Corporate Governance and Financing Policy: New Evidence

Kose John[1]
Stern School of Business
New York University
kjohn@stern.nyu.edu

Lubomir P. Litov
Olin Business School
Washington University in St. Louis
litov@wustl.edu

May 31, 2008

Abstract

Prior research has often taken the view that entrenched managers tend to avoid debt. Contrary to this view, we find that firms with weak shareholder rights, as measured by the Gompers et al. (2003) governance index, actually use more debt finance and have higher leverage ratios. To address the potential endogeneity of the governance index, we use both instrumental variables analysis and the exogenous shock to corporate governance generated by the adoption of state anti-takeover laws. We find that managers increase leverage when they are less vulnerable to takeovers. We provide several explanations by showing that entrenched managers receive better access to debt markets and subsequently finance with more debt, perhaps as an outcome of their conservative investment policy. We also find support that such link is due in part to the use of debt as an entrenching device.

[1] We are grateful to Heitor Almeida, Yakov Amihud, Malcolm Baker, Michael Faulkender, Lucian Bebchuk, Allen Ferrell, Michael Hertzel, Jonathan Karpoff, Ayla Kayhan, Augustin Landier, Michael Lemmon, David Mauer, Paul Malatesta, Gordon Philips, Joshua Rauh, René Stulz, Lawrence White, Daniel Wolfenzon, Jeffrey Wurgler, Bernard Yeung, participants of the seminars at New York University, University of Washington in Seattle, Southern Methodist University, University of Virginia, Washington University in St. Louis, UCLA, University of Minnesota, Indiana University, Georgia State University, Tulane University, Fordham University, University of Missouri-Columbia, the 2005 NBER Corporate Governance Summer Institute, and the 2006 AFA meetings, for valuable discussions.

I. Introduction

The question of how agency costs impact financing policy has attracted attention at least since Jensen and Meckling (1976). A prevalent view in the existing literature is that managers prefer less leverage than is optimal, for instance to reduce their human capital risk. Berger, Ofek, and Yermack (1997) show that entrenched managers are more likely to use equity in a sample of 434 industrial firms between 1984 and 1991. They find lower leverage in firms run by CEOs with low direct stock ownership, low option holdings, long tenure, high excess compensation (defined below), a large board, and a low fraction of outside directors in the board. Based on their evidence they conclude that entrenched managers use less leverage.[2]

In this paper, we revisit these facts in a broad sample, motivated by the observation that a complete analysis of the impact of governance mechanisms on financing decisions requires an analysis of how governance mechanisms affect both shareholders and debtholders. While the quality of corporate governance is often defined in terms of its value to shareholders, a governance regime might be harmful to debtholders by encouraging value-enhancing risk-taking that leaves debtholders with downside risk. With this intuition in mind, this paper studies how improved *shareholder* governance mechanisms affect firm financing taking into account its effect on corporate investment policy.

To proxy for managerial entrenchment in a broad sample, we use the index developed by Gompers, Ishii, and Metrick (2003), which is based on a count of charter provisions that reduce

[2] In a related vein Garvey and Hanka (1999) test whether managers reduce leverage when they are shielded from takeovers. See also Friend and Lang (1988), who find that the debt ratio is negatively related to managerial ownership. Kayhan (2003) extends the tests of Berger et al. (1997) to a larger sample for 1990-2002 and concludes that the entrenched managers achieve lower leverage by retaining more profits and issuing equity more opportunistically. Other studies support the view of Jensen (1986) and Zwiebel (1996) that debt is an optimal mechanism to discipline self-serving managers. For example, Harvey, Lins, and Roper (2004) find that actively monitored debt (syndicate loans) benefits firms with high expected managerial agency costs.

minority shareholder rights and managerial vulnerability to takeovers.[3] Among the mechanisms included in this index are state law provisions that delay and/or make takeover attempts costly, anti-takeover provisions in the corporate charter, provisions that insulate management compensation and perk consumption from disgruntled shareholders, and provisions that lower shareholder voting power. The less protected the management of a firm is, the lower the governance score it is assigned. We refer to the Gompers et al. (2003) index as an "entrenchment index" since higher values indicate higher levels of entrenchment.[4]

The main empirical result of the paper is that firms with strong shareholder rights rely more on equity to meet their financing needs; firms with weak shareholder rights rely more on debt. Perhaps reflecting the cumulative outcome of the effect of governance mechanisms on incremental financing decisions, we also find that firms with strong shareholder rights have lower leverage ratios. Thus, our results run counter to that part of the prior evidence that suggests that weak governance is associated with less leverage.

Our findings are highly robust. Our main result holds when we control for the alternative governance mechanisms, such as CEO excess fixed compensation, CEO stock and option ownership, CEO tenure, board composition and board size, and the presence of large external blockholders, all proxies for managerial entrenchment noted in Berger et al. (1997). The result further holds for alternative measures of leverage (book-, market leverage, and interest coverage) and changes in leverage. Our result is further robust to controls for endogeneity. First, we use instrumental variables analysis where we treat the governance proxy as endogenous. We find that our main result still holds. We also use the exogenous shock to corporate governance generated

[3] In this article "managerial entrenchment" and "weak shareholder rights" are used interchangeably.
[4] The Gompers et al. (2003) index has 24 provisions. These include 22 firm-level provisions and six state laws (four of the laws are equivalent to four of the firm-level provisions). To conserve space, Table 1 reports solely the six state laws (it does not report the four firm-level provisions which are analogous to the corresponding four state law level provisions). Bebchuk, Cohen, and Ferrell (2004) attempt to refine the Gompers et al. (2003) index; we consider their version in robustness checks.

by the adoption of the "second-generation" state anti-takeover laws. We find that after the enactment of these statutes, largely believed to increase managerial entrenchment, managers of firms incorporated in states passing such bills use more debt finance and have higher leverage ratios, contrary to the findings of Garvey and Hanka (1999). Finally, our results hold when we control for the access to the credit market, as it has been documented to result in higher leverage.[5]

After documenting the robustness of the main result, we examine several explanations for the negative relation between corporate governance and leverage. One possible explanation is based on the conservative investment policy of entrenched managers and the subsequent terms for raising debt and equity capital. Firms with weak shareholder rights may have better terms of access to credit markets and better credit ratings, as debt holders view them as lower risk borrowers.[6] This is because entrenched managers may render their companies safe by assuming more conservative investment policies (e.g. John, Litov, and Yeung (2008)). At the same time, given the lower degree of alignment of entrenched managers with equity holders, the terms in the equity market will be less favorable to such firms, and hence the cost of external equity capital would be higher for these firms. These terms of raising debt and equity capital are going to be reflected in the mix of incremental financing, in that there will be a larger component of debt relative to equity. The cumulative effect of such financing strategies will result in higher leverage levels for these firms.

A second explanation is again based on the conservative investment policy adopted by entrenched managers and the resulting optimal capital structure. Firms with weak corporate

[5] Graham and Harvey (2001), Faulkender and Petersen (2006) and Kisgen (2006) have argued and shown evidence that credit ratings have a direct impact on financing decisions.

[6] For example Chava, Livdan and Purnanandam (2007) find evidence that firms with weak shareholder rights receive lower borrowing costs in a sample of bank loans.

governance choose conservative investment policies, and choose their optimal capital structures trading-off expected bankruptcy costs with debt-related benefits such as tax shields. Firms with riskier investment policies would in equilibrium have lower levels of debt compared to firms with safer investment policies. Hence better governed firms would choose lower debt levels compared to badly governed firms.[7] Here we are assuming that the entrenched manager is either (1) monitored by large shareholder such that the manager implements the optimal capital structure, and/or (2) the manager is shielded to a certain extent from the personal costs of implementing the optimal capital structure, i.e. mechanisms such as golden parachute, severance pay, and other managerial protection features in the compensation plan that protect the manager from the personal cost of firm-level bankruptcy.

A third explanation for the positive relationship between entrenchment and debt is based on the deterrent effect of debt against hostile takeovers. Harris and Raviv (1988) have argued that debt can be used by the incumbent management to entrench themselves against takeovers. If debt is used as a complement to other mechanisms of entrenchment you would have observed that entrenchment and debt appear together. Moreover, periods of higher takeover intensity would be characterized by higher levels of entrenchment and higher levels of debt.

We find limited support for the control hypothesis in the context of our study. Controlling for the predicted takeover likelihood, we find that both the entrenchment index and the predicted likelihood of takeover are positively related to leverage. Second, we find that the better terms of access to credit markets, as captured by the presence of credit ratings and their level, are in part responsible for the observed positive link between corporate governance and leverage. That link

[7] Similarly, Hirshleifer and Thakor (1992) examine managerial conservatism and leverage. In their model with differential managerial ability, the incentives for reputation building make managers sub-optimally conservative. Risk-shifting incentives of leverage provide an offset which might move managerial risk-taking incentives closer to the optimal investment risk choice. Taking this offset into account shareholders choose leverage optimally to induce investment policy close to the optimum.

however does not eliminate the significance of the entrenchment index in our leverage regressions. Finally, we find mixed evidence that activist shareholders in corporations with entrenched managers are associated with higher leverage levels. We do not find that the CEO protection in bankruptcy is responsible for the observed positive relationship between leverage and entrenchment.

Our study offers several contributions to the extant capital structure and corporate governance literature. We provide comprehensive large-sample evidence that leverage and entrenchment are positively related. This finding is contrary to the evidence presented in Berger et al. (1997) and Garvey and Hanka (1999). Second, we employ robust econometric techniques and tests that are able to address the concerns stemming from the endogeneity of important determinants of corporate financing policy, such as the corporate governance proxies, the terms of access to capital markets and the credit ratings. Prior cross-section studies such as Berger et al. (1997) have exclusively relied on OLS analysis whereas we offer instrumental variable analysis. Fourth, we document the robustness of our main findings for various measures of leverage and corporate governance: in addition to documenting the validity of our findings for market and book leverage, we include in our analysis interest coverage. We also document the cross-section of the entrenchment index and other corporate governance proxies, in addition to the entrenchment index of Gompers et al. (2003). Fifth, we offer tests of several alternative hypotheses, in an attempt to offer an explanation of our main result. Our study is among the first to provide empirical support for the link among corporate governance, the terms of access to credit markets, and the subsequent financing policy. Lastly, a contribution of our paper is that we are able to extend and reconcile the findings of the literature on financing policy and managerial

entrenchment, primarily those in Berger et al. (1997) and Garvey and Hanka (1999) with the findings of this paper.

In summary, we find that the large-sample, cross-sectional relationship between managerial entrenchment and leverage is positive, not negative, and we offer preliminary evidence that managerial risk-taking and the related terms of access to credit markets may play an important role in understanding this relationship.[8] The remainder of this paper is organized as follows. Section two presents the data and the empirical methodology. Section three presents the primary results. Section four presents a detailed discussion and further evidence. Section five concludes.

II. Methodology and Data

In this section we describe the data and the basic empirical approach.

A. Corporate Governance

Since corporate governance is a central explanatory variable in this study, we start with its description. We use the entrenchment index introduced by Gompers et al. (2003). Their study focused on data from surveys conducted by the Investor Responsibility Research Center (IRRC, currently RiskMetrics) in 1990, 1993, 1995, 1998, and 2000. Using these surveys, Gompers et al. (2003) define a governance index (the G-index) to characterize the strength of shareholder rights across firms. This index is based on the count of 24 anti-takeover provisions across five broad anti-takeover provision categories – delaying a hostile takeover bid, protection to officers and directors, shareholder voting rights, state laws, and other defenses. They compute their index by simply adding one for each present defensive provision present in the corporate charter. This

[8] Mauer and Sarkar (2005) analyze in a contingent claims framework the impact of bondholder-stockholder conflict on capital structure. They arrive at similar predictions for the cost of debt and the subsequent leverage. However, in their framework the conflict between the bondholders and stockholders arises because the latter have incentives to overinvest. Novaes (2002), Morellec (2004), Childs, Mauer, and Ott (2005) and Molina (2005) are other papers that offer theoretical motivation along those lines.

count is now available for cross-sections from 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. For the years between surveys, we assume that the index score is the same as in the previous (survey) year.[9] It appears that the Gompers et al. (2003) index is the best available broad-sample index of managerial entrenchment.

In line with the tests in Berger et al. (1997), we supplement our main data on the governance index from RiskMetrics with data on other governance proxies. We include the CEO direct stock ownership and the CEO's holdings of stock options exercisable within 60 days, both as a percentage of common shares. CEOs with higher ownership stakes may have stronger incentives to make value maximizing decisions than otherwise. However, these incentives may reverse if high ownership insulates managers from disciplinary mechanisms (Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990)). Similarly, managers are likely to be entrenched when option holdings levels are low, as their compensation is less sensitive to their performance in that instance. We also include the CEO's tenure, the board composition (share of independent directors on the board), the size of the board, the CEO excess compensation, and the presence of at least one 5% institutional shareholder. Long CEO tenure is often associated with increased managerial control over internal monitoring mechanisms, and hence indicative of entrenchment. The structure and the size of the board are also important determinants of the managerial disciplining mechanisms (Weisbach (1988) and Yermack (1996).) A large number of outside directors on the board imply that management is likely to be subjected to active monitoring. However, as the board size increases, the board becomes less effective in monitoring the management. In computing these proxies, we follow Berger et al. (1997). Table 1 offers brief descriptions of these variables. The primary source of the

[9] Our results do not depend on the assumption that the value of the entrenchment index in-between survey years is unchanged. In unreported results based solely on data from the survey years, we obtain largely similar results.

