among firms that violate financial covenants.

Table 4 employs different measures of financial reporting conservatism and reveals that firms performing LDRs generally report more conservative financial statements. Specifically, the table presents coefficient estimates of the following regression

$$Cons_{i,t} = \alpha + \beta_1 LDR_{i,t} + \beta_2 NEI^0_{i,t} + \gamma_k + \eta_t + \epsilon_{i,t} \tag{6}$$

where $Cons$ is the measure of financial reporting conservatism (explained below), LDR and NEI^0 are indicator variables denoting the year of a leverage decreasing recapitalization, all other net equity issues, γ_k are industry- and η_t are year-fixed effects.

In column (1), the conservatism measure is the firm's $Cscore$ which reflects the sensitivity of earnings

to negative stock returns. The measure is estimated using the cross-sectional regression framework of Khan and Watts (2009) and varies with firm size, growth opportunities and leverage.[8] It is built on the intuition that a stronger sensitivity of reported earnings to negative stock returns reflects more conservative financial reporting decisions (which in turn is captured by higher $Cscore$ values). Panel A excludes industry and year-fixed effects and shows that LDR firms have a significantly higher $Cscore$ than the average sample firm. Importantly, this differs from all other net equity issuers (who report *less* conservatively). This is consistent with the idea that the higher reported conservatism among LDR firms reflects the exercise of creditor control rights (Tan, 2013).

Columns 2 to 6 present alternative accrual measures of reporting conservatism. Each of the five variables presents an unpopular financial reporting decision which raises costs and decreases net income.[9] For example, column 2 shows that LDR firms report larger special costs (items) in the income statement than both the average firm and all other net equity issuers. LDR firms also recognize significantly more costs in connection with discontinued operations or restructurings. While the pattern is similar for impairments of goodwill or when writing down assets, those effects are statistically insignificant. Finally, the findings are robust to the inclusion of industry and year fixed effects (Panel B).

To further support our interpretation that LDRs to a large degree reflect the exercise of creditor control rights, we also merge our sample with data on covenant violations obtained from Becher, Griffin, and Nini (2018). This dataset is based on quarterly SEC filings for public U.S. corporations over the period from 1996 to 2015. For those firms, the authors identify whether a (at least one) financial covenant was violated or not.

The successful merge results in a subsample of 63,559 firm years out of which financial covenants are violated in 11% of the cases (or 7,163 violations). Consistent with the idea that LDRs reflect the exercise of creditor control rights, we find that the frequency of covenant violations is relatively larger during periods of LDRs (20%, or 326 cases). While untabulated, we find that the higher frequency of covenant violations among LDR firms also obtains in a multi-variate setting.

[8] For a detailed explanation of the estimation procedure, see page 136 of Khan and Watts (2009).

[9] Note that costs are recorded with negative values.

3.3 Sources and uses of funds

As discussed above, our investigation of LDRs is driven by the implicit assumption that investment financing considerations do not drive the capital structure rebalancing. To verify this assumption, we decompose the firm's cash flow statement identity as follows:

$$Nei + Ndi + Ocf + Oth = \underbrace{(Ch - Ivstch)}_{\Delta Cash} + Inv \tag{7}$$

where Ocf is operating cash flow, Oth are other (generally small) financing cash flows, $\Delta Cash$ is change of the firm's cash holdings (either a change in physical cash holdings Ch, or a change in short-term marketable securities ($-Ivstch$) and Inv is total net investment outlays. All variables are scaled by the book value of total assets (the exact variable definitions using Compustat mnemonics are given in Table 2 below).

Panel A of Table 5 displays sources and uses of funds for firms performing a capital structure rebalancing and all other net equity issuers. Focusing first on LDR firms, we can see that the net equity issue is large and, on average, equal to 36% of book assets. These funds are used to retire debt for 18% of book assets and cover negative operating cash flows of 15%. Reassuringly, the items on the right-hand side of Eq. (7) are relatively small. The LDR firm draws down cash (2%) and invests for 6% of book assets. The remaining net equity issuers (NEI^0) are only similar with regards to the average size of the net equity issue (which equals 35% of assets). Contrary to LDR firms, operating cash flows are more negative (24%) and, more importantly, these firms also raise some debt (6%) and invest significantly (13%).

Panel B shows that the difference between LDR and NEI^0 firms becomes even more apparent when constraining the sample to firms exhibiting high financial reporting conservatism. To be precise, using the previously estimated $Cscore$, we assign firms into quintiles and define them as *conservative* in case their $Cscore$ is placed in the the upper two quintiles of the underlying distribution.[10] Conservative LDR firms issue equity for 43% of assets and draw-down cash for 8%. These funds are used to retire debt (21%) and cover cash flow shortfalls (28%). Importantly, investment of those firms is small (2%). Again, this is different from all other net equity issuers which raise equity for 38% and debt for 8%. The generated cash covers negative operating cash flows (37%) and corporate investment outlays (10%).[11]

[10] Using quintiles is an ad-hoc decision and the Appendix contains robustness checks using alternative cutoff points.

[11] In untabulated results, we have also performed a high leverage classification (which we define as those in the upper two quintiles of the lagged market leverage ratio distribution of the full sample of firms). In this case, the net debt retirement

Finally, Panel C decomposes the cash flow identity for firms violating financial covenants. LDR firms use the equity issue proceeds (28%) to retire debt (17%) and cover cash flow shortfalls (12%). Net investment is again small and equals 2% of assets. As before, the picture is different for all other net equity issuers. They raise 24% of assets through net equity issues and another 8% from the net sale of debt, both of which are used to cover cash flow shortfalls (20%) and investment (12%).

Taken together, two findings are important for our analysis. First, LDR firms invest significantly less than all other net equity issuers (across all three samples). Second, investment of LDR firms is also low on an absolute basis, in particular for the subsamples with high financial reporting conservatism or those violating financial covenants. These patterns make it unlikely that the optimal exercise of growth options is behind the decision to undertake the LDR (Carlson et al., 2004, 2006, 2010). The absence of high investment outlays for our LDRs is thus reassuring as it reduces the potential noise (on valuation measures) stemming from the simultaneous exercise of growth options.

4 Do LDRs exhibit market timing patterns?

We now explore whether LDRs exhibit market timing patterns. To ensure comparability to existing studies, we investigate both dynamics in the market-to-book ratio as well as stock returns. The former has the advantage of reflecting firm value and should therefore not be mechanically affected by the rebalancing. The latter in turn allows us to specifically control for leverage and other risk factors known to impact stock returns.

4.1 Dynamics in market-to-book ratios

4.1.1 Methodology

We use a fundamental valuation model that was first applied by Fama and French (1998) in the context of dividend payments and later employed when estimating the market value of corporate cash holdings (Pinkowitz and Williamson, 2004; Pinkowitz et al., 2006; Kisser, 2013). The model decomposes levered firm value (V^L) into the value of the firm's unlevered assets (V_U) and the net financing benefit associated

almost exactly offsets the net equity issue for LDR firms (19% and 22%, respectively). The remaining items of cash flow identity are small and net investment equals 4%. On the other hand, all other net equity issuers with high leverage issue both equity and debt (for 17% and 10% respectively) and use these funds for investment purposes (16%) and cash flow shortfalls (9%).

with debt financing (γD):

$$V^L = \underbrace{V_A + V_G}_{V_U} + \gamma D$$

where unlevered firm value consists of both assets in place (V_A) and growth options (V_G). Using the book value of assets (A) as an approximation for the value of assets in place, leads to the following regression specification

$$V^L - A = \alpha + \beta V_G + \gamma D + \epsilon$$

To implement the estimation, one needs to control for the value of growth opportunities. Therefore (levels and changes of) operating profits ($prof$), R&D expenses (rd) and capital expenditures ($capex$) are included as additional control variables. All variables are standardized by book assets and we further decompose leverage (D/A) into the lagged leverage ratio and indicator variables denoting a LDR, NEI^0 or NDR^0:

$$\begin{aligned} Q_t^E &= \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \\ &\quad \gamma BL_{t-1} + \delta^L LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t \end{aligned} \tag{8}$$

where Q_t^E is $(V_t^L - A_t)/A_t$ and the compact notation dX_t (dX_{t+v}) denotes the lagged one year (future v-year) change in the variable of interest ($prof$, rd or $capex$).[12] Relatedly, we also investigate whether the period of the LDR is followed by a decrease in valuation ratios

$$\begin{aligned} \Delta Q_t^E &= \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \\ &\quad \gamma BL_{t-1} + \delta^\Delta LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t \end{aligned} \tag{9}$$

where $\Delta Q_t^E = Q_{t+1}^E - Q_t^E$.

[12] Specifically, $dX_t = (X_t - X_{t-v})/A_t$ and $dX_{t+v} = (X_{t+v} - X_t)/A_t$. Using a two-year future change is in line with evidence that two years is as far ahead as the market can predict (Fama, 1990; Fama and French, 1998).

Taken together, the coefficient estimates δ^L (level regression) and δ^Δ (changes regression) allow us to test the previously presented hypotheses of the paper. That is, for all three hypotheses we do not expect to find valuation patterns that are consistent with a market timing interpretation ([H1-H3:] $\delta^L \leq 0$ and $\delta^\Delta \geq 0$).

4.1.2 All LDRs (H1)

Table 6 displays correlation estimates between LDRs and the adjusted market-to-book ratio. Specifically, columns 1 to 3 test whether LDRs occur during periods of high valuations and present estimates of equation 8. Next, columns 4 to 6 investigate whether valuations decrease following the LDR (equation 9). To maximize sample size, we focus on one-year future changes in the control variables ($v = 1$).[13] Results are provided using OLS regression (columns 1 and 4), accounting for firm-fixed effects (columns 2 and 5) as well as cross-sectional regressions in columns 3 and 6 (Fama and MacBeth, 1973). While Fama-MacBeth regressions have the advantage that they identify the average cross-sectional effect, they come with the drawback of relatively little test power when applied to yearly data.

Focusing on the coefficient of the LDR indicator variable in column 1, we can see that the existence of a LDR increases excess Q by 0.62 units. In other words, this suggests that firms undertaking a leverage decreasing recapitalization have a market-to-book ratio that is approximately 0.6 units higher than for the average sample firm. Moreover, the coefficient is highly statistically significant and robust to alternative estimation methods including the presence of firm fixed effects (column 2) or FMB regressions (column 3). For all other net equity issues (NEI^0) the effect is even stronger, while for net debt retirements (other than LDRs) the effect is either slightly negative or statistically insignificant from zero.

Investigating the period after the LDR, columns 4 to 6 provide strong evidence that the transaction is followed by a decrease in valuation ratios. Independent of the estimation method (OLS, FE, FMB) we find that excess Q decreases by 0.16 to 0.2 units. The pattern is again similar for all other net equity issues, whereas valuation ratios increase for all other net debt retirements.

Also interesting, the coefficient estimate of operating profitability ($Prof$) shows that more profitable firms have lower excess market-to-book ratios. In other words, the negative correlation implies that low profitability firms on average have higher valuations, which is consistent with characteristics of high

[13] Appendix Table 1 shows that the the pattern is similar when investigating the subsequent two-year (instead of one year) period.

market-to-book firms (Fama and French, 1992; Novy-Marx, 2013). In addition, the correlation with lagged leverage is negative. The latter estimate reflects extant evidence that leverage is positively related to firms with a higher fraction of pledgeable assets (Titman and Wessels, 1988; Rajan and Zingales, 1995; Frank and Goyal, 2009).

Finally, Appendix Table 2 shows that similar findings also obtain for the subsample of public LDRs: valuation peaks in the year of the LDR and drops subsequently. Taken together, our results are inconsistent with H1 as the documented pattern in market-to-book ratios does not allow us to reject a market timing interpretation.

4.1.3 LDRs during periods of high financial reporting conservatism (H2)

The descriptive evidence presented above shows that the average investment of LDR firms reporting conservative financial statements is zero. Hypothesis 2 builds on the link between creditor control and financial reporting conservatism and postulates that LDRs of firms with high financial reporting conservatism are not driven by market timing and should therefore not exhibit valuation dynamics that are consistent with a market timing interpretation.

Table 7 displays corresponding results when estimating equations 8 and 9 for firms reporting conservative financial statements. Columns 1 to 3 display estimates of the level regression, whereas columns 4 to 6 correspond to the changes regression. Focusing on the level regression, all three estimation methods produce positive and statistically signifcant estimates suggesting that LDRs of firms exhibiting a high level of financial reporting conservatism occur during periods of high market-to-book ratios. Moreover, the LDR is followed by a significant decrease in the valuation ratio.[14]

Appendix Table 3 shows that the same finding obtains in case one focuses directly on high leverage firms (as opposed to firms with high financial reporting conservatism). Of course, the similar findings reflect the established link between creditor control and leverage (Tan, 2013). Finally, Appendix Table 4 alternatively classifies firms as conservative by focusing on observations where the estimated $Cscore$ is placed in the upper tercile of the total $Cscore$ distribution. Results are again similar. Taken together, our findings suggest that LDRs which are likely triggered by creditors exercising control rights exhibit dynamics in market-to-book ratios which do not allow us to reject a theory of market timing.

[14]In columns 4 and 5, the coefficient estimates are significant at the 1% level whereas the estimate is negative but insignificant for the FMB regression. This, of course, reflects the smaller sample size and the corresponding decrease in power due to the use of annual data.

4.1.4 LDRs of covenant violating firms (H3)

Hypothesis 3 employs a directly observable measure of creditor control, namely the violation of financial covenants. Table 8 is therefore based on (the above presented) subsample of firms, which are successfully merged with the covenant violations database from Becher, Griffin, and Nini (2018). Columns (1) to (3) employ Q^E as the dependent variable and show that the cross-sectional correlation between LDRs and valuation also persists among firms that violate financial covenants. These findings are robust to using OLS, FE or FMB regressions. Columns (4) to (6) investigate the impact of the LDR on the subsequent change in excess Q. All three coefficient estimates are negative and statistically significant.

4.2 Dynamics in stock returns

To explore stock return dynamics, we merge our annual sample of 140,067 firm-years with the CRSP database. Finally, monthly market returns, risk-free rates and returns of the book-to-market, size, investment and profitability factors are obtained from Ken French's data library. The merge with CRSP only marginally reduces sample size from 13,799 to 13,712 firms and results in 1,545,968 monthly observations.

Figure 2 visualizes the stock return performance of firms rebalancing capital structure surrounding the LDR. Returns include capital gains and dividends and are adjusted relative to the market return ($r_i - r_m$). Panel A displays the corresponding return index (standardized to one thirteen months ahead of the LDR) until one month prior to the reporting date (which we refer to as the *runup* period). Panel B shows the return index, now standardized to one in the month of the reporting date, for a subsequent twelve month period (referred to as the *post* LDR period). These return indices are shown for the full sample of LDRs, as well as only those reporting conservatively or violating financial covenants. Focusing first on the runup period, we can see significant market-adjusted returns for all types of LDRs which equal 30% for for the full sample of LDRs, 18% (conservative reporting) and 31% (covenant violations). In the post LDR period, returns are flat and close to zero for all LDRs (2.4%) and -1.3% (covenant violations). For conservative LDR firms, the abnormal return is higher (8.6%) (though most of the abnormal return stems from the first month following the LDR).

While these patterns are consistent with the results of the previous section, the use of monthly stock returns allows us to further refine the event window. Figure 3 shows market-adjusted returns for the

subsample of public LDRs. Here, whenever possible, we replace the financial reporting date of the LDR with the filing date of the underlying public equity issue.[15] The resulting return patterns become even more pronounced: run-up returns are high across all three samples (ranging between 38% and 67%) and they are followed by negative returns during the post LDR period (ranging between -3% to -17%).

Below, we investigate whether exposure to systematic risk factors and firm characteristics explains these return dynamics.

4.2.1 Methodology

We estimate standard cross-sectional return regressions (Fama and MacBeth, 1973; Fama and French, 1992; Butler et al., 2011; Novy-Marx, 2013) to investigate whether abnormal returns exist before or after a LDR.

To detect whether there is a stock-price run-up prior to the rebalancing, we estimate

$$(r_{i,t-s} - r_{f,t-s}) = c + \beta^R LDR_{i,t} + \gamma_1 NEI^0_{i,t} + \gamma_2 NDR^0_{i,t} + \delta X_{i,t-12} + \epsilon_{i,t-s} \tag{10}$$

where t denotes the month of the LDR, NEI^0 or NDR^0, $(r_{i,t-s} - r_{f,t-s})$ is the firm's total return in excess of the risk-free rate during month $t-s$ (where $s \in (12, 1)$ and thus measures the stock-price performance during a twelve months run-up period). Finally, c is the regression intercept and X denotes a set of control variables (measured in the year preceding the financing decision) which includes book-to-market (precisely its logarithm), size (logarithm of total market value of equity), two momentum factors, profitability, asset growth, R&D expenses, lagged market leverage (month $t-24$) and its change (from $t-4$ to $t-12$).

Relatedly, to investigate the post LDR performance we estimate

$$(r_{i,t+s} - r_{f,t+s}) = c + \beta^P LDR_{i,t} + \gamma_1 NEI^0_{i,t} + \gamma_1 NDR^0_{i,t} + \delta X_{i,t} + \epsilon_{i,t+s} \tag{11}$$

where the only difference to equation 10 concerns the timing of the returns and control variables which are now measured (up to) twelve months following the capital structure rebalancing.

Taken together, the coefficient estimates β^R (run-up regression) and β^P (post return regression) allow

[15] The filing date is available in 1,072 of 1,460 public LDRs. For the remaining 388 public LDRs we continue to use the financial reporting date as event date zero.

us to test the previously presented hypotheses of the paper. That is, for all three hypotheses we do not expect to find valuation patterns that are consistent with a market timing interpretation ([H1-H3:] $\beta^R \leq 0$ and $\beta^P \geq 0$).

4.2.2 All LDRs (H1)

Columns 1 and 2 of Panel A in Table 9 show results of the stock price run-up regression for the full sample of 1,584,868 firm-months. Column 1 displays coefficient estimates when regressing monthly excess returns on a constant and three indicator variables denoting the presence of a LDR, all other net equity issues and net debt retirements (all measured in the following year). The average monthly stock price run-up equals 1.3 percentage points (pp) in case a firm performs a LDR in the following year. This effect is slightly smaller than for all other net equity issues (1.9 pp), whereas the effect of future net debt retirements is insignificant. Column 2 accounts for control variables used in the extant literature and shows that - after controlling for book-to-market, size, momentum, profitability, investment, R&D and leverage - the effect of the LDR remains econmically and statistically significant. The average monthly run-up equals 1.7 pp.

Panel B evaluates the subsequent stock price performance and reveals negative monthly returns of 0.4-0.6 pp for LDR firms. For the full model (column 2), the effect is as large as for all other net equity issues. Again, it differs from the performance of all other net debt retirements which, on average, increase future monthly stock returns by 0.2 percentage points.

4.2.3 LDRs during periods of high financial reporting conservatism (H2)

Columns 3 and 4 of Table 9 displays the stock price run-up (Panel A) and subsequent return regressions (Panel B) for firms exhibiting high financial reporting conservatism. Results are similar. Run-ups are positive prior to the LDR and monthly returns increase by 1 pp (full model), on average. Following the LDR, returns decrease by 0.5 to 0.7 pp. Note that, in both cases (run-up and subsequent returns), the magnitude of the economic effect is similar to those of traditional net equity issues.

