Why are firms unlevered?

Erik Devos
Upinder Dhillon
Murali Jagannathan
Srinivasan Krishnamurthy*

September 2009

JEL classification: D 92, G 32, H 20

Keywords: Leverage; Managerial entrenchment; Taxes; Financial flexibility

* Devos is from the Department of Economics and Finance, University of Texas – El Paso. Dhillon and Jagannathan, are from the School of Management, SUNY - Binghamton University. Krishnamurthy is from the College of Management, North Carolina State University, Raleigh. We thank Viral Acharya, Amber Anand, Honghui Chen, "Chiddi" Chidambaran, Chitru Fernando, Prem Jain, Jonathan Karpoff, Mark Leary, Anthony May, Kartik Raman, Husayn Shahrur, Mark Walker,and seminar participants at Bentley College, SUNY - Binghamton University, and Syracuse University for helpful comments. We thank John Graham for providing data on marginal tax rates and Andrew Metrick for making the G-Index data available. We thank Ming Liu, Joshua Spizman, and Xue Wang for research assistance. We retain responsibility for any remaining errors.

Why are firms unlevered?

Abstract

In this paper, we examine the motivations for firms to remain debt free. Using a sample of firms that have no debt for three consecutive years, we find little support for the managerial entrenchment, flexibility, or the tax hypotheses. These firms do not have weak governance mechanisms, they payout more cash, and have a higher marginal tax rate. Debt initiation decisions of these firms also offer no support for these explanations. These firms do not face takeover threats and activist blockholders emerge in fewer than 5% of the firms. We find that these results are generalizable to leverage increasing decisions of already levered firms. Instead, our results support the hypothesis that zero-debt firms are credit constrained. These firms lack access to debt markets. But, when profitable investments arise, they are able to raise debt (mainly via bank loans or other private sources). A majority of the firms explicitly state in their 10-Ks that they raise debt to finance investments, strongly indicating a causal link between debt initiation and investments.

Among non-financial, publicly traded, unregulated domestic US firms listed on Compustat, the proportion of firms that did not have *any* debt in their capital structure increases from 8% in 1990 to 20% in 2004, suggesting that low debt policies are becoming more common. Why do firms have no debt in their capital structure? Is it because zero-debt is optimal for them? Or, is it because they voluntarily keep debt levels low? Or, are they constrained from accessing the debt markets, which limits the use of debt financing? These questions form the focus of our paper.

The evidence that a large number of firms follow a low leverage policy has been an enduring puzzle in capital structure research. Graham (2000) finds that a typical firm following a conservative debt policy could increase its value by about 15% if it used the optimal amount of debt. The evidence in Lemmon, Roberts, and Zender (2008) suggests that conservative debt policies persist for long periods of time. If unlevered firms voluntarily choose to forsake debt financing, these findings suggest that they are leaving considerable money on the table. Examining the motivation for a firm to remain unlevered helps assess whether such a policy is a voluntary and value-reducing decision.

Researchers have advanced several reasons why firms may voluntarily choose low leverage. One stream of literature, following Jensen and Meckling (1976), argues that agency problems drive managers to adopt sub-optimally low levels of debt in their capital structure. These managers lever up only when there is a threat to their job security. While this explanation suggests that such a policy is value reducing, others offer views that suggest that such leverage may be optimal and may not reduce value. A second line of research suggests that a value maximizing manager may choose to retain debt capacity and optimally use low leverage.[1] The firm will tap its unused debt capacity to fund large profitable investments when they arise. A

[1] See, for example, Modigliani and Miller (1963, page 442), who state that firms may prefer to preserve flexibility by maintaining a "… substantial reserve of untapped borrowing power."

third line of research (e.g., DeAngelo and Masulis (1980)) argues that the presence of non-debt tax shields may reduce debt-related tax incentives for a firm. These firms would increase leverage in response to an increase in the potential tax benefits of debt.

In contrast to these explanations, the choice of low leverage may not be voluntary. Even if a firm would benefit from taking on debt (e.g., due to the debt tax shield) and prefers to lever up, credit constraints may prevent it from accessing debt capital, forcing it to remain unlevered. These firms may lack access to the capital markets and would be forced to rely on costly private debt financing (e.g., from banks). With a view to mitigating their risk, banks may require these firms to credibly commit to an appropriate use of funds before making the funds available. In other words, credit constrained firms may be unable to borrow from banks unless they can show the bank that they have a good investment that requires financing.[2] Faulkender and Petersen (2006) show that firms without access to public bond markets are underlevered by about 6 percentage points, suggesting that access to private debt markets via financial intermediaries (e.g., banks) does not fully compensate for the lack of access to public debt markets. They conclude that constraints on the ability of a firm to access public debt markets may explain the perceived under-leverage documented in prior studies.

In this paper, we test whether any of these reasons explain why firms have no leverage in their capital structure, using a sample of firms that remain unlevered for at least three consecutive years (hereafter, zero debt firms). We also test which of these hypotheses better explains the decision of zero debt firms to initiate debt in their capital structure.

While zero debt may be optimal for some firms, this sample is likely to contain a large fraction of firms for which zero debt will be a sub-optimal level of debt. If managerial

[2] Stiglitz and Weiss (1983) show that the threat of cutting off credit provides incentives for firms to undertake good projects. James (1987) finds that the stock market responds positively to announcements of bank loan agreements.

entrenchment is a valid explanation for low leverage, then these firms will try to choose the lowest level of leverage possible, i.e., zero. If these firms are constrained from accessing public debt market and if the constraints make private financing expensive, then they will have no leverage. Firms with zero leverage are also likely to be the ones that value flexibility the most, assuming flexibility is valuable. Further, when we analyze debt initiation, it represents a sharp change in the zero debt firms' debt policy and can be clearly identified as incremental debt rather than as an issuance of debt to replace maturing issues. In contrast, examining firms with low leverage as a proxy for firms following a conservative policy (rather than zero debt firms) may have a confounding effect on our inferences. For example, if existing debt includes bank debt, managers may already be subject to monitoring by the bank, making it more difficult to discern the incremental impact of managerial entrenchment on leverage.[3]

Our results do not support the hypothesis that managers of zero debt firms are more entrenched. In logistic regressions predicting zero debt status during 1990-2004, measures of internal and external governance mechanisms (e.g., percentage of outside directors, board size, ownership by blockholders, institutional ownership) do not indicate that unlevered firms have a weaker governance structure than levered firms. We also find that, compared to control firms, CEOs of zero debt firms are at least as likely (not less likely) to be turned over for poor performance. An examination of the debt initiation decision also rejects the role of managerial entrenchment in the decision of firms to follow a zero debt policy. Specifically, we find that changes in internal and external governance variables do not explain the choice to initiate debt. We find that ownership by blockholders increases in this period. However, using hand-collected information on blockholders, we find that the majority of the new blockholders that emerge are insiders or other weak monitors of management (e.g., corporations with product market tie-ups).

[3] Nevertheless, we examine whether our results also hold for a sample of firms that significantly increased leverage.

In the debt initiation year, new, monitoring blockholders such as hedge funds, pension funds, and investment partnerships emerge in fewer than 15% of the firms. Further, new blockholders who are considered potentially activist appear only in 5% of the firms. Only about 2% of the zero debt firms are subject to takeover bids prior to the debt initiation year, while 27% of them make takeover bids in the initiation year.

Our results offer little support for the role of financial flexibility in explaining debt conservatism. Zero debt firms are not more likely to retain debt capacity than their control firms . Furthermore, unlevered firms pay out significant amounts as dividends, whereas the flexibility argument would suggest that such firms should conserve cash. We find a similar lack of support when examining the debt initiation decision.

Our results also do not support the traditional tax explanation. Zero debt firms have marginal tax rates (MTRs) that are comparable to those of their levered counterparts, suggesting that the decision to forsake debt is not due to low tax benefits. Changes in MTRs also do not explain the decision to take on debt, both for the debt initiation sample and the sample of firms with large leverage increases. We find that almost 50% of the zero debt firms had a line of credit in the year *prior* to the debt initiation. In spite of the potential tax benefits of debt, these firms do not utilize their credit lines. Overall, the evidence suggests that the traditional tax considerations do not explain why firms choose to have no leverage.

In sharp contrast, our results offer strong support for the credit constraints explanation. As mentioned above, zero debt firms have significantly higher MTRs than levered firms, indicating that they could benefit from taking on leverage. However, compared to their levered counterparts, they are younger, lack a debt rating, and have made fewer investments, all of which are consistent with the existence of credit constraints. They have unutilized lines of credit in the

year prior to the debt initiation, suggesting that they are unable to draw down their lines of credit and lever up.[4] However, we document that the firms' investments significantly predicts the debt initiation decision. When large, credible, investment opportunities arise, they are able initiate leverage into their capital structure. Furthermore, almost two-thirds of the firms use either bank debt or loans from related parties rather than public debt. As an additional check of causality, we examine the annual 10-K reports filed by these firms in the debt initiation year. We find that in 60% of the cases, the firms explicitly state that the debt added in the initiation year was related to investments or acquisitions. The change in operating performance after debt initiation is positively linked to the amount of debt, showing that the debt is used to finance good projects. Overall, our results indicate that zero debt firms remain unlevered not because they are averse to taking on debt (as would be predicted by managerial entrenchment explanation), but because, in spite of significant tax benefits of debt, credit constraints prevent them from levering up.

We further evaluate whether our results are applicable to underlevered firms in general or are specific to zero-debt firms. The results for a sample of firms that increase leverage significantly by at least 10% in a year are largely consistent with the debt initiation decisions of zero-debt firms. Variables that are a proxy for governance or marginal tax rates have little explanatory power to explain the increase in leverage. These results indicate that the decision to take on debt is not due to increased threats to managerial entrenchment and substantially weakens managerial entrenchment as an explanation for debt conservatism in the broad cross-section of firms. We find support for the flexibility explanation in this sample. Importantly, these firms also appear to be constrained from accessing public debt markets.

[4] Banks may prevent firms from drawing on their credit lines, unless the firm can show that the proceeds will be put to good use. Huang (2009) finds that banks have considerable discretion in disbursing funds even under committed lines of credit. Sufi (2009) also finds that firms financed completely with equity have unutilized lines of credit.