CEO data is ExecuComp, while the source of board data is RiskMetrics' directorship data. As the latter starting only in 1996 we supplement it with data hand-collected from Compact Disclosure.[10]

B. Compustat and CRSP Data

We study a large unbalanced panel of firms that are covered by the RiskMetrics data that also have data available from the CRSP/Compustat merged industrial annual database and data from Compact Disclosure for 1990-2006. The RiskMetrics sample consists of 2,810 firms included in an unbalanced panel over the survey years 1990-2006. The following filters are imposed. Financing firms (SIC codes 6000-6999), regulated utilities (SIC codes 4800-4999), and firm-years when the firm is involved in major mergers and acquisitions (Compustat footnote codes AB) are excluded. We further exclude firm years with book equity below 10 million U.S. dollars, with book leverage greater than 1, and with missing CEO exercisable options and CEO stock holdings data.[11] Also excluded are firm-year observations that report cash flow data using format codes (Compustat item #318) 4, 5, and 6 (4 and 6 are undefined by Compustat; 5 is the Canadian file) or those in which the code is missing. To link Compustat to CRSP, we use only records with link types of 'LC', 'LN', 'LO', 'LS', 'LU' or 'LX'. We further remove missing observations, outliers and misrecorded data for certain variables. The outliers are removed by winsorizing the extreme observations in the 1% left or right tail of the distribution.[12] All variables are translated in constant 2000 dollars using the GDP deflator. Imposing these filters we obtain a sample that consists of 2,069 firms corresponding to 15,635 firm-year observations with available data on the entrenchment index.

[10] Compact Disclosure contains abstracts of the Securities and Exchange Commission filings and excerpts from the annual reports between 1990 and 2007. ExecuComp covers data on managerial characteristics and compensation from 1992 to 2006.

[11] Empirical tests on a sample that does not exclude these firm-years give very similar results to those presented here.

[12] Before any variables are trimmed, we follow Frank and Goyal (2003) in recording as zero values for certain variables whenever they are missing or combined with other data items in order to preserve the accounting identities; see the footnote to Table 1 for a detailed list of variables truncated in this manner.

Even though our dataset is by far one of the most comprehensive among the studies of capital structure and managerial entrenchment, it is still subject to an important bias that stems from missing observations on firms taken private through leveraged buyouts (LBO). Since these firms presumably have both high leverage and close alignment of management with shareholders, one is left to wonder whether including these in our dataset would weaken our primary results. We argue that it would not. Even though these firms might appear to be shareholder-friendly, their managers may still undertake sub-optimally conservative (from the viewpoint of shareholders) investment policies, because of their concentrated ownership stakes. Thus, it would be optimal for these firms to rely more on debt finance because they are more conservative in their investment choices. In addition, the total assets of LBO firms represent on average less than 1% of the total assets of the firms in our data sample and thus are unlikely to have economically significant impact on our results.[13]

Summary statistics for the final sample are presented in Table 2.

INSERT TABLE 2 HERE

We split the sample firm-year observations by quintiles of the entrenchment index. We also present simple statistics for the top and bottom deciles of the entrenchment index (correspondingly the "democracy" and "dictatorship" firms in Gompers et al. (2003)).

The summary statistics immediately reveal a number of interesting patterns. First, book leverage and market leverage increase monotonically across the entrenchment quintiles. Interest coverage decreases monotonically across the entrenchment quintiles. Second, firms with more entrenched managements tend to be older: the difference between the average quintile age of the top and bottom entrenchment quintile portfolios is about 15 years. Third, size increases near

[13] This average is computed as the 1991-2006 average annual ratio of the annual sum of total assets of leveraged buyouts (from Securities Data Corporation (SDC) *Mergers and Acquisitions* database) to the annual sum of total assets of all firms in our dataset.

monotonically across the quintiles. The difference between the average assets of the firms in the top and bottom quintiles is $805 million. Fourth, the market-to-book ratio decreases monotonically across entrenchment quintiles. Fifth, there appears to be no clear pattern for the internal cash flow and profitability of the firms, as well as the net debt issuance across entrenchment quintiles. Although a similar conclusion applies to the *level* of external financing across entrenchment quintiles, a Wilcoxon test of the equality of the average financing deficit of the lowest and highest entrenchment quintiles rejects the null hypothesis that they are equal. Finally, there is a non-monotonic decrease in net equity issues across entrenchment quintiles.

In Table 2 we further tabulate the alternative proxies for corporate governance. We note several interesting patterns. There is a monotone decrease in the CEO stock ownership from 4.15% for the least entrenched to 1.07% for the most entrenched quintile. A non-monotone decrease in CEO option holdings is also present. Board size increases monotonically across entrenchment quintiles, with companies from the most entrenched quintile having on average additional two board members as compared to companies from the lowest entrenchment quintile. Same holds for the CEO's excess fixed compensation: there is a near-monotone increase of this measure across the quintiles. Surprisingly, the share of independent directors increases monotonically from the least to the most entrenched quintile group. We also find that CEO tenure decreases monotonically from the least to the most entrenched quintile, contrary to our expectation. Finally, there appears to be no univariate link between the presence of a large institutional shareholder and our entrenchment proxy.

III. Empirical Results

A. Levels of leverage

We study the choice of claims issued from several aspects. We start first with balance-sheet measures of leverage. Book leverage is defined as book debt to total assets. Market leverage is defined as book debt divided by market value of assets (equal to total assets minus book equity plus market equity; market equity is shares outstanding (#25) times price (#199)). We further report results using interest coverage (defined as operating income before depreciation (#13) divided by interest expense (#15); we code it equal to zero when operating income is negative).

INSERT TABLE 3 HERE

The left panels of Table 3 present leverage sorted by size and the entrenchment index. A positive association between entrenchment and leverage is apparent within every size quintile. Similar tabulations by firm age, profitability, and the presence of S&P credit rating again suggest a robust positive relationship between leverage and entrenchment. Although the relation between market- or book-leverage, and entrenchment index is non-monotonic, t-tests reject the equality of the mean of the top and bottom entrenchment quintile in nearly all size, firm age, profitability, and credit rating groups. Similar double sorts by market-to-book and entrenchment (not reported for brevity) lead to the same conclusion. An examination of interest coverage in panel C reveals similar pattern, although the t-test fails to reject the equality of the mean of the top and bottom entrenchment quintile for several of the size and profitability groups.

Our main multivariate test is presented in Panel A of Table 4. It documents the relationship between entrenchment and leverage levels. The table presents the results of the following specification:

$$L_{i,t} = \sum_j a_j + \sum_t b_t + c_0 G_{i,t-1} + c_1 \text{Other governance proxies}_{i,t-1} + c_2 \text{Control Variables}_{i,t-1} + \varepsilon_{i,t}, \quad (1)$$

where *j* indexes industries (2-digt SIC code level), *t* indexes years, and *i* indexes the companies. We include year and industry fixed effects.[14] We include the same control variables as in Rajan and Zingales (1995), and add to them the S&P long-term rating dummy, to control for the access to financial markets.We include other governance proxies in this regression, following Berger et al. (1997): CEO stock ownership, CEO options ownership, CEO tenure, the presence of at least one 5% block holder, log board size, the share of independent directors on the board, and the excess fixed compensation. We further cluster-adjust the regression standard errors at the firm level, in order to account for the possible autocorrelation in the residuals due to the lack of time variation in the key corporate governance proxy.[15]

INSERT TABLE 4 HERE

The results again point to the conclusion that firms with weak shareholder rights use more debt finance. In model 1, a one-standard-deviation increase in the entrenchment index (roughly, the addition of about three new provisions that entrench the incumbent manager in the corporate charter) is associated with a 4.4% above-the-mean increase in book leverage and a 4.5% above-the-mean increase in market leverage. Our results are qualitatively unchanged when we add additional control variables from Fama and French (2002), such as R&D spending, dividends-to-assets, and dividends-to-book equity, suggesting the robustness of the relation between leverage and the entrenchment index (we do not report these results for brevity).

[14] We include industry fixed effects as opposed to firm fixed effects for two main reasons. First, we follow the approach of Berger et al. (1997). Second, including firm fixed effects requires variation within firms across time in the key variable, which here is the use of various corporate governance techniques, such as classified boards, poison pills, etc, aggregated in the entrenchment index. Firm fixed effects would defeat the purpose of including the entrenchment index in our regression analysis, which identifies effects of corporate governance through the fact that the charter provisions, captured by this index do not vary over time. Still, in unreported results, when allowing for firm effects, our findings remain similar albeit statistical significance tends to be lower.

[15] The lack of variation over time in the entrenchment index may lead to autocorrelated residuals of the leverage regressions. To address this we follow Petersen (2008) and cluster-adjust the residuals in the leverage regressions at the firm level.

In models 3 and 4 we control for the corporate governance variables studied in Berger et al. (1997). Including the additional proxies for entrenchment does not change the significance and sign of the entrenchment index coefficient, although the magnitude is decreased. Note that the coefficients on the CEO option ownership, the presence of at least one 5% blockholder, the CEO tenure, the board composition and the excess compensation all have the same sign and similar magnitude as the ones reported in Berger et al. (1997).[16] Of these, all except excess compensation are statistically significant. However, two of our findings contradict those in Berger et al. (1997): CEO stock ownership has a negative and significant coefficient, and log board size has a positive and significant coefficient. We revisit these below in an estimation framework that allows for their endogeneity.

Since the entrenchment index is correlated with firm age and market-to-book ratio, and hence may be correlated with growth, we verify that our results are robust to how leverage is being measured.[17] We re-estimate our leverage regressions using interest coverage as the dependent variable in model 5. Our results are in line with those of models 3 and 4. The entrenchment index has a negative and significant coefficient suggesting that more entrenchment is associated with lower interest coverage.

The potential joint determination of firm leverage and any of the entrenchment proxies raises concerns. For example, it could be that firms have simultaneously assumed more debt, increased the size of their boards, or have adopted more charter provisions that entrench the

[16] The coefficients on the above variables in model 3 are similar to those reported for within-estimates for book leverage in Table 2 of Berger et al. (1997): for example, we obtain 0.879 as coefficient on CEO option holdings, while the latter study reports 0.804. Similarly, we report 0.008 as coefficient on the presence of at least one 5% blockholder versus 0.008 in the latter study.

[17] Andrade and Kaplan (1998) have argued that interest coverage is an appropriate measure of leverage for firms with high expected growth. For a mature firm with low expected growth, analysis of debt- or interest coverage ratio will lead to similar conclusions. However, firms with high expected growth can appear to have low leverage when measured on a debt-to-asset basis (low debt relative to large expected cash flows), but high leverage when measured on an interest coverage basis (large expected interest payments relative to low current cash flows).

incumbent management in response to outside takeover pressure. To address the ensuing endogeneity, in models 5 through 8 we treat the entrenchment proxies as endogenous in a two-stage least squares (2SLS) estimation framework. The 2SLS method relies on instrumental variables for the entrenchment proxies. In search for valid instruments we aim to find exogenous variables that are economically related to entrenchment but are uncorrelated with the error term of the second-stage regressions, explaining leverage levels. We instrument the entrenchment proxies (except CEO tenure) with their values as of the first year when data is available for the company in point in the RiskMetrics database.[18] We expect such proxies to be economically meaningful, as they are predetermined from managerial point of view. For CEO tenure, we use the average value of the manager's tenure at other companies in the same two-digit SIC code industry (averages based on three-digit SIC code industry definition yield similar results in our analysis).[19] Managerial tenure at the industry peers is likely to influence the CEO tenure of an individual firm's management through the managerial labor market in that industry.

The 2SLS results for the entrenchment index and the board size coefficient estimates reported in models 6 through 10 are similar to those in models 1 to 6.[20] Both proxies retain their positive- (negative- for interest coverage) and significant coefficients, although the economic significance is decreased for the entrenchment index. The coefficient sign on CEO option ownership remain positive only in model 8, however it is not significant. Similarly, the coefficients on the CEO tenure and the board composition are insignificant. The coefficient on the presence of 5% institutional blockholder and the excess fixed compensation are only significant in

[18] Necessarily in that instance we drop the first year from the 2SLS second-stage equations, in order to avoid mechanical overlap of the entrenchment proxies with their instruments.
[19] We obtain largely similar results when we instrument all entrenchment proxies (as opposed to CEO tenure only) with the average values for these proxies for other companies in the same two-digit SIC code industry. We do not report these to conserve space.
[20] The decrease in observations for models 6 through 10 is due to the fact that we omit the first year of observations in our panel: we use the values of that year as the instruments for the presented results.

the interest coverage regressions, again indicating that greater excess compensation and the presence of a large shareholder is associated with lower interest coverage. Furthermore, we note that CEO stock ownership retains a negative and significant coefficient, and that the log board size retains a positive and significant coefficient in models 8 and 9 (the signs are opposite for interest coverage). We conclude that controlling for the endogeneity affects some of the OLS findings established by Berger et al. (1997).[21] It appears that our 2SLS results reinforce the finding that entrenched managers choose more leverage.