4.2.4 LDRs of covenant violating firms (H3)

Finally, columns 5 and 6 of Table 9 displays the stock price run-up (Panel A) and subsequent return regressions (Panel B) for firms violating financing covenants. Run-ups are positive, highly statistically significant and large in economic magnitude (1.8 -2.8 pp), dwarfing even the run-up effect of regular equity

issues. Turning to the subsequent return analysis in Panel B, LDRs are followed by negative returns. Similar to columns 3 and 4, the effect is only statistically significant in the full model (column 6).

4.2.5 Robustness

Appendix Table 5 further distinguishes between public and private LDRs. Results of the cross-sectional return regressions suggest that the stock price run-up is particularly strong for LDRs that are financed by a public equity issue. While the pattern persists across all six tests of H1-H3, the findings are most notable among LDR firms violating financial covenants. In this case, the monthly excess return for public LDRs is a statistically significant 3.4 percentage points, while the effect is negative (and insignificant) for LDRs financed by a private equity issue. Ex-post, stock returns of public LDRs are negative (statistically significant in four out of 6 cases).

Appendix Table 6 complements the analysis of public LDR firms by forming portfolios and then evaluating those returns relative to different empirical asset pricing models (Sharpe, 1964; Fama and French, 2015). Portfolio returns are value-weighted and the coefficient of interest is the abnormal return (α), estimated as follows

$$r_t^{PF} - r_{f,t} = \alpha^j + \beta\left(r_{m,t} - r_{f,t}\right) + \gamma_1 SMB_t + \gamma_2 HML_t + \gamma_3 INV_t + \gamma_4 PROF_t + \epsilon_t \tag{12}$$

where $j = (R, P)$. Panel A presents abnormal run-up returns (α^R) for the year prior to the filing date (if available) or the financial reporting date of the public equity issue underlying the LDR. Panel B presents post-LDR abnormal returns (α^P) for the year following the filing date (if available) or the financing reporting date of the public equity issue underlying the LDR. H1-3 predict that $\alpha^R \leq 0$ and $\alpha^P \geq 0$. Columns 1 and 2 present results when the underlying portfolio is long the full sample of public LDR firms. Columns 3-4 (5-6) when the underlying portfolio is long all public LDR firms exhibiting high financial reporting conservatism (violating financial covenants) and short all firms exhibiting financial reporting conservatism (violating financial covenants) that do not engage in a public LDR or its individual components.

In Panel A, abnormal run-up returns for all public LDR firms are large, positive and statistically significant both relative to the capital asset pricing model (CAPM) and the Fama-French five factor (FF5) model (Sharpe, 1964; Fama and French, 2015). Turning to the post LDR period (Panel B), returns

are negative and statistically significant under FF5.[16] Results are similar for public LDR firms exhibiting high financial reporting conservatism (all four coefficient estimates are statistically significant). For public LDR firms the run-up is again large and statistically significant, whereas abnormal returns in the post LDR period are statistically indifferent from zero.

5 Is it market timing? Evidence from discretionary costs and pro-forma cash holdings

The valuation patterns presented in Section 4 are robust. LDR firms are subject to significant stock price run-ups. After the LDR, stock returns turn negative. Also, there is a substantial drop in valuation ratios after the capital structure rebalancing. These findings are further robust to controlling for leverage and other risk factors. While the additional absence of significant investment financing makes it unlikely that the patterns can be attributed to the exercise of growth options (Carlson et al., 2004, 2006, 2010), it is still possible that the magnitude of cash flow shortfalls leaves the LDR firm no other choice but to rely on external funding.

Relatedly, DeAngelo et al. (2010) show that the average SEO firm would run out-of cash without the underlying equity issue. We explore whether this is equally relevant for our sample of LDRs by computing pro-forma cash holdings of firms performing LDRs. The underlying intuition is to start with the available cash at the beginning of the LDR period and then deduct any cash outlays the firm needs to cover during the year. We further single out R&D and advertising expenditures from operating cash flow in order to account for the empirical fact that management views them as discretionary costs they may be willing to reduce if necessary (Graham et al., 2005; Roychowdhury, 2006; Cohen and Zarowin, 2010).

Table 10 computes different measures of pro-forma cash holdings for firms performing LDRs, as well as all other net equity issues (NEI^0) and all other net debt retirements (NDR^0). Panel A shows corresponding values for all firms performing any of the three financing decisions. Column 1 reveals that average lagged cash holdings of LDR firms equal 21% of current book assets. To deal with the discretionary (and endogenous nature) of long-term debt retirement, we instead account for non-discretionary short-term debt financing cash flows. Column 2 shows that LDR firms retire short-term debt for 4% of book assets.

[16] Under the CAPM, the abnormal return is on the border of statistical significance with a rounded t-statistics of -1.96 (rounded p-value of 0.05).

Furthermore, operating cash flow (net of discretionary cost items) of LDR firms is negative (-2%) and average net investment equals 4% of book assets. Column 5 singles out the discretionary cost items (the sum of R&D and advertising expenditures) which equal 13% in the year of the LDR. Column 6 puts this value into perspective and shows the medium value of discretionary costs of LDR firms during *quiet* periods (defined as periods when the LDR firms does not perform a LDR, a NEI^0 or a a NDR^0). The median value of these costs is 8% (which is considerably lower than the current level of 13%).

Columns 7 to 9 compute different measures of pro-forma cash holdings. Column 7 shows that cash balances of LDR firms would equal 15% after accounting for non-discretionary operating cash flow and short-term debt retirement. Further controlling for investment outlays reduces cash holdings to 10% (column 8). Finally, column 9 displays pro-forma cash balances in case the LDR firm set discretionary costs to their firm-specific median value. In that case, end of period cash would equal 2% of book assets. This differs from all other net equity issuers who would have run out of cash (-2%).

Conditioning on firms exhibiting financial reporting conservatism (Panel B) or violating financial covenants (Panel C) does not change the interpretation. Reducing discretionary costs to their firm-specific median value, LDR firms would never run out of cash and cash holdings would equal 3% (Panel B) or 5% (Panel C) of book assets. Any additional cost reduction would further increase cash holdings (up to a maximum of 10%, column 8). To put the magnitude of the pro-forma cash balances into perspective, column 10 displays actual end-of-period cash holdings. Focusing on firms performing all other net debt retirements, we can see that actual cash holdings range between 8 and 10% of book assets. Thus, NDR^0 firms violating financial covenants have similar cash holdings than LDR firms in case they had chosen to reduce (or eliminate) discretionary costs.

The findings in this section suggest that LDR firms could have reduced discretionary R&D and advertising expenditures to meet all non-discretionary cash outlays during the period. Importantly, our pro-forma cash balances do not even allow for the possibility of asset sales which represent an important source of funding for financially distressed firms (Lang et al., 1995; Edmans and Mann, 2019) and which would help avoid the wealth transfer from shareholders to bondholders that arises in response to a leverage decreasing capital structure rebalancing (Arnold et al., 2018).

Taken together, the findings in this paper are consistent with the idea that the high temporary valuation of shares aligns incentives between existing shareholders and the controlling creditor(s) as both groups benefit from the underlying equity issue: controlling creditors are repaid early while the

overvaluation of shares makes the capital structure rebalancing profitable for existing shareholders.

6 Conclusion

This paper investigates whether valuation dynamics surrounding leverage decreasing recapitalizations (LDRs) exhibit market timing patterns. The contribution of our research design is to filter out equity issues which are primarily driven by investment financing considerations and allows us to provide novel evidence on the relevance of market timing considerations.

We then demonstrate that LDRs reflect many valuation patterns that are frequently interpreted as being consistent with market timing efforts: they occur during periods of high valuations, and are followed by a subsequent decrease in valuation ratios. These findings are robust and also obtain after controlling for leverage or other risk factors, when using valuation ratios or stock returns and also persist among LDR firms exhibiting high financial reporting conservatism or those violating financial covenants.

To help with the interpretation of these valuation patterns, we compute pro-forma cash balances. Our findings suggest that a reduction in discretionary costs would allow LDR firms to cover non-discretionary operating losses, perform all actual short-term debt retirements and investment outlays. Moreover, LDR firms exhibiting high financial reporting conservatism or violating financial covenants would then end up with similar actual cash balances than benchmark firms retiring debt without a simultaneous equity issue.

Taken together, we show that LDR periods occur after stock price run-ups and in periods of high valuation which subsequently decrease. These patterns do not allow us to reject a market timing interpretation of the data. Instead, our findings are consistent with the idea that the high temporary valuation of shares aligns incentives between existing shareholders and the controlling creditor(s) as both groups benefit from the underlying equity issue: controlling creditors are repaid early while the overvaluation of shares makes the capital structure rebalancing profitable for existing shareholders.

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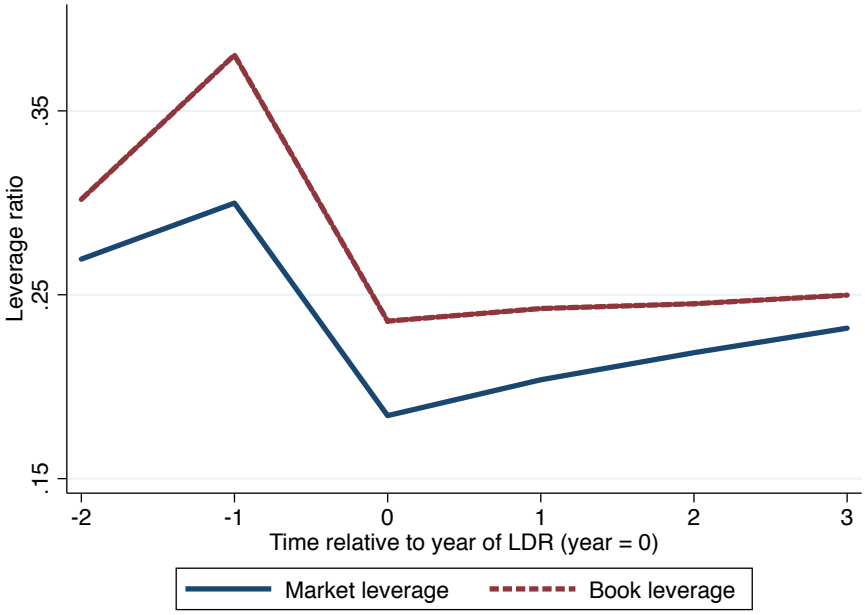
Figure 1: **Leverage dynamics surrounding the financing event**

The figure displays average leverage (market and book) surrounding the year of the leverage decreasing recapitalization (LDR, $t = 0$ in Panel A) or all other net equity issues (NEI^0, $t = 0$ in Panel B). LDRs as periods of simultaneous net equity issues (NEIs) and net debt retirements (NDRs). NEIs are common and preferred stock issues net of dividends and repurchases, NDRs are short and long term debt retirement net of debt issues, both measured in excess of 5% of book assets. Variable definitions are in Table 2. Sample of 3,952 LDRs.

A: Leverage decreasing recapitalizations (LDR)



B: All other net equity issues (NEI^0)

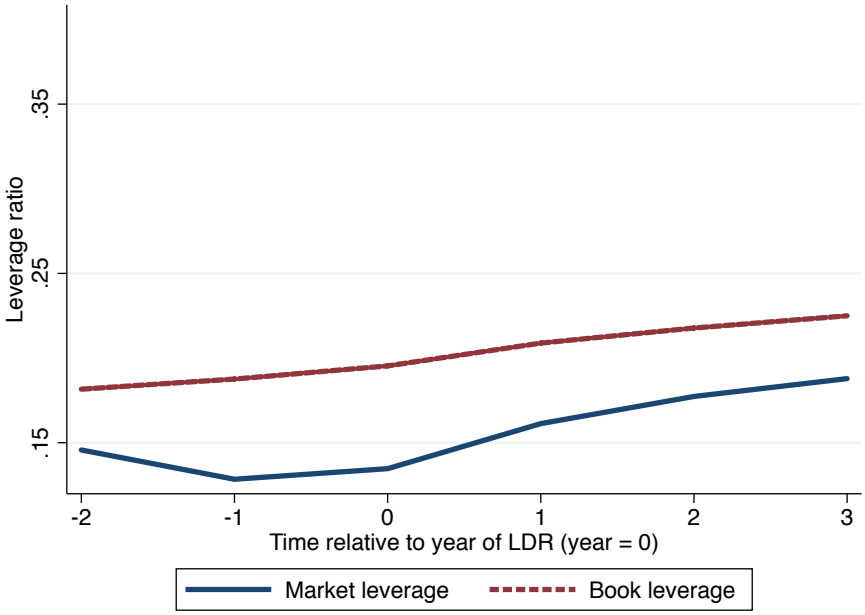
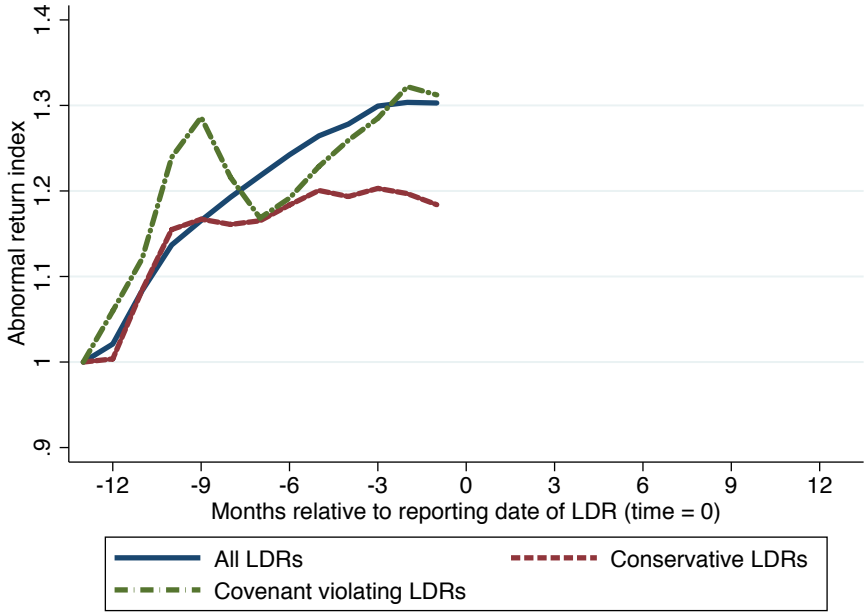


Figure 2: **Stock return dynamics of firms performing LDRs**

The figure displays market-adjusted returns of firms performing LDRs before and after reporting a LDR. Stock returns include capital gains and dividends and are measured relative to the market return. Panel A displays the value of a 1$ investment 13 months ahead of the LDR until one month prior to the reporting date (referred to as the *runup* period), Panel B displays the value of a 1$ investment in the month of the reporting date for a subsequent twelve month period (referred to as the *post* LDR period). LDRs as periods of simultaneous net equity issues (NEIs) and net debt retirements (NDRs). NEIs are common and preferred stock issues net of dividends and repurchases, NDRs are short and long term debt retirement net of debt issues, both measured in excess of 5% of book assets. Variable definitions are in Table 2. Sample of 3,332 LDRs.

A: Run-up period



B: Post LDR period

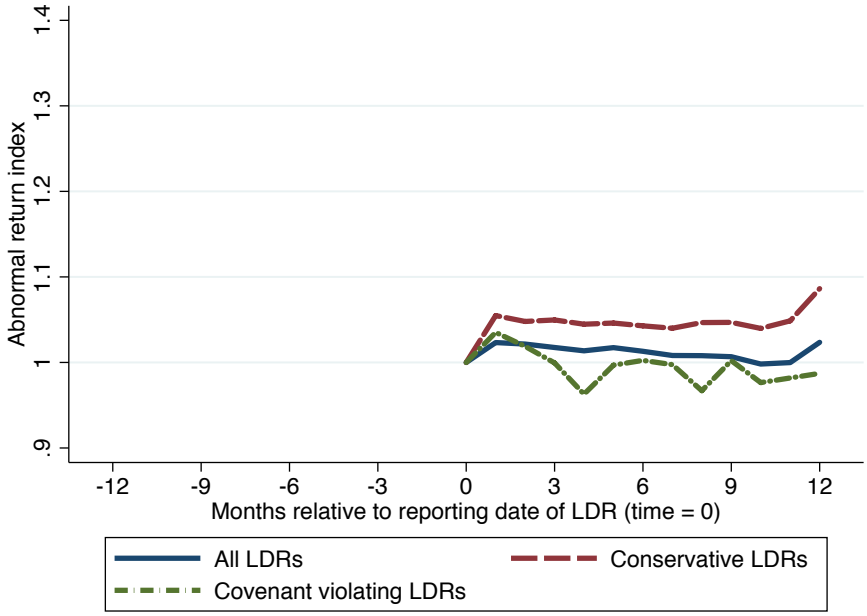
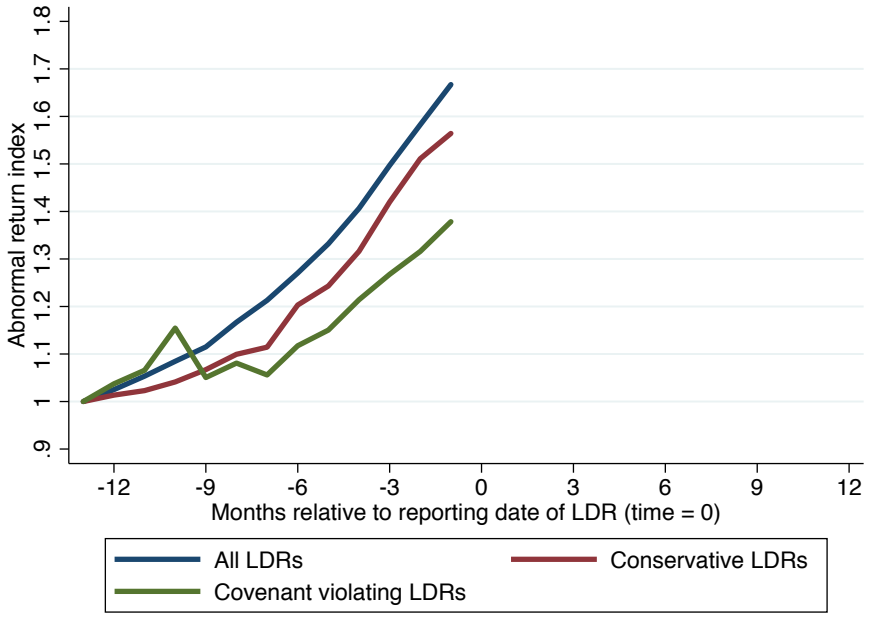


Figure 3: **Stock return dynamics of firms performing public LDRs**

The figure displays abnormal returns of firms performing public LDRs. Stock returns include capital gains and dividends and are measured relative to the market return. Panel A displays the corresponding abnormal return index (standardized to one thirteen months ahead of the public LDR) until one month prior to the reporting date (which we refer to as the *runup* period). Panel B shows the abnormal return index, now standardized to one in the month of the reporting date, for a subsequent eleven month period (referred to as the *post* LDR period). LDRs as periods of simultaneous net equity issues (NEIs) and net debt retirements (NDRs). NEIs are common and preferred stock issues net of dividends and repurchases, NDRs are short and long term debt retirement net of debt issues, both measured in excess of 5% of book assets. Public NEIs or LDRs additionally impose a simultaneous public equity issue (identified through SDC). The event window is centered at the filing date of the underlying public LDR (replaced with the financial reporting date whenever the information is missing). Sample of 1,460 public LDRs (1,072 public LDRs for which the filing date is available.