The results in this paper contribute to the debt conservatism literature by assessing the importance of the different hypotheses that attempt to explain why firms remain unlevered. First, we document several findings that are new to the literature – e.g., evidence relating to the performance-related CEO turnover and the identity of new and existing blockholders (testing the managerial entrenchment hypothesis), changes in tax-related variables (testing the tax hypothesis), changes in need for flexibility (testing the flexibility hypothesis) and establishing a causal link between debt financing and investments using information in the 10-Ks (testing the tax benefits and credit constraints explanation).[5] Second, prior literature has not examined the relative importance of all these explanations simultaneously. For instance, Minton and Wruck (2001) find that firms following a conservative debt policy subsequently utilize their debt capacity to fund capital expenditures, but do not examine the role of entrenchment. Marchica and Mura (2007) examine the role of flexibility in the investment decisions for UK firms, but do not examine the role of taxes. Strebulaev and Yang (2006) conjecture, but do not test the hypothesis that entrenchment may explain why firms use a zero debt policy. Further, none of these papers examine credit constraints as a possible explanation. John and Litov (2008) provide results that complement ours and find that entrenched managers use more debt. Friend and Lang (1988) find an inverse relationship between managerial shareholdings and debt levels and that the debt ratio is higher in firms that have large outside blockholders, consistent with the entrenchment explanation. But, they do not directly examine firms with low leverage to address the low leverage puzzle, as we do.

[5] Korteweg (2009) finds that the underleverage result in his study is mainly due to zero leverage firms that also pay dividends. He concludes that the market expects them to lever up in the future to capture the benefits of leverage. Our findings complement his results. Constrained firms that do not have credible investment opportunities remain unlevered, but take on debt when a good investment opportunity comes up that they can credibly commit to pursuing with debt financing.

We note that we are not rejecting evidence from the literature that firms may increase leverage in response to entrenchment threats (as in Berger, Ofek, and Yermack 1997, Safieddine and Titman 1999). But, our evidence suggests that such transactions are not common and hence are unlikely to explain debt conservatism in a broad sample. Importantly, the pre-event leverage for the sample firms in these studies is not low. The mean leverage in Friend and Lang (1988), Berger et al. (1997), and Safieddine and Titman (1999) is around 22%, 25%, and 60% of total assets, respectively. The high level of pre-event leverage suggests that these managers are not trying to avoid the discipline from debt.[6] This limits the generalizability of the results from these papers to explaining why firms remain unlevered. In contrast to these papers, we focus on firms that use no debt for at least three consecutive years, a sample that is more appropriate for analyzing this puzzle.

Our results also have additional implications for research that studies how and when firms adjust their capital structure. An emerging literature examines the speed at which firms adjust their capital structure and finds that firms are slow to adjust their leverage towards their target.[7] Our findings indicate that the timing of debt adjustments coincides with periods of large investments. Because large investment shocks occur intermittently at discrete intervals (e.g., Cooper, Haltiwanger, and Power (1999)), constrained firms delay making significant adjustments towards their target leverage until good investments opportunities arise. Further, we document that when zero debt firms adjust their capital structure, the adjustments are large rather than being incremental. For example, the mean leverage change in our sample is 13.2% of assets,

[6] Mehrotra, Mikkelson, and Partch (2003) examine the financial policies of firms after a spin-off and conclude that managerial incentives and governance characteristics do not explain the cross-sectional pattern in leverage ratios.
[7] See, for example, Fama and French (2002), Leary and Roberts (2005), Flannery and Rangan (2006), and Byoun (2008). However, Chang and Dasgupta (2008) use simulations and show that similar results are also obtained when firms follow a random financing policy, suggesting that it is difficult to draw reliable inferences about the speed of adjustment from these studies.

which represents almost 60% of the leverage gap between zero and the target leverage (using the leverage ratio of control firms as a proxy).

The rest of the paper proceeds as follows. Section I describes the data and the explanatory variables used in the empirical tests. Section II presents an analysis of the factors that determine zero debt usage and Section III examines the factors that influence the debt initiation decision. Additional results pertaining to existing and new blockholders, takeovers, and firm performance, are discussed in Section IV. We also discuss whether our results for debt initiation are generalizable to other firms that increase leverage significantly. Section V concludes the paper.

I. Data and hypotheses

A. Sample

We identify all non-financial, non-regulated firms on COMPUSTAT and CRSP that have positive total assets and sales during 1990-2004. We exclude foreign firms, ADRs, and closed end funds, retaining only domestic US firms that have a CRSP share code of 10 or 11. We restrict our sample to the 1990-2004 period so that we can obtain data on our proxies of internal and external governance and we have available post-event data.

We define a firm-year as zero debt if the firm does not have any short-term or long-term debt (i.e., both COMPUSTAT #34 and #9 are zero) for three consecutive years ending in that year. We use an extended period of three years to define zero debt firms since we can then ascertain that this is not temporary or accidental. The debt initiation sample consists of all zero debt firms that subsequently started using debt financing (either COMPUSTAT #34 or #9 is greater than zero). We compare the sample firms to a set of control firms matched on calendar year, industry, size, and prior performance. Specifically, for each sample firm, we include *all*

firms that are in the same industry (2-digit SIC code) and that have similar size (total assets is between 70% and 130% of sample firm's total assets) and operating performance (return on sales is between 90% to 110% of sample firm's return on sales) in the prior year as control firms. If we are unable to find any matching firms, we use progressively less restrictive screens - using 1-digit SIC industry code instead of the 2-digit SIC code, eliminating industry as a matching criterion, or eliminating both industry and size as matching criteria - to identify control firms. Since we include all control firms that meet the criteria, there can be multiple control firms matching each sample firm.

Table I presents the frequency distribution of the sample firms. The proportion of publicly listed firms that have no debt in their capital structure increases near-monotonically from 8.4% in 1990 to 13.6% in 1997 and to 19.7% in 2004. The proportion of zero debt firms that utilized no debt for at least three consecutive years is 4% in 1990. This proportion also increases to 5.4% in 1997 and to 10.4% in 2004. The evidence is consistent with Bates, Kahle and Stulz (2009), who document a decrease in median debt ratios during this period. The zero debt firms come from 53 different two-digit SIC industries. There is moderate concentration, with three industries each contributing more than 10% of the observations.[8] Overall, the evidence suggests that conservative debt policy is an increasingly prevalent phenomenon among publicly traded firms in the US.

B. Is Zero Debt Optimal?

Before we test our hypotheses related to low leverage, we verify that the zero debt firms are indeed underlevered and that zero debt is not an optimal debt ratio for these firms. First, we use

[8] The three industries are electronic and other electrical equipment (SIC code 36, 519 observations), measuring and analyzing instruments (SIC code 38, 591 observations), and business services (SIC code 73, 1,131 observations).

the leverage of the matched control firms as a benchmark. The control firms have a mean debt ratio of 22.6%, suggesting that the sample firms may indeed be underlevered. Second we estimate regress the observed leverage ratio on several explanatory variables using all non-financial, non-regulated firms on Compustat, and use the regression coefficients to estimate the target leverage for our zero-debt firms.

We find that the zero debt firms have a mean predicted leverage target of 15.2% (median is 14.1%), indicating that with a debt ratio of zero, they are underlevered. As a check, we find that the mean target debt ratio for the control firms is 21.7% and is very close to the actual mean of 22.6%. The mean difference of 0.3% is not statistically significant, suggesting that our regression model provides a good estimate of the target leverage.

C. Explanatory variables

Since our zero-debt firms appear to be underlevered, we examine the four hypotheses that have been proposed in the literature for low leverage: entrenchment, flexibility, tax, and credit constraints hypotheses. We describe the variables that we use to test these hypotheses below.

Governance and monitoring: The managerial entrenchment hypothesis predicts that zero debt firms are more likely to exhibit poor governance characteristics that facilitate entrenchment.[9] Entrenched managers will use low leverage either to reduce firm-specific risk and protect their human capital (e.g., Fama (1980)), or to consume private benefits by reducing interest payments and increasing the resources under their control (Stulz (1990)), or to avoid the disciplinary pressures associated with leverage (e.g., Jensen (1986)).[10] They would also hold high levels of cash. When faced with shocks to entrenchment, they will increase leverage and pay out the

[9] Appendix Table A1 summarizes the predictions.

proceeds to shareholders (e.g., Berger et al. (1997)), and/or sell off assets and improve the firms' focus (e.g., Safieddine and Titman (1999)).

We rely on prior literature and use several variables as proxies for the level of managerial entrenchment. The first set of variables is related to the firm's internal governance structure. Prior literature suggests that firms benefit from having unaffiliated directors on the board (e.g. Weisbach (1988)). Others (e.g., Yermack (1996)) argue that smaller boards are able to monitor managers more effectively. Following this literature, we use both the percent of outside directors and board size as measures of internal governance.[11] We also include the percentage of shares owned by all officers and directors as an explanatory variable, but recognize that higher insider ownership may either align the managers' incentives with those of shareholders, or entrench managers (e.g., Morck, Shleifer, and Vishny (1988)) who would use less debt to reduce firm risk.

In addition to the internal governance measures, managers may also be subject to scrutiny by outsiders. Shareholders who own a large block of shares would not be subject to the free-rider problem and would have strong incentives to monitor managers and protect the value of their investment (e.g., Shleifer and Vishny (1986)). We measure block ownership as the sum of the percentage of shares owned by all 5% owners of the firm. In some of the analyses, we further classify the blockholders based on their identity and the likelihood that they will be active monitors. Several authors (e.g., Scharfstein (1988), Martin and McConnell (1991), Kini, Kracaw, and Mian (2004)) suggest that an active takeover market serves to discipline underperforming managers.[12] We use the percentage of firms in the same two-digit SIC code that are delisted from

[10] Morellec (2004) and Morellec, Nikolov, and Schurhoff (2008) show that manager-stockholder conflicts could explain the observed low leverage.

[11] Boone, Field, Karpoff, and Raheja (2007) find persistent patterns in the determinants of board composition and conclude that firms where managers' opportunities to consume private benefits are large or firms in which managers have substantial influence have larger and less independent boards.

[12] Along similar lines, Garvey and Hanka (1999) find that firms that were protected by the passage of "second generation" antitakeover laws reduced leverage, whereas unprotected firms increased leverage.

CRSP due to mergers in the prior year as an additional variable to measure the presence of external threats to managerial entrenchment. We use the G-index (from Gompers, Ishii, and Metrick (2003)) as an additional measure of the extent to which managers are insulated from the discipline imposed by takeover markets. We note that this index is available only for a restricted sample of firms. Finally, we include institutional ownership as a measure of external governance, but recognize that the literature is divided on whether financial institutions monitor the firms in which they hold investments.[13]

Flexibility: The notion that firms will preserve financial flexibility to fund future investments has been proposed in several prior studies. A recent paper by DeAngelo and DeAngelo (2007) concludes that firms will retain financial flexibility and use low leverage because this allows the firm to preserve the option to borrow and finance profitable investments in later periods. Under this model, firms would time their capital structure adjustments with periods of significant investments. Similarly, in a pecking order framework, firms may prefer to retain debt capacity and/or financial slack if information asymmetry would cause it to forego valuable investment opportunities (e.g., Myers and Majluf (1984)). In a survey of CFOs by Graham and Harvey (2001), respondents cite the desire to remain financially flexible as the most important factor influencing debt policy.