Our set of instruments appears valid as indicated by the over-identification tests, presented in Panel A of Table 4. We cannot reject the hypothesis of no correlation of the excluded instruments with the error term as indicated by the p-value. The instrument set is further jointly significant as illustrated by the values of the F-statistic for excluded instruments. Our instruments for the entrenchment index appear to have high explanatory power with partial R-squared statistics above 73%.[22] Finally, we examine the endogeneity concern attached to the use of the entrenchment index. Our concern is not substantiated as the Hausman test reveals that we cannot reject the null hypothesis of no difference between the 2SLS and OLS estimates of the entrenchment index coefficient in models 7 through 10. The endogeneity concern however is substantiated for several of the proxies in Berger et al. (1997), namely CEO stock and option

[21] One concern in our replication is the differing sample periods over which we estimate the leverage regressions. Whereas Berger et al. (1997) offer within estimates based on the sample from 1984 through 1991 for firms drawn from the annual *Forbes* magazine rankings for the 500 largest U.S. public corporations, our estimates are based on the period from 1991 through 2006 for the S&P companies with available data in RiskMetrics. In order to verify the validity of our conclusions in light of this sample selection concern, we further examine leverage regressions only for firms within our sample that have been listed in the *Forbes* top-500 corporate ranking as of 1991. Our results for this sub-sample are qualitatively similar, in particular the coefficients on the entrenchment index and the log board size remain significant and their signs unchanged.

[22] The partial R-squared for the remaining endogenous governance proxies varies from 7.6% for the CEO tenure to 49.3%, for the CEO stock ownership. The corresponding F-tests for excluded instruments all have p-values less than 0.01.

ownership and CEO tenure.[23] The Hausman test does not reject the null hypothesis of similar coefficients across OLS and 2SLS for the board composition and size, as well as block ownership and excess compensation. We conclude that our results yield support for the hypothesis of a positive association between levels of leverage and entrenchment.

B. Equity and debt issuance

Having documented a strong link between entrenchment and balance-sheet measures of leverage, we next examine claims issuance with flow of funds data. MacKie-Mason (1990) points out that the leverage ratios represent the cumulative outcome of years of separate managerial decisions, implying that any test using levels of leverage is likely bound to have low power. For that reason we analyze net debt issuance. The test is based on the following accounting identity:

$$DEF_{i,t} \equiv \Delta W_{i,t} + DIV_{i,t} + INV_{i,t} - CFLOW_{i,t} = \Delta E_{i,t} + \Delta D_{i,t}, \qquad (2)$$

where the components in this identity are (*i* indexes firm, and *t* indexes fiscal year): $DEF_{i,t}$ = Financial deficit as defined in (2); $\Delta W_{i,t}$ = Change in working capital, computed as the change in operating working capital plus the change in cash and cash equivalents plus the change in current debt; $DIV_{i,t}$ = Cash dividends; $INV_{i,t}$ = Net investments, computed as the sum of capital expenditures, increase in investments, acquisitions, other use of funds net of the sale of product, plant and equipment (PPE) and net of the sale of investment; $CFLOW_{i,t}$ = Cash flow after interest and taxes, computed as income before extraordinary items, plus depreciation and amortization, plus extraordinary items and discontinued operations, plus deferred taxes, plus equity in net loss, minus earnings, plus other funds from operations, and plus gain (loss) from sales of PPE and other investments; $\Delta E_{i,t}$ = Net equity issued, equal to sales of common stock minus stock repurchases; $\Delta D_{i,t}$ = Net debt issued, equal to long-term debt issuance minus long-term debt reduction.

[23] For example, the Hausman test of equality of the OLS and 2SLS coefficients in model 9 are as follows: for CEO stock ownership test statistic is 10.34 with p-value less than 0.01. The Hausman test statistic for CEO option ownership is 3.20 with p-value 0.07. The test statistic for CEO tenure is 13.79 with p-value less than 0.01.

To study claims issuance in the context of managerial entrenchment, we consider the following regression setup:

$$\Delta D_{i,t} = d_0 + d_1 DEF_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where $\Delta D_{i,t}$ is the net amount of debt issued and the financing deficit, $DEF_{i,t}$, is as defined above.[24] The focus of our investigation is the coefficient d_1, i.e. we examine net debt issuance as a share of external financing needs. We choose to analyze the use of debt issuance relative to financing deficit, because the latter varies with entrenchment (e.g., Table 1 shows that the top and bottom deciles of entrenchment have ratios of financing deficit to total assets of 0.006 and 0.001 correspondingly which are statistically different at 1%).

We run three versions of (3) to ascertain robustness. First, we use the Fama and MacBeth (1973) approach to robust parameter estimation. Second, we apply random year and industry effects with robust standard errors (the Huber/White heteroscedasticity-consistent estimator) and an AR (1) correction for autocorrelation-in-residuals. Third, we apply fixed year and industry effects.

C. Financing patterns

The results of regression (3) are presented in Table 5. The panels of the table illustrate the three regression approaches.

INSERT TABLE 5 HERE

Starting with the Fama-MacBeth regressions in Panel A, note the nearly monotonic increase in the coefficient on $DEF_{i,t}$ across quintiles. Note also that the explanatory power increases monotonically (as judged by the increase in average R^2) across entrenchment quintiles. Overall, the results suggest that firms with entrenched management are relying more on debt

[24] Myers and Shyam-Sunder (1999) and Frank and Goyal (2003) use the same approach to test pecking order theory validity. We follow their lead in the context of managerial entrenchment.

financing. This result, along with the observation of no difference of internal cash flow across entrenchment quintiles, suggests that managerial motives rather than financial constraints may drive these. Finally, notice that the pecking order theory "works better" for the entrenched firms, as the majority of their financing is conducted via debt issues.

One concern regarding our results in Table 5 is that they may be an artifact of an omitted variable. In order to verify the robustness of these results, in Panel A of Table 6, we subject them to additional controls. We interact the entrenchment index with firm traits known to impact debt issuance with the financing deficit:

$$\mathrm{F_{i,t}} = \sum_i a_i + \sum_t b_t + f_1 \mathrm{DEF_{i,t}} + f_2 \mathrm{G_{i,t-1}} + f_3 \mathrm{DEF_{i,t}} \times \mathrm{G_{i,t-1}} + f_4 \mathrm{DEF_{i,t}} \times \mathrm{X_{i,t}} + f_5 \mathrm{X_{i,t}} + \varepsilon_{i,t}, \qquad (4)$$

where $F_{i,t}$ alternately denotes net equity issues ($\Delta E_{i,t}$), net debt issues ($\Delta D_{i,t}$), and the change in long term debt ($\Delta LD_{i,t}$), each scaled by total assets. The vector $X_{i,t}$ contains a set of control variables based on Rajan and Zingales (1995), in particular changes in tangibility, changes in size, changes in profitability, and changes in market-to-book.[25] We report results for specifications that include industry and year fixed effects.[26]

INSERT TABLE 6 HERE

Our primary interest here is in the coefficient f_3. The odd-numbered models in Table 6 estimate (4) using OLS, while the even-numbered models offer 2SLS results where the entrenchment index is assumed endogenous.[27]

[25] The regression is in differences since the dependent variable is a flow measure.
[26] Robustness checks with fixed year and industry effects produce similar results.
[27] As in Table 4, we instrument the entrenchment index with its value as of the first year when data is available for the company in point in the RiskMetrics database. Our instrumental variable is valid as evidenced by the p-values of the over-identification tests. In addition, the instrument set has explanatory power as indicated by the partial R-squared and the F-statistic of the excluded instruments. The Hausman test further suggests that there the OLS and 2SLS coefficient estimates for the entrenchment index are not statistically different.

Controlling for various known capital structure influences in the OLS regressions, entrenched firms still issue less equity, and more net or long-term debt, to finance incremental capital needs. These results show that the pattern uncovered in Table 5 is robust to various control variables. Furthermore, the 2SLS results are similar for net equity and net debt issuance, although the change in long-term debt has now an insignificant coefficient. We conclude then that our findings on the net equity and debt issuance in the context of managerial entrenchment are robust to alternative estimation, controlling for the endogeneity of the entrenchment index.

D. Control variables

Tables 4 and 6 include a variety of controls previously argued to be determinants of the capital structure. Detailed variable definitions are given in Table 1. Here we briefly discuss the signs and significance of these estimates. Consider models 6 through 10 in Table 4. In general, the coefficients on the control variables are similar to those in earlier research, including Rajan and Zingales (1995), Berger et al. (1997), Fama and French (2002), Baker and Wurgler (2002), and Faulkender and Petersen (2006). Consider now models 4 and 6 of Table 6. These coefficients are as expected: net debt issuance increases when tangibility increases, when profitability decreases, when market-to-book decreases, and when size increases. These relations do not apply though for long-term debt issuance as all control variables are insignificant.

E. Further Robustness Checks

One feature of the entrenchment index is that it includes all provisions tabulated by the RiskMetrics surveys. Bebchuk Cohen, and Ferrell (2004) redefine the index to a subset of these provisions, which they view as pivotal for the governance of the firm.[28] We examine the effect of this redefining of the entrenchment. The results using the latter's study index are similar to those

[28] Their index is based on the following six provisions: staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, supermajority requirements for charter amendments, poison pills and golden parachutes.

that obtain with the entrenchment index. We also examine the robustness of the main results to alternative samples. Within a sub-sample excluding all dual-class firms, we find results similar to those in the full sample (unreported).

One feature of the Gompers et al. (2003) index is that the individual components of the index (takeover delay provisions, state-law anti-takeover provisions, voting rights provisions, and management protection provisions – see Table 1 for their definitions) are all equally weighted within the overall count. However, each sub-index might have a somewhat different effect on financing policy. Thus one direction in which to examine robustness is to consider the individual sub-components of the index. In Panel B of Tables 4 and 6, we find that the results are robust to three of the four sub-indices: the state-law anti-takeover provisions index; the officer protection index; and the index of charter provisions geared at delaying takeover attempts. The positive relationship between entrenchment and the use of debt, however, does not appear if one uses an index of entrenchment based purely on the voting rights of shareholders.

F. Causality and prior work

Causality is obviously a major concern in the study of leverage and corporate governance; leverage itself may be an efficient mechanism for governance (Jensen (1986)) and as such it may impact the choice of other governance mechanisms. Furthermore, it could be that the relationship we observe between leverage and governance mechanisms is due more to a spurious correlation induced by the impact of the 1980s takeover pressure on both, rather than any causal link (we extend that argument in the discussion section). While there are limits to what one can say on this score, we study the regression (1) in Table 4 in differences in an effort to address this concern. Since survey data for the entrenchment index is available only for 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006 we study the regression in cumulative changes across these years. The

results of this battery of tests generally conform to those presented earlier, but statistical significance tends to be low.

In addition to 2SLS and first differences analysis to address causality questions described in this subsection, we are able to identify and study an event that represents an exogenous shock to the managerial status. For that purpose we use the variation in corporate governance generated by the adoption of the "second generation" state anti-takeover laws and examine changes in managerial preferences for debt financing upon the introduction of these laws. The first piece of anti-takeover legislation was the Williams Act of 1968, a federal statute that provided measures to protect target shareholders during the tender offer process, including stringent disclosure requirements. In the 1970s, individual states extended the provisions of the Williams Act in what is known as the "first-generation" anti-takeover laws. However, the Supreme Court deemed these laws unconstitutional in 1982 (*Edgar vs. Mite Corp.*) due to their cross-state jurisdictional reach. Following that ruling, states began to pass "second-generation" anti-takeover laws (SGAT), which were deemed constitutional by the Supreme Court in 1987 (*CTS Corp. v. Dynamics Corp. of America*). These laws took primarily three forms: business combination laws, fair price laws, and control share acquisition laws. Researchers believe that their impact has been to increase the entrenchment status of the incumbent managers. Since not all states passed such laws, the SGAT represent an exogenous shock to the entrenchment status of the manager that allows us to study the effect of enactment of these laws on firms incorporated in states passing such bills, in comparison to firms from states not passing such bills.[29]

Our examination builds upon the empirical design in Garvey and Hanka (1999) who use the same experiment to study the impact of the SGAT laws adoption on changes in leverage in the

[29] Firms were given the opportunity to opt out of these laws. However, since the decision to opt out is endogenous, we do not exclude these firms from our sample (doing so would incur a selection bias).

period 1983-1993.[30] Following their data selection we consider only firms with complete Compustat and CRSP records in 1982-1990, excluding utilities and financials, and firms in states that passed SGAT laws before 1987 (the replication sample).

INSERT TABLE 7 HERE

Panel A presents the average values for the variables of interest. Our long-term debt and operating earnings averages for firms in the antitakeover states are similar to those reported in their study. However, we report slightly higher averages on log total assets. We also report a smaller set of firms (906 antitakeover firms and 94 pro-takeover control firms which compares to the 1084 and 119 firms) that closely matches the state-by-state firm count reported in their study. Additional univariate results on the SGAT experiment for the replication sample are presented in the last two columns of Table 2. Indeed both market and book leverage increase and interest coverage decreases after the enactment of these laws.