A: Run-up period



B: Post LDR period

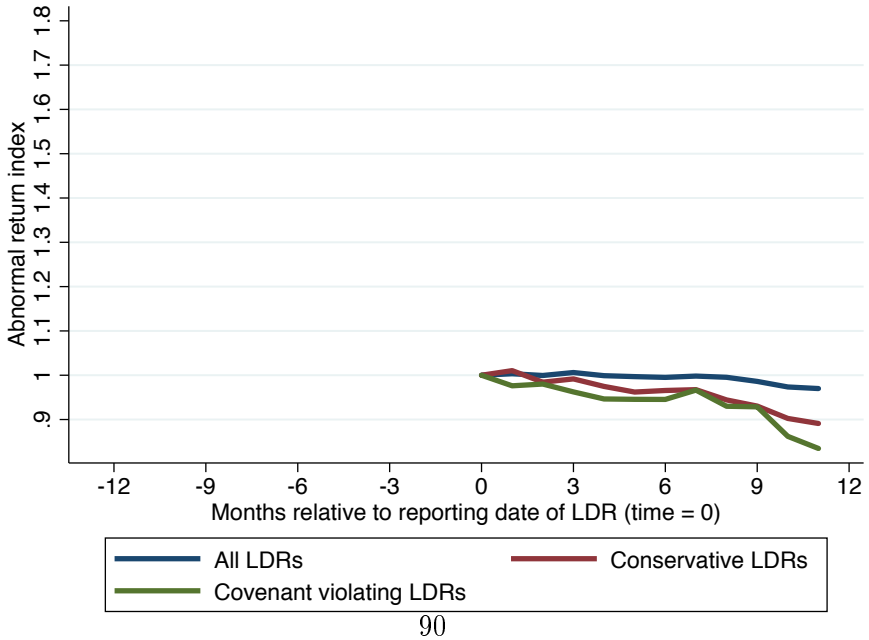


Table 1: **Sample selection**

Sample restriction	Observations	Firms
Annual CRSP/Compustat (CCM) sample, 1971-2016		
Initial CCM sample	272,438	24,419
U.S. domiciled firms only	-24,275	-2,433
Nongovernmental, industrial firms only[a]	-72,473	-5,930
No multiple annual observations	-479	-18
No missing information on book value of assets	-1,739	0
Consistent cash-flow statement data[b]	-1,472	-289
Consistent other financial statement data[c]	-3,490	-95
No missing information on lagged variables[d]	-16,867	-1,127
Merge CRSP[e] and SDC[f]	-8,831	-610
No missing information on twelve months trailing stock returns	-2,745	-118
Final Sample	140,067	13,799

[a] Eliminates utilities (SIC codes 4899-5000), financial firms (SIC codes 5999-7000), and government entities (SIC codes greater than 8999).

[b] For cash-flow data consistency, we first set missing entries for items in the cash flow statement to zero and then drop observations in case total sources or uses of funds equal zero or deviate by more than 1% from each other.

[c] For other financial statement data items, we require non-missing data on the book value of total debt, cash holdings, the market value of the firm's equity, Tobin's Q, property plant and equipment, operating profits, goodwill impairment and the logarithm of the market value of equity.

[d] We require non-missing data on market leverage.

[e] For the CRSP data file, we require availability on stock return data, that the firm is listed on the NYSE, AMEX or Nasdaq (requiring that exchange codes equal either 1, 2 or 3) and that the share code equals 10 or 11. Merging the CRSP data with the CCM database results in 1,708,003 firm-months for 13,922 different firms.

[f] For the SDC Global Issues Data, we define a public equity issue to take place in case the security type registered in the SDC Global Issue Database equals "Class A Ord Shs", "Class A Shares", "Class B Ord Shs", "Class B Pfd Stk", "Class B Shares", "Class D Shares", "Common R-Series", "Common Shares", "Ord/Common Shs.", "Ordinary Shares", "Pfd Stk,Com Stk", "Preference Shs" or "Preferred Shs ". Merging the monthly CRSP/CCM database with SDC identifies 17,377 monthly public equity issues. Retaining one observation for each fiscal year, the merged sample identifies 142,812 firm-years, 13,917 firms and 12,731 public equity issues.

Table 2: **Variable construction using database mnemonics**

The table displays the definition of the variables employed in this paper using the original database mnemonics. Panel A refers to the Crisp/Compusted merged database (CCM), Panel B to CRSP and Panel C to the data library of Kenneth French.

Variable Name	Description
A: Compustat variables	
L	*Market leverage*: (dlcc + dlt)/(prcc_f*csho + dlcc + dlt)
BL	*Book leverage*: (dlcc + dlt)/at
E	*Book equity*: (seq + txditc + pstkr)/at
Nei	*Net equity issue*: (sstk - dv - prstkc)/at
Nei	*Net debt issue*: (dltis - dltr + dlcch)/at
Oth	*Other financing cash flow*: (fiao + txbcof)/at
Ocf	*Operating cash flow*: (oancf + exre)/at
Ch	*Change in physical cash*: chech/at
$Ivstch$	*Change in short-term investments*: -ivstch/at
Inv	*Net investment*: (capx + aqc + ivch - siv - sppe - ivaco)/at
$C - Score$	Estimation of the variable follows Kahn and Watts (2009), see page 135
Restructuring costs	rca/seq
Goodwill impairment	gdwlia/seq
Write downs	wda/seq
Special items	spi/seq
Discontinued operations	do/seq
$Prof$	*Profitability*: (oibdp)/at
Tan	*Tangibility*: ppent/at
Q	*Tobin's Q*: (prcc_f*csho + dlcc + dlt)/at
Q^E	*Excess Q*: $Q - 1$
$R\&D$	*R&D expenditures* xrd/at
$Capex$	*Capital expenditures* capx/at
C	*Cash ratio*: che/at
CF^{SD}	*Short-term debt financing cash flow*: dlcch/at
Ocf^{ND}	*Non-discretionary operating cash flow*: (oancf + exre - xrd - xad)/at
$Cost^D$	*Discretionary cost*: (xrd + xad)/at
B: CRSP variables	
r_i	*Stock return*: ret - rf
$Mom_{12,2}$	Total return from month $s-12$ to $s-2$
$Mom_{1,0}$	Total return from month $s-1$ to s
$mcap$	*Market capitalization* (prc × shrout)/1,000
BM	*Book-to-market* E/mcap(4-months lag)
EV	*Equity value* mcap (1-months lag)
B: Ken French data library	
r_f	*risk-free rate*: rf
r_m	*market factor*: mktrf
SMB	*size factor*: smb
HML	*value factor*: hml
INV	*investment factor*: inv
$PROF$	*profitability factor*: prof

Table 3: **Yearly frequency of net equity issues and leverage decreasing recapitalizations**

The table summarizes the frequency of net equity issues (NEIs) and leverage decreasing recapitalizations (LDRs) which are defined using information from a firm's cash flow statement. NEIs are periods when common and preferred stock issues net of dividends and repurchases exceed 5% of book assets. LDRs further require a simultaneous net debt retirement (short and long term retirement net of issues, also in excess of 5% of assets). Public NEIs or LDRs additionally impose a simultaneous public equity issue (identified through SDC). Columns 1 to 5 display the number of firms, NEIs, public NEIs, LDRs and public LDRs. Columns 6 and 7 show the fraction of LDRs relative to NEIs. Exact variable definitions are in Table 2. Total sample of 13,799 firms and 140,067 firm-years.

		NEI		*LDR*		*LDR/NEI*	
Year	Firms	All	Public	All	Public	All	Public
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1972	1,596	88	52	18	7	0.20	0.13
1973	1,889	39	16	10	3	0.26	0.19
1974	2,655	38	10	7	1	0.18	0.10
1975	2,701	60	23	19	6	0.32	0.26
1976	2,519	81	44	22	14	0.27	0.32
1977	2,642	78	14	17	2	0.22	0.14
1978	2,578	107	40	20	8	0.19	0.20
1979	2,701	130	44	31	12	0.24	0.27
1980	2,852	274	128	58	29	0.21	0.23
1981	2,870	311	159	62	30	0.20	0.19
1982	3,070	280	110	46	18	0.16	0.16
1983	3,132	623	346	132	78	0.21	0.23
1984	3,338	330	78	89	19	0.27	0.24
1985	3,366	414	135	93	22	0.22	0.16
1986	3,316	531	160	143	33	0.27	0.21
1987	3,470	478	130	141	37	0.29	0.28
1988	3,525	275	53	73	12	0.27	0.23
1989	3,408	325	84	83	27	0.26	0.32
1990	3,372	319	75	84	21	0.26	0.28
1991	3,368	462	190	149	78	0.32	0.41
1992	3,362	503	192	137	60	0.27	0.31
1993	3,603	646	242	163	66	0.25	0.27
1994	3,904	581	196	115	34	0.20	0.17
1995	4,125	731	242	113	46	0.15	0.19
1996	4,306	873	334	159	67	0.18	0.20
1997	4,611	808	280	139	53	0.17	0.19
1998	4,480	690	172	118	36	0.17	0.21
1999	4,153	718	181	110	34	0.15	0.19
2000	3,983	857	250	143	31	0.17	0.12
2001	3,840	582	303	112	62	0.19	0.20
2002	3,545	444	281	122	77	0.27	0.27
2003	3,293	537	344	107	69	0.20	0.20
2004	3,147	553	391	97	63	0.18	0.16
2005	3,051	461	267	68	45	0.15	0.17
2006	2,977	430	268	56	34	0.13	0.13
2007	2,854	395	244	57	31	0.14	0.13
2008	2,809	228	140	45	29	0.20	0.21
2009	2,691	346	254	106	87	0.31	0.34
2010	2,538	302	218	52	41	0.17	0.19
2011	2,469	301	195	53	33	0.18	0.17
2012	2,407	261	193	27	20	0.10	0.10
2013	2,360	324	232	43	34	0.13	0.15
2014	2,373	333	238	41	28	0.12	0.12
2015	2,433	401	276	55	39	0.14	0.14
2016	2,385	365	244	57	37	0.16	0.15
Avg.	3,254	436	187	88	38	0.21	0.21

Table 4: **LDRs and measures of financial reporting conservatism**

The table displays measures of financial reporting conservatism for LDR firms. Specifically, it presents coefficient estimates of the generic regression

$$Cons_{i,t} = \alpha + \beta_1 LDR_{i,t} + \beta_2 NEI^0_{i,t} + \gamma_k + \eta_t + \epsilon_{i,t}$$

where $Cons$ is the measure of financial reporting conservatism introduced below, LDR and NEI^0 are indicator variables denoting a leverage decreasing recapitalization or all other net equity issues, γ_k are industry- and η_t year fixed effects. The measures of financial conservatism include a firm's $Cscore$ (column 1, Khan and Watts (2009)) and the ratios of special items (column 2), discontinued operations (column 3), restructuring costs (column 4), goodwill impairment (column 5) and write downs (column 6) to book equity. NEIs are periods when common and preferred stock issues net of dividends and repurchases exceed 5% of book assets. LDRs further require a simultaneous net debt retirement (short and long term retirement net of issues, also in excess of 5% of assets). NEI^{0}s are periods of net equity issues which are not classified as LDRs. Exact variable definitions are in Table 2. +, *, ** indicate significance at the 10%, 5% and 1% level, respectively. Total sample of 13,799 firms and 140,067 firm-years.

	$Cscore$	Special Items	Discontinued Operations	Restructuring Costs	Goodwill Impairment	Write Down
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Univariate comparison						
α	0.1333**	-0.0289**	-0.0026**	-0.0011**	-0.0019**	-0.0019**
LDR	0.0183**	-0.0259**	-0.0032**	-0.0004**	-0.0004	-0.0002
NEI^0	-0.0046**	-0.0139**	-0.0011**	-0.0001+	0.0006**	0.0003**
Year	no	no	no	no	no	no
Industry	no	no	no	no	no	no
R^2	0.00	0.00	0.00	0.00	0.00	0.00
N	140,067	140,067	140,067	140,067	140,067	140,067
Panel B: Multivariate comparison						
α	0.0984**	-0.0226	-0.0082**	-0.0004	-0.001	0.0012**
LDR	0.0116**	-0.0218**	-0.0034**	-0.0004**	-0.0006*	-0.0003
NEI^0	-0.0044**	-0.0082**	-0.0019**	0	0.0004**	0.0005**
Year	yes	yes	yes	yes	yes	yes
Industry	yes	yes	yes	yes	yes	yes
R^2	0.15	0.02	0.00	0.07	0.06	0.11
N	140,067	140,067	140,067	140,067	140,067	140,067

Table 5: **Sources and uses of funds of firms undertaking LDRs**

The table displays components of a firm's cash flow identity conditional on either a leverage decreasing recapitalization (LDR) or all other net equity issues (NEI^0). In Panel A, the two financing decisions are drawn from the full sample of firms, in Panel B from firms exhibiting high financial reporting conservatism and in Panel C from those violating financial covenants. Specifically, the table decomposes a firm's cash flow identity as follows:

$$Nei + Ndi + Ocf + Oth = \underbrace{(Ch - Ivstch)}_{\Delta \text{ Cash}} + Inv$$

where Ocf is operating cash flow, Oth are other (generally small) financing cash flows, ΔC is change of the firm's cash holdings (either a change in physical cash holdings Ch, or a change in short-term marketable securities ($-Ivstch$) and Inv is total net investment outlays. NEIs are periods when common and preferred stock issues net of dividends and repurchases exceed 5% of book assets. LDRs further require a simultaneous net debt retirement (short and long term retirement net of issues, also in excess of 5% of assets). NEI^{0}s are periods of net equity issues which are not classified as LDRs. The $Cscore$ is computed as in Table 4 and high conservatism firms are defined as those being in the two upper quintiles of the $Cscore$ distribution for the full sample of firms. All variables are scaled by the book value of total assets. Exact variable definitions using Compustat mnemonics are in Table 2 below. Sample period 1972-2016.

	Nei	Ndi	Ocf	Oth	ΔC	Inv	Obs
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Full sample							
LDR	0.36	-0.18	-0.15	0.00	-0.02	0.06	3,592
NEIÔ^	0.35	0.06	-0.24	0.00	0.04	0.13	14,321
Panel B: High financial reporting conservatism							
LDR	0.43	-0.21	-0.28	0.00	-0.08	0.02	1,570
NEIÔ^	0.38	0.08	-0.37	0.00	-0.01	0.10	5,505
Panel C: Covenant violations							
LDR	0.28	-0.17	-0.12	0.00	-0.02	0.02	326
NEIÔ^	0.24	0.08	-0.20	0.00	0.00	0.12	769

Table 6: **(H1) LDRs and dynamics in market-to-book ratios**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). Hypothesis H1 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues net equity and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2 in the paper. *, ** indicate significance at the 5% and 1% level, respectively. Total sample of 13,799 firms and 140,067 firm-years.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.516**	-0.153	-0.185	0.103**	0.124**	0.028
	(0.056)	(0.095)	(0.285)	(0.034)	(0.032)	(0.104)
$R\&D$	4.529**	4.721**	5.501**	0.219**	0.169**	-0.084
	(0.098)	(0.202)	(0.222)	(0.065)	(0.065)	(0.179)
$Capex$	1.821**	2.554**	1.806**	-0.508**	-0.807**	-0.521**
	(0.072)	(0.134)	(0.168)	(0.045)	(0.052)	(0.091)
BL	-0.602**	-0.288**	-0.545**	0.173**	0.177**	0.160**
	(0.024)	(0.048)	(0.060)	(0.014)	(0.016)	(0.034)
LDR	**0.616****	**0.467****	**0.608****	**-0.199****	**-0.200****	**-0.161****
	(0.034)	(0.029)	(0.050)	(0.023)	(0.023)	(0.031)
NEI^0	0.974**	0.718**	0.895**	-0.303**	-0.309**	-0.228**
	(0.022)	(0.022)	(0.047)	(0.014)	(0.014)	(0.032)
NDR^0	-0.033**	-0.005	-0.025	0.023**	0.025**	0.017
	(0.010)	(0.009)	(0.015)	(0.006)	(0.006)	(0.009)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	3,057	3,057	3,057	3,057	3,057	3,057
R^2	0.32	0.17	0.29	0.10	0.10	0.04
N	124,408	124,408	124,408	124,408	124,408	124,408

Table 7: **(H2) LDRs, financial reporting conservatism and dynamics in market-to-book ratios**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). The regression is estimated for the subsample of firms exhibiting high financial reporting conservatism (defined as firms for which the estimated $Cscore$ value is placed in the upper two quintiles of the $Cscore$ distribution of the entire sample). Hypothesis H2 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$ for those firms. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues net equity and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-1.272**	-0.534**	-1.268**	0.004	0.091*	-0.008
	(0.078)	(0.042)	(0.121)	(0.055)	(0.042)	(0.060)
$R\&D$	2.709**	2.927**	2.897**	0.256*	0.194	0.498
	(0.136)	(0.116)	(0.535)	(0.103)	(0.115)	(0.291)
$Capex$	1.376**	1.672**	1.376**	-0.162*	-0.863**	-0.171
	(0.090)	(0.114)	(0.158)	(0.069)	(0.114)	(0.108)
BL	0.419**	0.473**	0.483	-0.054*	-0.121**	-0.277*
	(0.034)	(0.034)	(0.286)	(0.022)	(0.034)	(0.124)
LDR	**0.380****	**0.268****	**0.298**	**-0.083***	**-0.095****	**-0.102**
	(0.052)	(0.028)	(0.163)	(0.039)	(0.028)	(0.064)
NEI^0	0.485**	0.367**	0.190	-0.125**	-0.131**	-0.143
	(0.030)	(0.017)	(0.200)	(0.024)	(0.017)	(0.127)
NDR^0	-0.060**	-0.053**	-0.081**	0.042**	0.044**	0.050**
	(0.010)	(0.012)	(0.022)	(0.009)	(0.012)	(0.018)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	1,257	1,257	1,257	1,257	1,257	1,257
R^2	0.38	0.19	0.30	0.07	0.08	0.02
N	35,196	35,196	35,196	35,196	35,196	35,196

Table 8: **(H3) LDRs, covenant violations and dynamics in market-to-book ratios**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). Hypothesis H3 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$ for the subsample of firms violating financial covenants. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues public equity (net of dividends and share repurchases) and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively. Total sample of 13,799 firms and 140,067 firm-years.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.621*	-0.369	-0.179	0.109	0.074	0.072
	(0.260)	(0.290)	(0.264)	(0.213)	(0.230)	(0.248)
$R\&D$	3.984**	4.233**	4.071**	0.517	0.387	0.441
	(0.361)	(0.437)	(0.425)	(0.333)	(0.362)	(0.413)
$Capex$	1.691**	1.822**	1.634**	-0.206	-0.349	0.171
	(0.287)	(0.370)	(0.408)	(0.262)	(0.306)	(0.418)
BL	0.021	-0.047	0.003	-0.003	0.002	-0.006
	(0.094)	(0.119)	(0.095)	(0.081)	(0.098)	(0.086)
LDR	**0.539****	**0.515****	**0.501****	**-0.277****	**-0.308****	**-0.311***
	(0.124)	(0.116)	(0.129)	(0.101)	(0.097)	(0.125)
NEI^0	0.683**	0.550**	0.660**	-0.379**	-0.376**	-0.317**
	(0.083)	(0.077)	(0.072)	(0.076)	(0.076)	(0.087)
NDR^0	-0.068*	-0.028	-0.037	0.074*	0.056	0.019
	(0.030)	(0.026)	(0.030)	(0.031)	(0.031)	(0.043)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	206	206	206	206	206	206
R^2	0.28	0.16	0.25	0.13	0.15	0.08
N	4,704	4,704	4,704	4,704	4,704	4,704

Table 9: **(H1-H3) LDRs and stock returns: cross-sectional evidence**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and stock returns and is based on the following cross-sectional regressions

$$\text{[runup]} \quad r_{i,t-s} - r_{f,t-s} = c + \beta^R LDR_{i,t} + \gamma_1 NEI^0_{i,t} + \gamma_2 NDR^0_{i,t} + \delta X_{i,t-12} + \epsilon_{i,t-s}$$

$$\text{[post]} \quad r_{i,t+s} - r_{f,t+s} = c + \beta^P LDR_{i,t} + \gamma_1 NEI^0_{i,t} + \gamma_1 NDR^0_{i,t} + \delta X_{i,t} + \epsilon_{i,t+s}$$

where t denotes the month (of the financial reporting date) of the LDR, NEI^0 or NDR^0. The subscript s captures the event period around which return effects are estimated and ranges between one and twelve months. In the run-up regression (Panel A), returns are estimated over the twelve months period prior to the financing decision ($-s < 0$) and in the post-regression returns are estimated over the twelve months following the financing decision ($s > 0$). Finally, $(r_{i,t} - r_{f,t})$ is the firm's total return in excess of the risk-free rate during month t, c is the regression intercept and X denotes a set of control variables which includes book-to-market (precisely its logarithm), size (logarithm of total market value of equity), two momentum factors, profitability, asset growth, R&D expenses, lagged market leverage (of the previous fiscal year) and its change (to the current fiscal year). Columns 1-2 present results for the full sample (H1), columns 3-4 for firms exhibiting high financial reporting conservatism (H2) and columns 5-6 for firms violating financial covenants. Hypotheses H1-3 predict that $\beta^R \leq 0$ and $\beta^P \geq 0$. Variable definitions are in Table 2. Total sample of 13,712 firms and 1,584,868 firm-months.