The flexibility hypothesis suggests that zero debt firms would be high growth firms with more variable cash flows, because they are likely to benefit more from retaining debt capacity.[14] We classify a firm as likely to benefit more from retaining flexibility (dummy variable = '1') if it

[13] There is considerable debate in the literature on whether institutions engage in monitoring. Grinstein and Michaely (2005) suggest that even if ownership by a single institution is small, various coordination mechanisms make institutional investors effective monitors of managers. Others (e.g., Coffee (1991), Parrino, Sias, and Starks (2003)) suggest that institutions would sell off their shares rather than monitor managers. Chen, Harford, and Li (2007) suggest that only some institutions (e.g., those with a long term orientation) actively engage in monitoring.

[14] Gamba and Triantis (2008) use simulations to estimate the value of flexibility and suggest that the value of flexibility is higher for high growth firms with volatile profitability.

has high growth opportunities (Tobin's Q, ratio of market value of assets to the book value of total assets, > sample median) and the earnings are volatile (earnings volatility, standard deviation of return on sales calculated over the prior five years, > sample median). Further, these firms would hold high levels of cash and would prefer to forego dividend payments and conserve cash. If these firms issue debt to fund investments, both investments and the number of employees will increase around the debt initiation.[15]

Tax: DeAngelo and Masulis (1980) suggest that the presence of non-debt tax shields may reduce the incentives for a firm to use leverage. Mackie-Mason (1990) finds that firms with high levels of net loss carryforwards are less likely to use debt, lending empirical support for this prediction. Graham (1996) simulates the marginal tax rates (MTRs) and finds that high tax rate firms issue more debt than low tax rate firms, suggesting an important role for taxes in the leverage decision. We test the explanatory power of the traditional tax-related reasons for low leverage by including net operating loss carry forwards and the MTR estimated before interest expenses as explanatory variables that are a proxy for the benefit that a firm can expect from the tax deductibility of interest.[16] We expect that zero debt firms will have low tax benefits from leverage and that they will lever up when the net tax benefit to leverage increases.

[15] The prediction that investment coincides with debt issues is different from the predictions of other models of dynamic capital structure. Some authors (e.g., Goldstein, Ju, and Leland (2001), Ju, Parrino, Poteshman, and Weisbach (2005)) develop models where a firm initially chooses a low level of leverage and retains the option to lever up in the future as the firm value increases, thus benefiting from larger tax shields. Alternatively, if the transactions costs of recapitalizations are high, firms may allow their leverage to vary within a range and rebalance at discrete intervals (e.g., Fischer, Heinkel, and Zechner (1989)). An important feature in these models is that they typically consider the investment decision to be exogenous and firms will not necessarily time their debt adjustments with investments. Zwiebel (1996) develops a model of dynamic capital structure under managerial entrenchment. In his model, debt serves as a commitment device rather than providing funds to undertake projects, and firms are always able to undertake good projects (the initial investment is assumed to be zero).

[16] The MTRs are estimated before interest (to minimize potential endogeneity concerns), and are from John Graham. Blouin, Core, and Guay (2008) suggest that the MTRs estimated by Graham are upwardly biased and develop alternative estimates of the MTRs. However, Graham and Mills (2008) conclude that their simulated book-MTRs are highly correlated with MTRs based on tax return data, suggesting that they are reasonably good proxies for the MTRs that may be used by managers in their decision-making. We also note that as long as the bias in the estimated MTRs is similar for zero debt firms and control firms, our inferences should not be affected.

Credit constraints: In the presence of credit constraints that limit access to public debt markets, firms may find it difficult to borrow from private sources (e.g., banks) even if they can benefit from taking on debt. This constraint may be more severe if the firm cannot commit to the bank that it will use the funds appropriately (e.g., to fund profitable new investments). Hence, these firms will use less leverage than what would be predicted by traditional capital structure arguments. When a sizeable investment materializes, these firms will be able to lever up. This suggests that zero debt firms are likely to have high marginal tax rates (not low, as would be predicted by the traditional tax explanation), indicating that the potential tax benefits are high. However, they would face constraints in accessing public debt markets and will be more likely to lack public debt ratings, as argued by Faulkender and Petersen (2006). Furthermore, they are likely to have fewer investments, which hinders their ability to credibly commit to making good use of the loan proceeds. These firms will lever up, primarily via bank or other private borrowing, when a profitable investment opportunity arrives. Note that it is not an increase in the tax benefits of leverage that induces the firm to take on debt. The different predictions regarding the tax benefits allows us to distinguish between the traditional tax explanation and the more nuanced tax benefits and credit constraints explanation.

II. Characteristics of zero debt firms

The four hypotheses make different predictions about the characteristics of zero debt firms (summarized in Appendix Table A1, panel A).[17] Briefly, the managerial entrenchment explanation suggests that entrenched managers avoid facing performance pressures arising from better governance mechanisms and choose a low leverage policy that does not commit the firm to disgorge cash. They protect their human capital by retaining large amounts of cash and may

invest in less risky projects. The financial flexibility hypothesis suggests that these firms will have high earnings volatility and growth opportunities, since preserving flexibility is more valuable for such firms. We expect these firms to avoid payouts to shareholders and conserve cash to finance future profitable projects. The tax hypothesis predicts that unlevered firms will have a low marginal tax rate and/or large tax shields such as tax loss carry forwards, which limits the potential tax benefit from leverage. The credit constraints explanation predicts that zero debt firms may have significant potential tax benefits, but they lack access to public debt markets. These firms are likely to have fewer investments, which prevents them from credibly committing to using loaned funds profitably.

A. Univariate results of zero-debt status

We begin the empirical analysis by comparing the characteristics of zero debt firms and levered, control firms matched on industry, size, and prior performance (Table II). We only include the first occurrence of a zero debt firm in order to avoid overlapping observations of the same firm from year to year.

Focusing on the internal governance measures, we find little support for the entrenchment hypothesis. Compared to control firms, the mean board size is smaller (6.4 vs. 6.9 directors) and the average insider ownership is higher (25.3% vs. 23.7%). The percentage of outside directors on the board averages 67.5% for the sample firms, which is similar to the average of 67.3% for control firms. There is no support for the entrenchment hypothesis from the external governance measures as well. The average ownership by 5% blockholders and takeover activity for zero debt firms (38.2% and 4.1%, respectively) are similar to those of control firms (39.0% and 4.0%), whereas the mean institutional ownership is higher for zero debt firms (31.1% vs. 26.9%). The

[17] Panel B summarizes the predictions around debt initiations. This is discussed in Section III.

average G-index for the zero debt firms is 8.0, and is significantly lower than the average of 8.8 for the other firms, indicating that the zero debt firms have fewer (not more) anti-takeover provisions than other firms.

We find mixed support for the flexibility hypothesis. Zero debt firms have significantly higher growth opportunities than levered firms (Tobin's Q of 2.9 vs. 2.2). The earnings volatility is also higher, even though only the difference in medians is statistically significant at conventional levels. The higher volatility of earnings would make it more difficult for the firm to rely on internally generated cash flows to fund future investments. We find that zero debt firms hold significantly more cash (43.6% of total assets) than levered firms (18.4%), consistent with both the entrenchment and flexibility hypotheses. Contradicting the flexibility argument that zero debt firms will not pay dividends and will conserve cash, the average dividend payout is 9.8%, and is significantly higher than the mean of 6.2% for control firms. However, the median dividend payout is zero.

We do not find support for the tax hypothesis either.. The average net operating loss carry forwards for the zero debt firms is 27% of total assets, and is similar to that for the control firms. The mean MTR is marginally lower as compared to levered firms (24.2% vs. 25.9%), but the magnitude of the difference is economically small. This suggests that the potential tax benefits from leverage are not smaller for zero debt firms, contradicting the tax explanation.

We find that the primary reason why our profitable sample firms remain unlevered is because that they are credit constrained. Faulkender and Petersen (2000) argue that many firms have low leverage, not because they do not demand leverage, but because the public markets fail to supply debt to these firms. Our evidence is consistent with this explanation. The average target leverage for our firms is 15%, and is not an artifact of firm size or industry effects because the

control firms are selected to match on firm size and industry and do have leverage. Since zero debt firms are profitable, they can gain from a positive tax benefit due to leverage, as indicated by an average MTR of 24%. We also find that zero debt firms have similar levels of investments compared to the levered firms. Along with the lack of support for the entrenchment hypothesis and the flexibility hypothesis, this suggests that these firms are unlevered not due to demand reasons, but because they are unable to access debt markets.

B. Multivariate results of zero debt status

In this section we report results from regressions that tests whether these four hypotheses help explain the decision of firms to remain unlevered. In Table III, we report the results of logistic regressions where the dependent variable is a dummy variable that takes the value '1' for zero debt firms and '0' for levered control firms. The explanatory variables include the cash ratio, flexibility dummy, and MTR. We also include one variable in turn for internal governance, external governance, and credit constraints, resulting in eight regression models. We include firm size and net fixed assets as control variables. We find that the coefficient on net fixed assets is significantly negative, but that on firm size is insignificant.

We find no evidence in support of the predictions of the entrenchment hypothesis. In Table III, the coefficients on both board size and proportion of outside directors on the board are insignificant at conventional levels in all models. With regard to external governance mechanisms, the coefficient on ownership by 5% blockholders is not statistically significant in any model. Further, the coefficient on institutional ownership is positive and significant in all models, opposite of the prediction made by the entrenchment explanation.

Consistent with both the flexibility and entrenchment arguments, zero debt firms hold significantly more cash than levered firms (Table III). However, the dummy variable indicating a need for flexibility (firms with both high growth and variable earnings) is not significant in any of the models in Table III. This substantially weakens the support for the flexibility argument.

The coefficient on the MTR in Table III is significantly positive, indicating that the zero debt firms are likely to have higher debt tax shields, not lower. This is the opposite of what we would expect, if the tax hypothesis was the primary reason for debt conservatism. But, this result is consistent with the credit constraints explanation, suggesting that zero debt firms may prefer to take on leverage rather than avoiding it. The coefficient on the dummy variable indicating whether or not the firm has a debt rating is negative and strongly statistically significant at the one-percent level in all models. The coefficient on investments is also negative and significant, further confirming that *ceteris paribus*, zero debt firms either do not have adequate investments to justify borrowing from a private intermediary such as a bank, or that the costly external funds renders many projects unprofitable. This further supports the argument that it is the supply side credit constraints and not a lack of demand for debt which may explain the decision of some firms to remain unlevered.

Overall, the inferences are consistent with the univariate results documented above, and do not support entrenchment, flexibility, or taxes as viable explanations for why firms use no leverage. The evidence strongly supports the credit constraints hypothesis.