We next turn to the main analysis of changes in leverage in the context of the SGAT experiment. We use three measures for the change in leverage. Our first proxy comes from Garvey and Hanka (1999) and is defined as

$$\Delta L_{i,t} = \frac{D_{i,t-1} + \text{Debt issuance}_{i,t}}{A_{i,t-1} + \text{Debt issuance}_{i,t} + \text{Equity issuance}_{i,t}} - \frac{D_{i,t-1}}{A_{i,t-1}} \quad , \tag{5}$$

[30] Garvey and Hanka (1999) do not provide a comprehensive list of the law adoption years across states. We obtain the years of SGAT laws adoption from Table 1 in Bertrand and Mullainathan (2003). We follow the approach of Cheng, Nagar, and Rajan (2005) in studying the impact of the *first* law in the second-generation anti-takeover legislation that is passed in a firm's state of incorporation (usually the business combination law), since, the passage of subsequent laws is facilitated by the passage of the first. We however modify the list of Bertrand and Mullainathan (2003) to account for several discrepancies with the antitakeover state tabulations in Table 2 in Garvey and Hanka (1999). For example, the latter study reports that the states of New Jersey, Florida, Minnesota, and Virginia are anti-takeover states that passed their laws in the period 1987 to 1990. These are not supported by the list in Bertrand and Mullainathan (2003). We hence refer to McGurn (1989) for the exact dates of the enactment of these laws. The law introduction dates for New Jersey (1987), Florida (1987), Minnesota (1988), and Virginia (1984) are taken from that study.

where $D_{i,t-1}$ is lagged book debt and $A_{i,t-1}$ is lagged total assets. We further use the first differences in book and market leverage.[31] As in Garvey and Hanka (1999) we estimate the equation

$$\Delta L_{i,t} = g_0 \sum_{\text{j}} \text{State dummy} + g_1 \sum_{\text{t}} \text{Time dummy} + g_2 \text{Protected} + g_3 X_{i,t} + \varepsilon_{i,t}, \quad (6)$$

where i indexes firms, t indexes years; *Protected* is a treatment effect, equal to 1 if the firm is incorporated in a state passing anti-takeover law and after the law takes effect; *state* dummies equal 1 in states that passed an antitakeover law; *time* dummies equal 1 if post-law introduction in antitakeover states or post-1988 in states that did not pass such laws; and X is a vector of control variables as in Garvey and Hanka (1999). To control for industry effects we use the contemporaneous industry mean of the dependent variable computed as the same-year average among other firms in the same industry.[32] Following Cheng, Nagar, and Rajan (2005), we use Compustat for state incorporation data and supplement it with data from Compact Disclosure and proxy statements.[33] The coefficient g_2 in that regression is interpreted as the mean effect of the enactment of SGAT laws on changes in leverage.

The estimation results are shown in Panel B. In the first three columns we present our findings for the net change in leverage ($\Delta L_{i,t}$), the change in market- ($\Delta ML_{i,t}$) and the change in book leverage ($\Delta BL_{i,t}$), using the replication sample. When examining the net change in leverage, we obtain a coefficient of -0.0076 with a t-statistic of 1.69, marginally significant. This compares

[31] One concern regarding the change-in-leverage measure in (4) is that it does not reflect retained earnings in period t as a funding source. Hence, we use the changes in book and market leverage.
[32] In robustness tests, we show results where we include industry fixed effects. Our results are similar.
[33] Compustat records only the most recent state of incorporation. As such the state incorporation information may be inaccurate. To address this concern we compare the state of incorporation from Compustat with the state of incorporation from Compact Disclosure download as of January 1991. There are 107 firms in the extended sample (defined below) and 37 firms in the replication sample whose states of incorporation do not match. In these cases we use verify the state of incorporation from the proxy statements.

to the -0.013 coefficient estimate in their study with a t-statistic of 3.25.[34] Next, in models 2 and 3 we examine alternative proxies for changes in leverage. We find that these are positive and significant: in model 2 *protected*'s coefficient is 0.0157, marginally significant with t-statistics 1.84. In model 3, it is 0.0058, not significant.[35]

The sample selection criteria in Garvey and Hanka (1999) raise concerns.[36] Our goal is to verify whether the findings are materially affected by the sample selection. We study an extended sample where we do not require complete 1982-1990 COMPUSTAT and CRSP data but otherwise impose the same filters. Panel A illustrates the size of this sample. Indeed the number of firms in that sample is almost six times greater than the replication sample. In Panel B models 4 through 6 we show estimates based on that extended sample. All coefficient estimates on protected are positive. Except for $\Delta L_{i,t}$, they are also statistically significant.

To ascertain that our results are not driven by the empirical design we explore alternative specifications, shown in Panel C of Table 7.[37] First, our results are not sensitive to the choice of control variables. The results are similar when all regressors except for the time and state dummies are excluded and when all model variables are replaced by their sample ranks. Our results are unchanged when we replace the time and state dummies with year and state fixed

[34] The reasons for the potential differences are two-fold: first, our sample comprises about 92% of their sample; second, we cluster our standard errors at the state level, in line with the methodology in Bertrand, Duflo, and Mullainathan (2004) to account for the serial correlation in the residuals, induced by the lack of variation of the key variable (protected) at the state level. In unreported tests, we further find that the change in long-term debt to assets has a coefficient on protected of -0.044 with t-statistics of 2.02 which compares to a coefficient of -0.013 with a t-statics of 2.0 in Garvey and Hanka (1999) study.

[35] One reason for the differing results across measures of leverage is the fact that the measure in (5) does not account for internal financing but focuses exclusively on net debt and equity financing.

[36] For example, companies such as Microsoft, Dell Computer, Oracle, Coca-Cola Enterprises, or Enron are excluded from their sample, as they became public companies in that period and hence do not meet the data requirements. Further excluded are firms from states that passed SGAT laws prior to 1987, such as firms incorporated in the State of New York or the State of New Jersey.

[37] Our robustness tests are similar to those in Tables 4 and 5 of Garvey and Hanka (1999).

effects, following Bertrand, Duflo, and Mullainathan (2004).[38] The results are similar when we include additional controls. For example, they are unchanged when we add extra controls for the ratio of fixed to total assets, market-to-book, and capital spending.

Next, the treatment and control sample differ in firm size and profitability. Including additional controls for these does not affect our results. We also examine whether results change if the sample is restricted to either small or large firms, defined by whether the firm had more than $100M in assets in 1983. Interestingly, the *protected* coefficient changes signs in model 4, however, it remains positive and significant in models 5 and 6.

Our panel is unbalanced across states, with more than half of the antitakeover firms being incorporated in the state of Delaware. To verify whether this affects our results, we take two approaches. First, we cluster-adjust the standard errors at the state level for all regression results. Second, we replicate our main results in several sub-samples: with all Delaware firms excluded and again with all non-Delaware firms from the antitakeover sample excluded.[39] Our results remain. We also consider a sub-sample that excludes firms incorporated in Texas and California, as demand shocks to the defense and oil industry during the sample period might have affected the financing policy of firms in these industries. These tests again confirm our main results.

Another concern in estimating (6) is that some of the independent variables are persistent.[40] This persistence could lead to serially correlated disturbances in dynamic panel estimation that includes fixed effects. It could also be the case that corporate leverage exhibits within-group (i.e. within-state) heteroskedasticity. To address these concerns, we show results using *system* GMM estimation (Blundell and Bond (1988)). This estimator is able to resolve

[38] The approach in Garvey and Hanka (1999) does not fully utilize the available information. Including state and year fixed effects provides an efficient use of the staggered passage of the SGAT statutes as it does not restrict the pro-takeover group to states that never pass an antitakeover law.
[39] We thank Allen Farrell for suggesting this test.
[40] For example Lemmon, Roberts, and Zender (2008) document that leverage is highly persistent.

econometric issues associated with estimating a panel in the presence of fixed effects, persistent regressors, and within-group heteroskedasticity. Our results are robust to this battery of tests.

We conclude that changes in market leverage and in book leverage have increased after the introduction of the second generation anti-takeover laws. We are cautious to draw no such conclusions for net changes in leverage as the results thereof are mixed. As such, our results on changes in leverage differ from these in Garvey and Hanka (1999). We suggest two potential explanations for these differences: the restrictive sample selection procedure the latter study employs (which results in a sub-sample of large, more profitable companies) as well as the definition of leverage, which does not account for internal financing. Finally, while our results differ from those of Garvey and Hanka (1999) on *changes* in leverage, they are corroborated by the findings of Wald and Long (2007) who show that market leverage *levels* increased after the introduction of the SGAT laws, controlling for the endogeneity of the firm's incorporation decision.

IV. Discussion

What can be driving the *positive* relationship between managerial entrenchment and leverage that is documented in the previous section? Clearly, despite the fact that the positive entrenchment-leverage relationship is somewhat counterintuitive, there is nonetheless no shortage of theories that have the potential to shed light on it, and they are difficult to test.[41] In light of this fact, our goal is not to determine which of the theories presented in the introduction is "correct," but is somewhat less ambitious. Our goal here is simply to provide some affirmative support that

[41] For instance, the first hypothesis outlined in the introduction suggests that firms with entrenched management suffer higher costs of equity. Unfortunately, measuring the cost of equity is a notoriously delicate task. In unreported results we able to document a positive relation between measures of equity issuance costs (underpricing, discounting and underwriter spreads in seasoned equity offerings) and the entrenchment index. These however have low statistical significance. In addition equity issuance costs by nature are sunk costs, and may not be relevant for the equity issuance decisions since equity is an infinitely lived security.

the positive entrenchment-leverage relationship is driven at least in part by some of the outlined channels, which make several relatively straightforward testable predictions.

A. The Access to Debt and Equity Markets

Our first hypothesis is based on the notion that entrenched managers may have better terms of access to credit markets and better credit ratings, as debt holders view them as lower risk borrowers. To assess the validity of this hypothesis we allow for a simultaneous determination of leverage, credit ratings, and entrenchment. We estimate a three-stage least squares (3SLS) system:[42]

$$\begin{aligned}\text{Book Leverage}_{i,t} = {} & h_{11}\text{G}_{i,t} + h_{12}\text{Credit Rating}_{i,t} + h_{13}\text{Size}_{i,t-1} + h_{14}\text{Tangibility}_{i,t-1} \\ & + h_{15}\text{Profitability}_{i,t-1} + h_{16}\text{MB}_{i,t-1} + \varepsilon_{i,t}\,,\end{aligned} \tag{7}$$

$$\text{Credit Rating}_{i,t} = h_{21}\text{Book Leverage}_{i,t} + h_{22}\text{G}_{i,t} + h_{23}\text{Size}_{i,t-1} + h_{24}\text{RetVol}_{i,t-1} + \eta_{i,t}, \tag{8}$$

$$\begin{aligned}\text{G}_{i,t} = {} & h_{31}\text{Credit Rating}_{i,t} + h_{32}\text{Book Leverage}_{i,t} + h_{34}\text{Size}_{i,t-1} + h_{35}\text{Firm Age}_{i,t-1} \\ & + h_{36}\text{MB}_{i,t-1} + \nu_{i,t}\,,\end{aligned} \tag{9}$$

where the structural equation is equation (7).[43] If the first hypothesis is supported by the data, we expect that the entrenchment index would have lessened power in explaining leverage, and hence its coefficient in the structural equation would be insignificant. However, the entrenchment coefficient in the credit rating equation would be positive and significant as companies with more entrenched managers are expected to have better credit ratings. Finally, we expect the coefficient of the credit ratings in (7) to be positive and significant.

To capture the terms at which the company can access the credit market, we use the long-term issuer credit rating assigned by Standard & Poor's. This rating reflects the company's overall

[42] For robustness we further estimate the system of equations one-by-one, whereas we instrument each of the independent variables (leverage, entrenchment index, and credit rating) with their initial values at the beginning of the sample. These 2SLS results are similar to those presented using the three-stage least squares analysis in Table 8, albeit the statistical significance is decreased.

[43] As a robustness check we also consider the same system for market leverage. Our results hold.

creditworthiness rather than the ability to repay specific obligations. In particular, it aims to measure the ability and readiness of a debtor to meet its long-term financial commitments (maturities of more than one year) when due. It ranges from AAA (strong ability to pay financial obligations) to CC (vulnerable). These rating variables are assigned a six-way code classification, 1 through 6, with 1 being the lowest credit rating; these correspond accordingly to S&P's bond ratings of B or below, BB, BBB, A, AA, and AAA (for Moody's bond ratings, the six groups would be B or below, Ba, Baa, A, Aa, and Aaa). When no such rating is present, we code it as zero.[44]

In line with our cross-sectional analysis we include in (7) the determinants of leverage suggested by Rajan and Zingales (1995), namely market-to-book, tangibility, firm size, and profitability. We include as further controls in the structural equation industry and year fixed effects (not reported) since debt financing is likely to vary by industry and across time. In the credit rating equation we include as controls the firm size and the return volatility. We use these controls to proxy for the growth opportunities of the firm. We anticipate that higher growth opportunities would be associated with lower credit ratings.

Lastly, in the managerial entrenchment equation (9) we include firm size, market-to-book ratio, and firm age as controls. The latter two measures attempt to capture the growth opportunities of the company, which we anticipate to be negatively associated with the managerial entrenchment. The results of our 3SLS analysis are presented in Table 8.

INSERT TABLE 8 HERE

[44] Our results are not affected by coding the firm-years without S&P credit rating as zero. When we omit these observations, our results are similar. Of the sample of 15,635 firm-year observations in the RiskMetrics data, a total of 7,383 have S&P long-term credit ratings assigned. This corresponds to a total of 697 firms with credit ratings (the total number of RiskMetrics firms in our sample is 2,096).