	H1		H2		H3	
	(1)	(2)	(3)	(4)	(5)	(6)
A: Stock price run-up						
LDR	**0.013****	**0.017****	**0.006**	**0.010****	**0.018***	**0.028****
NEI^0	0.019**	0.021**	0.009**	0.012**	0.009	0.008
NDR^0	-0.002	-0.000	-0.001	-0.004*	-0.003	-0.001
$log(BM)$		0.006**		0.008**		0.006**
$log(EV)$		-0.001**		-0.012**		-0.003*
$Mom_{12,2}$		-0.001		-0.014**		-0.016*
$Mom_{1,0}$		-0.063**		-0.096**		-0.057**
$Prof$		0.027**		0.027**		0.025
ga		-0.003**		-0.003		-0.009
$R\&D$		0.057**		0.055**		0.032
$L(lag)$		-0.005**		0.013**		-0.017
ΔL		-0.030**		-0.012**		-0.009
LDRs	24,052	34,189	9,770	14,865	2,100	2,100
$R2$	0.001	0.002	0.000	0.006	0.001	0.003
N	1,584,868	1,580,469	574,557	574,546	68,817	68,817
B: Post event performance						
LDR	**-0.004***	**-0.006****	**-0.005**	**-0.007****	**-0.004**	**-0.013****
NEI^0	-0.009**	-0.006**	-0.009**	-0.009**	-0.012**	-0.010*
NDR^0	0.006**	0.002**	0.006**	0.003	0.011**	0.006
$log(BM)$		0.005**		0.006**		0.006**
$log(EV)$		-0.002**		-0.006**		-0.004**
$Mom_{12,2}$		-0.000		-0.004**		-0.007*
$Mom_{1,0}$		-0.062**		-0.074**		-0.051**
$Prof$		0.022**		0.025**		0.041**
ga		-0.001		0.001		0.004
$R\&D$		0.059**		0.087**		0.113**
$L(lag)$		-0.005**		-0.006		-0.012*
ΔL		-0.029**		-0.028**		-0.049**
LDRs	38,722	38,722	15,661	15,661	3,349	3,349
$R2$	0.001	0.002	0.001	0.003	0.001	0.003
N	1,584,868	1,580,469	608,968	606,416	74,472	74,353

Table 10: **Discretionary costs, pro-forma and actual cash holdings**

The table computes pro-forma cash holdings for firms rebalancing capital structure by performing LDRs, all other net equity issues (NEI^0) and all other net debt retirements (NDR^0). Column 1 displays lagged cash holdings (C_t), column 2 net short-term debt issuance/retirement (CF_t^{SD}), column 3 the non-discretionary part of operating cash flow (OCF_t^{ND}), and column 4 total net investment outlays (Inv). Column 5 presents discretionary costs ($Cost^d$), the sum of advertising and research & development expenditures) and column 6 shows the median value of a firm's discretionary costs during periods it does not perform a LDR, a NEI^0 or a NDR^0 (denoted as $Cost_m^d$). In Panel B (C) the median cost value is computed by also conditioning on the absence of high financial reporting conservatism (covenant violations). Columns 6 to 9 compute different pro-forma cash holdings, as specified exactly in the column headings below. Column 10 shows the firm's actual cash ratio (C_t) after the financing event. Panel A shows results during all financing periods, Panel B additionally conditions on periods of high financial reporting conservatism and Panel C on covenant violations. NEIs are periods when common and preferred stock issues net of dividends and repurchases exceed 5% of book assets. LDRs further require a simultaneous net debt retirement (short and long term retirement net of issues, also in excess of 5% of assets). NEI^0s are periods of net equity issues which are not classified as LDRs. The $Cscore$ is computed as in Table 4 and high conservatism firms are defined as those being in the two upper quintiles of the $Cscore$ distribution for the full sample of firms. All variables are scaled by the book value of total assets. Variable definitions are in Table 2. Sample period 1972-2016.

					Discretionary items		Pro-forma cash			Actual
	C_{t-1}	CF_t^{SD}	OCF_t^{ND}	Inv_t	$Cost_t^d$	$Cost_{s\neq t}^d$	1+2+3	7 - 4	8 - 5	C_t
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Full sample										
LDR	0.21	-0.04	-0.02	0.06	0.13	0.08	0.15	0.10	0.02	0.19
NEI^0	0.29	0.01	-0.06	0.13	0.18	0.13	0.24	0.11	-0.02	0.33
NDR^0	0.12	-0.03	0.17	0.00	0.05	0.04	0.27	0.27	0.23	0.10
Panel B: High financial reporting conservatism										
LDR	0.29	-0.06	-0.11	0.02	0.17	0.07	0.12	0.10	0.03	0.19
NEI^0	0.33	0.02	-0.15	0.10	0.22	0.11	0.20	0.10	0.00	0.32
NDR^0	0.13	-0.04	0.16	-0.01	0.05	0.03	0.26	0.27	0.24	0.10
Panel C: Covenant violations										
LDR	0.16	-0.04	-0.01	0.02	0.11	0.05	0.11	0.10	0.05	0.14
NEI^0	0.18	0.01	-0.07	0.12	0.13	0.07	0.12	0.00	-0.07	0.18
NDR^0	0.11	-0.03	0.13	-0.05	0.05	0.03	0.21	0.26	0.22	0.08

Appendix Table 1: **(Robustness, H1) LDRs and dynamics in market-to-book ratios: two-year horizon**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = Q_{t+2}^E - Q_t^E$ in columns 4 to 6). Hypothesis H1 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+2}) denotes the two year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues net equity and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively. Total sample of 13,799 firms and 140,067 firm-years.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.409**	-0.033	-0.079	0.069	0.093	0.011
	(0.062)	(0.103)	(0.289)	(0.045)	(0.055)	(0.154)
$R\&D$	4.346**	4.562**	5.166**	0.331**	0.163	-0.178
	(0.108)	(0.215)	(0.244)	(0.086)	(0.116)	(0.254)
$Capex$	1.620**	2.262**	1.639**	-0.650**	-1.143**	-0.695**
	(0.077)	(0.137)	(0.172)	(0.060)	(0.085)	(0.135)
BL	-0.662**	-0.339**	-0.600**	0.298**	0.310**	0.277**
	(0.026)	(0.050)	(0.061)	(0.019)	(0.028)	(0.043)
LDR	**0.632****	**0.491****	**0.632****	**-0.372****	**-0.376****	**-0.311****
	(0.037)	(0.031)	(0.055)	(0.029)	(0.030)	(0.047)
NEI^0	1.018**	0.750**	0.920**	-0.505**	-0.509**	-0.395**
	(0.024)	(0.023)	(0.052)	(0.019)	(0.019)	(0.040)
NDR^0	-0.026*	-0.001	-0.021	0.014	0.014	0.015
	(0.011)	(0.010)	(0.016)	(0.009)	(0.009)	(0.012)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+2}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	2,683	2,683	2,683	2,683	2,683	2,683
R^2	0.33	0.17	0.30	0.11	0.11	0.07
N	111,645	111,645	111,645	111,645	111,645	111,645

Appendix Table 2: (Robustness, H1) Public LDRs and dynamics in market-to-book ratios

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). Hypothesis H1 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues public equity (net of dividends and share repurchases) and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively. Total sample of 13,799 firms and 140,067 firm-years.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.569**	-0.176	-0.228	0.118**	0.137**	0.044
	(0.056)	(0.095)	(0.287)	(0.034)	(0.032)	(0.105)
$R\&D$	4.556**	4.750**	5.562**	0.212**	0.160*	-0.097
	(0.099)	(0.202)	(0.228)	(0.065)	(0.065)	(0.181)
$Capex$	1.843**	2.557**	1.832**	-0.514**	-0.811**	-0.528**
	(0.072)	(0.134)	(0.171)	(0.045)	(0.052)	(0.091)
BL	-0.545**	-0.225**	-0.498**	0.157**	0.158**	0.148**
	(0.025)	(0.048)	(0.058)	(0.014)	(0.016)	(0.033)
LDR	**0.341****	**0.346****	**0.426****	**-0.163****	**-0.170****	**-0.126****
	(0.040)	(0.033)	(0.050)	(0.028)	(0.029)	(0.039)
NEI^0	0.943**	0.692**	0.871**	-0.294**	-0.300**	-0.221**
	(0.023)	(0.022)	(0.045)	(0.014)	(0.014)	(0.031)
NDR^0	-0.057**	-0.022*	-0.043**	0.029**	0.031**	0.022*
	(0.010)	(0.010)	(0.015)	(0.006)	(0.006)	(0.008)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	1,452	1,452	1,452	1,452	1,452	1,452
R^2	0.32	0.16	0.29	0.10	0.10	0.04
N	124,408	124,408	124,408	124,408	124,408	124,408

Appendix Table 3: (Robustness, H2) LDRs, leverage and dynamics in market-to-book ratios

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). The regression is estimated for the subsample of high leverage firms (defined as firms for which the lagged market leverage ratio is placed in the upper two quintiles of the leverage ratio distribution of the entire). Robustness hypothesis H2 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$ for those firms. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues net equity and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.249**	0.206**	0.068	0.001	0.138**	-0.098
	(0.094)	(0.031)	(0.116)	(0.063)	(0.032)	(0.057)
$R\&D$	3.346**	3.045**	3.032**	0.506**	0.482**	0.309
	(0.168)	(0.130)	(0.233)	(0.141)	(0.135)	(0.182)
$Capex$	0.791**	1.414**	0.733**	-0.066	-0.483**	-0.073
	(0.048)	(0.052)	(0.082)	(0.041)	(0.054)	(0.067)
BL	1.118**	0.758**	1.085**	-0.078**	-0.195**	-0.058**
	(0.023)	(0.018)	(0.040)	(0.016)	(0.018)	(0.015)
LDR	**0.268****	**0.187****	**0.269****	**-0.068****	**-0.123****	**-0.069****
	(0.026)	(0.011)	(0.036)	(0.022)	(0.012)	(0.017)
NEI^0	0.274**	0.204**	0.236**	-0.108**	-0.141**	-0.089**
	(0.019)	(0.009)	(0.027)	(0.015)	(0.009)	(0.021)
NDR^0	-0.018**	-0.026**	-0.004	0.025**	0.026**	0.021**
	(0.006)	(0.005)	(0.007)	(0.005)	(0.005)	(0.006)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	1,471	1,471	1,471	1,471	1,471	1,471
R^2	0.33	0.17	0.28	0.07	0.08	0.02
N	49,112	49,112	49,112	49,112	49,112	49,112

Appendix Table 4: **(Robustness, H2) LDRs, financial reporting conservatism and dynamics in market-to-book ratios**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and market-to-book ratios and is based on

$$Y_t^j = \alpha + \beta_1 Prof_t + \beta_2 RD_t + \beta_3 Capex_t + \eta_L \frac{dX_t}{A_t} + \eta_F \frac{dX_{t+v}}{A_t} + \gamma BL_{t-1} + \delta^j LDR_t + \theta_1 NEI_t^0 + \theta_2 NDR_t^0 + \epsilon_t$$

where the superscript j distinguishes between the level regression ($Y_t^L = Q_t^E$ in columns 1 to 3) and the changes regression ($Y_t^\Delta = \Delta Q_t^E$ in columns 4 to 6). The regression is estimated for the subsample of firms exhibiting high financial reporting conservatism (defined as firms for which the estimated $Cscore$ value is placed in the highest tercile of the $Cscore$ distribution of the entire sample). Hypothesis H2 predicts that $\delta^L \leq 0$ and $\delta^\Delta \geq 0$ for those firms. The variables $Prof$, RD, $Capex$ denote the ratios of $prof$, rd and $capex$ to book assets (A). The compact notation dX_t (dX_{t+1}) denotes the one year lag (lead) change for the three variables $prof$, rd and $capex$. Finally, BL is the book leverage ratio, LDR equals one in case the firm simultaneously issues net equity and retires net debt for at least 5% of assets and NEI^0 (NDR^0) denote all other net equity issues (net debt retirements). Estimation is based on OLS regression (columns 1 and 4), firm fixed effects (columns 2 and 5) and cross-sectional Fama-MacBeth regressions (column 4 and 6). All variables are winsorized at the 1(99) percent level or must lie between zero and one (leverage). Variable definitions are in Table 2. *, ** indicate significance at the 5% and 1% level, respectively.

	$Y_t^1 = Q_t^E$			$Y_t^2 = \Delta Q_t^E$		
	OLS	FE	FMB	OLS	FE	FMB
	(1)	(2)	(3)	(4)	(5)	(6)
$Prof$	-0.516**	-0.153	-0.185	0.103**	0.124**	0.028
	(0.056)	(0.095)	(0.285)	(0.034)	(0.032)	(0.104)
$R\&D$	4.529**	4.721**	5.501**	0.219**	0.169**	-0.084
	(0.098)	(0.202)	(0.222)	(0.065)	(0.065)	(0.179)
$Capex$	1.821**	2.554**	1.806**	-0.508**	-0.807**	-0.521**
	(0.072)	(0.134)	(0.168)	(0.045)	(0.052)	(0.091)
BL	-0.602**	-0.288**	-0.545**	0.173**	0.177**	0.160**
	(0.024)	(0.048)	(0.060)	(0.014)	(0.016)	(0.034)
LDR	**0.616****	**0.467****	**0.608****	**-0.199****	**-0.200****	**-0.161****
	(0.034)	(0.029)	(0.050)	(0.023)	(0.023)	(0.031)
NEI^0	0.974**	0.718**	0.895**	-0.303**	-0.309**	-0.228**
	(0.022)	(0.022)	(0.047)	(0.014)	(0.014)	(0.032)
NDR^0)	-0.033**	-0.005	-0.025	0.023**	0.025**	0.017
	(0.010)	(0.009)	(0.015)	(0.006)	(0.006)	(0.009)
ΔX_t	yes	yes	yes	yes	yes	yes
ΔX_{t+1}	yes	yes	yes	yes	yes	yes
Year fixed effects	no	yes	no	no	yes	no
LDR	3,057	3,057	3,057	3,057	3,057	3,057
R^2	0.32	0.17	0.29	0.10	0.10	0.04
N	124,408	124,408	124,408	124,408	124,408	124,408

Appendix Table 5: **(Robustness, H1-H3) Public LDRs and stock returns: cross-sectional evidence**

The table presents estimates of the correlation between leverage decreasing recapitalizations (LDRs) and stock returns and is based on the following cross-sectional regressions

[runup] $r_{i,t-s} - r_{f,t-s} = c + \beta^{R,pub} LDR^{pub}_{i,t} + \beta^{R,priv} LDR^{pub}_{i,t} + \gamma_1^{pub} NEI^{0,pub}_{i,t} + \gamma_1^{priv} NEI^{0,priv}_{i,t} + \gamma_2 NDR^{0}_{i,t} + \delta X_{i,t-12} + \epsilon_{i,t-s}$

[post] $r_{i,t+s} - r_{f,t+s} = c + \beta^{P,pub} LDR^{pub}_{i,t} + \beta^{P,priv} LDR^{pub}_{i,t} + \gamma_1^{pub} NEI^{0,pub}_{i,t} + \gamma_1^{priv} NEI^{0,priv}_{i,t} + \gamma_2 NDR^{0}_{i,t} + \delta X_{i,t} + \epsilon_{i,t+s}$

where t denotes the month of the LDR, NEI^0 or NDR^0. Using data from SDC, we distinguish between public and private LDRs and NEI^0. We employ the filing date of the underlying equity issue as month t (if available), otherwise we continue to use the financial reporting date. The subscript s captures the event period around which return effects are estimated and ranges between one and twelve months. In the run-up regression (Panel A), returns are estimated over the twelve months period prior to the financing decision ($-s < 0$) and in the post-regression returns are estimated over the twelve months following the financing decision ($s > 0$). Finally, $(r_{i,t} - r_{f,t})$ is the firm's total return in excess of the risk-free rate during month t, c is the regression intercept and X denotes a set of control variables which includes book-to-market (precisely its logarithm), size (logarithm of total market value of equity), two momentum factors, profitability, asset growth, R&D expenses, lagged market leverage (of the previous fiscal year) and its change (to the current fiscal year). Columns 1-2 present results for the full sample (H1), columns 3-4 for firms exhibiting high financial reporting conservatism (H2) and columns 5-6 for firms violating financial covenants. Hypotheses H1-3 predict that $\beta^{R,pub} \leq 0$ and $\beta^{P,pub} \geq 0$. Exact variable definitions are in Table 2. Total sample of 13,712 firms and 1,584,868 firm-months.