Robustness tests: We conduct several additional tests to verify the robustness of this result.[18] First, in Table III, we include insider ownership as a measure of internal governance instead of board size and proportion of outside directors. If higher levels of insider ownership mitigate agency concerns, we expect it to have a negative coefficient. We also include the

proportion of firms taken over in the same industry as an additional measure of external governance and expect the coefficient to be negative. As an alternative measure, we use the G-Index and expect it to have a positive coefficient. Second, we include the dividend payout ratio as an alternative variable indicating a need for flexibility, and expect it to have a negative coefficient if such firms would prefer to not pay dividends and would conserve cash. Third, we replace the MTR with NOL carryforwards as a proxy for the potential tax benefits of debt, and expect the coefficient to be significantly positive under the tax explanation. We find that our inferences are robust to these alternative specifications.

As another check, we estimate Fama-Macbeth type annual regressions where the dependent variable takes the value '1' for zero debt firms and '0' for all other firms. The explanatory variables are the same as in Table III. We also replicate the robustness tests mentioned above. Overall, we continue to results that are similar to those documented in Table III and support the credit constraints explanation.

CEO Turnover in zero-debt firms: In Table IV, we conduct a second set of tests that further examines whether managers of zero debt firms are more entrenched. Specifically, if these managers are more entrenched, we would expect the likelihood of forced CEO turnover to be significantly smaller for these firms. A large body of literature examines the relationship between firm performance and the likelihood of forced CEO turnover. These papers hypothesize that the mechanisms that lead to managerial entrenchment lower the likelihood that a CEO is fired even when the firm performs poorly (e.g., Weisbach (1988)). Our tests of whether the managers of zero debt firms are entrenched follow the same "turnover performance sensitivity" methodology that is used in this literature.

[18] These results are not reported separately in a table, but are available from the authors upon request.

To examine CEO turnover, we collect CEO names and their ages from Compact Disclosure for every year in the 1992-2004 period. Consistent with definitions of forced CEO turnover used in the existing literature (e.g. Parrino (1997)), we define turnovers as forced if there is a change in the CEO name and the departing CEO is less than 60 years of age. This methodology allows us to identify the firm-years in which there is forced CEO turnover. We compute the prior calendar year buy and hold market-adjusted abnormal returns (using the CRSP value weighted index) as our measure of excess firm performance. We use the percentage of outside directors on the board as a control variable since firms with more outside directors may be more effective at turning over poorly performing managers (Weisbach 1988).[19] We also use firm size, measured by log of total assets, as an additional control variable.

The logistic regressions in Table IV predict CEO turnover as a function of a firm's zero debt status (1 if zero debt, 0 for control firms), excess performance, and an interaction variable (zero debt status * performance). The dependent variable takes a value of '1' for firm-years when there is a forced CEO turnover and '0' otherwise. The coefficient on performance is negative and significant in all models, as has been widely documented in the literature. The zero debt dummy is significantly positive in all three models, suggesting that the odds of forced CEO turnover are higher, and not lower, for zero debt firms. If the sensitivity of turnover to performance were lower for zero debt firms, we would have expected the coefficient on the interaction term (zero debt status * performance) to be significantly positive. However, the coefficient is insignificant in all the regressions. The results from the analysis of CEO turnover do not support the hypothesis that managers of zero debt firms are more entrenched.

[19] Denis, Denis, and Sarin (1997) suggest that ownership structure affects the level of monitoring and forced CEO turnover. Our inferences are unchanged when we add the percentage of insider ownership as a control variable.

We also replicate the three models in Table IV using Fama-Macbeth type annual regressions, where the zero debt dummy variable takes the value '1' for zero debt firms and '0; for all other firms. The results are similar, and suggest that managers of zero debt firms are not less likely to be turned over than their levered counterparts.

III. The debt initiation decision of zero debt firms

In this section, we examine the factors that induce zero debt firms to initiate debt into their capital structure. The four hypotheses make different predictions about changes in firm and governance characteristics around the time the firm abandons its zero debt policy (summarized in Appendix Table A1, panel B). Under the entrenchment hypothesis, the debt initiation decision would follow events that reduce entrenchment, such as a rise in external takeover threats, formation of a large block of shares, or a board that now contains a higher fraction of outsiders (e.g., Berger et al. (1997)). In the face of increased disciplinary pressure, these firms would reduce liquidity, increase payouts to shareholders, make fewer investments, or take other steps (e.g., restructure the firm via asset sales) to improve the firm's performance (e.g., Safieddine and Titman (1999)). The financial flexibility hypothesis predicts that the firm would initiate debt when the investment opportunities materialize and the firm does not anticipate financing needs in the near term. The tax explanation predicts that the debt initiation would be related to an increase in the firm's marginal tax rates and/or a decrease in tax loss carry-forwards. The credit constraints explanation suggests that the firm would borrow when it has a viable investment opportunity that it can credibly convey to a bank. Because these firms are screened out of public debt markets, the debt financing would occur primarily through banks or other private lenders rather than via public bonds.

We classify the first year that a zero debt firm took on debt (either long- or short-term debt is positive) as the debt initiating year. Among the zero debt firms that initiated debt into their capital structure during 1990-2004, 542 firms have available data for the following year. The debt initiations in our sample are spread out in time, ranging from a low of 18 initiations in 1991 to a high of 61 in 1996. There is moderate concentration across industries, since we find three industries that each have more than 10% of the sample. The industries with large representation include business services (SIC code 73) with 111 firms, measuring and analyzing instruments (SIC code 38) with 66 firms, and chemicals and allied products (SIC code 28) with 60 firms. None of the other two-digit SIC industries have more than 10% of the observations.

A. Univariate results

We compare the changes in characteristics of debt initiating firms relative to two sets of control firms in the initiation year (year 0): (i) the same levered, control firms that we have used in Tables II-IV, and (ii) zero debt firms that do not initiate debt during the year. We use both control samples to compare changes in characteristics around the debt initiation decision and the second control sample to examine the determinants of the debt initiation decision.

We find little evidence that the governance characteristics of sample firms change in a manner consistent with the entrenchment hypothesis (Table V). For the debt initiating firms, we find that the percentage of outside directors and board size does not change significantly, both on their own and relative to control firms. The mean change in insider ownership for the sample firms is insignificant, but is significantly higher than the change for control firms, which experience a decline in insider ownership. The G-index and institutional ownership increase in the debt initiation year, but the change most likely reflects unrelated economy wide effects

because both sets of control firms experience similar increases. Compared to control firms, the debt initiating firms face a *less* active takeover market in their industry. The only evidence in support of the entrenchment explanation is an increase in ownership by blockholders for the sample firm, but only the mean increase relative to the levered control firms is statistically significant.[20] In untabulated analysis, we find that both the mean and median change in total payout for the debt initiating firms are not significantly different from zero, suggesting that the debt proceeds were not used to increase shareholder payouts. The change in asset sales is also similar to that for both sets of control firms.

In examining the flexibility hypothesis, we find that the sample firms increase their investments by 4.1% of assets in the debt initiation year (relative to the prior year, significant at the one-percent level). This increase is also significantly larger (at the one-percent level) than the mean decrease of 0.05% for the unlevered control firms and the mean increase of 0.25% for the levered control firms. The cash ratio declines, consistent with both the entrenchment and flexibility explanations. But, need to retain debt capacity does not change, as indicated by an insignificant change in the flexibility dummy. The earnings volatility increases, but this is offset by a decrease in Tobin's Q, leaving the flexibility dummy variable unchanged. The change in dividend payout is insignificant, but is less than the change in payout by zero debt firms. Overall, the results offer mixed support for the flexibility hypothesis.

The results also do not support the tax hypothesis. We find that there is no significant change in net operating loss carryforwards for the debt initiating firms relative to both sets of controls, suggesting that the debt initiation is not due to a reduction in the magnitude of the other tax shields. Further, the mean MTR for debt initiating firms decreases significantly, which is inconsistent with the tax hypothesis.

[20] We examine this result in more detail in Section IV.

Our results again support the credit constraints explanation. In the debt initiating year, the sample firms experience a pronounced spike in their investments, and the proportion of firms that have public debt ratings increases significantly. Even though this change is small in magnitude (2%), it is significantly higher than the change for unlevered firms and similar to the change for levered firms. We find that the sample firms take on significant debt (13.21% of assets) and this is not reversed over the next three years (Table VI, panel A). About two-thirds of this debt is long-term in nature. Using the leverage of the control firms as a proxy for the target leverage, the sample firms cover almost 60% of the leverage gap in the debt initiating year. This suggests that the decision to take on debt is a significant, long term decision.

The increase in public debt ratings may just be an artifact of new debt issued for reasons unrelated to investments. We provide corroborative evidence using hand-collected information from annual 10-K reports filed in the debt initiation year. We verify both the source of debt and whether the increase in leverage is related to the firm's investments. Specifically, we manually search the SEC's Edgar database and identify the annual report filed by the sample firms in the debt initiating year and the prior year. We are able to locate electronic versions of the annual reports for 72% of the debt initiating firms (388 out of 542 firms). We find that 60% of the firms (233 out of 388) state directly that the debt is either acquisition-related or was used to finance investments. Additionally, 49 firms (13%) indicate that they had investments or acquisitions, but do not explicitly state that the debt is related to such investments. Only in 27% of the instances do we find no mention that the firm had made large investments or acquisitions. This result strengthens the statistical inferences presented earlier and suggests a *causal link* between debt initiation and investments.

We next examine the source of debt financing from the 10-K reports.[21] We find that 86 firms used bank loans and 172 firms utilized a line of credit to borrow from a bank. Overall, 223 or 57% of the firms utilized bank financing, suggesting that firms often use bank credit rather than debt issues as a first source of debt financing. Only 27% of the sample firms (104 firms) issued some form of debt. Among these, the majority of the firms issued convertible debt. Private placement of straight bonds is the next preferred choice. Loans from related parties are rare and appear only in 27 firms (7% of the sample). Publicly issued straight debt is even rarer (9 firms) in our sample. The finding that the majority of the sample firms rely on bank credit and that public debt issues are uncommon, strongly supports the credit constraints explanation. Debt types classified as others, including leases, occur in 111 firms, comprising 29% of the sample.

We find that 192 firms (49.5%) indicated that they had access to a line of credit in the year *prior* to the debt initiation year, suggesting that these firms could have increased their leverage in the prior year and benefited from the debt tax shield. The evidence that a large proportion of debt initiating firms could have utilized debt financing in the prior year but did not do so, does not support the traditional tax explanation. However, these findings are consistent with the credit constraints explanation. It is likely that these firms were unable to draw down their credit lines, in the absence of credible use of the proceeds. However, when profitable investments arise, they are able to convince banks to provide the financing.[22]

B. Multivariate results

In multivariate regressions explaining the debt initiation decision, the dependent variable is a dummy variable that takes the value '1' for debt initiating firms and '0' for *unlevered* control

[21] In many instances, firms may utilize multiple sources of debt financing (e.g., bank loan and convertible debt), so the total could exceed 100%.

firms (Table VII). The explanatory variables are the same as in Table III, except that all variables are changes from year -1 to year 0, rather than levels.