We find some support for the first hypothesis. The structural equation (7) shows a coefficient on entrenchment index of 0.0309, statistically significant, which indicates that an increase in the entrenchment status is associated with an increase in book leverage, net of its effect on leverage through credit ratings. The economic effect is nontrivial: a one-standard-deviation increase in entrenchment (corresponding to about 3 additional charter provisions) results in an increase of leverage of more than 9%. The credit rating coefficient is positive and significant, as expected. Interestingly firm size is insignificant in the structural equation. However, the remainder of the variables have the expected signs (firms with more tangible assets, low profitability and low market-to-book have higher leverage). For comparison purposes we also report the results of simple OLS estimates for the leverage equation. The results are largely similar, except for firm size that is now significant.

Our credit rating equation produces expected estimates: firms which are larger, with lower return volatility, lower book leverage and more entrenched management have better credit ratings. The latter finding confirms our conjecture that firms with entrenched management have better access to the credit markets.

Overall, our results in Table 8 indicate that managerial entrenchment is associated with better terms of access to the credit markets, which are then associated with higher leverage. However, that channel alone cannot explain the cross-section of leverage and entrenchment. Still, managerial entrenchment influences leverage, net of its impact through credit ratings.

We next test two additional implications of our main hypothesis. As part of it we assume that lenders rationally offer better terms of debt financing to firms with entrenched managers, as such firms are perceived to have lower default risk. The debt issuance by such companies would increase shareholder value as these companies trade off expected bankruptcy costs with debt-

related benefits such as tax shields at higher debt levels.[45] Hence, when firms with more entrenched managers issue debt they would receive better response by equity holders.[46] Alternatively, given the lower degree of alignment of entrenched managers with equity holders, the terms in the equity market will be less favorable to such firms. Consequently, equity issuances by firms with entrenched managers would be met with a more negative response by shareholders. We test these implications by examining the announcement returns to public debt and equity issuances of companies in our sample.

INSERT TABLE 9 HERE

Panel A presents the average cumulative abnormal returns (CAR) around announcements of public debt and equity issuances for firms in our sample.[47] Our univariate results indicate that firms with more entrenched managers realize higher CAR around debt issuance announcements. For example a portfolio that is short stocks in the lowest quintile of entrenchment and long stocks in the highest quintile of entrenchment would generate 1.24% CAR within -5 to +5 of the debt issuance announcement. Surprisingly, we find that the similar magnitude for equity issuance is 1.50%. However these differences are not statistically different from 0 and hence we interpret our univariate results with caution.

In Panel B of Table 9 we examine the additional implications above in a multivariate setup where we control for the self-selection of the sample of debt and equity issuances, as well as for

[45] Even in the absence of distress costs, such firms may find it beneficial to increase debt financing, as firms with more conservative investment policies would have higher marginal tax rates, see DeAngelo and Masulis (1980). In unreported results, we find that the simulated marginal tax rate (Graham (1996)) is increasing near-monotonically across entrenchment quintiles.

[46] We thank Gordon Philips for suggesting this test.

[47] For each issuance announcement we compute the cumulative abnormal return by subtracting the return from the market model from the raw return. Market model is estimated starting 255 days prior to the event, and ending 46 days prior to the event. We use two event windows, -1 to +1 and -5 to +5 days around the announcement date. We aggregate announcement CARs at the firm-year level in order to address the potential serial correlation. For each calendar year we value-weight the cumulative abnormal returns around debt (equity) issuance announcements in that calendar year by the dollar proceeds of the corresponding issue. There are 1,259 firm-years with public debt issuances and 564 firm-years with seasoned equity issuances in our sample.

firm and issue characteristics. Since the sample of equity and debt issuers is non-random and moreover the decision to issue equity or debt is related to the managerial entrenchment status, we study a Heckman (1979) self-selection model:

$$\begin{aligned}\text{Abnormal Returns}_{i,t} = {} & k_1 \text{G}_{i,t-1} + k_2 \text{Log Total Proceeds}_{i,t-1} + k_3 \text{Total Assets}_{i,t-1} \\ & + k_4 \text{Inverse Mill's Ratio}_{i,t} + \varepsilon_{i,t},\end{aligned} \tag{10}$$

where the announcement returns are only observed if the company has issued public debt in that calendar year. To capture the factors influencing the decision to issue public debt or equity and hence the inverse Mill's ratio, we include the following probit selection equation as part of the two-step estimator proposed by Heckman (1979):

$$\Pr(\textit{Issuance}_{i,t} = 1) = \Phi\left(l_1 \text{G}_{i,t-1} + l_2 \text{Y}_{i,t-1} + \eta_{i,t}\right), \tag{11}$$

where Y is a matrix of control variables, including firm size, market-to-book ratio, tangibility, profitability, and the presence of a credit rating (all as of the end of the prior fiscal year) and $\Phi(.)$ denotes the standard normal distribution cumulative density function.

The results of the Heckman's model estimation are presented in Panel B. In line with our main hypothesis, they indicate that firms with more entrenched management tend to receive better shareholder response upon the announcements of debt issuances. However, the managerial entrenchment status has no influence on the announcement returns of equity issues. The coefficients on the entrenchment index in the selection equation are as expected: more entrenched managers choose to issue more often debt and less often equity. Moreover, the inverse Mill's ratio is significant in the first two models (debt issuance) indicating that our concern of a non-random sample is substantiated.

We conclude this section by noting that we find some affirmative support that firms with entrenched managers receive better access to debt markets which then translates into higher

leverage. However this channel alone is unable to fully explain the observed cross section of leverage and managerial entrenchment. While it appears that indeed firm riskiness is what drives the linkage between leverage and corporate governance presented in this subsection, we turn to our next hypothesis for additional evidence.

B. Financing Policy with Managerial Entrenchment and Shareholder Activism

Our second hypothesis again emphasizes how managerial risk-taking incentives may affect financing policy through the investment risk choices of the firm (John et al. (2008), Hirshleifer and Thakor (1992), Leland (1998), and Mauer and Sarkar (2005)). Entrenched managers may choose more conservative investment policies in order to secure their private benefits of control.[48] Such firms would optimally trade off costs and benefits of debt financing at higher debt levels. However, in such models there are no incentives for both types of firms to make the optimal financing choice after making a sub-optimal investment risk choice. Here we recognize that entrenched managers may still prefer to finance with less debt and posit that an alternative governance mechanism – the presence of active shareholders such as large blockholders or pension funds, is able to influence entrenched managers to increase debt

[48] In the framework of John et al. (2008) the manager knows the optimal amount of perks that she would want to consume when cash flows are realized. In a sub-game perfect equilibrium context, when she takes the investment policy decision (at time zero) she would be influenced by the fact that she will not be able to consume this optimal amount in the very bad cash-flow states of the project. Her incentives at time zero would then be isomorphic to that of a senior debt holder whose promised payment is equal to the optimal amount of perks that she would consume if there is enough project cash. In this sense her investment policy would be more conservative, the larger her optimal perks are (which are higher the more entrenched her managerial status is). A similar conclusion is reached in a different line of argument by Hirshleifer and Thakor (1992). In their model with differential managerial ability managerial reputation building incentives make managers to choose sub-optimally conservative investment policies. Risk-shifting incentives of leverage provide an offset which might move managerial risk-taking incentives closer to the optimal investment risk choices. Taking this offset into account shareholders choose leverage optimally to induce investment policy close to the optimum. Thus, in equilibrium with asymmetric information on investment choices, it might be ex ante beneficial to shareholders to commit not to monitor the manager so that the firm can assume higher leverage.

funding.[49] A testable implication of this alternative hypothesis is that firms with entrenched managers that have active shareholders would have more debt than otherwise.

To test this empirical prediction, we repeat our basic test from Table 4 allowing for the interaction of the entrenchment index with two shareholder activism proxies. We follow Cremers and Nair (2005) in using the percentage share ownership by institutional blockholders (defined to be institutional shareholder with equity ownership greater than 5%) and the percentage of share ownership by the U.S. public pension funds to capture shareholder activism. The results of these tests are presented in Panel A of Table 10.

INSERT TABLE 10 HERE

The interaction of the percentage share ownership by institutional blockholders with entrenchment has the expected positive sign, indicating that entrenched managers are more likely to lever up when activist shareholders are present. Similarly, our second proxy for shareholder activism (total pension fund share holdings) has a positive interaction coefficient with the entrenchment index however this coefficient is not significant.

Mimicking our approach in Table 4, we further show 2SLS estimates, where we treat both the entrenchment index and the shareholder activism proxies as endogenous. We instrument these with their initial values at the beginning of our sample (in that instance we drop the first year of the sample). Our 2SLS analysis confirms our findings. Moreover our instruments appear to be valid as indicated by the F-test of joint significance of the excluded instruments, and the test of overidentification. We conclude that section by noting that our evidence for the validity of the second hypothesis is mixed. While the interactions of the entrenchment index with the share

[49] It could be further maintained that active shareholders could influence the investment risk choices of entrenched managers. We argue though that this is less likely. While financing choices are observable and hence less costly to enforce, investment risk choices are not observable and hence costlier to enforce by active shareholders.

holdings of the institutional blockholders and the pension funds are positive, only the former is significant.

Alternatively, if managerial perk consumption is protected in contingencies triggered by financial distress, entrenched managers would be willing to assume higher level of debt in the companies they manage as such firms may trade off the benefits and costs of debt at higher debt levels.[50] Imbedded in this conjecture is the assumption that managerial perk consumption and/or compensation are linked to firm value. Our empirical approach to test this implication is to split the entrenchment index into two components: an index of provisions that could protect CEO's compensation and perk consumption in contingencies triggered by financial distress, such as golden parachute, severance agreement and compensation plan (the CEO protection index); and an index that encompasses all the remaining provisions (the residual entrenchment index). We then allow for an interaction effect of the shareholder activism proxies with the CEO protection index.[51] Panel B of Table 10 illustrates our results.

Overall, we do not find support for this implication. The interactions of the two shareholder activism proxies with the CEO protection index have positive coefficients, as expected. However, these are not statistically significant. Our results are further supported by the 2SLS estimates, where we treat the shareholder activism proxies and the CEO protection index as endogenous. We also note that the CEO protection index has a positive and significant coefficient in all our regressions.

We conclude this section by noting that we find some evidence that entrenched managers are more likely to increase their leverage in the presence of activist shareholders. However this

[50] This complementary mechanism could further provide a direct explanation why officer protection sub-index appears significant in explaining the entrenchment index cross-section with leverage in Panel B of Table 4; it could further provide an explanation for the significant interaction of the CEO protection index with financing deficit in Panel B of Table 6.

[51] Our results are similar when we allow for interactions of the shareholder activism proxies with both sub-indices defined above.

evidence is not robust to examination of alternative shareholder activism proxies. We do not find evidence that the CEO protection in contingencies triggered by financial distress act to ameliorate

C. Debt as a control preservation mechanism

A third hypothesis, or related set of hypotheses, involves the strategic use of debt to retain corporate control. Harris and Raviv (1988) and Stulz (1990) show that managers whose control is being challenged may use debt to inflate their relative voting rights, e.g. by issuing short-term debt and using the proceeds to buy shares from non-contesting shareholders.[52] If debt is used as a complement to other mechanisms of entrenchment, periods of heightened takeover intensity would be characterized by higher levels of entrenchment and higher levels of debt.

In order to test the control hypothesis we need to find a proxy for takeover intensity and control for it in our leverage regressions. If the thread of dismissal as an outcome of a takeover has lead managers to increase both leverage and adopt more charter provisions that entrench them, then the entrenchment index would have diminished explanatory power in these regressions. We set forth to test this prediction by first estimating the likelihood that a firm will be acquired in a panel data probit model:

$$\Pr(\textit{Takeover Attempt}_{\mathrm{i,t}} = 1) = \Phi\left(m_1 Z_{i,t-1} + \varepsilon_{i,t}\right), \tag{12}$$

where Z is a matrix of control variables and $\Phi(.)$ denotes the standard normal distribution cumulative density function. As controls we include independent variables that Cremers, John, and Nair (2008) identify as determinants of the takeover likelihood: market-to-book ratio, tangibility, log cash holdings, market equity, book leverage (and a second lag thereof),

[52] Debt can also serve as a pre-commitment device to avoid inefficient future investment and thereby discourage potential bidders (Zwiebel (1996), Novaes (2003)). Müller and Panunzi (2004) propose that debt can discourage a raider from attempting a takeover, since raiders often conduct "bootstrap takeovers" in which the takeover attempt is financed with debt that is collateralized with the assets of the target. This in turn creates incentives for the target management to pledge its assets prior to the tender offer.

profitability, the presence of at least one 5% blockholder, and an industry dummy variable.[53] The dependent variable is a dummy equal to one if the company is target of an announced acquisition in the sample period.[54]

In estimating (12) our sample consists of all Compustat firms, except those from the regulated and financial industries. In order to avoid look-ahead bias we estimate the likelihood of a takeover for each year using the preceding 11-year period.[55] For example we obtain the takeover likelihood estimates for 1991 by estimating (12) over 1980-1990. In Panel A we present the results for the estimation of the likelihood of takeover for four sub-samples (including the first and last estimation sub-samples).