	H1		H2		H3	
	(1)	(2)	(3)	(4)	(5)	(6)
A: Stock price run-up						
LDR^{pub}	**0.027****	**0.029****	**0.022****	**0.028****	**0.032****	**0.034****
LDR^{priv}	**0.010****	**0.016****	**0.007**	**0.010****	**-0.02**	**-0.016**
$NEI^{0,pub}$	0.030**	0.032**	0.018**	0.024**	0.030**	0.028**
$NEI^{0,priv}$	0.016**	0.019**	0.007*	0.011**	-0.026**	-0.028**
NDR^0	-0.001	0.001	-0.001	-0.003*	-0.005	-0.004
Controls	no	yes		no		yes
LDR^{pub}	11,306	11,306	3,864	3,864	2,050	2,050
LDR^{priv}	12,944	12,944	6,413	6,413	1,151	1,151
$R2$	0.002	0.003	0.001	0.007	0.001	0.004
N	1,545,968	1,537,538	561,778	560,575	66,786	66,577
B: Post event performance						
LDR^{pub}	**-0.005***	**-0.010****	**-0.011****	**-0.011****	**-0.007**	**-0.013**
LDR^{priv}	**-0.004**	**-0.007****	**-0.007***	**-0.010****	**-0.007**	**-0.008**
$NEI^{0,pub}$	-0.006**	-0.006**	-0.022**	-0.017**	-0.005	-0.000
$NEI^{0,priv}$	-0.007**	-0.005**	-0.008**	-0.007**	-0.016	-0.021**
NDR^0	0.006**	0.002**	0.006**	0.003**	0.013**	0.005
Controls	no	yes		no		yes
LDR^{pub}	17,199	17,199	5,357	5,357	3,255	3,255
LDR^{priv}	20,514	20,514	9,779	9,779	1,762	1,762
$R2$	0.000	0.002	0.001	0.004	0.001	0.004
N	1,545,968	1,537,538	596,014	592,435	72,382	72,124

Appendix Table 6: **(Robustness, H1-H3) Abnormal returns of portfolios of public LDR firms**

The table investigates the return dynamics of public LDR firms after adjusting for standard risk factors. The coefficient of interest is the abnormal return (α), estimated as follows

$$r_t^{PF} - r_{f,t} = \alpha^j + \beta\left(r_{m,t} - r_{f,t}\right) + \gamma_1 SMB_t + \gamma_2 HML_t + \gamma_3 INV_t + \gamma_4 PROF_t + \epsilon_t$$

where $j = (R, P)$. Panel A presents abnormal run-up returns (α^R) for the year prior to the filing date (if available) or the financial reporting date of the public equity issue underlying the LDR. Panel B presents post-LDR abnormal returns (α^P) for the year following the filing date (if available) or the financing reporting date of the public equity issue underlying the LDR. Columns 1-2 present results when the underlying portfolio is long the full sample of public LDR firms (H1). Columns 3-4 (5-6) present results when the underlying portfolio is long all public LDR firms exhibiting high financial reporting conservatism (violating financial covenants) and short all firms exhibiting financial reporting conservatism (violating financial covenants) that do not engage in a public LDR or its individual components. H1-3 predict that $\alpha^R \leq 0$ and $\alpha^P \geq 0$. Abnormal returns are estimated relative to the CAPM [includes the market excess return (r_m)], or the Fama and French five factor model [includes r_m and a size (SMB), value (HML), investment (INV) and profitability (PROF) factor]. Monthly market returns, risk-free rates and returns of the size, value, investment and profitability factors are obtained from Ken French's data library.

	H1		H2		H3	
	CAPM	FF5	CAPM	FF5	CAPM	FF5
	(1)	(2)	(3)	(4)	(5)	(6)
A: Stock price run-up						
α	**1.58*** **	**1.37*** **	**2.40*** **	**2.00** **	**2.18***	**2.43***
r_m	1.23***	1.19***	0.18	0.18	-0.04	-0.26
SMB		0.58***		0.70**		0.12
HML		-0.07		-0.17		-0.16
INV		0.34		0.56		0.72
PROF		0.15		0.29		-0.91*
N	520	520	461	461	244	244
R^2	0.39	0.43	0.00	0.02	0.00	0.04
B: Post event performance						
α	**-0.54**	**-0.58***	**-0.70***	**-0.70***	**0.32**	**0.93**
r_m	1.19***	1.09***	0.45***	0.29**	0.13	-0.37*
SMB		0.58***		0.69**		0.69**
HML		-0.35*		0.22		-0.19
INV		0.20		-0.50		-0.34
PROF		0.16		-0.00		-0.94**
N	542	542.00	516	516.00	263	263.00
R^2	0.41	0.45	0.06	0.12	0.00	0.22

Leverage decreasing recapitalizations: one size doesn't fit all.

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Abstract

Dynamic trade-off models of capital structure typically predict that leverage decreasing recapitalizations (LDRs) are uncommon outside of default or strategic renegotiation. Our empirical analysis of LDRs includes seasoned equity offerings (SEOs) which state 'Leverage reduction' as intended use of proceeds, SEOs followed by debt buybacks and SEOs that serve to increase cash buffers and suggests that - contrary to dynamic theories - LDRs happen in financially safe firms. Consistent with theoretical predictions, we find that announcement returns are negative. However, the short-run market reaction varies in magnitude across the three different types. In the longer run, when investors observe the actual use of the SEO proceeds, 'buyback' firms experience an abnormally poorer performance than 'hoarding' firms. The 6-months and 9-months cumulative abnormal returns turn positive for 'cash hoarding' firms making our result consistent with an option value of cash holdings.

Keywords: leverage decreasing recapitalization (LDR); dynamic trade-off theory; equity offerings; use of proceeds; debt retirement; cash hoarding; abnormal returns; market timing; option value of cash.

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1 Introduction

Modeling the optimal capital structure problem in a principal-agent setting, Admati et al. (2018) show that once debt is in place, shareholders pervasively resist leverage reductions no matter how much such reductions may enhance firm value. Dynamic trade-off models of capital structure, in which leverage adjustments are infrequent, suggest that it might be optimal to reduce leverage only when close to default or strategic renegotiation[1]. Related, most of the empirical literature focuses on equity for debt swaps, which are used by distressed firms to persuade creditors to exchange their claims with equity.

However, recently, contrasting empirical evidence has emerged. DeAngelo et al. (2017) find that firms deleverage through retiring debt or retaining earnings, to restore ample financial flexibility even though this result is difficult to reconcile with trade-off theory's positive leverage targets. Related, Kisser and Rapushi (2020) find that on average, one out of five equity issues is part of a leverage decreasing recapitalization. In this paper, we consider four alternative ways firms can implement to deleverage: the equity for debt swaps, seasoned equity offerings (SEOs) which state 'leverage reduction' as intended use of the proceeds, SEOs followed by actual buyback of debt and SEOs followed by cash hoarding. We find that – contrary to dynamic trade-off models – leverage reductions happen in financially sound firms. In addition, they happen more frequently than the dynamic trade-off models would suggest.

Yet, for a number of reasons the leverage decreasing recapitalizations (LDRs) may be quite costly for shareholders. Theory suggests that among the various stakeholders of a firm, shareholders are the ones who have no interest in lowering the indebtedness through 'early' recapitalizations because of the wealth transfer to debt-holders (Titman and Tsyplakov (2007), Admati et al. (2018))[2]. In addition, the fact that managers have better information about the firms prospects compared to outsiders might scatter a negative reaction in the markets when leverage decreasing recapitalizations are announced (Myers and Majluf (1984)).

While there is a shared consensus that announcements of pure equity issues result in negative stock

[1] Goldstein et al. (2001) and Morellec et al. (2012) assume that no debt reductions are possible. In Fischer et al. (1989), Anderson and Sundaresan (1996), Titman and Tsyplakov (2007) and Bhamra et al. (2010) it is never optimal to reduce debt outside of default or strategic renegotiation. Strebulaev (2007) allows for debt reductions through asset sales but considers these events as exogenous.

[2] Titman and Tsyplakov (2007) show that transaction costs and the wealth transfer to debt-holders exceed the added value associated with a movement towards the target leverage when the firms lever down.

price reactions (Masulis and Korwar (1986), Eckbo and Masulis (1995)) moving to the market reactions to leverage decreasing recapitalizations (through equity issues) the contribution becomes less ample. Relatively few papers to date have attempted to provide an explanation for the market reaction to LDRs. Masulis (1983), for example, finds a negative stock price reaction when firms announce common stock for debt exchange offers. His empirical evidence is consistent with a positive debt level information effect and leverage-induced wealth transfers across security classes. Chatterjee et al. (1995) find that announcements of leverage reducing strategies like coercive tenders and exchange offers during workouts[3] cause a negative market reaction.

In this study we investigate whether stockholders get harmed from the management's decision to recapitalize downwards through an examination of stock price reactions to different types of LDR announcements. The empirical analysis examines US industrial firms in the period 2007 – 2017 and consists of two parts. First, we focus on the frequency of the different types of LDRs and explore how each of them is linked to the firms' financial health. Next, we investigate how the market reacts across the different practices and analyze the relation between the stock price reaction and various firm characteristics.

The first type of LDRs, the equity for debt swaps (exchange offers) are identified directly from the Securities Data Company (SDC) Platinum - restructuring - database. Exchange offers, similarly to what reported in Altman and Karlin (2009) are concentrated in the financial crisis period with 66% of our sample swaps happening in year 2009. The literature reports that exchange offers which had disappeared for almost two decades had a re-emergence in the first quarter of 2009. In fact, exchange offers could become particularly convenient in periods of turmoil when investors have limited liquidity and its difficult for firms to sell shares at the offered price. Aligned with the literature we find that exchange offers are used as last resort solutions from highly indebted or distressed firms. The market reaction to those events is the most negative across the different strategies considered in this study with cumulative abnormal returns (CARs) of -16% in a month from the announcement.

The second type of LDRs, SEOs with 'Leverage reduction' as stated use of proceeds are defined through SDC - global new issues - database information about primary and secondary intended use of the pro-

[3] Also known as out-of-court debt restructuring, a corporate workout practice aims to remedy or avoid foreclosure and bankruptcy.

ceeds. In a paper that focuses on the stated use of proceeds and their effect on the long-term post-SEO performance of the firm, Leone et al. (2007) specify seven classes of stated motives while, in a similar study, Autore et al. (2009) identify only three categories of uses. In this paper we seek to employ the most aggregated classification because we are mainly interested in the issues where the intent of the management is to diminish leverage. We identify 18 motives which we aggregate into four classes: investment in any asset; general corporate purposes; leverage reduction and distribution to shareholders. We find that SEO firms stating 'leverage reduction' as the motive behind the issue, are financially safer[4] than 'exchange offer' firms but worse than firms which state 'investment' or 'distribution to shareholders' as intended use of proceeds.

Adjusting through different short-run stock returns models (Fama and French (1992, 2012)), we examine calendar time abnormal returns for each of the four classes of stated motive. The abnormal returns suggest that issuers with specific plans about investment are credibly signaling positive NPV projects while issuers that cite 'leverage reduction' or 'general purposes' are more likely to be financially distressed or opportunistic market timers[5]. Interestingly, while the announcement returns for firms which state 'leverage reduction' are more negative than for firms whose stated motive is 'investment' or 'distribution to shareholders', it is not significantly different from those which state 'general corporate purposes' as intended use of proceeds. In fact, the stated motive is more an 'a priori' intention of firms rather than the actual use of funding. Related, we should take into account the possibility that SEO firms which state 'general corporate purposes' might plan to reduce leverage but do not reveal so to avoid negative signaling.

Therefore, we now move to the third and fourth definition of LDRs. We observe how firms actually use proceeds in the post-issue quarters by looking at the changes in the quarterly fundamentals data from Compustat. We identify the LDR announcements starting again from the public equity issues, matching these announcements with the debt retirement or cash hoarding in the balance sheet items of companies.

[4]The proxies we use for financial safeness/ distress are the Altman Z-Score, the synthetic rating based on the interest coverage ratio and the plain market leverage levels.

[5]While under the dynamic trade-off theory firms would issue equity to lower down their level of leverage only to avoid distress, according to the market timing theory they would issue when the stock is overvalued. For both interpretations, LDR announcements would give a negative signal to the markets and the prediction under each of the theories would be a decrease in stock prices after the LDR announcement.

We will have a 'buyback' LDR if in the three quarters following the SEO there will be a debt retirement that exceeds 5% of the lagged book total assets of the firm. We will have a 'hoarding' LDR if in the three quarters following the SEO there will be a cash hoarding, that exceeds 5% of the lagged book total assets of the firm. We do not consider as a 'debt retirement' cases in which firms repay short-term debt or close to maturity debt and similarly, we do not retain as a 'cash hoarding' cases in which the increase in cash came through retained earnings or asset sales.

Within the third and fourth type of LDRs, we find that safer firms perform more 'cash hoarding' LDRs than 'buyback' LDRs, while the opposite happens for firms which are close to distress. This finding is aligned with the corporate deleveraging analysis in DeAngelo, Goncalves and Stulz (2017), where the authors distinguish between two types of deleveraging firms: those avoiding financial distress and those restoring abundant financial flexibility. In addition we find that highly leveraged firms, financially sound or not, do not have a tendency to proactively undertake LDRs. In fact, about 40% of the firms that reduce leverage are 'almost all equity' firms. Running a short-term event study we find that there are sizable and significant negative abnormal returns after both types of leverage decreasing recaps are announced. The negative post-LDRs reaction reflects potential signaling effect that the firm might be highly indebted or that managers time the market knowing that the stock is overvalued.

Next, we perform an event study of longer windows. This is motivated by the specific time frame of the events in the 'buyback' and 'cash hoarding' LDR, meaning that the LDRs are revealed only in the post-SEO quarters. The longer run emphasizes the differences between the two strategies. The six month CAR for cash hoarding firms turns positive to +1% while remains negative even though slightly smaller in magnitude for 'buyback' LDRs. Results suggest that investors value conservative leverage and creation of financial flexibility through LDRs but distinguish among the strategies used to achieve flexibility. The result is consistent with a real option value of cash holdings like in DeAngelo and DeAngelo (2006) and Gamba and Triantis (2009)[6].

This study contributes to the literature in three ways. First, we find that LDRs happen also in financially

[6] De Angelo and De Angelo (2006) explain that moderate flexibility benefits are sufficient to explain why profitable firms carry low leverage, since the annual tax-related opportunity cost of preserving one dollar of debt capacity is relatively small. Gamba and Triantis (2009) present a dynamic financing and investment model in which firms choose optimal investment policies, debt and cash holdings. The model implies that while firms may optimally change their net leverage policy in response to changes in the investment opportunities, such changes should affect cash holdings instead of debt levels.

sound firms. In the last decade's data we find that 40% of the firms which perform leverage reductions are close to financial distress while approximately 60% are not. Aligned with the theory, we find that pertaining to a junk rating group increases the probability that the firm will perform a certain type of LDR in the following quarters. In addition we find that, within the LDR firms, moving from a low rating to a higher one diminishes the probability of a buyback LDR while increases the chances of undertaking a cash hoarding LDR.

Second, we find that SEO performing firms which state LDRs as the motive behind the issue, cause the most negative market reaction compared to other stated motive groups. In addition, not all the firms which really undertake LDRs state it in the filing. In six months from the issue the abnormal stock return performance is the poorest for those firms which stated 'investment' in the filing while in fact performed a LDR.

Last, the reaction of the market at leverage decreasing recapitalization announcements is at best zero, as the literature would suggest. However, by looking at the mid-term comparison between debt buyback strategy and cash hoarding strategy, the retirement of debt after equity issues is perceived worse by the markets compared to the equity issuance and subsequent liquidity buffer increase. In fact, the cumulative abnormal returns in six months and one year, turn positive and significant for cash hoarding firms while remaining negative for buyback firms. This result is consistent with a financial flexibility objective, according to which the decision of the firm to increase liquidity and diminish the leverage is a voluntary effort of the managers to improve the capital structure.

The rest of the paper is organized as follows. In Section 2 we review the empirical literature and formulate the hypothesis. Section 3 describes the data, our LDRs classification, and sample statistics. In Section 4 we explain the methodologies that we employ to examine the financial soundness of the LDR firms and their short-term and mid-term post-LDRs stock performance. Section 5 presents concluding remarks.

2 Literature and Hypothesis

Several empirical studies have estimated the market reactions to capital structure changes, and in particular the stock reactions to security issues[7]. Eckbo and Masulis (1995) show that announcements of security issues typically generate a non-positive stock price reaction. The valuation effects are the most negative for common stock issues, slightly less negative for convertible debt issues, and zero for straight debt issues. More specifically, Masulis and Korwar (1986) show that announcements of equity issues result in significant negative stock price reactions. This result is well established in the empirical literature, and still, recent contributions show that the market reaction to equity issues announcements differs conditional on a firm's choice of flotation method (Eckbo, Masulis and Norli (2007)), on whether the shareholder approval is mandatory or not (Holderness (2018)) and on the stated use of the proceeds in the S-3 form filed with SEC (Autore et al. (2009)). While the first line of research interprets the post-issue performance as reflecting different degrees of adverse selection problems, the other two interpret it with different degrees of agency problems between managers and shareholders and different degrees of stock overvaluation, respectively.

As we move from the event studies related to equity issues, to the market reactions to leverage decreasing recapitalizations through equity issues the contribution is limited. A small number of papers attempts to provide an explanation for the market's reaction to leverage decreasing recapitalizations. Masulis (1983), for example, documents a response of the stock prices to leverage altering capital structure changes. He brings evidence of a positive relation between changes in stock prices and leverage changes. In addition, Chatterjee et al. (1995) state that on average the leverage-reducing strategies are expected to cause a negative reaction in the stock market returns.

Because the equity for debt swaps are easier to identify, different papers focused on the market reaction to their announcements[8]. Special attention has been paid to the effects of these swaps across industries and years, with special considerations to the Deficit Reduction Act of 1984[9]. The empirical literature

[7] See Eckbo and Masulis (1992), Eckbo and Masulis (1995), Jung at al. (1996), Antweiler and Frank (2006).

[8] Kalra et al. (1996) and Graham et al. (1999).

[9] The Decit Reduction Act of 1984 (Pub.L. 98369), also known as the DEFRA, was a federal law enacted in the United States in 1984. Originally part of the Tax Reform Act of 1983, it was adjusted and reintroduced as the Tax Reform Act of 1984. Under this law if a creditor forgives or reduces debt and there is no transfer of property, the debt reduction is generally included in gross income. An issuer that exchanges a new security for old debt in an exchange offer will recognize ordinary

shows that the average stock price reaction to those exchange announcements is negative before and after the Deficit Reduction Act[10]. Shah (1997) concludes that firms undertaking debt reducing exchange offers are typically distressed.

However, as noted in the introduction, a substitute to an equity for debt swap could be the two transactions strategy i.e. equity issuance followed by cash tender offer. We do not have clear evidence about the latter. Hovakimian et al. (2001) show that adjustments are stronger and more significant for debt reductions than they are for debt issuances. It is not clear why firms adjust more quickly when they are over levered and what is the market reaction when leverage decreasing operations are announced. We do not have a clear indication on the frequency of leverage decreasing recaps either. This paper aims to fill this gap and bring new evidence regarding the frequency and the market reaction to the leverage reducing strategies.

Dynamic contingent claims models of capital structure imply that leverage decreasing recapitalizations do not occur outside of bankruptcy. For example, Fischer et al. (1989) show that firms have a range of capital structures for values of leverage within optimally chosen boundaries and they will recapitalize only if they hit the barriers. If equity-holders could call the debt earlier without any extra costs, they would transfer wealth from the debt-holders to themselves. The debt-holders anticipate this incentive and ask for higher bond coupon rate, call premium or issue discounts, which make it convenient for equity-holders to pre commit. For the reason that these instruments mitigate the agency problems between equity-holders and debt-holders, early recapitalizations do not happen. Similar findings can be found in Fan and Sundaresan (2000), Goldstein et al. (2001) or Morellec et al. (2012)[11].