The results again offer little support for the entrenchment hypothesis. The coefficients on changes in the internal and external governance measures are never statistically significant. The results also do not support the flexibility and tax hypotheses because the coefficients on those variables are not significant in any model. However, the coefficient on both the debt rating dummy and investments are positive in all models and those on the latter are significant at the five-percent level or better. If the debt initiating firms are unlikely to access public debt markets and rely primarily on banks to provide financing, the lack of significance on the debt rating dummy variable is expected. This result further confirms the univariate results and suggests that the sample firms initiate debt when faced with a spike in investments, consistent with the credit constraints hypothesis.

Robustness tests: We conduct several additional tests to verify the robustness of this result, analogous to the analysis for Table III.[23] To reiterate, we (a) replace the MTR with NOL carryforwards as a proxy for the potential tax benefits of debt, (b) use the G-Index as an explanatory variable instead of the external governance variables, and (c) estimate Fama-Macbeth type annual regressions where the dependent variable takes the value '1' for zero debt firms and '0' for all other unlevered firms. Our inferences are unchanged. Examining the debt initiation decision offers very little support for the entrenchment, flexibility, and tax explanations, but consistently offers strong support for the credit constraints hypothesis.

[22] We examine the change in the firms' profitability in the next section.
[23] These results are not reported separately in a table, but are available from the authors upon request.

IV. Additional results

The results that we have documented thus far support the credit constraints explanation, but do not support the assertion that firms with entrenched managers adopt a zero debt policy. These inferences differ from the implications of Berger et al. (1997) that firms with entrenched managers follow a conservative debt policy. We conduct three additional tests to verify the robustness of our results. First, we examine whether our results also obtain in a sample of firms that made large leverage changes. Second, we conduct an extensive manual search and specifically identify new block formation and takeover attempts during this period. This allows us to provide more definitive evidence at the individual firm level on whether changes in these variables are associated with debt initiation. Finally, we test whether the change in operating performance of debt initiating firms is related to investments or to variables related to outside blocks.

Are the debt-initiation results generalizable to firms with large leverage increases?: We have documented results that consistently support credit constraints as an important determinant of why firms remain unlevered. But, the concern that our results may be specific to zero-debt firms and not generalizable to underlevered firms, is a valid one. To address this issue, we identify a sample of firms that significantly increased both book and market leverage by 10% of assets or more. This sample of firms is chosen because the large leverage change suggests that these firms may have been underlevered prior to the debt increase. We choose ten percent as the cut-off since the average leverage change then becomes comparable to the average leverage change of about 13% observed for our debt initiating sample. There are 4,683 firm years that satisfy this criterion. We replicate the analysis in Table VII using this sample and report the results in Table VIII. Our inferences are largely unchanged. None of the governance measures

are statistically significant, and do not support the entrenchment hypothesis. We do find support for flexibility in this sample, because the coefficients on the change in the flexibility dummy are significantly negative in all models. The coefficient on change in MTRs is significantly negative and contradicts the tax hypothesis. However, the coefficients on changes in the debt rating dummy variable and investments are positive and significant at the 1% level in all specifications, supporting the credit constraints explanation.

In untabulated analysis, we also examine the CEO turnover rates from before to after the large leverage change. Compared to control firms, the proportion of CEO turnover is higher among the large leverage change sample, but the turnover rate is higher both prior to and after the year of the leverage change If managers in low leverage firms were more entrenched, we should not find higher turnover in these firms prior to the leverage change. Thus, it is likely that the higher level of turnover may be due to some unobserved characteristic related to turnover, and that does not change from before to after the leverage change. Overall, our results for debt initiation by zero debt firms are very similar to those for firms that increase leverage substantially. This provides some assurance that our results for zero debt firms do generalize to the larger population.

Blockholders presence and takeover activity: The results documented earlier in Table V suggest that blockholder ownership increases in the debt initiating year. This finding would be consistent with the entrenchment hypothesis if the blockholders are better able to monitor managers and reduce entrenchment. We further investigate the characteristics of the blockholders and incidences of takeover attempts around debt initiations. We manually search Dow Jones Factiva and the proxy statements filed with the SEC (available on the Edgar database or Thomson Research) and identify existing and new blockholders, and whether the blockholder

can be characterized as a monitoring blockholder or not. We identify takeover attempts (both successful and unsuccessful) from the SDC M&A database maintained by Thomson Financial.

We are able to collect information on blockholders for 89% of the debt initiating firms (485 out of 542). We first classify the blockholders into the following categories: Insiders, ESOPs, Institutions, and Outsiders (all others). Our classification of blockholders is similar to the classification in Borokhovich, Brunarski, Harman, and Parrino (2006). Blockholders are classified as insiders if they are founders of the firm, are current or former executives of the firm, or are related to them. These blockholders share some affiliation with the firm's management and hence are unlikely to monitor them. ESOP blocks are also considered sympathetic to management and are classified as non-monitoring blockholders. We classify institutions and outsider blocks as non-monitoring or monitoring, based on whether or not they are expected to be threats to managerial entrenchment. Institutional blocks include all financial investors. Among them, blocks held by mutual funds, venture capitalists, insurance companies, commercial banks, and investment banks are considered unlikely to oppose and threaten managerial entrenchment and are classified as non-monitoring institutional blocks. On the other hand, blocks held by hedge funds, investment partnerships, and pension funds are considered as monitoring blocks. Among the outsider blocks, investments by joint venture partners, partner firms that have strategic alliances or product market relationships, and blocks resulting from mergers or conversion of convertible securities, are classified as non-monitoring. All other outsider blocks (including unclassified blocks) are considered to be potentially able to monitor managers.

The results pertaining to the blockholder characteristics in the three years around the debt initiation year are presented in Table IX. The incidence of blockholders is common in debt initiating firms; only about 5% of the firms have no blockholders. However, a large fraction of

firms have non-monitoring blocks, with insider blocks and non-monitoring institutional blocks being the most prevalent (panel A). For example, in the year immediately preceding the debt initiation year, almost 71% of firms have a blockholder who is an insider, and about 59% of the firms have a non-monitoring institutional blockholder. Outsider blocks and ESOP blocks are relatively uncommon, and are present in 10% and 3% of the firms, respectively. In the debt initiation year, new non-monitoring blockholders who are insiders, ESOPS, or outsiders each arise in fewer than 10% of the firms, and new institutional blocks arise in 29% of the firms.

In panel B, we document that monitoring blockholders, who are likely to constitute threats to managerial entrenchment, are much less prevalent. Almost 22% of the debt initiating firms have institutional blockholders who could be considered a monitoring type, and other monitoring outside blockholders are present only in 14% of the firms. New institutional and outside blockholders emerge in the debt initiating year in 11.8% and 2.2% of the firms, respectively. This evidence suggests that monitoring by existing blockholders or the emergence of new blockholders is not a dominant reason why zero debt firms take on leverage. We further classify monitoring blockholders as activist if they indicate their dissatisfaction with the board of directors, executives, or performance of *any firm* (not just the debt initiating firm) in the three years preceding the debt initiation. We find that such activist blockholders are present in fewer than 10% of the sample firms. We also use a stricter definition and designate blockholders as hostile if they indicate their dissatisfaction with the specific firm in which they hold a block investment. We document that such hostile blockholders are present in less than 1% of the debt initiating firms. The proportion of firms where new, activist (hostile) institutional blockholders emerge in the debt initiating year is only 4.7% (0.2%). Overall, we find little evidence that

threats to managerial entrenchment from monitoring blockholders, either existing or new, is a major factor influencing the debt initiation decision.[24]

We find similar results regarding takeover attempts (panel C). Fewer than two percent of the debt initiating firms are subject to takeover attempts (whether friendly or hostile). Interestingly, in the debt initiation year, 27% of the firms are active as bidders and initiate takeover attempts of other firms. This is consistent with the evidence in Table VII, where we have documented that 60% of the debt initiating firms state that the debt taken on is related to investments and/or acquisitions. Collectively, the evidence that very few of the debt initiating firms have either hostile blockholders or are subject to takeover attempts, casts doubt on the ability of the entrenchment hypothesis to explain the debt initiation decision.

Operating performance: As a final test, we assess whether the firm's investments or blockholder characteristics better explain the change in the firm's operating performance around the debt initiation year. The entrenchment hypothesis suggests that performance would improve when there is an external threat to entrenchment, whereas the credit constraints hypothesis predicts that performance improvement is an indication that the firm had a good investment opportunity that the bank agreed to finance. The dependent variable is the change in return on sales from the debt initiation year to year +1. The main explanatory variables of interest are the level of investments in year 0, and dummy variables that take the value '1' if the firm had an existing monitoring blockholder (or activist or hostile blockholder) in year 0. We include the level of asset sales in year 0 as a control variable, to capture whether or not the operating performance improves as a result of restructuring via asset sales. The results of this analysis are shown in Table X. We find that none of the blockholder variables are significantly positive,

[24] Brav, Jiang, Partnoy, and Thomas (2008), find that while hedge funds frequently engage in activism, instances where they target capital structure issues comprise only about 13% of the targeted events.

confirming that the presence of blockholders does not lead to an increase in performance around debt initiation. On the other hand, the coefficients on investments are positive and statistically significant at the five-percent level, consistent with the constraints hypothesis. We replicate the analysis by replacing the existing blockholder dummy variables with dummy variables indicating the presence of a new blockholder (rather than existing blockholders). Our results are unchanged, and we continue to find that our results are supportive of credit constraints, rather than managerial entrenchment, as an explanation for why zero debt firms did not use leverage and why they initiate debt into their capital structure.

V. Conclusion

What motivates firms to have no debt in their capital structure? In this paper, we assess the extent to which four competing hypotheses explain this decision. First, firms with entrenched managers may deliberately choose to remain unlevered and leave considerable money on the table. Second, firms may choose to remain flexible and retain debt capacity, and not use any debt financing. Third, firms may have low tax benefits from leverage and hence remain unlevered. Fourth, firms may have high tax benefits from leverage and would like to lever up, but lack access to public debt markets and are constrained from doing so.

We document that the choice to remain debt free is not made by entrenched managers. The extreme low leverage is, on average, not driven by managers who are monitored less by directors, institutions, or by blockholders. These managers are also not any safer in their jobs than their leveraged counterparts. We hasten to add that our results do not suggest that entrenchment does not play a role in any firm, but do suggest that entrenchment is unlikely to be a major reason for why firms remain unlevered. Our evidence is also not consistent with these

firms conserving cash and retaining debt capacity since they payout more to their shareholders than their control firms. It also does not appear that these firms keep their debt levels low because of low marginal tax rates. They have marginal tax rates that are similar to or higher than their levered counterparts. Thus, they clearly are underlevered from this tax perspective.