INSERT TABLE 11 HERE

Our coefficient estimates are similar to those in Cremers, John, and Nair (2008). For example in model 4, firms with low market-to-book, low market capitalization, lower operating performance, higher leverage, and operating in an industry with at least one announced takeover in the previous year will have a heightened exposure to takeovers. The overall fit is modest but similar to the one documented in Ambrose and Megginson (1992) and Cremers, John, and Nair (2008). The estimates of the predicted probabilities based on the 11-years rolling window vary from 0% to 17.6%, with an average of 5.4%.

[53] The industry dummy variable records whether a takeover attempt occurred in the same industry in the year prior to the acquisition. It captures the clustering of takeover activity within industry. We include year fixed effects to control for clustering of mergers across years. All Compustat variables (market-to-book, tangibility, log cash holdings, book leverage, and profitability) are industry-adjusted. We include two lags of book leverage to control for the possibility that anticipating a takeover threat the manager may have already assumed higher leverage in the year preceding the event.

[54] We consider all announced acquisitions in the SDC *Mergers and Acquisitions* database, excluding buybacks, exchange offers, and recapitalizations, and requiring that the target is a public company and that the acquirer is classified as investment-, public-, private-, or subsidiary company. There are 9,668 announced transactions in 1980-2005 that meet the above criteria. These correspond to 6,250 target firms.

[55] We choose the11-years estimation window in an attempt to maximize the number of years for which we obtain estimates and in an attempt to obtain as large as possible period over which to estimate equation (12). Our results are similar when use instead a shorter rolling estimation window of 10 or 5 years.

Next, in Panel B we report the estimates of the leverage regressions controlling for the predicted likelihood of a takeover. We find that the likelihood of a takeover has a significant impact on all three measures of leverage. The entrenchment index coefficient is still positive and significant, however its magnitude and significance is diminished, as compared to Table 4, model 1 for example. We conclude by noting that there appears to be evidence to support the control hypothesis, to the extent to which our proxy for the likelihood of a takeover is an unbiased one. Indeed the use of debt as an entrenching device is a significant determinant of leverage policy. However, even when we include proxies for the likelihood of takeover, we still obtain significant entrenchment index coefficient estimates in the leverage regressions.[56]

Overall, in this section we find some preliminary evidence that the observed positive relationship between entrenchment and leverage in the cross-section is in part driven by the better access to credit markets for companies with weak shareholder rights, and the preference of entrenched managers to use debt as a means to preserve their incumbent status.

V. Conclusion

In this paper, we find that firms whose managers are more entrenched, as measured by the Gompers et al. (2003) index of anti-takeover provisions, use more debt to fund financing deficits and maintain higher leverage ratios and lower interest coverage overall. This large-sample relationship runs counter to the traditional empirical evidence and intuition that entrenched managers prefer less debt.

This result is highly robust. We verify that the potential endogeneity of the governance index we use does not drive the observed empirical pattern. For that purpose, we offer among other an instrumental variables analysis whereas we treat the corporate governance proxy as

[56] In unreported robustness test, we verify that our findings are not driven by the choice of proxy for the takeover likelihood. For example, when we use the likelihood estimate as of 1991 for all years in our sample, we obtain largely similar results.

endogenous; as well as study an exogenous shock to corporate governance generated by the adoption of the "second generation" state anti-takeover laws, largely believed to have increased managerial entrenchment. Both sets of tests yield similar results. For example, using the variation in corporate governance generated by the introduction of these laws, we find largely similar results.

After outlining several theoretical channels that could lead to this relationship, we find empirical support for two complementary explanations. The first one is based on the idea that firms with entrenched managers assume conservative investment policies and as such receive better terms of access to the debt market. Perhaps as an outcome of this differential access to the debt market, firms with weak shareholder rights use debt funding more often and as a consequence increase their overall leverage. Second, we find some support for the notion that entrenched managers prefer to use debt as a device to entrench themselves. The results thus provide surprising new evidence on the direction and the importance of the linkage between governance mechanisms and corporate financing decisions.

References

Ambrose, B., W. Megginson, 1992, The role of asset structure, ownership structure, and takeover defenses in determining acquisition likelihood, *Journal of Financial and Quantitative Analysis*, Vol. 27: 575-589.

Andrade, G., S. Kaplan, 1998, How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed, *Journal of Finance*, Vol. *53:* 1443-1493.

Baker, M. and J. Wurgler, 2002, Market timing and capital structure, *The Journal of Finance*, Vol. 57: 1-32.

Bebchuk, L., A. Cohen, A. Ferrell, 2004, What matters in corporate governance? Discussion paper, Harvard Law School.

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

Bertrand M., S. Mullainathan, 2003, Enjoying the quiet life? Corporate governance and managerial preferences, *Journal of Political Economy*, Vol. 111: 1043-1075.

Bertrand M., E. Duflo, S. Mullainathan, 2004, How much should we trust differences-in-differences estimates? *Quarterly Journal of Economics*, Vol. 119: 249-275.

Bludell, R. and S. Bond, 1988, Initial Conditions and Moment Restrictions in Dynamic Panel Data Models, *Journal of Econometrics*, Vol. 87: 115-143.

Cheng, S., V. Nagar, M. Rajan, 2005, Identifying Control Motives in Managerial Ownership: Evidence from Antitakeover Legislation, *Review of Financial Studies*, Vol. 18: 636-672.

Childs, P., D. Mauer, S. Ott, 2005, Interactions of corporate financing and investment decisions: The effects of agency conflicts, *Journal of Financial Economics*, Vol. 76: 667-690.

Chava, S., D. Livdan, A. Purnanandam, 2007, Do shareholder rights affect the cost of bank loans? *Review of Financial Studies*, forthcoming.

Cremers, M. V. Nair, 2005, Governance Mechanisms and Equity Prices, *Journal of Finance*, Vol. 60: 2859-2894.

Cremers, M. K. John, V. Nair, 2008, Takeovers and the Cross-section of Returns, *Review of Financial Studies*, forthcoming.

DeAngelo, H., R. Masulis, 1980, Optimal Capital Structure under Corporate and Personal Taxation, *Journal of Financial Economics,* Vol. 8: 3-27.

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

Fama, E., J. MacBeth, 1973, Risk, return, and equilibrium: empirical tests, *Journal of Political Economy,* Vol. 81: 607-636.

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

Frank, M., V. Goyal, 2003, Testing the pecking order theory of capital structure, *The Journal of Financial Economics*, Vol. 67: 217-248.

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

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

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

Graham, J., 1996, Proxies for the Corporate Marginal Tax Rate, *Journal of Financial Economics,* Vol. 42: 187-221

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

Harris, M., A. Raviv, 1988, Corporate control contests and capital structure, *Journal of Financial Economics*, Vol. 20: 55-86.

Harvey, C., K. Lins, A. Roper, 2004, The effect of capital structure when expected agency costs are extreme, *Journal of Financial Economics*, Vol. 74: 3-30.

Heckman, J., 1979, Sample selection bias as a specification error, *Econometrica*, Vol. 47: 153-161.

Hirshleifer, D., A. Thakor, Managerial Conservatism, Project Choice, and Debt, *Review of Financial Studies*, Vol. 5: 437-470.

Jensen, M., 1986, Agency cost of free cash flow, corporate finance, and takeovers, *American Economic Review*, Vol. 76: 323-329.

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

John, K., L. Litov, B. Yeung, 2008, Corporate governance and managerial risk-taking incentives, *Journal of Finance*, forthcoming.

Kayhan, A., 2003, Managerial entrenchment and the debt-equity choice, working paper, University of Texas at Austin.

Kisgen, D., 2006, Credit ratings and capital structure, *Journal of Finance*, Vol. 41: 1035-1072.

Leland, H., 1998, Agency costs, risk management, and capital structure, *Journal of Finance*, Vol. 53: 1213-1243.

Lemmon, M., M. Roberts, J. Zender, 2008, Back to the beginnings: persistence and the cross-section of corporate capital structure, *Journal of Finance*, forthcoming.

MacKie-Mason, J.K., 1990, Do firms care who provides their financing? *Journal of Finance*, Vol. 45: 1471-1493.

Mauer, D., S. Sarkar, 2005, Real options, agency conflicts, and optimal capital structure,

Journal of Banking and Finance, Vol. 29: 1405-1428.

McConnell, J., H. Servaes, 1990, Additional evidence on equity ownership and corporate value, *Journal of Financial Economics*, Vol. 27: 595-612.

McGurn, P., 1990, State Antitakeover Laws, Investor Responsibility Research Center.

Molina, C., 2005, Are firms underlevered? An examination of the effect of leverage on default probabilities, *Journal of Finance*, Vol. 60: 1427-1459.

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

Morellec, E., 2004, Can Managerial Discretion Explain Observed Leverage Ratios? *Review of Financial Studies*, Vol. 17: 257-294.

Müller, H., F. Panunzi, 2004, Tender offers and leverage, Quarterly Journal of Economics, Vol. 119: 1217-1248.

Myers, S., L. Shyam-Sunder, 1999, Testing static tradeoff against pecking order models of capital structure, *Journal of Financial Economics*, Vol. 51: 219-244.

Novaes, W., 2002, Managerial turnover and leverage under takeover threat, *Journal of Finance*, Vol. 57: 2619-2650.

Novaes, W., 2003, Capital structure choice when managers are in control: entrenchment versus efficiency, *Journal of Business*, Vol. 76: 49-82.

Petersen, M., 2008, Estimating standard errors in finance panel data sets: Comparing approaches, *Review of Financial Studies*, forthcoming.

Rajan, R., L. Zingales, 1995, What do we know about capital structure? Some evidence from international data**,** *Journal of Finance*, Vol. 50:1421-1460.

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

Wald, J. and M. Long, 2007, The effect of state laws on capital structure, *Journal of Financial Economics,* Vol. 83: 297-319.

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

Yermack, D., 1996, Higher market valuation of companies with a small board of directors, *Journal of Financial Economics*, Vol. 40, 185-212

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

Table I
Variable Definitions

All main variables, except for book equity, book debt, and interest coverage are winsorized at 1% in each tail of the variable distribution. All control variables, except for firm age, are winsorized at 1% in each tail of the distribution. All dollar values are in 2000 constant U.S. dollars.

Variable	Definition
Main Variables	
Net equity issues	Sale of common & preferred stock (Compustat data item #108) – purchase of common & preferred stock (#115) divided by assets (#6).
Net debt issues	Long-term debt issuance (#111) – long term debt reduction (#114) divided by total assets (#6).
Gross debt issued	Long-term debt issuance (#111) scaled by total assets (#6) as of end of fiscal year.
Book leverage	Book debt to total assets (#6) at the end of the current fiscal year. Book debt is defined as total assets (#6) – book equity, both as of the end of the current fiscal year. Book equity is defined as total assets (#6) – total liabilities (#181)– preferred stock (#10) + deferred taxes (#35) + convertible debt (#79) as of the end of the current fiscal year; if preferred stock is missing, then we subtract the redemption value of preferred stock (#56). If redemption value is also missing then we subtract the carrying value (#130). If deferred taxes are recorded as missing or combined with other items, we record them as 0.
Market leverage	Book debt divided by: total asset (#6) – book equity + total shares outstanding (#25) * price (#199).
Net change in leverage	$\Delta L_t = \left(D_{t-1} + net\ debt\ issues\right) / \left(A_{t-1} + net\ debt\ issues + net\ equity\ issues\right) - D_{t-1}/A_{t-1}$, where D_t is book debt and A_t is total assets at the end of the current fiscal year.
Financing deficit[57]	The sum of the cash dividends, investments and change of working capital minus internal cash flow. The **cash dividends** are represented by data item #127 in Compustat. The resulting variable is scaled with total assets. **Investments** are computed as follows. For firms reporting format codes 1 to 3, investments are equal to #128 + #113 + #129 + #219 - #107 - #109. For firms reporting format codes 7, investments are equal to #128 + #113 + #129 - #107 - #109 - #309 - #310. The resulting variables are scaled with total assets. **Change in working capital** is computed as follows. For firms reporting format code 1, the change in working capital equals the sum of #236 + #274 + #301. For firms reporting format codes 2 and 3, the change in net working capital is #236 + #274 - #301. For format code 7, the value is given by #302 - #303 - #304 - #305 - #307 + #274 - #312 - #301. The resulting variables are scaled with total assets. **Internal cash flow** is defined as follows. For firms reporting format codes 1, 2 and 3, it equals #123 + #124 + #125 + #126 + #106 + #213 + #217 + #218. For firms reporting format code 7, it equals #123 + #124 + #125 + #126 + #106 + #213 + #217 + #314. The resulting variable is scaled with total assets.
Interest coverage	Operating earnings before depreciation (#13) divided by interest expense (#15). When earnings are negative, we code the ratio as 0. In order to account for outliers, we winsorize the resulting variable at 5% in each tail of the distribution.
Governance Variables	
Entrenchment index	An index that counts the presence of 24 antitakeover, voting, compensation-related and state-law-related provisions present in a corporate charter. The index is introduced by Gompers, Ishii, and Metrick (2003). The index includes the following count provisions: all provisions in the delay-, voting-, state laws-, and officer protection- indices (defined below) plus the following provisions: poison pill, pension parachute, and silver parachute. The source of the data is RiskMetrics (formerly IRRC).
Democracy dummy	Dummy variable that equals one if the entrenchment index $G \leq 5$, and zero otherwise.
Dictatorship dummy	Dummy variable that equals one if the entrenchment index $G \geq 14$, and zero otherwise.
Delay index	Index adds one unit for each of the following charter provisions: blank check preferred stock, classified board, limits to call special meeting, and limits for written consent.
Voting index	Index adds one unit for the following charter provisions: limits to amend charter, limits to amend bylaws, unequal voting, absence of cumulative voting, absence of secret ballot.