Intuitively, what these studies tell us is that equity-holders have no incentive in recapitalizing too early because they would redistribute the wealth in favor of debt-holders. The intuition is easily understood if we think about the cashing out effect of debt overhang or oppositely, to the asset substitution effect especially in firms with high financial distress risk. Once a firm has debt already in place, managers

cancellation of indebtedness income (CODI) to the extent the adjusted issue price of the old debt exceeds the issue price of the new security.

[10] Kalra et al. (1996) 'The Effect Of Equity-For-Debt Swaps On Security Returns: Some New Evidence.

[11] Moving away from pure recapitalizations, debt decreasing operations are shown to be frequent [Hovakimian et al. (2004); DeAngelo et al. (2011)] and there is ample evidence that most of the long-term debt contracts are renegotiated prior to maturity [Roberts and Sufi (2009)].

(with interests aligned with shareholders) may take action that disburse the proceeds to shareholders but discharge the downside risk to debt-holders. In this case, they would have no interest in decreasing leverage by buying back debt, even if it will increase the value of the firm. If they did, the remaining debt-holders gain in a higher priced debt because of the lower financial distress risk of the recapitalized firm.

Hypothesis 1 summarizes the above view:

H1– Leverage decreasing recapitalizations do not happen outside of financial distress.

Given that LDRs are not optimal from a theoretical perspective, their expected announcement return is negative. Similarly, a pecking order interpretation of equity issues and simultaneous cash hoarding implies a negative expected return[12]. In a dynamic setting, issuing equity and/or holding cash is typically less efficient than the usage of transitory debt or loan commitment[13]. From the considerations above, we lead to our second hypothesis:

H2– The announcement return of Leverage decreasing recapitalizations is negative across all strategies.

The leverage reductions in LDRs may occur through debt retirements or simultaneous cash hoarding or both. Gamba and Triantis (2009) present a dynamic financing and investment model in which firms choose optimal investment policies, debt and cash holdings. The model implies that while firms may optimally change their net leverage policy in response to changes in the investment opportunities, such changes should affect cash holdings instead of debt levels[14]. As a consequence, because both transactions (debt retirement versus cash hoarding) decrease net leverage by the same amount, we hypothesize that the announcement return involving cash hoarding is less negative due to the additional option value embedded in the cash holdings.

H3 – The announcement return of LDRs in which you do not retire debt is less negative compared to

[12] Myers (1984) states that a firm is following a pecking order if it prefers internal to external financing and debt to equity if external financing is used.

[13] Asvanunt, Broadie and Sundaresan (2010) and De Angelo, De Angelo and Whited (2011).

[14] Bates, Kahle, and Stulz (2009) demonstrate that the average cash-to-assets ratio for US industrial firms has more than doubled since the mid-1980s. Lyandres and Palazzo (2012) show that the increase in average cash holdings is driven almost solely by firms which invest heavily in R&D. Falato, Kadyrzhanova, and Sim (2013) provide theoretical and empirical evidence that the rise in intangibles is a fundamental driver of the secular trend of cash holdings. Others have focused on the precautionary motive of cash holdings (Keynes (1936), Almeida et al. (2004) and Han and Qiu (2007)) that arises as constrained firms proactively save more to safeguard future investment needs.

the case in which you retire debt.

3 Data

3.1 Sample construction

We start with the quarterly data from merged Crisp Compustat (CCM) database from January 2007 to December 2017. We first merge CCM with SDC- global issues- data and SDC- restructuring- data, respectively. In this study, we consider an initial number of 2900 seasoned equity offerings of public U.S firms (no initial public offerings; no secondary sales of existing stock; no convertible preferred stock issues[15]) and 85 equity for debt swaps.

Out of the 2823 observations matched in SDC and CCM we exclude 214 events. Those represent the second or third consecutive issue done by the same issuer in a single quarter. Considering that when issues are so close to each other, the first issue success or failure might influence the announcement effect for the others, we exclude them from the analyses. We also drop 14 events (12 equity issues and 2 exchange offers) which do not provide balance sheet items data after the event. These firms might have gone bankrupt, merged or might have been acquired.

Because SDC has very limited information about equity for debt exchange offers, the merge is based mainly on equity issues. Using the information from companies' balance sheet, we sort the stock issue observations in three big groups and identify two types of leverage reducing recapitalizations: the first type we call a 'debt buyback' LDR and is performed when the SEO firm performs a decrease in long-term debt after the issue. The second type we call a 'cash hoarding' LDR and is performed through an increase in cash holdings in the post-issue quarters. For both types of LDRs the change in debt (cash) has to exceed 5 percentage points of the total assets of the firm in the pre-issue quarter. The third group of equity issuers uses the proceeds to invest or to acquire and is not part of our LDR analysis.

Specifically, we classify the transaction a debt retirement if in the three quarters following the issue the change in debt over the assets is lower than a given negative threshold. In this case, the cash outflows

[15] Convertible preferred stock issues are excluded because convertible securities variance and risk, is on average higher than the non-convertible ones and consequently we would expect different price reactions (Masulis (1980))

from the firm to buyback part of the debt or all of it.

$$\frac{LT.Debt_{i,q+3} - LT.Debt_{i,q-1}}{TotalAssets_{i,q-1}} < -0.05 \tag{1}$$

We classify the transaction a cash hoarding if in the three quarters following the issue, the change in cash over the assets is higher than a given positive threshold. In this case, the cash inflows into the firm and remains there.

$$\frac{Cash_{i,q+3} - Cash_{i,q-1}}{TotalAssets_{i,q-1}} > 0.05 \tag{2}$$

We use a three quarters time period to make sure that the change is not a transitory step or a mechanical effect, but rather a decision of the management to change the capital structure. We drop the observations for which we have missing data for the cash change or the debt change in the next three quarters. As for the equity for debt swaps, we already have a well-defined subsample because we find their classification in SDC or in the publicly available filings.

Further, we impose the standard sample selection criteria: non governmental industrial firms only (eliminate firm-years for utilities (SIC codes 4899-5000), financial firms (SIC 5999-7000), and government entities (SIC above 8999)). We require non-missing data for assets, debt, cash and other relevant covariates. At this stage we are left with 102,069 firm-quarter observations and 4,401 firms.

[Insert Table 1 here]

We finally match the announcement date in SDC with stock price information in CRSP daily and estimate abnormal returns. The event window is defined as the number of trading days before and after the announcement date under inquiry, where day 0 is the announcement date of the transaction (filing date for equity issues in SDC). Differently from the case of exchange offers, for buybacks of debt we have only the announcement date for the equity issue preceding the buyback. The data from balance sheet is at best quarterly so we cannot find the exact date of the debt retirement and this kind of transaction normally is not announced in the markets. Therefore, we analyze the market reaction based on the equity issue announcement and then classify into groups based on the use of the proceeds.

4 Empirical analysis

Myers (1984) suggests through the pecking order hypothesis, that the firm's managers will prefer to use internal resources first, and will issue equity only as a latter option. Firms may use their internal funds to buy back debt in order to lower their debt-to-equity ratio. Doing so the company will have a greater margin of safety against bankruptcy because the company will be paying less interest in the future. Similarly, the firm may conduct a debt tender offering before going close to maturity, and so without renewing the old debt. Alternatively, firms might retain more earnings and so increase the cash buffers. In contrast to Myers (1984), Leary and Roberts (2010) bring substantial evidence that firms do not follow a strict pecking order. In line with this last evidence, firms may issue equity to retire old debt or to create flexibility through cash buffers.

In this last scenario, which is the focus of our paper, firms may lower their indebtedness in three different ways. The three different alternatives to reduce leverage are illustrated in Figure 1. The figure exhibits how the firm's balance sheet changes under each of the alternatives, when the firm issues 20 units of new equity. All alternatives, reduce the net leverage ratio by 0.22, from an assumed initial ratio of 0.78 to a new ratio of 0.56.

[Insert Figure 1 here]

However, the pure recapitalizations or the asset growth are not the only way to reduce the indebtedness of the firm. Leverage can be decreased also by divestitures[16]. Eckbo and Thorburn (2013) argue that the reaction of the market to a divestiture announcement is positive and that the value creation in this case is driven by the increase in corporate focus and the elimination of negative synergies. We do not consider this subfamily of LDRs in this study.

[16] A divestiture is the sale of a portion of the firm's assets to a third party. In return, typically the seller receives cash to be used in the remaining business or to be distributed to the claim holders.

4.1 SEOs with 'Leverage reduction' as stated use of proceeds

Leverage decreasing recapitalizations are events which are not announced in the market, in contrast to the public equity issues. This is the reason why we start our analysis by looking at the equity issues which state as the intent behind the issue undertaking a leverage decreasing recap. In a paper that focuses on the stated use of proceeds and their effect on the post-performance of the firm, Leone et al. (2007) use seven classes of statements (i.e., debt repayment, acquisitions, R&D, distribution to pre-IPO shareholders, marketing, working capital, and other uses) while Autore et al. (2009) identify only three categories (i.e., investment, debt repayment, and general corporate purposes) of uses.

Closer to the latter, in this paper we consider four classes of uses (Investment in any asset; General Corporate purposes; Leverage Reduction; Distribution to shareholders). From the SDC filings we are able to isolate 18 different stated uses of the proceeds which we then reorganize in four groups. We seek to employ the most aggregated classification because we are mainly interested in the issues where the intent of the management is to diminish indebtedness.

Approximately 2800 issues out of the full sample of SEOs have the stated use of proceeds in their SEO filing. Table 2 reports the distribution of seasoned equity offerings (SEOs) divided according to the stated use of proceeds on the SEO filing, across industries and years.

[Insert Table 2 here]

The issues with LDRs as stated motive represent less than 10% of the total sample while the issues that state 'General corporate purposes' are the largest group which makes up for 60% of the total number of SEOs. The energy sector and the healthcare&drugs sector are the ones with more issues for LDRs. The healthcare and drugs sector has also the highest number of issues for both 'Investment' and 'General corporate purposes' as the motive behind the issue.

Based on the theoretical predictions, one would expect that the number of issues with 'LDR' as stated motive in the crises and immediate post-crises period increases. For example, we know from Altman and Karlin (2009) that exchange offers had a prominent reemergence in 2009. In contrast to the expectations, in 2008- 2010 we observe the lowest number of SEOs for LDRs. Interestingly the SEOs with 'General corporate purposes' as their stated motive happen the most exactly in 2009 and 2010. In fact these two years alone make up for about 35% of the whole decade.

Note, that these definitions of intended use do not necessarily represent the real allocation of proceeds but rather the 'a priori' intention of the management. The concentration of SEOs with 'General corporate purposes' as their stated motive in the crises period suggests that firms being vague might in fact be hiding plans to reduce leverage. We will take in account that possibility in section 4.2 when we identify LDRs based on the real use of the proceeds from the issue. In the next section we test our first hypothesis.

4.1.1 Stated use of proceeds and bankruptcy risk

In this section, we analyze the influence of the credit risk of a firm on its propensity to state a leverage decreasing recapitalization as the motive for the issue. According to the dynamic models of capital structure the firms would decrease the level of leverage only if close to bankruptcy. To assess whether this is true in practice, we scan the pre-issue financial situation of the firms in our SEOs sample. In addition we examine the relationship between the rating of the firm and the probability of stating a LDR, using multinomial logit regressions.

To define the level of financial health of the firm we use three different proxies: market leverage level, the synthetic rating based on the interest coverage ratio and the Altman Z_Score. Market Leverage is defined as book debt divided by the sum of book debt and market equity, where market equity is equal to common shares outstanding times the stock price at the end of the fiscal quarter. We first calculate the market leverage and then define a categorical variable that takes three values: one for companies who have a level of leverage lower than 0.3, two for those who are in between 0.3 and 0.6 and three for the ones that are highly leveraged (i. e. market leverage is higher than 0.6).

The traditional interest coverage ratio is calculated as earnings divided by expense. We follow Lamont, Polk and Saa-Requejo (1997) and use a slightly different one since for some firms interest expense is zero and the ratio wouldn't make sense. We partition the firms into three groups and rank them based on the principle that high interest expense means a more constrained firm while high earnings means a less constrained firm.

The first group are the most constrained firms with zero or negative earnings. We rank them in order of decreasing (interest expense - earnings) / net PPE. We then rank all firms with positive earnings and positive interest expense in increasing order of (earnings + interest expense)/interest expense which is the traditional way of calculating interest coverage ratio. The last group is the less constrained group

with positive earnings and zero or negative interest expense. Firms in this group are ranked in decreasing order of (interest expense - earnings)/net PPE. In the end, we have a full ranking of all firm-quarters. According to the level of coverage ratio and the size of the firm we assign to each firm-quarter a synthetic rating. The procedure of rating assignment is explained in detail in Appendix A.

Once we have the synthetic ratings we aggregate them into a categorical variable that takes three values: one for firm-quarters which are safe (credit rating from A- to AAA), two for firm-quarters which are in the middle area (credit rating BBB) and three for the ones that are junk/distressed (credit rating C and D).

By basing the synthetic rating on the interest coverage ratio only, we run two risks. One is that an exceptionally good or bad earnings year for the firm, might yield a deviating rating (too high or too low). We might overcome that by using an average of the interest coverage ratio of the last years but still the second drawback will remain. And that is, not considering other important financial ratios that are used by rating companies. For this reason we use in addition to the synthetic rating, a measure of credit risk that takes into account multiple ratios: the Altman Zeta Score. This is the result of five weighted financial ratios. The five ratios and their relative weighs are based on past history of defaulted firms.

Because we want to know how the financial health of the firms at time t-1 defines the stated use of proceeds, we calculate the Altman's Z-score in the quarter prior to the issue. The calculation of the score is explained in Appendix B.

Similarly to above, after calculating the Z-score we create a categorical variable 'Financial Safeness' that takes the value one for companies who are safe (Z Score above 2.99), two for those who are in the grey area (Z score between 1.8 and 2.99) and three for the ones that are in 'Distress' zone (Z score below 1.80)[17].

[Insert Table 3 here]

Table 3 provides insights about the financial condition of firms for different stated use of proceeds. Across both proxies of financial safeness (the first two panels) the 'Debt retirement' group has the highest percentage of distressed firms. 55% of the firms which state 'Debt retirement' as the intent behind the

[17] If the Altman Z-Score is close to or below three, it is wise to do some serious due diligence before considering investing. Altman E., (2000) Predicting Financial Distress of Companies: Revisiting the Z-Score and Zeta Models.

issue are close to distress compared to the 24% which are classified as investment grade. Follow the 'General purposes' group, the 'Investment' group and last the 'Distribution' group. As we move to the market leverage panel we observe that 51% of the firms which state 'Debt retirement' have a low level of leverage. However, compared to the other groups the firms in the 'Debt retirement' group have more firms in the medium leverage as well as in the risky one. At the 'General purposes' group, distressed firms have 50 to 60% which is not very far from the LDRs group.

Obviously, Table 3 provides only a simple uni-variate analysis. The relationship between the intended use of proceeds and credit risk of the firm can be specified as follows:

$$Use\_Proceeds_{Dummy_t} = \alpha_0 + \alpha_1 CreditRisk_{t-1} + \beta_1 ControlVariables_{t-1} + \nu_t \quad (3)$$

The dependent variable StatedUse_Investment takes the value one if the issuing firms stated the intention to invest and zero otherwise, StatedUse_GeneralPurpose takes the value one if the issuing firms stated the intention to use funds for general purposes and zero otherwise, ecc. The variables of interest represent the financial soundness measure which we defined above and other controls: book leverage measured as total debt scaled by total assets; market leverage is defined as book debt divided by the sum of book debt and market equity, where market equity is equal to common shares outstanding times the stock price at the end of the fiscal quarter; firm size measured by the log of total assets; profitability defined as operating profit divided by total assets, Tobin's Q is the sum of market equity and book debt divided by total assets and firm age measured by the number of years from its first date on Compustat to its SEO filing date. All control variables are measured at the quarter prior to the SEO.

In addition, industry dummies and quarter dummies are also included.

Table 4 displays results for multi logistic regressions of Equation 3 . The Investment dummy, General purposes dummy and Leverage reduction dummy are each regressed on the credit risk measure in (1), (2), (3) and in credit risk and other controls in (4), (5), (6).

[Insert Table 4 here]

When other variables are not taken in consideration, we see a relationship between the financial distress (soundness) indicator and stated use, in the subgroups of 'Investment' and 'Leverage reduction'. The first

regression shows that when a issuing firm is moving form a good rating to a junk one the chances of the firm to state in the filing 'Investment' go down. The third regression shows the opposite effect for SEOs which state 'debt reduction as motivation of the issue. Nevertheless, when adding other controls to the multivariate regressions (columns (3), (4) and (5)) we do not have statistically significant results. We cannot conclude that distressed firms will state ' Debt reduction' as a motive behind the issue more that safe firms will.

4.1.2 Stated use of proceeds and post-SEO stock market reactions

The event study we perform here focuses on seasoned equity offerings which state 'Leverage reduction' as use of proceeds and 61 cases of exchange offers.

It is worth to notice that while the SEOs with stated motive 'Reduce leverage' are present across all the timeline, the equity for debt swaps are all focused in 2009[18]. This phenomena is related to the particular characteristics of these operations: equity for debt exchanges combine buyback and issuance operations in a single operation. Issuance and buyback take place at the same time and they are operationally linked in the sense that the participants must take part either in both operations or not at all. They could become particularly convenient in periods of turmoil: suppose the firm is issuing equity in a moment where markets are highly volatile then it will be difficult for the company to sell shares at the price offered. The investors may have limited liquidity.

The advantages of the exchanges relative to the buybacks are in part offset by the coincidental needs problem. In an exchange offer of the type 'equity for bond swap' investors should have an interest to trade their debt exactly with those kind of securities the firm offers. This may reduce the demand. Furthermore, these offers are influenced by a variety of factors, including the terms of the offers and the type of the bondholders who are offered equity.

The choice between these similar ways of decreasing leverage may depend on the characteristics of the

[18] An important element related to the exchange offers is that they have been tax-free until 1986, even if the securities had a combined value of less than the original claim. In particular, the 3(a)9 exchanges, have been very attractive because they did not require SEC review and could be accomplished very quickly. In 1990, the reduction in debt was considered a taxable event. Hence after that, the firms found no reason to undertake exchange offers. Indeed, for almost two decades these exchanges were practiced very rarely. In the years post financial crises, most of the companies put increased effort in restructuring and strengthening their balance sheets and exchange offers re-emerged.

firms that undertake the operations[19].

In this section we analyze the market reaction to announcements of seasoned equity offerings with 'Leverage reduction' as use of proceeds and the market reaction to announcements of exchange offers.

In the typical event study, the market is supposed to jump straight away after the equity offering announcements and according to the efficient market hypothesis [Fama (1991)] the market should absorb the new information fully within at most two days. Empirical results in Asquith and Mullins (1986), Masulis and Korwar (1986) and Eckbo (1986) indicate that the market reaction to capital structure changes occurs almost entirely within a two-day period. In contrast with the efficient market hypothesis, Antweiler and Frank (2006) argue that two days after the news, there is typically a significant drift in the opposite direction of the initial jump.