Our conclusions are similar when we analyze the decisions of zero debt firms to initiate the use of debt. Hand-collected data on the characteristics of blockholders around the debt initiation show that new activist blocks emerge in very few firms. These firms do not face significant takeover threats. Changes in the need for retaining flexibility, NOL carryforwards, and marginal tax rates are also not associated with the debt initiation decision in the predicted direction. These results do not support the predictions of the entrenchment, flexibility, or tax hypotheses.

Our results suggest that supply side constraints have an important role to play (e.g., Faulkender and Petersen (2006)). The high marginal tax rates suggest that zero debt firms could benefit from the debt tax shield. However, they are unable to access public debt markets, and lack credible investments to induce a bank (or other private lender) to provide the financing. We find, using hand-collected data from 10-K filings, that many unlevered firms had access to a line of credit in the year prior to the debt initiation and could have benefited from the debt tax shield, but did not use debt financing to minimize taxes. When they initiated debt into their capital structure to fund investments, it is mainly via bank debt or other private sources. Overall, the evidence indicates that firms do not remain unlevered by choice. Rather, zero debt firms do not have access to public markets and these credit constraints limit their ability to borrow except when they can convince their private sources about the quality of their investments.

References

Bates, T. W., K.M. Kahle, and R. Stulz, 2009, Why do U.S. firms hold so much more cash than they used to?, *Journal of Finance* 64, 1985 - 2021

Berger, P. G., E. Ofek, and D. L. Yermack, 1997, Managerial entrenchment and capital structure decisions, *Journal of Finance* 52, 1411-1438.

Blouin, J. L., J. E. Core, and W. R. Guay, 2008, Improved estimates of marginal tax rates: Implications for the under-leverage puzzle, Working paper, University of Pennsylvania.

Boone, A. L., L. C. Field, J. M. Karpoff, and C. G. Raheja, 2007, The determinants of corporate board size and composition: An empirical analysis, *Journal of Financial Economics* 85, 66-101.

Borokhovich, K. A., K. Brunarski, Y. S. Harman, and R. Parrino, 2006, Variation in the monitoring incentives of outside stockholders, *Journal of Law and Economics* 49, 651-680.

Brav, A., W. Jiang, F. Partnoy, and R. Thomas, 2008, Hedge fund activism, corporate governance, and firm performance, *Journal of Finance* 63, 1729-1775.

Byoun, S., 2008, How and when do firms adjust their capital structures toward targets?, *Journal of Finance* 63, 3069-3096.

Chang, X., and S. Dasgupta, 2008, Target behavior and financing: How conclusive is the evidence?, *Journal of Finance*, forthcoming.

Chen, X., J. Harford, and K. Li, 2007, Monitoring: Which institutions matter?, *Journal of Financial Economics* 86, 279-305.

Coffee, J. C., 1991, Liquidity versus control: The institutional investor as corporate monitor, *Columbia Law Review* 91, 1277-1368.

Cooper, R., J. Haltiwanger, and L. Power, 1999, Machine replacement and the business cycle: Lumps and bumps, *American Economic Review* 89, 921-946.

DeAngelo, H., and L. DeAngelo, 2007, Capital structure, payout policy, and financial flexibility, Working paper, University of Southern California.

DeAngelo, H., and R. W. Masulis, 1980, Optimal capital structure under corporate and personal taxation, *Journal of Financial Economics* 8, 3-29.

Denis, D. J., D. K. Denis, and A. Sarin, 1997, Ownership structure and top executive turnover, *Journal of Financial Economics* 45, 193–221.

Fama, E. F., 1980, Agency problems and the theory of the firm, *Journal of Political Economy* 88, 288-307.

Fama, E. F., and K. R. French, 2002, Testing trade-off and pecking order predictions about dividends and debt, *Review of Financial Studies* 15, 1-33.

Faulkender, M., and M. A. Petersen, 2006, Does the source of capital affect capital structure?, *Review of Financial Studies* 19, 45-79.

Fischer, E. O., R. Heinkel, and J. Zechner, 1989, Dynamic capital structure choice: Theory and tests, *Journal of Finance* 44, 19-40.

Flannery, M. J., and K. P. Rangan, 2006, Partial adjustment toward target capital structures, *Journal of Financial Economics* 79, 469-506.

Friend, I., and L. H. P. Lang, 1988, An empirical test of the impact of managerial self-interest on corporate capital structure, *Journal of Finance* 43, 271-281.

Gamba, A., and A. J. Triantis, 2008, The value of financial flexibility, *Journal of Finance* 63, 2263-2296.

Garvey, G. T., and G. Hanka, 1999, Capital structure and corporate control: The effect of antitakeover statutes on firm leverage, *Journal of Finance* 54, 519-546.

Goldstein, R., N. Ju, and H. Leland, 2001, An EBIT-based model of dynamic capital structure, *Journal of Business* 74, 483-512.

Gompers, P. A., J. L. Ishii, and A. Metrick, 2003, Coporate governance and equity prices, *Quarterly Journal of Economics* 118, 107-155.

Graham, J. R., 1996, Debt and the marginal tax rate, *Journal of Financial Economics* 41, 41-73.

Graham, J. R., 2000, How big are the tax benefits of debt?, *Journal of Finance* 55, 1901-1941.

Graham, J. R., and C. R. Harvey, 2001, The theory and practice of corporate finance: Evidence from the field, *Journal of Financial Economics* 60, 187-243.

Graham, J. R., and L. F. Mills, 2008, Using tax return data to simulate corporate marginal tax rates, *Journal of Accounting and Economics* 46, 366-388.

Grinstein, Y., and R. Michaely, 2005, Institutional holdings and payout policy, *Journal of Finance* 60, 1389-1426.

Huang, R., 2009, How committed are bank lines of credit? Evidence from the subprime mortgage crisis, Working paper, Federal Reserve Bank of Philadelphia.

James, C., Some evidence on the uniqueness of bank loans, *Journal of Financial Economics* 19, 217-235.

Jensen, M. C., 1986, Agency costs of free cashflow, corporate finance, and takeovers, *American Economic Review* 76, 323-329.

Jensen, M. C., and W. H. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 305-360.

John, K., and L. P. Litov, 2008, Managerial entrenchment and capital structure: New evidence, Working paper, New York University.

Ju, N., R. Parrino, A. M. Poteshman, and M. S. Weisbach, 2005, Horses and rabbits? Trade-off theory and optimal capital structure, *Journal of Financial and Quantitative Analysis* 40, 259-281.

Kini, O., W. Kracaw, and S. Mian, 2004, The nature of discipline by corporate takeovers, *Journal of Finance* 59, 1511-1552.

Korteweg, A., The net benefits to leverage, *Journal of Finance*, forthcoming.

Leary, M. T., and M. R. Roberts, 2005, Do firms rebalance their capital structures?, *Journal of Finance* 60, 2575-2619.

Lemmon, M. L., M. R. Roberts, and J. F. Zender, 2008, Back to the beginning: Persistence and the cross-section of corporate capital structure, *Journal of Finance* 63, 1575-1608.

Mackie-Mason, J. K., 1990, Do taxes affect corporate financing decisions?, *Journal of Finance* 45, 1471-1493.

Marchica, M., and R. Mura, 2007, Financial flexibility and investment decisions: Evidence from low-leverage firms, Working paper, Manchester Business School.

Martin, K. J., and J. J. McConnell, 1991, Corporate performance, corporate takeovers, and management turnover, *Journal of Finance* 46, 671-687.

Mehrotra, V., W. H. Mikkelson, and M. M. Partch, 2003, The design of financial policies in corporate spin-offs, *Review of Financial Studies* 16, 1359-1388.

Minton, B. A., and K. H. Wruck, 2001, Financial conservatism: Evidence on capital structure from low leverage firms, Working paper, Ohio State University.

Modigliani, F., and M. H. Miller, 1963, Corporate income taxes and the cost of capital: A correction, *American Economic Review* 53, 433-443.

Morck, R., A. Shleifer, and R. W. Vishny, 1988, Management ownership and market valuation: An empirical analysis, *Journal of Financial Economics* 20, 293-315.

Morellec, E., 2004, Can managerial discretion explain observed leverage ratios?, *Review of Financial Studies* 17, 257-294.

Morellec, E., B. Nikolov, and N. Schurhoff, 2008, Dynamic capital structure under managerial entrenchment: Evidence from a structural estimation, Working paper, Swiss Finance Institute and the University of Lausanne.

Myers, S. C., and N. S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187-221.

Parrino, R., 1997, CEO turnover and outside succession: A cross-sectional analysis, *Journal of Financial Economics* 46, 165-197.

Parrino, R., R. W. Sias, and L. T. Starks, 2003, Voting with their feet: Institutional ownership changes around forced CEO turnover, *Journal of Financial Economics* 68, 3-46.

Safieddine, A., and S. Titman, 1999, Leverage and corporate performance: Evidence from unsuccessful takeovers, *Journal of Finance* 54, 547-580.

Scharfstein, D., 1988, The disciplinary role of takeovers, *Review of Economic Studies* 55, 185-199.

Shleifer, A., and R. W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461-488.

Stiglitz, J. E., and A. Weiss, 1983, Incentive effects of terminations: Applications to the credit and labor markets, *American Economic Review* 73, 912-927.

Strebulaev, I. A., and B. Yang, 2006, The mystery of zero-leverage firms, Working paper, Stanford University.

Stulz, R. M., 1990, Managerial discretion and optimal financing policies, *Journal of Financial Economics* 26, 3-27.

Sufi, A., 2009, Bank lines of credit in corporate finance: An empirical analysis, *Review of Financial Studies*, forthcoming.

Weisbach, M. S., 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431-460.

Yermack, D. L., 1996, Higher market valuation of companies with a small board of directors, *Journal of Financial Economics* 40, 185-211.

Zwiebel, J., 1996, Dynamic capital structure under managerial entrenchment, *American Economic Review* 86, 1197-1215.