[57] In calculating the components of financing deficit, we follow Frank and Goyal (2003). We record as zero the following items when they are either missing or combined with other items (Compustat data item shown in brackets): depreciation and amortization (# 125), other funds from operation (defined as #124 + #126 + #106 + #213 + #217; we have recorded as zero all individual components if missing or combined with other item), accounts receivable (#302), inventory (#303), accounts payable and accrued liabilities (#304), income taxes-accrued (#305), net change in asset & liabilities (#307), increase in investments (#113), sale of investment (#109), capital expenditure (#128), sale of property plant and equipment (#107), acquisitions (#129), short term investment change (#309), investing activities-other (#310), purchase of common and preferred stock (#115), cash dividend (#127), long-term debt reduction (#114), changes in current debt (#301), other financing activities (#312), exchange rate effect (#314), other sources of funds (#219), working capital change (#236).

State laws index	Index adds one unit for each law adopted by the state of incorporation: business combination, fair price, control share acquisition, recapture of profits, cash-out, director's duties.
Officer protection index	Index adds one unit for each of the following charter provisions: director liability, director indemnification, compensation plans, golden parachute, and severance agreement.
CEO protection index	Includes golden parachute, compensation plans, and severance agreement.
Bebchuk et al. index	The sum total of the following charter provisions: classified board, limits to amend bylaws, limits to amend charter, supermajority to approve merger, golden parachute, and poison pill.
CEO stock ownership	Shares held by the CEO / shares outstanding. Data is from Execucomp.
CEO tenure	Defined as ln (CEO tenure). Data is from Execucomp.
CEO option holdings	Defined as options held by CEO/ shares outstanding. Data is from Execucomp.
Board structure	Defined as outsiders on the board / board size. Data on the share of outsiders is from RiskMetrics (formerly IRRC) for 1997-2006. For 1990-1996, we hand collect it from Compact Disclosure.
Board size	Defined as ln (board size). The data on board size is from RiskMetrics (formerly IRRC) for 1997-2006. For 1990-1996, we hand collect it from Compact Disclosure.
Institutional ownership 5%	Dummy variable equal to 1 if there is at least one institutional shareholder with at least 5% stake in the company. Source is Thomson Financial CDA/Spectrum 13F institutional holdings data.
Excess compensation	Residual in the OLS regression: $\log(Salary_{i,t} + Bonus_{i,t}) = b_1\log(Sales_{i,t}) + b_2(CEO\ stock_{i,t} + option\ ownership_{i,t}\ (\%)) + b_3Age_{i,t} + b_4Years\ as\ CEO_{i,t} + b_5ROA_{i,t} + b_6ROA_{i,t-1} + b_7(Excess\ stock\ return_{i,t}) + b_8(Excess\ stock\ return_{i,t-1}) + g*(Industry\ dummies) + h*(Year\ dummies)$. We follow Berger, Ofek, and Yermack (1997).
Control Variables	
Market-to-book	The ratio of the market value of assets to the book value of asset. The market value is calculated as the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes, total assets (#6) – book equity + market equity, where are components are recorded at the end of the current fiscal year.
Asset tangibility	Net property, plant and equipment (#8) divided by total assets as of the current fiscal year.
Profitability	EBITDA (#13) divided by total assets as of the current fiscal year.
Firm size	Logarithm of total assets (#6) as of the end of the fiscal year.
R&D/ assets	Research and development expense (#46) in the current fiscal year divided by total assets at the end of fiscal year. If research and expenses are missing (i.e. not material) we record the item as 0.
Cash	Logarithm of the cash and short-term investments (#1) to assets (#6) ratio.
Firm Age	Firm age measured as the difference between the current year and the year when the firm has first appeared on the CRSP tape.
Return volatility	Standard deviation of the daily returns within each fiscal year. We require at least 127 trading days with available data in order to compute the volatility.
Other variables	
Standard & Poor's long term issuer credit rating	Long term issuer credit rating assigned by the Standard & Poor's. The rating indicates the ability and readiness of a debtor to meet its long-term financial commitments (maturities of more than one year) when due. This indicator ranges from AAA (strong ability to pay financial obligations) to CC (vulnerable). The numerical code transformation of the letter ratings ranges from 1 through 6, with 1 being the lowest credit rating; these correspond to bond ratings closest to: B or below, BB, BBB, A, AA, and AAA.

Table II
Summary statistics by entrenchment index quintile

All variables (except interest coverage) are scaled by total assets and winsorized at one percent in each tails of the variable's distribution (we winsorize interest coverage at 5% in each tail to account for sample outliers). We exclude all firms in the regulated (SIC headers 48 and 49) and financial (headers 60 through 69) industry. For each sorting group, we present the averages for the corresponding variable. The last two columns present tabulations of the main variables for the sample studied in Garvey and Hanka (1999). The two columns correspond to the following sub-samples: first column, the period preceding the introduction of the second-generation anti-takeover laws (SGAT) for firms incorporated in such states, and the period before 1988 for all firms incorporated in states not passing such laws; and second column, the period after SGAT introduction for firms from antitakeover states, and the period after 1988 for firms from states that did not pass such laws.

	Entrenchment Index Quintile					**Top & Bottom Deciles**		**Pre-SGAT laws intro**	**Post-SGAT laws intro**
	1 (Low) $G \le 6$	2 $G = \{7,8\}$	3 $G = \{9,10\}$	4 $G = \{11,12\}$	5 (High) $G \ge 13$	Democracy $G \le 5$	Dictatorship $G \ge 14$		
Number of observations	3,001	3,782	3,944	3,074	1,834	1,636	833	7,834	5,448
Book Leverage	42.66%	43.35%	48.00%	51.64%	53.65%	42.92%	52.87%	45.19%	51.23%
Market Leverage	30.41%	31.36%	33.41%	36.78%	39.69%	31.29%	39.45%	38.86%	43.15%
Interest Coverage	29.4	25.6	22.9	19.7	14.3	28.3	14.7	16.4	13.8
Net change in leverage	0.018	0.018	0.016	0.021	0.020	0.016	0.022	-0.003	-0.004
Profitability	0.138	0.132	0.135	0.147	0.141	0.137	0.140	0.121	0.111
Market-to-Book Ratio	1.999	1.958	1.949	1.820	1.594	1.983	1.533	1.488	1.466
Firm Size (Logarithm of Total Assets)	6.903	6.906	7.142	7.497	7.496	6.787	7.426	4.917	5.266
Firm Age	19.2	20.8	25.5	31.7	34.1	18.6	33.3	16.8	23.6
Cash Dividends	1.2%	1.0%	1.3%	1.6%	1.6%	1.2%	1.6%	1.28%	1.31%
Investments	0.077	0.073	0.075	0.076	0.069	0.075	0.068	0.102	0.062
Change in working capital	0.020	0.016	0.016	0.018	0.016	0.020	0.016	0.011	0.005
Internal cash flow	0.105	0.101	0.103	0.114	0.102	0.104	0.100	0.104	0.076
Financial deficit	0.004	0.000	0.001	-0.003	0.000	0.006	0.001	0.020	0.005
Net debt issues	1.1%	0.9%	0.9%	1.0%	1.0%	1.0%	1.1%	1.02%	-0.15%
Net equity issues	-0.1%	-0.3%	-0.3%	-0.9%	-0.6%	0.0%	-0.3%	2.45%	0.71%
CEO stock ownership (%)	4.15%	2.88%	1.98%	1.17%	1.18%	4.62%	1.58%	-	-
CEO vested option holdings (%)	0.71%	0.86%	0.76%	0.61%	0.62%	0.70%	0.63%	-	-
Board composition (percent outside directors)	53.3%	54.6%	58.1%	63.0%	64.1%	53.0%	63.0%	-	-
CEO tenure (years)	5.9	5.9	5.1	4.3	4.5	6.2	4.7	-	-
Board size (number of directors)	8.1	8.4	9	9.6	10.2	7.9	10.1	-	-
Excess compensation	-0.075	0.025	0.039	0.028	0.088	-0.168	0.073	-	-
Presence of at least one 5% block holder (percent in group)	76.4%	78.2%	80.2%	77.5%	77.8%	76.3%	77.0%	-	-

Table III
Levels of leverage and managerial entrenchment

Tabulations of market leverage (panel A), book leverage (panel B) and interest coverage (panel C) by size, firm age, profitability quintiles, and the presence of credit rating. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (headers 60 through 69) industry. Tests for the significance of the difference between the leverage of firms in the first and last entrenchment quintile (and between dictatorship and democracy portfolios) within every size, firm age, profitability quintile, and across presence or absence of S&P credit rating are shown in brackets. Refer to Table 1 for variable definitions.

Panel A: Market leverage tabulation (%)

	Size Rank					Firm IPO Age Rank					Profitability Rank					Credit Rating	
Entrenchment Index	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	No	Yes
1 (Low), $G \le 6$	22.4	31.1	32.3	34.0	37.0	30.7	28.0	30.1	32.2	34.2	37.3	42.2	32.9	25.5	15.1	26.9	35.8
2, $G = \{7,8\}$	24.9	30.2	32.0	35.3	39.1	30.4	26.7	30.2	36.4	39.9	36.9	42.3	35.7	25.7	15.9	29.0	34.8
3, $G = \{9,10\}$	25.7	33.5	36.6	35.1	36.6	30.4	27.0	32.3	37.6	40.4	40.7	43.1	36.2	29.2	17.2	31.1	36.2
4, $G = \{11,12\}$	28.7	35.0	31.7	40.9	41.8	36.0	32.6	32.4	35.9	42.5	48.8	46.6	41.3	30.8	19.7	33.5	39.3
5 (High), $G \ge 13$	32.8	36.4	38.4	42.6	41.2	40.7	34.5	36.3	39.2	43.3	50.3	48.4	42.0	33.0	21.8	39.6	39.7
absolute value of t-stat (Quintile 1 - Quintile 5)	*[6.73]*	*[4.65]*	*[5.65]*	*[7.79]*	*[4.33]*	*[5.19]*	*[3.41]*	*[5.70]*	*[6.34]*	*[8.16]*	*[6.66]*	*[4.91]*	*[9.09]*	*[9.48]*	*[9.32]*	*[14.93]*	*[6.34]*
Democracy Firms ($G \le 5$)	23.6	31.2	35.3	37.1	34.7	30.2	29.6	31.7	32.8	36.6	37.3	44.3	32.9	26.5	15.2	27.7	37.1
Dictatorship Firms ($G \ge 14$)	29.4	36.0	41.1	42.1	41.0	37.2	36.6	35.3	40.8	42.6	47.6	46.2	43.8	33.1	23.0	38.3	40.2
t-stat (Dictatorship – Democracy):	*[3.42]*	*[2.74]*	*[3.41]*	*[3.19]*	*[3.66]*	*[2.13]*	*[2.24]*	*[2.51]*	*[4.72]*	*[4.20]*	*[3.70]*	*[0.97]*	*[6.99]*	*[5.50]*	*[7.46]*	*[8.90]*	*[3.15]*

Panel B: Book leverage tabulation (%)

	Size Rank					Firm IPO Age Rank					Profitability Rank					Credit Rating	
Entrenchment Index	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	No	Yes
1 (Low), $G \le 6$	30.8	40.6	44.7	48.4	57.9	42.6	38.7	41.9	43.1	54.2	41.0	49.6	46.3	42.9	35.0	37.0	51.3
2, $G = \{7,8\}$	33.1	40.7	44.2	50.2	56.5	42.5	39.2	41.6	45.9	55.4	42.1	48.7	47.3	42.3	37.2	38.7	50.1
3, $G = \{9,10\}$	34.9	43.0	51.5	51.5	60.0	44.5	41.7	45.1	50.1	59.8	46.2	52.0	50.5	48.1	43.2	42.6	54.4
4, $G = \{11,12\}$	37.5	46.3	47.8	56.2	60.4	50.9	45.9	45.0	51.4	59.1	53.9	55.3	54.5	50.2	45.0	46.5	55.6
5 (High), $G \ge 13$	40.7	46.2	51.5	56.0	60.4	53.5	50.7	46.7	54.2	58.7	54.1	56.5	55.6	51.7	47.9	49.3	56.4
absolute value of t-stat (Quintile 1 - Quintile 5)	*[5.95]*	*[4.55]*	*[6.64]*	*[7.15]*	*[3.06]*	*[5.67]*	*[6.01]*	*[4.29]*	*[9.29]*	*[3.84]*	*[7.75]*	*[5.55]*	*[8.19]*	*[8.76]*	*[9.84]*	*[14.79]*	*[7.45]*
Democracy Firms ($G \le 5$)	31.7	41.2	46.4	50.8	56.3	41.9	40.0	43.0	44.2	52.3	39.8	51.3	46.0	43.9	34.7	37.3	51.9
Dictatorship Firms ($G \ge 14$)	38.4	44.8	52.5	56.8	59.0	49.6	51.6	45.4	55.9	56.9	51.8	54.3	57.3	50.6	46.6	47.9	56.2
absolute value of t-stat (Dictatorship - Democracy):	*[2.79]*	*[1.99]*	*[4.04]*	*[3.46]*	*[1.95]*	*[2.64]*	*[3.96]*	*[1.47]*	*[6.19]*	*[2.14]*	*[4.76]*	*[1.50]*	*[6.73]*	*[4.34]*	*[6.64]*	*[8.75]*	*[4.17]*