Following the mentioned literature, we use (-1, +1) window for the base procedure. Additionally, we use larger windows spanning to 0, +10 days and 0, +30 days taking in consideration that investors might call for information outside of the SEO filings prospects. Investors probably fail to immediately recognize the information content of the composing items of released earnings and relate it to the subsequent financing event. As such, the information might not be quickly incorporated into prices but rather gradually. For this reason, we analyze the cumulative abnormal returns for different event windows.

To assess the average magnitude and statistical significance of stock price changes following announcements, we want to separate the effect of the news from the unrelated effects. We assume that the stochastic process generating security rates of return is:

$$Ret_{i,t} = \mu_{i,t} + \epsilon_{i,t} \text{ where } E(\epsilon_{i,t}) = 0 \text{ and the } cov(\epsilon_{i,t}; \epsilon_{i,t-1}) = 0 \tag{4}$$

for all firms and dates. The non-stochastic term is a component determined based on the assumed asset pricing model and the assumed normal distribution of the stock returns. In order to evaluate the impact of new information on security prices, we detach the error term from an estimation for $\mu_{i,t}$. Be-

[19] Danis (2013) argues that the growing CDS market is responsible for the disappearance of exchange offers because it has minimized the bondholders participation to these offers. If bondholders are hedged in the CDS market they may not be willing to exchange their securities unless they gain more than face value. Finally, the offer has to be sufficiently attractive to avoid the 'free rider' problem.

cause the error term includes both security specific effects and market wide influences, the estimation is done through CAPM, Fama-French three-factor model, Fama-French three-factor model with momentum which specifies the statistical relationship between stock return and possible risk factors. We then subtract the estimated value from the realized return on the stock to have a value for the abnormal returns.

[Insert Table 5 here]

Table 5 reports calendar time abnormal returns for firms that perform equity for debt swaps (Panel A) and firms that perform SEOs dividing them according to the destination of the proceeds in the SEO filing (Panel B).

The market reaction for exchange offers is significantly negative across all the event windows used. Seasoned equity offering firms which state 'repaying debt obligations' as the motive behind the issue, are financially safer then exchange offers' firms but worse than firms who state 'investment' or 'distribution to shareholders' as the stated use of proceeds. Adjusting through market model and FF3 factors model we find that the cumulative abnormal returns in a month from the announcement of the swap goes down to -15% and -17% respectively. These figures are a clear evidence of the fact that markets believe the firm is close to financial distress and has no bright future expectations.

The data in Panel B, show that aligned to what already established in the literature, the market reaction to SEOs announcements is on average negative. An exception makes the last group in which the stated motivation for the issue is distribution to shareholders. The cumulative market reaction turns positive in ten days after the announcement. This is also aligned to a part of the corporate literature in which the market reacts positively to events of share repurchases or dividend distributions announcements.

The market reaction to the issues that state 'reduction in leverage' as a motivation behind the stock issue is negative and significant across all specifications. Interestingly, the short-run CARs of those issues is worse than firms whose stated motive is 'investment' or 'distribution to shareholders', but it is not significantly different from those which state 'general corporate purposes' as intended use of proceeds. These results are aligned with Autore et al. (2009) and Silva and Bilinski (2015) who investigate the relation between stated use of the proceeds and post-issue performance of stock issuers, in the US and UK respectively. The abnormal returns suggest that issuers with specific plans about investment are credibly signaling positive NPV projects while issuers that cite 'debt repayment' or 'general purposes' are more

likely to be financially distressed or opportunistic market timers.

4.2 SEOs with 'Buyback debt' versus SEOs with 'Cash hoarding'

According to the definition of LDRs explained in section 3.1 we are able to identify 659 cases of seasoned equity offerings that serve to retire debt and 1640 seasoned equity offerings that serve to hoard cash out of a full sample of 2823 SEOs. Table 6 reports their frequency across industries (Panel A) and across years (Panel B). The biggest number of both types of LDRs happens in the electronic equipment industry and the healthcare&drugs industry. Firms have issued equity and retired debt the most in 2009, while they have issued and hoarded cash the most in 2015. The fact that the first type of LDRs is concentrated in the crises year is aligned to the reasoning in section 4.1 that firms have performed LDRs even though that avoided stating it on the SEO filings.

If the threshold in 3.1 is changed to 2.5% from 5%, the sample increases considerably given that the requirement is lower. But at the same time the significance of the results in the empirical analysis goes down. For this reason we do not report the results for the threshold of 2.5% in the paper.

[Insert Table 7 here]

Table 7 illustrates firm characteristics for the two types of LDRs. Firms who perform buybacks have a higher starting level of leverage than firms hoarding cash. It is interesting to notice that firms which hoard the cash are in 60% of the cases firms with almost all equity, which means that these firms are not highly indebted and yet issue stock to create cash buffers. This suggests a potential market timing motivation behind the issue or alternatively zero leverage firms. The market timing motivation is also suggested by a much higher Tobin's Q for this group of firms. Moving to the group that retires debt the 'almost all equity' firms percentage goes down but still remains relevant, at 37%. While all SEO firms have negative profitability, the LDR firms have lower profits in the pre-issue quarter. Surprisingly, the firms which hoard cash have a lower profitability than those who buy back debt. This statistic suggests that this group might have no investment opportunities sustained by a negative investment in fixed assets as well. We also notice that firms, which carry out LDRs are on average smaller firms than other SEO firms.

4.2.1 Leverage decreasing recapitalizations and bankruptcy risk

In Table 8 we provide statistics on the percentage of LDRs (buyback type or hoarding type) that are in each of the three 'financial safeness' groups in the quarter prior to the issue. We measure financial safeness of the firms through the three proxies we introduced above: lagged market leverage, synthetic credit rating based on the interest coverage ratio and the Altman Zeta Score.

We can easily notice from the data in the first panel that 56% of the firms that undertake a leverage decrease recap of the first type are financially sound as measured by the Altman Score. The percentage is even higher when moving to the second type of LDRs, meaning the firms which hoard cash. Given the numbers in the univariate analysis, we would surely reject the first hypothesis. The practical idea behind the first hypothesis was the following: if the firms undertake LDRs only when close to bankruptcy, then we should not observe leverage decreasing recapitalizations out of the distressed firms group. The statistics suggest that the equity for debt swap is the only type of LDR that happens mostly when close to distress while firms that perform an LDR through buying back debt or hoarding cash are financially sound for the biggest share.

However, at the same time we are aware of the fact that firms might undertake practices of leverage decreasing operations which are not part of this study. For this reason we want to examine through a multivariate analysis if still exists a significant negative relationship between financial condition and propensity to do an LDR, as the literature suggests. Altman Z-score is a comprehensive indicator of the financial condition of a firm but it does not consider all the factors that might lead a firm to a leverage reduction. The capital structure literature identifies a large number of cross sectional variables that appear related to leverage. Frank and Goyal (2007) show that only some of these factors are financially significant. Putting together the empirical evidence for factors that exhibit the most robust correlation with leverage, and our preliminary analysis of the financial condition of firms that do LDRs we set the stage for the multivariate analysis that follows.

[Insert Table 9 here]

Through the multinomial logit regressions we check the link between the financial distress and LDR type, and explore the potential other firm's characteristics that might drive the decision to undertake or not a leverage decreasing recap. As reported in the first column of Table 9, the probability that any firm performs a LDR are 0.3 higher when the firm is moving from an investment grade rating to a junk rating.

When looking at the seasoned equity offerings firms only (column 2), that probability goes down to 9%[20]. So, when an issuing firm is moving from a high rating to a distressed one the chances of undertaking a LDR will go up by approximately 0.1 if no other controls are taken into account.

Further we focus on the subfamily of firms who issue equity and undertake a LDR, to see the relationship between financial distress condition and choice of LDR type within the LDR firms. Column (3) in Table 9, tells that undertaking a buyback LDR is on average less probable if the SEO firm is financially sound. Column (4) shows that if a firm is financially sound in the pre-issue quarter the chances of the SEO firm to perform a hoarding LDR are higher. In these two estimations no other regressors were taken in consideration. In the equations (5) and (6) in Table 9 we add other variables that might be effective influence-rs of the decision to do a certain type of LDR. The control variables are those considered in the previous literature, for example, the log of the assets, the level of leverage and the capital expenditure. When adding other controls the result does not change, and remains significant for both equations.

According to the interpretation of the logistic regression with dichotomous dependent variable and categorical predictor variable, the coefficient in front of the 'financial distress' variable is equal to the log (the chances of distressed firms to make a DR LDR / the chances of safe firms to make a DR LDR) = 0.274 which in turn gives that the chances of distressed firms are $e^{0.274}$= 1,31 times the chances of safe firms. When going closer to a distressed condition the probability of performing an LDR of the buyback type increases by 30% while the probability of performing a cash hoarding type of LDR goes down by 25%.

These are economically important numbers, and the financial distress variable is significant across all specifications.

4.2.2 Post-LDR short-run and long-run stock market reactions

The event study we perform here focuses on announcement effects of equity issues used to buy back debt (Type 1 of LDR) and equity issues used to hoard cash (Type 2 of LDR). Considering the particular time

[20] Remember that according to the interpretation of the logistic regression with dichotomous dependent variable and categorical predictor variable, the coefficient in front of the 'financial soundness' variable is equal to the log (the odds of distressed firms to undertake a LDR / the odds of safe firms to undertake a LDR) = 0.081 which in turn gives that the odds of distressed firms are $e^{0.081}$ = 1,09 times the odds of safe firms.

involvement of the events in our own definition of LDRs, meaning that the LDR types are revealed only in the quarters following the SEO, we perform a similar event study with the one in section 4.1 but for longer windows. The long run only strengthens the differences between the two types of LDR.

Table 10 reports mean CARs for a 3-month horizon following the SEO, for a 6-month and 12-month horizon beginning in the month after the SEO. The first panel provides results for the first type of LDRs, the debt reducing firms.

[Insert Table 10 here]

The 6-month CAR for the debt reducing strategies becomes even more negative reaching an average of -4% across the different model specifications, while the 6-month CAR for cash hoarding firms turns positive to an average of +0.4%. The one year cumulative effect remains negative for the first type of LDR while becomes even more positive for the second type (0.5; 1.5 and 2.6 percentage points respectively). This result is consistent with a real option value of cash holdings like in Gamba and Triantis (2009), Kisser (2013) and DeAngelo et al. (2018).

Finally, we regress the cumulative abnormal returns (CARs) on the type of LDR and the different control variables. Table 11 reports OLS and fixed effects regression results of 6-month CARs and 1-year CARs, on 'cash hoard' and 'debt retire' dummies and additional controls.

[Insert Table 11 here]

The regressions include a firm's size calculated as the firm's market value of equity and book to market value as control variables because both were shown to be good predictors of return. The independent variables are measured at the quarter of the equity issue while the dependent variable is measured at 6 months and one year from the issue. With this tests we compare the explanatory power of the type of LDR in the post-issue performance of firms given that the firm is issuing stock.

The results on Table 11 show that the cash hoarding type has predictive power for longer run stock returns even though they are statistically significant only at the 5% level. Issuing to hoard the cash contributed to a higher cumulative abnormal return. The opposite is happening for SEOs with debt retirement but the relationship is significant at only one of the specifications, the one in which we include industry and year fixed effects. Consistent with other research both size and book to market are significant

across all regressions, with book to market being economically more important than size.

5 Final remarks

The common view, in dynamic capital structure theory, is that firms do not decrease their level of leverage unless they are close to bankruptcy. Since a firm might decrease the level of leverage, because is constantly optimizing their capital structure and actively adjusting leverage towards the target, we believe that avoiding bankruptcy is not the only motivation behind this decision. In order to test our hypothesis we gather a decade of corporate data from SDC, Crisp and Compustat. Via multivariate logit regressions, we find that while distressed firms are more predisposed to reduce leverage compared to financially safe firms, also the latter's undertake leverage-decreasing recapitalizations quite often. We find that in general, highly leveraged firms, financially sound or not, dislike undertaking LDRs.

LDRs are classified according to the channel through which the leverage reduction is done: increasing cash, reducing debt or equity for debt swaps. Aligned with the distress literature we find that firms who perform equity for debt swaps are in financial distress and the market reaction to those event is highly negative. Additionally, we run an event study for the other two types of LDR and find that there are significant abnormal returns on the days after a leverage decreasing recapitalization is announced. The stock market reaction to these announcements is typically negative but it varies across types of LDRs and event window size. The 3-day window valuation effects are the most negative for equity for debt swaps, considerably less negative for buybacks of debt and least negative for cash hoarding firms.

Considering that the two here-defined LDR types are revealed only later, because identified through changes in balance sheet data in the quarters following the issue, we do the same analysis for longer event windows. The longer run better captures the dissimilarities between the three groups. The CAR for the exchange offers becomes even more negative -16.8%, while the CAR for 'hoarding cash' firms turns positive and significant +1%. Our results are consistent with a real option value of cash holdings while goes against a market-timing explanation in which firms increase cash buffers when the stock is overvalued.

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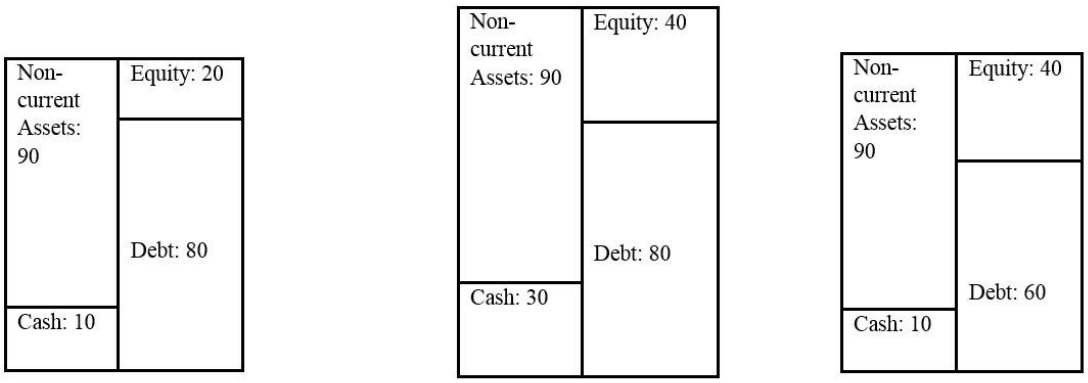
Figure 1: Alternative ways to decrease the level of leverage in a firm

Figure 1 exhibits the three different alternatives to reduce leverage. The figure shows how the firm's balance sheet items change under each of the alternatives, when the firm issues 20 units of new equity. All alternatives, reduce the net leverage ratio by 0.22, from an assumed initial ratio of 0.78 to a new ratio of 0.56.



Initial Balance Sheet

Balance sheet after LDR

I) Issue equity and hold the proceeds

II) Issue equity and buy back debt
III) Equity for debt swap

Lev. Ratio = 80 / (90+10) = 0.8

Net Lev. Ratio = (80 - 10)/ 90 = 0.78

Lev. Ratio = 80 / (90+30) = 0.67

Net Lev. Ratio = (80 -30) / 90 = 0.56

Lev. Ratio = 60 / (90+10) = 0.6

Net Lev. Ratio = (60 -10)/ 90 = 0.56

Table 1: Sample selection

The table presents the sample selection process.

Sample selection	Observations	Firms
Quarterly Crisp/Compustat (CCM) sample 2007 - 2017		
Initial CCM sample	290,965	12,702
Merge with Crisp and SDC[a]	287,274	11,622
Keep U.S. domiciled only	253,865	10,218
Keep industrial firms only[b]	126,512	5,054
Drop if missing book value	126,171	5,054
Drop if missing information on LDRs[c]	120,934	4,920
Drop if missing other relevant variables		
Final	**102,069**	**4,401**

[a]For the Crisp data file we require availability of daily stock returns data; In SDC we consider only equity offerings that are not initial public offerings or secondary sales from existing shareholders, and in addition they should have the stated use of proceeds in the filing.

[b]Eliminate utilities (SIC codes 4899-5000), financial firms (SIC codes 5999 - 7000) and governmental entities (SIC codes greater than 8999)

[c]We define a LDR as a contemporaneous equity issue and debt buyback or alternatively as a contemporaneous equity issue and cash hoarding. To calculate the change in debt or cash we require changes in (long-term debt) and (cash minus retained earnings) in the three quarters following the issue. We don't consider the seasoned equity offerings for which we cannot calculate those changes and therefore cannot identify a LDR.

Table 2: Distribution of seasoned equity offerings and stated use of proceeds over time and across industries

This table reports the distribution of seasoned equity offerings (SEOs) divided according to the stated use of proceeds on the SDC SEO filing, across industries (Panel A) and across years (Panel B). The full sample of SEOs consists of 2823 issues between January 2007 and December 2017, 2800 of whom have the stated use of proceeds in their filing. We do not include initial public offerings or secondary sales. We are able to identify 18 different stated use of the proceeds in SDC. We regroup those motives into four categories: Investment, General Corporate Purposes, Debt Reduction and Distribution to Shareholders.

Panel A: Fama-French 12 industries classification

	Stated use of the proceeds on the SDC filing			
Industry	Investment	General Corporate Purposes	Leverage reduction	Distribution to sharehlds
Consumer NonDurables	4	45	10	21
Consumer Durables	7	43	7	15
Manufacturing	8	115	18	52
Oil, Gas, and Coal	29	215	78	47
Chemicals and Allied Products	13	33	10	15
Electronic Equipment	64	251	22	124
Telecommunication	5	22	8	12
Wholesale, Retail	8	94	30	122
Healthcare, Medical, Drugs	273	660	35	48
Other	27	183	41	99
Total	438	1,661	259	555

Panel B: Frequency by year

	Stated use of the proceeds on the SDC filing			
Year	Investment	General Corporate Purposes	Leverage reduction	Distribution to sharehlds
2007	4	78	4	13
2008	0	91	1	12
2009	3	310	5	25
2010	3	252	10	52
2011	40	137	37	59
2012	58	133	37	55
2013	59	178	29	113
2014	87	119	45	105
2015	150	69	49	78
2016	19	190	22	31
2017	15	104	20	12
Total	438	1,661	259	555

Table 3: Financial safety and type of SEO

The table presents the frequency (in percentages) of the equity issue sample split by stated use of proceeds and by pre-issue financial health proxies. To define the level of financial health of the firm we use three different measures: the market leverage level, the synthetic rating based on the interest coverage ratio and the Altman Z_Score. Market Leverage is defined as book debt divided by the sum of book debt and market equity, where market equity is equal to common shares outstanding times the stock price at the end of the fiscal quarter. For the interest coverage ratio we follow Lamont, Polk and Saa-Requejo (1997) and use a slightly different from the traditional one. The construction is explained in Section 4.1.1. and Appendix A. The Altman Zeta Score is the result of five weighted financial ratios. The five ratios and their relative weighs are based on past history of defaulted firms. The construction is explained in Appendix B.