Appendix Table A1
Predictions

	Managerial Entrenchment	Financial Flexibility	Tax	Credit Constraints
Panel A: Predicting zero debt status				
Board size	Large	-	-	-
% Insider ownership	Ambiguous	-	-	-
% Outsiders on the board	Low	-	-	-
G-Index	High	-	-	-
% owned by 5% blockholders	Low	-	-	-
Takeovers in industry	Low	-	-	-
% Institutional ownership	Low	-	-	-
Cash ratio	High	High		
Flexibility dummy	-	High	-	-
Payout ratio	Low	Low	-	-
NOL carryforwards	-	-	High	
Marginal tax rate	-	-	Low	High
Debt rating dummy	-	-	-	No
Investments	-	-	-	Low
Panel B: Changes around debt initiation				
Board size	Decrease	-	-	-
% Insider ownership	Ambiguous	-	-	-
% Outsiders on the board	Increase	-	-	-
G-Index	Decrease	-	-	-
% owned by 5% blockholders	Increase	-	-	-
Takeovers in industry	Increase	-	-	-
% Institutional ownership	Increase	-	-	-
Cash ratio	Decrease	Decrease	-	-
Flexibility dummy	-	Decrease	-	-
Payout ratio	Increase	-	-	-
NOL carryforwards	-	-	Decrease	-
Marginal tax rate	-	-	Increase	-
Debt rating dummy	-	-	-	Ambiguous
Investments	-	-	-	Increase

Table I
Distribution of all equity firms

This table summarizes the data used in the paper. The second column lists the number of public, non-financial firms with CRSP share codes of 10 or 11 that are available on COMPUSTAT for each year from 1990 to 2004. The next two columns list the number and percentage of firms that have no debt in their capital structure (Compustat data items #9 and #34 are both zero for that year). The last two columns list the number and percentage of firms that have no debt in their capital structure for at least three years (zero debt firms).

Year	N	Firms with no debt		Zero debt firms	
		N	%	N	%
1990	4,278	360	8.42	173	4.04
1991	4,310	420	9.74	188	4.36
1992	4,488	485	10.81	211	4.70
1993	4,847	578	11.92	245	5.05
1994	5,146	612	11.89	273	5.31
1995	5,336	649	12.16	289	5.42
1996	5,760	770	13.37	302	5.24
1997	5,823	794	13.64	314	5.39
1998	5,509	745	13.52	351	6.37
1999	5,220	718	13.75	369	7.07
2000	5,006	726	14.50	346	6.91
2001	4,466	688	15.41	344	7.70
2002	4,088	676	16.54	373	9.12
2003	3,790	716	18.89	391	10.32
2004	3,754	738	19.66	389	10.36

Table II
Summary statistics

This table presents the mean and median firm characteristics of zero debt firms (firms with no debt for at least three prior years) and levered control firms. Levered control firms are matched on year, industry (two-digit SIC code), size (total assets), and prior performance (return on sales, ROS). We include the first year that a zero debt firm enters the sample and the associated levered control firms. Data on outside directors, board size, insider ownership, institutional ownership, and block ownership (5% owners) are obtained from Compact Disclosure. The G-index is provided by Andrew Metrick. Outside directors is the percentage of non-executives who serve on the board of directors. Board size is the number of directors serving on the board. Insider (5%, institutional) ownership is the ownership by all officers and directors (all 5% owners, all institutions). Takeovers in industry is the percentage of firms that are taken over in the same industry (two-digit SIC code) during the prior year. Age is the number of years the firm has been publicly listed, as of the fiscal year end. Marginal tax rate is the marginal tax rate before interest, provided by John Graham. Earnings volatility is the standard deviation of ROS (operating income before depreciation, #13, divided by sales, #12) over the prior five years. Net fixed assets (NOL) is defined as property, plant, and equipment, #8 (unused net operating loss carryforward, #52), both deflated by total assets (#6 as of the end of the fiscal year). Tobin's Q is measured as book value of total assets, less book value of equity (#60) plus fiscal year-end market value of equity, divided by total assets. Total payout is the sum of common dividends (#21) and repurchases (#115), standardized by earnings. Cash is the amount of cash and short-term investments (#1) and investments is the sum of capital expenditures, R&D, and acquisitions (#128 + #46 + #129), both are standardized by total assets. Rated dummy takes the value '1' for firms that have a debt rating. All variables are winsorized at 2.5% and 97.5%. The last two columns present 't-values' from the two-sample t-test and the 'Z-values' from the Wilcoxon rank sum test (differences between zero debt firms and control firms).

	Zero debt firms			Levered control firms			Difference	
	Mean	Median	N	Mean	Median	N	t	Z
Board size	6.44	6.00	945	6.85	7.00	2,381	-5.30***	-5.01***
Insider ownership (%)	25.30	19.13	993	23.71	17.89	2,487	1.88*	1.86*
Outside directors (%)	67.46	71.43	945	67.25	71.43	2,381	0.32	0.37
G-index	7.99	8.00	95	8.76	8.42	258	-2.55**	-1.99**
5 % ownership (%)	38.17	36.54	996	39.04	36.74	2,490	-0.84	-0.45
Takeovers in industry (%)	4.09	3.87	1,289	3.97	3.61	3,383	1.45	1.77*
Inst. ownership (%)	31.06	26.38	994	26.90	21.31	2,483	4.49***	4.45***
NOL (%)	26.83	0.00	1,290	25.69	0.00	3,383	0.53	-0.29
Marginal tax rate (%)	24.21	33.86	751	25.86	34.00	2,345	-2.93***	-2.53**
Tobin's Q	2.90	2.15	1,287	2.19	1.54	3,364	10.74***	10.80***
Earnings volatility (%)	41.79	6.28	833	37.21	4.80	2,908	1.19	4.14***
Flexibility dummy	0.64	1.00	830	0.52	1.00	2,890	12.86***	6.19***
Cash (%)	43.59	41.83	1,290	18.42	9.27	3,383	34.69***	32.65***
Investments (%)	16.39	13.01	1,290	16.54	12.36	3,383	-0.35	0.57
Rated dummy	0.01	0.00	1,290	0.07	0.00	3,383	-6.22***	-8.59***
Total payout (%)	9.78	0.00	1,290	6.16	0.00	3,383	5.26***	0.79
Total assets ($mill.)	118.32	44.38	1,290	123.15	48.99	3,383	-0.54	-3.96***
Age	6.84	3.76	1,290	9.43	6.39	3,383	-10.07***	-13.12***
Net fixed assets (%)	14.73	9.37	1,289	29.68	22.06	3,383	-25.55***	-23.12***

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table III
Regressions predicting zero debt status

This table presents results from logistic regressions predicting zero debt status for firms that have had at least three no debt in their capital structure during the prior three years (dummy variable=1 for zero debt firms and 0 otherwise). Only U.S., public, non-financial firms with CRSP share code of 10 or 11, during the period 1990-2004 are included in the analysis. We show the results of logistic regressions where only the first zero debt firm year and the associated levered control firms are included. Flexibility dummy equals 1 when both Tobin's Q and earnings volatility are above the median and 0 otherwise. The other variables are as defined in Table II.

	1	2	3	4	5	6	7	8
Intercept	-2.16***	-2.37***	-1.78***	-2.11***	-1.89***	-1.99***	-1.44***	-1.66***
Outside directors	-0.37		-0.51		-0.27		-0.42	
Board size		0.00		0.01		-0.01		0.00
5 % ownership	-0.11	-0.10			-0.10	-0.10		
Inst. Ownership			1.27***	1.23***			1.45***	1.41***
Cash ratio	4.18***	4.18***	4.06***	4.06***	4.54***	4.53***	4.44***	4.44***
Flexibility dummy	0.10	0.09	0.03	0.02	0.21	0.21	0.14	0.14
Marginal tax rate	2.35***	2.40***	2.24***	2.34***	1.86***	1.87***	1.66***	1.70***
Rated dummy	-1.53***	-1.53***	-1.50***	-1.52***				
Investments ratio					-1.95***	-1.99***	-2.18***	-2.23***
Log (total assets)	-0.03	-0.05	-0.19***	-0.21***	-0.08	-0.08	-0.25***	-0.26***
Net fixed assets ratio	-1.65***	-1.64***	-1.57***	-1.56***	-1.41***	-1.39***	-1.27***	-1.25***
N	2,223	2,223	2,219	2,219	2,223	2,223	2,219	2,219

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table IV
Regressions predicting forced CEO turnover

This table presents results from logistic regressions predicting forced turnover. Using CEO data from Compact Disclosure for the period 1990-2004, we define a forced turnover as the year in which there is a change in CEO name and the CEO is less than 60 years of age. The independent variables are excess return (measured as 12 month BHAR, using value weighted returns), a zero debt dummy, an interaction variable between excess return and the zero debt dummy, outside directors, and the log of total assets. Outside directors and total assets are as defined in Table II. The table reports the results of logistic regressions where only the first zero debt firm-year and the associated levered control firms are included.

	1	2	3
Intercept	-2.46***	-2.97***	-2.74***
Excess return	-0.68***	-0.96***	-0.93***
Zero debt dummy	0.35***	0.49***	0.47***
Excess return * Zero debt dummy	0.05	0.46	0.45
Outside directors		0.37	0.50
Log (total assets)			-0.08
N	3,368	2,543	2,543

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table V
Changes in variables predicting debt initiation

This table presents the changes in characteristics of debt initiating firms from prior to the debt initiation to the debt initiating year (year -1 to year 0), and compares them with either unlevered (column 2) or levered (column 3) control firms selected to match on year, industry (two-digit SIC code), size (total assets), and prior performance (return on sales, ROS). Year 0 is the fiscal year end in which the sample firm initiated debt in its capital structure after at least three consecutive years of not using any debt. Variable definitions are the same as in Table II. The difference columns report the t (Z) statistic, testing whether the mean (median) for the sample firms is different from that for control firms.

		Debt initiating firms (1)	Unlevered control firms (2)	Levered control firms (3)	Difference (1) – (2) t or Z	Difference (1) – (3) t or Z
Board size	Mean	0.11	0.00	0.02	0.93	1.06
	Median	0.00	0.00	0.00	0.12	0.37
Insider ownership (%)	Mean	0.38	-2.35***	-1.99***	2.40**	2.76***
	Median	-0.12**	-0.47***	-0.29***	2.98***	2.68***
Outside directors (%)	Mean	-0.07	-0.16	0.98**	0.09	-1.31
	Median	0.00	0.00	0.00***	0.28	-1.42
G-index	Mean	0.22***	0.21***	0.19***	0.09	0.39
	Median	0.00***	0.00***	0.00***	0.53	0.92
5 % ownership (%)	Mean	3.46***	1.10	-0.07	1.49	2.89***
	Median	0.00***	0.00	0.00	1.06	1.49
Takeovers in industry (%)	Mean	0.10	0.37***	0.35***	-1.65*	-2.30**
	Median	0.18**	0.47***	0.35***	-2.02**	-2.22**
Inst. ownership (%)	Mean	1.75***	2.24***	2.51***	-0.53	-1.06
	Median	0.30***	1.29***	0.65***	-1.43	-1.14
NOL (%)	Mean	-0.87	2.27**	-0.19	-1.50	-0.34
	Median	0.00	0.00	0.00	-0.68	0.69
Marginal tax rate (%)	Mean	-1.24*	-1.07	0.03	-0.19	-1.79*
	Median	0.00	0.00	0.00	-0.65	-2.05**
Investments (%)	Mean	4.09***	-0.05	0.25	5.18***	5.45***
	Median	1.51***	0.00	0.00	4.89***	6.29***
Tobin's Q	Mean	-0.16**	-0.22**	-0.02	0.50	-1.74*
	Median	-0.09***	-0.05**	0.01	-0.54	-3.76***
Earnings volatility (%)	Mean	0.06***	0.03	0.02**	0.83	2.03**
	Median	0.00	0.00	-0.00	0.21	0.04
Flexibility dummy	Mean	-0.01	-0.01	-0.01	0.02	0.13
	Median	0.00	0.00	0.00	0.01	0.12
Cash (%)	Mean	-7.41***	-0.82	-0.08	-6.14***	-8.94***
	Median	-5.07***	0.00	0.00	-6.04***	-10.17***
Total payout (%)	Mean	1.74	5.79***	0.73	-1.81*	0.79
	Median	0.00	0.00***	0.00	-1.66*	0.51
Total assets ($mill.)	Mean	46.25***	27.09***	28.61***	1.33	1.30
	Median	7..29***	6.90***	5.50***	1.10	2.18**
Net fixed assets (%)	Mean	3.06***	-0.01	-0.35	6.08***	7.12***
	Median	0.79***	-0.21	-0.22	5.15***	8.06***
Rated dummy	Mean	0.02***	0.00	0.01**	3.02***	1.26
	Median	0.00***	0.00	0.00**	2.07**	1.26

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table VI
Debt Characteristics

This table presents the debt characteristics of debt initiating firms. In Panel A we report short term debt (#34), long term debt (#9), and total debt (sum of short term and long term) as a ratio of total assets from 1 year prior to the initiation to 3 years after the initiation for both sample firms and levered control firms selected to match on year, industry (two-digit SIC code), size (total assets), and prior performance (return on sales, ROS). Year 0 is the fiscal year end that the sample firm has initiated debt in its capital structure after at least three consecutive years of not using debt. In Panel B we report details about how the firm initiated debt, what it was used for, and whether the firm had lines of credit (LOCs) prior to the debt initiation. This data is from the 10-K annual reports.

Panel A: Debt characteristics

		Year (-1)	Year (0)	Year (1)	Year (2)	Year (3)
Debt initiating firms						
Short term debt (%)	Mean	0.00	4.33	3.46	3.54	3.79
	Median	0.00	0.82	0.54	0.42	0.37
Long term debt (%)	Mean	0.00	8.87	9.12	9.61	9.72
	Median	0.00	2.06	2.04	1.53	1.55
Total debt (%)	Mean	0.00	13.21	12.58	13.15	13.51
	Median	0.00	7.12	6.73	5.85	6.22
Control firms						
Short term debt (%)	Mean	5.55	5.45	5.77	5.27	5.04
	Median	2.24	2.11	1.98	1.82	1.68
Long term debt (%)	Mean	17.49	17.29	17.26	17.96	17.57
	Median	12.22	12.15	11.83	13.38	13.41
Total debt (%)	Mean	23.04	22.75	23.03	23.22	22.62
	Median	19.43	19.89	20.00	20.35	19.81

Panel B: Characteristics from 10-Ks

		# of firms with available data	% of firms with available data
	Firms with available information	388	100.00
Use of debt	Directly related to investment	233	60.05
	Not directly investment related	155	39.95
	Firms with available information	388	100.00
	Bank financing	223	57.47
Type of debt	Loan from related parties	27	6.96
	Debt issues (private and public)	104	26.80
	Other	111	28.61
	Firms with available information	388	100.00
Availability of line of credit (LOC)	LOC available in prev. year	192	49.48
	No LOC available in prev. year	196	50.52

Table VII
Determinants of the debt initiation decision

This table presents results from logistic regressions predicting the debt initiation of zero debt firms (dummy variable=1 for debt initiating firms). The unlevered control firms (dummy variable = 0) are selected to match on year, industry (two-digit SIC code), size (total assets), and prior performance (return on sales, ROS). Year 0 is the fiscal year end that the sample firm has initiated debt in its capital structure after at least three consecutive years of not using debt. The variable definitions are the same as in Table II.

	1	2	3	4	5	6	7	8
Intercept	0.17	0.17	0.18	0.18	0.14	0.14	0.16	0.15
Outside directors Year (0) – Year (-1)	0.18		0.18		-0.03		-0.04	
Board size Year (0) – Year (-1)		0.04		0.04		0.03		0.03
5 % ownership Year (0) – Year (-1)	0.07	0.07			0.10	0.11		
Inst. Ownership Year (0) – Year (-1)			-0.80	-0.78			-1.14	-1.13
Cash ratio Year (0) – Year (-1)	-2.32**	-2.29**	-2.28**	-2.26**	-1.13	-1.11	-1.04	-1.02
Flexibility dummy Year (0) – Year (-1)	-0.02	-0.02	0.00	0.01	0.00	0.00	0.02	0.02
Marginal tax rate Year (0) – Year (-1)	-0.07	-0.02	0.06	0.10	-0.15	-0.13	0.05	0.07
Rated dummy Year (0) – Year (-1)	14.80	14.80	14.74	14.74				
Investments ratio Year (0) – Year (-1)					3.28**	3.26**	3.37***	3.35***
Total assets Year (0) – Year (-1)	0.00*	0.00*	0.00*	0.00*	0.00**	0.00**	0.00**	0.00**
Net fixed assets ratio Year (0) – Year (-1)	6.42***	6.40***	6.44***	6.42***	5.77**	5.76**	5.83**	5.83**
N	372	372	371	371	372	372	371	371

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table VIII
Determinants of the leverage change for firms with large increase in leverage

This table presents results from logistic regressions predicting the leverage change for firms that increased leverage by at least 10% in both book value leverage and market value leverage. Year 0 is the fiscal year end that the sample firm increased leverage by at least 10%. The variable definitions are the same as in Table II.

	1	2	3	4	5	6	7	8
Intercept	-1.60***	-1.60***	-1.59***	-1.60***	-1.63***	-1.63***	-1.62***	-1.62***
Outside directors Year (0) – Year (-1)	-0.25		-0.27		-0.25		-0.27	
Board size Year (0) – Year (-1)		0.00		0.01		0.00		0.01
5 % ownership Year (0) – Year (-1)	0.03	0.03			0.01	0.02		
Inst. Ownership Year (0) – Year (-1)			-1.16***	-1.16***			-1.23***	-1.23***
Cash ratio Year (0) – Year (-1)	-2.29***	-2.29***	-2.28***	-2.28***	-0.68**	-0.68**	-0.64*	-0.64*
Flexibility dummy Year (0) – Year (-1)	-0.92***	-0.92***	-0.92***	-0.92***	-0.91***	-0.91***	-0.91***	-0.91***
Marginal tax rate Year (0) – Year (-1)	-1.76***	-1.76***	-1.69***	-1.68***	-1.80***	-1.80***	-1.73***	-1.73***
Rated dummy Year (0) – Year (-1)	1.52***	1.52***	1.56***	1.56***				
Investments ratio Year (0) – Year (-1)					4.99***	4.98***	5.09***	5.08***
Total assets Year (0) – Year (-1)	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Net fixed assets ratio Year (0) – Year (-1)	1.20***	1.20***	1.15**	1.15**	0.19	0.19	0.10	0.11
N	8,432	8,432	8,419	8,419	8,432	8,432	8,419	8,419

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

Table IX
Blockholder presence and takeover activity around debt initiations

This table reports blockholder presence and takeover activity around debt initiation by zero debt firms. Information regarding blockholders is collected manually from proxy statements and a search of news articles on Factiva. Blocks held by current or former executives and their relatives, founder families and their relatives are labeled insider blocks. Blocks owned by mutual funds, venture capitalists, insurance companies, banks and investment banks are labeled non monitoring institutional blocks. Monitoring institutional blocks are defined as blocks held by hedge funds, investment partnerships and pension funds. Non-monitoring outsiders are defined as blockholders with joint ventures, strategic alliances, or product market relations as well as blocks resulting from mergers or conversions of other securities into equity. All other outsider blocks are labeled monitoring outsiders. We classify a block as activist if we are able to locate any statement by the blockholder regarding their dissatisfaction with the board of directors, executives, or any aspect of the firm's performance *of any firm* in the 3 years prior to the debt initiation. Blocks are labeled hostile if they were hostile towards the sample firm. Blocks are labeled new if the block is new relative to year -1. Each cell reports the percentage of firms that are in each category. In panel C we report takeover activity related to our sample firms. The data on takeovers is from SDC.

	Year (-1)	Year (0)	Year (+1)	New in Yr (0)	New in Yr (+1)
Block data available	485	491	494	491	494
Panel A: Non-monitoring blockholders					
Insiders	70.93	68.23	69.03	7.94	11.94
ESOPs	2.89	2.85	2.43	0.42	0.20
Institutional	59.18	57.43	58.50	28.92	39.88
Outsiders	10.31	12.83	15.18	5.91	8.30
Panel B: Monitoring blockholders					
Institutional	21.65	24.44	26.52	11.81	16.19
Outsiders	13.81	11.81	12.35	2.24	5.47
Institutional, activist	7.42	9.57	8.70	4.68	4.66
Outsiders, activist	0.41	0.41	1.01	0.20	0.81
Institutional, hostile	0.62	0.81	0.61	0.20	0.00
Outsiders, hostile	0.00	0.00	0.40	0.00	0.40
Panel C: Takeover activity					
	Year (-3)	Year (-2)	Year (-1)	Year (0)	
% of sample firms active as bidder	13.10	12.92	19.93	27.49	
% of sample firms being targeted	1.85	0.55	1.48	1.29	

Table X
Blockholder presence and operating performance after debt initiations

This table reports the results of OLS regressions where the dependent variable is the change in operating performance (ROS) from the year of debt initiation to one year after. The debt initiation year (year 0) is the fiscal year when zero debt firms first report positive amounts of debt in their balance sheet. All variable definitions are as the same as in Tables II, VIII, and IX. The monitoring blockholder dummy equals 1 if the firm has a monitoring blockholder in year 0. The new monitoring blockholder dummy equals 1 if the firm has a new monitoring blockholder in year 0. The definitions are similar for activist and hostile monitoring blockholders.

Dependent variable: ROS (1) - ROS (0)	1	2	3	4
Intercept	-0.08	-0.09	-0.09	-0.10
Investments ratio Year (0)	0.58**	0.58**	0.58**	0.58***
Asset sales ratio Year (0)	-4.25		-4.12	
Monitoring blockholder dummy	-0.12	-0.12		
Activist monitoring blockholder dummy	0.03	0.04		
Hostile monitoring blockholder dummy	0.07	0.08		
New monitoring blockholder dummy			-0.22*	-0.22*
New activist monitoring blockholder dummy			0.17	0.17
New hostile monitoring blockholder dummy			-0.17	-0.17
N	503	503	503	503

***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.