Altman Z_score	Financial safety	Investment	General Purpose	Debt Retirement	Distribution
Z_score >3	Investment grade	55 %	40 %	24 %	54 %
3 >Z_score >1.8	Medium	7 %	12 %	21 %	21 %
1.8 >Z_score	Junk	38 %	48 %	55 %	25 %
Synthetic Credit Ratings	Financial safety	Investment	General Purpose	Debt Retirement	Distribution
A- to AAA	Safe	45 %	38 %	26 %	49 %
BBB	Medium	3 %	1 %	3 %	15 %
C; D	Junk	52 %	61 %	71 %	36 %
Market leverage	Financial safety	Investment	General Purpose	Debt Retirement	Distribution
0.3 >ML	Safe	90 %	75 %	51 %	63 %
0.6 >ML >0.3	Medium	8 %	17 %	35 %	30 %
ML >0.6	Risky	2 %	8 %	14 %	7 %

Table 4: MultiLogit regressions of Type of SEOs on credit risk measures

The table displays multilogistic regressions of the Equity issue for Investment dummy, Equity issue for General purposes dummy and Equity issue for Leverage reduction dummy on financial distress measure and other controls. The measure we use for the financial safeness is the Altman Z_score. Each firm-quarter is assigned to a group; groups are updated each quarter. The firms in the lowest group are the safest; the firms in the upper group are the ones with the highest distress risk. Once we calculated the Z-score we define the categorical variable 'Financial distress' that takes three values: one for companies who are safe (Z Score above 2.99), two for those who are in the grey area (Z score between 1.8 and 2.99) and three for the ones that are in 'Distress' zone (Z score below 1.80). All other independent variables are winsorized at the first and 99th % level. Book leverage ratio is defined as book value of debt over the book value of assets; Size is the log of total assets; the percentage of firms that have zero leverage and the percentage of firms that have almost zero leverage; profitability defined as operating income before depreciation over book value of assets; Cash and Equivalents, Retained Earnings, Capex and R&D are the respective Compustat items scaled by total assets; Tobin's Q is defined as the sum of market value of equity and book value of debt over book value of total assets in the period prior to the issue.

	(1)	(2)	(3)	(4)	(5)	(6)
	Use_Inv	Use_Gen	Use_Ret	Use_Inv	Use_Gen	Use_Ret
Financial Distress	**-0.334*****	**0.0003**	**0.314*****	**-0.129**	**0.0936**	**0.313**
	(-4.43)	(0.01)	(3.70)	(-1.26)	(1.01)	(1.59)
Book Leverage				-1.449**	-0.0159	1.282
				(-2.82)	(-0.04)	(1.79)
Size				-0.145*	0.346***	0.122
				(-2.16)	(6.02)	(1.00)
Cash and Eq.				0.00075	-0.00621**	-0.0014
				(0.42)	(-2.91)	(-1.68)
Retained earnings				0.0236	0.00166	-0.0109
				(1.09)	(0.08)	(-0.25)
Capex				-11.67**	-3.590	-2.063
				(-3.23)	(-1.91)	(-0.52)
RD				-1.020	-5.650***	-7.408
				(-0.88)	(-3.76)	(-1.88)
Tobin Q				0.0536	0.114***	-0.0833
				(1.44)	(3.56)	(-0.97)
Constant	-1.359***	-0.188	-2.918***	-0.419	-1.859***	-2.487**
	(-8.69)	(-1.72)	(-14.02)	(-1.04)	(-5.11)	(-3.18)
Observations	2052	2052	2052	1107	1107	1107

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Short-term Post-Swap performance and Post-SEO performance by stated motive for the issue

The table presents three days, ten days and thirty days cumulative abnormal returns for firms which perform exchange offers (Panel A) or seasoned equity offerings (Panel B). The second group is further split by stated use of the proceeds: investment; general corporate purposes; leverage reduction; distribution to shareholders. The first, second and third columns report the market adjusted abnormal return while the fourth, fifth and sixth columns report the Fama-French three-factor adjusted abnormal return. We run a time series regression for each firm-day of the excess return over the risk-free on the market excess return/ three Fama-French factors , respectively from day -120 to day -10 relative to the filing day of the offering. Once we have estimated the coefficients we compute the expected returns for days from -10 to +30 using the estimated coefficients from the factor regression, the relevant day three factors, and replacing the intercept with the risk-free rate of return. The return in our table will then be the realized return minus the market adjusted/ FF3 expected return.

Panel A: Exchange offers

	Market model adjusted CARs			Fama-French three factor models adjusted CARs		
	3-days	10-days	31-days	3-days	10-days	31-days
mean	**-.06488*****	**-.10884*****	**-.15542*****	**-.06678*****	**-.11657*****	**-.17597*****

Panel B: Seasoned equity offerings

	Market model adjusted CARs			Fama-French three factor models adjusted CARs		
	Primary stated use: Investment					
	3-days	10-days	31-days	3-days	10-days	31-days
mean	-.03483***	-.02262***	-.01960*	-.03609***	-.02645**	-.02111*
	Primary stated use: General Corporate Purposes					
	3-days	10-days	31-days	3-days	10-days	31-days
mean	-.04112***	-.03474***	-.027425***	-.040505***	-.033978***	-.0257046***
	Primary stated use: Leverage Reduction					
	3-days	10-days	31-days	3-days	10-days	31-days
mean	**-.054796*****	**-.054493*****	**-.048490****	**-.053501*****	**-.05470*****	**-.05177****
	Primary stated use: Distribution					
	3-days	10-days	31-days	3-days	10-days	31-days
mean	-.00134**	.00069*	.00583*	.00081**	.00148*	.00622*

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Distribution of Types of LDRs over time and across industries

This table reports the distribution of seasoned equity offerings (SEOs) that serve to retire debt, SEOs that serve to hoard cash and SEOs that serve for investment or acquisitions, across industries (Panel A) and across years (Panel B). The full sample of SEOs consists of 2,823 issues between January 2007 and December 2017. From those we are able to identify 1,640 cases of cash hoardings, 659 cases of debt retirement and more than 1,000 cases with other uses.

Panel A: Fama-French 12 industries classification

	Type of LDR		Other
	SEO & Cash hoarding	SEO & Debt retirement	SEO & Other
Consumer NonDurables	22	15	45
Consumer Durables	26	20	23
Manufacturing	87	55	79
Oil, Gas, and Coal	143	67	204
Chemicals and Allied Products	32	15	31
Electronic Equipment	285	103	141
Telecommunication	19	4	23
Wholesale, Retail	48	49	167
Healthcare, Medical, Drugs	864	263	117
Other	114	68	213
Total	1640	659	1043

Panel B: Frequency by year

	Type of LDR		Other
Year	SEO & Cash hoarding	SEO & Debt retirement	SEO & Other
2007	45	17	43
2008	54	30	31
2009	211	119	86
2010	167	82	124
2011	147	58	112
2012	170	61	99
2013	209	75	153
2014	189	69	147
2015	224	69	120
2016	154	56	94
2017	70	23	34
Total	1640	659	1043

Table 7: Descriptive statistics

The table displays average firm characteristics for the quarters in which firms issue stock (All SEO firms, column 1), for quarters in which firms issue stock and perform debt buybacks (Type 1 LDR, column 3) and last, for quarters in which firms issue and hoard the cash (Type 2 LDR, column 5). The table displays average values of the following variables: the lagged market leverage ratio defined as the ratio of book value of debt over the sum of book value of debt and market value of equity; the lagged book leverage ratio defined as book value of debt over the book value of assets; the percentage of firms that have zero leverage and the percentage of firms that have almost zero leverage; profitability defined as operating income before depreciation over book value of assets; R&D and Capex are the respective Compustat items scaled by total assets; Investment in fixed assets is the change of investment in non current assets; lagged Tobin's Q defined as the sum of market value of equity and book value of debt over book value of total assets in the period prior to the issue; size which is the log of total assets. All variables are winsorized at the 1st and 99th percentile to remove the influence of outliers. Total sample of 2,811 SEOs, 4,401 firms and 102,069 firm-quarters.

	All SEOs		Type_LDR			
			Debt Buyback		Cash Hoarding	
Variable	**Mean**	**Obs**	**Mean**	**Obs**	**Mean**	**Obs**
Lagged Market Leverage	0.189	2,626	0.213	594	0.112	1,091
Lagged Book Leverage	0.280	2,699	0.319	613	0.193	1,123
All Equity	0.212	2,811	0.189	636	0.328	1,166
Almost All Equity	0.401	2,811	0.368	636	0.591	1,166
Lagged Cash Ratio	0.339	2,699	0.366	613	0.494	1,123
Profitability	-0.043	2,776	-0.065	627	-0.090	1,145
RD	0.067	1,750	0.080	446	0.081	918
Capex	0.036	2,808	0.033	636	0.028	1,164
Investment	-0.098	2,475	-0.126	570	-0.203	1,062
Lagged Tobins Q	2.813	2,626	2.726	594	3.703	1,091
Size	5.799	2,811	5.313	636	4.911	1,166

Table 8: Cash Hoarding versus Debt Retirement: Frequency of types of LDR according to the credit risk level

The table presents the frequency (in percentages) of the two types of LDRs by pre-issue financial health proxies. To define the level of financial health of the firm we use three different measures: the market leverage level, the synthetic rating based on the interest coverage ratio and the Altman Z_Score. Market Leverage is defined as book debt divided by the sum of book debt and market equity, where market equity is equal to common shares outstanding times the stock price at the end of the fiscal quarter. For the interest coverage ratio we follow Lamont, Polk and Saa-Requejo (1997) and use a slightly different from the traditional one. The construction is explained in Section 4.1.1. and Appendix A. The Altman Zeta Score is the result of five weighted financial ratios. The five ratios and their relative weighs are based on past history of defaulted firms. The construction is explained in Appendix B.

Altman Z_score	Level of financial safety	Cash hoarding	Debt Retirement	Investment
Z_score >3	Investment grade	70 %	56 %	53 %
3 >Z_score >1.8	Medium	5 %	6 %	15 %
1.8 >Z_score	Junk	25 %	38 %	32 %
Synthetic Credit Ratings	**Level of financial safety**			
A- to AAA	Safe	41 %	30 %	36 %
BBB	Medium	0 %	2 %	10 %
C; D	Junk	59 %	68 %	54 %
Market leverage	**Level of financial safety**			
0.3 >ML	Safe	84 %	70 %	59 %
0.6 >ML >0.3	Medium	10 %	19 %	32 %
ML >0.6	Risky	6 %	11 %	9 %

Table 9: MultiLogit regressions of LDR type on financial distress measures

The table displays multilogistic regressions of the Equity issue for Cash Hoarding dummy and Equity issue for Debt Reduction dummy on financial safeness measure and other controls. The measure we use for the financial distress is the Altman Z_score. Each firm-quarter is assigned to a group; groups are updated each quarter. The firms in the lowest group are the safest; the firms in the upper group are the ones with the highest distress risk. Once we calculated the Z-score we define the categorical variable 'Financial distress' that takes three values: one for companies who are safe (Z Score above 2.99), two for those who are in the grey area (Z score between 1.8 and 2.99) and three for the ones that are in 'Distress' zone (Z score below 1.80). All other independent variables are winsorized at the first and 99th % level. Book leverage ratio is defined as book value of debt over the book value of assets; Size is the log of total assets; the percentage of firms that have zero leverage and the percentage of firms that have almost zero leverage; profitability defined as operating income before depreciation over book value of assets; Cash and Equivalents, Capex and R&D are the respective Compustat items scaled by total assets; Tobin's Q is defined as the sum of market value of equity and book value of debt over book value of total assets in the period prior to the issue.

	All firms	SEO firms				
	(1)	(2)	(3)	(4)	(5)	(6)
	LDR	LDR	cash_hoard	debt_retire	cash_hoard	debt_retire
Financial Distress	**0.274*****	**0.081***	**-0.226*****	**0.251*****	**-0.277***	**0.274****
	(8.53)	(2.07)	(-4.68)	(4.33)	(-2.48)	(3.04)
Book Leverage					1.224**	0.907*
					(2.85)	(2.56)
Size					0.502***	-0.212***
					(8.31)	(-4.46)
Cash					-0.00035*	-0.0000211
					(-2.12)	(-0.00)
Capex					3.088	-3.725
					(1.57)	(-1.79)
RD					-12.46***	-0.0422
					(-5.32)	(-0.05)
Tobin Q					-0.0290	-0.0269
					(-0.70)	(-0.83)
Constant	-4.610***	-0.710***	0.456***	-1.722***	-2.700***	-0.437
	(-65.45)	(-11.46)	(4.16)	(-12.54)	(-6.26)	(-1.42)
Observations	71,446	2,052	2,052	2,052	1,107	1,107

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Long-run abnormal returns by type of LDR

This table reports post-SEO abnormal stock returns by Type of LDR. Firms that fall in the cash hoarding group are those with contemporaneous stock issue and cash buffer increase while firms in the debt retirement group are those with contemporaneous stock issue and debt decrease. The first column reports the market adjusted abnormal return, the second one reports the Fama-French three-factor adjusted abnormal return and the third column reports the FF3 factor model with momentum. We run a time series regression for each firm-month of the excess return over the risk-free on the market excess return/ three Fama-French factors / four Fama-French factors, respectively from month -36 to month -12 relative to the filing month of the offering. Once we have estimated the coefficients we compute the expected returns for months from -11 to +36 using the estimated coefficients from the factor regression, the relevant month three factors (the relevant month four factors), and replacing the intercept with the risk-free rate of return. The return in our table will then be the realized return minus the market adjusted/ FF3/ FFM expected return.

Type_LDR 1	**Debt Retirement**			
	Market model	Fama-French 3F	FF 3F with Mom.	
Variable	Mean	Mean	Mean	Observations
CAR_3m	-0.033**	-0.041**	-0.026	632
CAR_6m	-0.035*	-0.055**	-0.030*	630
CAR_12m	-0.040**	-0.049**	-0.029	630
Type_LDR 2	**Cash Hoarding**			
	Market model	Fama-French 3F	FF 3F with Mom.	
Variable	Mean	Mean	Mean	Observations
CAR_3m	-0.035***	-0.023*	-0.021*	1,162
CAR_6m	-0.003	0.005**	0.010*	1,162
CAR_12m	0.005*	0.014**	0.026**	1,162

Table 11: Regressions of abnormal returns on type of LDR

This table reports OLS coefficient estimates in columns (1) and (3), Fixed Effects estimates in columns (2) from regressions of the long-term abnormal returns on type of LDR and other relevant firm characteristics. All variables are scaled by lagged total assets and winsorized at the 1st and 99th % level to remove the influence of outliers. Accounting data are from Compustat, and market data are from CRSP. The variables are: profitability defined as operating income before depreciation over book value of assets; Tobin's Q defined as the sum of market value of equity and book value of debt over book value of total assets in the period prior to the issue; Size as the log of total assets; Capex and R&D are the respective Compustat items scaled by total assets; Investment in fixed assets defined ad in Lewellen & Lewellen (2016). Cash_hoard is a dummy that takes the value one if a firm is issuing stock and hoarding the cash in the following 6 months and zero otherwise; Debt_retire is a dummy that takes the value one if a firm is issuing stock and buying back long-term debt in the following 6 months and zero otherwise.

	OLS	FE	OLS	FE
	Car6months	Car6months	Car1year	Car1year
Profitability	0.637**	0.410	1.334***	1.036***
	(2.85)	(1.81)	(4.86)	(3.75)
Tobin Q	0.00282	0.00223	0.00351	0.00286
	(0.93)	(0.74)	(0.87)	(0.72)
Size	0.00469	0.0160	0.0407**	0.0542***
	(0.38)	(1.25)	(2.69)	(3.48)
Capex	-0.810	-0.809	-2.098**	-1.796**
	(-1.57)	(-1.49)	(-3.29)	(-2.69)
R&D	0.662*	0.324	1.675***	1.250***
	(2.19)	(1.06)	(4.57)	(3.40)
Inv_FA	-0.00150	-0.00287	-0.0309***	-0.0306***
	(-0.23)	(-0.44)	(-3.50)	(-3.51)
Cash_hoard	**0.0333**	**0.0231**	**0.0895***	**0.0864***
	(0.78)	(0.52)	(2.31)	(2.50)
Debt_retire	**-0.0323**	**-0.0542***	**-0.0333**	**-0.0445**
	(-0.79)	(-2.33)	(-0.68)	(-0.92)
Constant	-0.0308	-0.122	-0.234*	-0.000179
	(-0.37)	(-0.57)	(-2.28)	(-0.00)
Year FE	no	yes	no	yes
Industry FE	no	yes	no	yes
Observations	1150	1150	1462	1462
R^2	0.014	0.055	0.049	0.081

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Appendix A - Synthetic credit rating

The below table relates the interest coverage ratio of a firm to a "synthetic" rating and a default spread that goes with that rating. The link between interest coverage ratios and ratings was developed by looking at all rated companies in the USA. The default spreads are obtained from traded bonds. Adding that number to a riskfree rate should yield the pre-tax cost of borrowing for a firm. Source: http://pages.stern.nyu.edu//datafile/ratings

For developed market firms with market cap > $5 billion			
If interest coverage ratio is			
>	≤ to	*Rating is*	*Spread is*
8.50	100000	Aaa/AAA	0.63%
6.5	8.499999	Aa2/AA	0.78%
5.5	6.499999	A1/A+	0.98%
4.25	5.499999	A2/A	1.08%
3	4.249999	A3/A-	1.22%
2.5	2.999999	Baa2/BBB	1.56%
2.25	2.249999	Ba1/BB+	2.00%
2	2.2499999	Ba2/BB	2.40%
1.75	1.999999	B1/B+	3.51%
1.5	1.749999	B2/B	4.21%
1.25	1.499999	B3/B-	5.15%
0.8	1.249999	Caa/CCC	8.20%
0.65	0.799999	Ca2/CC	8.64%
0.2	0.649999	C2/C	11.34%
-100000	0.199999	D2/D	15.12%

For all emerging market firms and developed market firms with market cap < $5 billion			
If interest coverage ratio is			
greater than	**≤ to**	**Rating is**	**Spread is**
12.5	**100000**	*Aaa/AAA*	*0.63%*
9.5	**12.499999**	*Aa2/AA*	*0.78%*
7.5	**9.499999**	*A1/A+*	*0.98%*
6	**7.499999**	*A2/A*	*1.08%*
4.5	**5.999999**	*A3/A-*	*1.22%*
4	**4.499999**	*Baa2/BBB*	*1.56*
4	**4.499999**	*Ba1/BB+*	*2.00%*
3	**3.499999**	*Ba2/BB*	*2.40%*
2.5	**2.999999**	*B1/B+*	*3.51%*
2	**2.499999**	*B2/B*	*4.21%*
1.5	**1.999999**	*B3/B-*	*5.15%*
1.25	**1.499999**	*Caa/CCC*	*8.20%*
0.8	**1.249999**	*Ca2/CC*	*8.64%*
0.5	**0.799999**	*C2/C*	*11.34%*
-100000	**0.499999**	*D2/D*	*15.12%*

Appendix B - Altman Zeta Score

The Altman Z-Score is found to be 80-90% accurate in predicting bankruptcy one year prior to the event. Taking in consideration that our sample is totally composed of public industrial firms, we use the industry Z-score that is calculated as follows:

$$1.2\frac{WorkingCapital}{TotalAssets} + 1.4\frac{RetainedEarnings}{TotalAssets} + 3.3\frac{EBIT}{TotalAssets} + 0.6\frac{MVE}{BVofDebt} + 1.0\frac{Sales}{TotalAssets} \tag{5}$$

Working capital over total assets measures liquid assets as firms in trouble will usually experience shrinking liquidity.

The second ratio indicates the cumulative profitability of the firm, as shrinking profitability is a warning sign.

EBIT over total assets shows how productive a company is in generating earnings, relative to its size.

The fourth ratio, market value of equity over book value of total liabilities offers a quick test of how far the company's assets can decline before the firm becomes technically insolvent, which means its liabilities exceed its assets.

Finally, asset turnover is a measure of how effectively the firm uses its assets to generate sales.