Table III (continued)
Levels of leverage and managerial entrenchment

Panel C: Interest coverage tabulation

	Size Rank					Firm IPO Age Rank					Profitability Rank					Credit Rating	
Entrenchment Index	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	1 (Low)	2	3	4	5 (High)	No	Yes
1 (Low), $G \leq 6$	39.48	32.81	25.45	26.67	17.46	28.37	30.70	31.15	28.27	27.22	10.84	16.36	23.62	35.52	61.77	38.3	17.7
2, $G = \{7,8\}$	25.84	30.81	28.57	21.83	18.71	24.23	30.07	28.63	20.45	20.46	8.33	17.60	18.75	29.55	59.17	29.0	21.2
3, $G = \{9,10\}$	28.90	24.89	21.74	20.83	18.63	21.01	28.89	24.36	24.90	15.08	9.19	11.67	21.43	25.38	49.57	28.0	17.3
4, $G = \{11,12\}$	31.06	18.59	26.05	15.58	14.52	22.94	19.52	24.03	24.38	11.99	6.75	12.53	15.63	22.05	39.90	26.1	15.2
5 (High), $G \geq 13$	22.57	20.71	11.39	14.10	11.09	14.68	17.56	19.26	13.54	11.10	6.81	8.20	11.65	16.63	33.86	18.7	11.6
absolute value of t-stat (Quintile 1 - Quintile 5)	*[0.82]*	*[1.01]*	*[3.22]*	*[5.30]*	*[4.71]*	*[1.23]*	*[3.13]*	*[2.49]*	*[2.87]*	*[8.44]*	*[2.86]*	*[1.45]*	*[4.57]*	*[7.52]*	*[7.38]*	*[4.60]*	*[2.97]*
Democracy Firms ($G \leq 5$)	41.45	30.67	22.59	23.10	14.75	30.55	28.85	23.77	30.55	25.54	11.28	16.00	22.64	31.34	61.84	37.0	16.2
Dictatorship Firms ($G \geq 14$)	24.22	20.69	9.60	15.48	9.46	20.62	9.32	22.10	10.86	12.73	7.05	7.54	11.30	17.98	36.14	20.2	11.0
absolute value of t-stat (Dictatorship - Democracy):	*[0.37]*	*[0.37]*	*[0.93]*	*[1.64]*	*[2.33]*	*[0.57]*	*[3.20]*	*[1.14]*	*[3.00]*	*[2.88]*	*[1.45]*	*[1.13]*	*[3.63]*	*[3.01]*	*[4.07]*	*[1.83]*	*[0.24]*

Table IV

Levels of leverage and managerial entrenchment

Panel A. Regressions of book leverage, market leverage, and interest coverage on the entrenchment index and control variables. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (headers 60 through 69) industries. Refer to Table 1 for variable definitions. All variables, except for the entrenchment index and the interest coverage are winsorized at 1% level in both tails of the distribution. Regressions use fixed year and industry effects (2-digit SIC code), which we do not report. Models (1) through (5) offer OLS results, while models (6) through (10) present the second-stage estimates from two-stage least squares analysis, where we treat the entrenchment proxies as endogenous. We instrument these with their initial values in our sample (for the CEO tenure, we use the average such tenure for companies in the same 2-digit SIC code industry). The partial R-squared is the fraction of the variation of the entrenchment index explained by the instruments, net of their effect through the exogenous variables. The test of over-identifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The Hausman test examines if OLS and 2SLS coefficients on the entrenchment index are statistically different. P-values for the F-test of excluded instruments, the Hansen J-test, and the Hausman test for the entrenchment index are shown in parentheses. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors, cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	OLS					2SLS				
Independent Variables	Book Leverage	Market Leverage	Book Leverage	Market Leverage	Interest Coverage	Book Leverage	Market Leverage	Book Leverage	Market Leverage	Interest Coverage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Entrenchment Index$_{t-1}$	0.007***	0.005***	0.006***	0.005***	-0.42***	0.009***	0.005***	0.005**	0.004**	-0.201**
	(6.07)	(4.23)	(4.21)	(4.01)	(3.28)	(5.77)	(3.78)	(2.16)	(1.99)	(2.36)
CEO Stock Ownership$_{t-1}$			-0.122	-0.039	22.183**			-0.373*	-0.3578*	29.112*
			(1.46)	(0.53)	(2.51)			(1.66)	(1.77)	(1.72)
CEO Option Ownership $_{t-1}$			0.879**	1.550***	-95.13**			-0.222	0.464	-36.576
			(2.01)	(4.02)	(2.20)			(0.19)	(0.49)	(0.53)
Presence of 5% blockholder $_{t-1}$			0.008	0.021***	-1.456*			0.017	0.092	-5.393**
			(0.91)	(2.68)	(1.8)			(0.27)	(1.65)	(1.96)
CEO Tenure $_{t-1}$			-0.02***	-0.01***	0.179			-0.012	0.0003	2.676
			(4.36)	(3.19)	(0.55)			(0.46)	(0.00)	(1.22)
Percent Outside Directors $_{t-1}$			0.022	-0.009	1.975			0.025	-0.068	0.900
			(1.59)	(0.72)	(1.64)			(0.33)	(1.0)	(0.26)
Log Board Size $_{t-1}$			0.071***	0.0334**	-3.99***			0.171***	0.0953**	-8.86***
			(4.17)	(2.26)	(2.68)			(4.17)	(2.38)	(4.8)
Excess Compensation$_{t-1}$			-0.006	-0.015**	-0.266			-0.008	-0.023	-2.995**
			(0.92)	(2.63)	(0.44)			(0.37)	(1.29)	(2.31)
Market-to-book $_{t-1}$	-0.03***	-0.06***	-0.02***	-0.05***	3.98***	-0.03***	-0.06***	-0.02***	-0.05***	4.2***
	(11.27)	(22.6)	(7.4)	(17.03)	(11.31)	(10.69)	(21.43)	(5.72)	(14.3)	(13.86)
Tangibility $_{t-1}$	0.034	0.064***	0.025	0.062**	-4.045*	0.027	0.06***	0.005	0.045	-3.006*
	(1.45)	(2.9)	(0.82)	(2.3)	(1.65)	(1.08)	(2.68)	(0.16)	(1.58)	(1.85)
Profitability $_{t-1}$	-0.11***	-0.37***	-0.042	-0.33***	66.56***	-0.10***	-0.39***	-0.034	-0.35***	67.23***
	(3.55)	(12.31)	(0.90)	(8.1)	(14.27)	(2.85)	(11.49)	(0.64)	(7.73)	(15.94)
Log Firm Size $_{t-1}$	0.04***	0.026***	0.029***	0.02***	-0.751**	0.039***	0.024***	0.018***	0.016***	-0.089
	(12.89)	(8.92)	(7.14)	(5.51)	(2.14)	(11.86)	(7.98)	(2.97)	(3.0)	(0.31)
Credit Rating Dummy$_{t-1}$	0.046***	0.0128*	0.063***	0.030***	-5.07***	0.047***	0.0144*	0.057***	0.0225**	-5.23***
	(5.48)	(1.71)	(6.25)	(3.51)	(6.13)	(5.37)	(1.87)	(5.23)	(2.38)	(9.5)
Observations	15,499	15,499	7,052	7,052	6,475	13,529	13,529	6,479	6,479	5,977
R-squared stat	32.5%	46.5%	39.6%	50.5%	39.3%	32.5%	47.2%	37.3%	49.1%	37.5%
F-stat, excluded instruments	-	-	-	-	-	5803.5 (0.0)	5803.5 (0.0)	350.5 (0.0)	350.5 (0.0)	337.9 (0.0)
Partial R-squared	-	-	-	-	-	77.7%	77.7%	73.1%	73.1%	73.7%
Hansen J-Statistic	-	-	-	-	-	0.0 (1.0)	0.0 (1.0)	0.0 (1.0)	0.0 (1.0)	0 (1.0)
Hausman test for endogeneity	-	-	-	-	-	3.82 (0.05)	0.62 (0.43)	1.53 (0.22)	0.02 (0.88)	0.51 (0.47)

Table IV
Levels of leverage and managerial entrenchment: robustness checks

Panel B. Regressions of book leverage and market leverage on the entrenchment index components and control variables as in Panel A. We exclude all firms in the regulated (SIC headers 4800 and 49) and financial (SIC headers 60 through 69) industries. For brevity, we report only the coefficients on the entrenchment proxies. Refer to Table 1 for variable definitions. All variables, except for the entrenchment index components, are winsorized at 1% level in both tails. Regressions use fixed year and industry effects (2-digit SIC code), which we do not report. Models (1) through (4) present OLS estimates. Models (5) through (8) present the estimates from a two-stage least squares, where we treat the entrenchment proxies as endogenous. We instrument these with their initial values in our sample. The partial R-squared is the fraction of the variation of the risk-taking proxy explained by the instruments, net of their effect through the exogenous variables. The test of over-identifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	OLS				2SLS			
	Book Leverage	Market Leverage	Book Leverage	Market Leverage	Book Leverage	Market Leverage	Book Leverage	Market Leverage
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sub-Index "Protection" $_{t-1}$	0.013***	0.008***	0.009***	0.007***	0.012***	0.007**	0.004	0.002
	(4.75)	(3.54)	(2.71)	(2.68)	(3.3)	(2.18)	(0.78)	(0.43)
Sub-Index "Delay" $_{t-1}$	0.008***	0.003	0.009**	0.006	0.01***	0.004	0.016***	0.011**
	(2.67)	(1.07)	(2.53)	(1.64)	(2.7)	(1.13)	(3.05)	(2.49)
Sub-Index "Voting" $_{t-1}$	0.003	0.008	-0.006	0.000	0.008	0.011	-0.010	-0.006
	(0.49)	(1.5)	(0.9)	(0.01)	(1.06)	(1.58)	(0.92)	(0.65)
Sub-Index "State Laws" $_{t-1}$	0.004	0.003	0.008**	0.008***	0.004	0.003	0.007**	0.008**
	(1.36)	(1.26)	(2.4)	(2.77)	(1.19)	(1.05)	(1.97)	(2.4)
CEO Stock Ownership $_{t-1}$			-0.123	-0.045			-0.335	-0.336
			(1.46)	(0.6)			(1.5)	(1.68)
CEO Option Ownership $_{t-1}$			0.881**	1.566***			-0.161	0.469
			(2.03)	(4.09)			(0.13)	(0.49)
Presence of at least one 5% block holder $_{t-1}$			0.009	0.022***			0.019	0.090
			(1.01)	(2.74)			(0.29)	(1.57)
CEO Tenure $_{t}$			-0.016***	-0.01***			-0.014	-0.002
			(4.34)	(3.21)			(0.53)	(0.06)
Board Composition (Percent Outside Directors) $_{t-1}$			0.021	-0.008			0.025	-0.062
			(1.53)	(0.68)			(0.32)	(0.9)
Board Size $_{t-1}$			0.073***	0.034**			0.171***	0.095**
			(4.27)	(2.31)			(4.19)	(2.37)
Excess Compensation $_{t-1}$			-0.006	-0.015**			-0.009	-0.022
			(0.94)	(2.61)			(0.44)	(1.26)
Observations	15,499	15,499	7,052	7,052	15,499	15,499	6,479	6,479
R-squared stat	32.5%	46.5%	39.7%	50.5%	32.5%	46.5%	37.4%	49.2%
Robust F-statistic for Excluded instruments for "Protection" (p-value)	-	-	-	-	417.5 (0.0)	417.5 (0.0)	73.7 (0.0)	73.7 (0.0)
Partial R-squared	-	-	-	-	65.3%	65.3%	60%	60%
Hansen J-Statistic (p-value)	-	-	-	-	0.0 (1.0)	0.0 (1.0)	0.0 (1.0)	0.0 (1.0)

Table V
Financing policy and managerial entrenchment

Estimates of equation (3) by entrenchment index quintiles, using Fama-McBeth procedure in panel A; random year and industry (2-digit SIC code) effects with correction for AR (1) autocorrelation and with Huber/White heteroscedasticity-robust standard errors in panel B; and fixed year and industry effects in panel C (fixed effects not shown). Following Fama-McBeth, we report the average of the estimated coefficients in panel A. The equation (3) is estimated for each quintile of the entrenchment index with the dependent variable being net debt issuance. The first five columns present the results for the entire sample, while the last two present the results only for the firms in the dictatorship and democracy portfolios, defined in Gompers et al. (2003). We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. Refer to Table 1 for variable definitions. Since the entrenchment index is a categorical variable, the quintiles based on it have uneven sizes. Entrenchment quintiles are based on index values as of the beginning of the year. The bottom quintile represents firms with the least-entrenched management ranking. The rank-sum test of equality of means of the top and bottom quintile (or decile in the last two columns) is presented at the bottom of each panel. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Entrenchment Quintile (t-1)						
	Panel A: Fama-McBeth Estimates, 1991-2006						
	1 (Low) $G \le 6$	2 $G = \{7,8\}$	3 $G = \{9,10\}$	4 $G = \{11,12\}$	5 (High) $G \ge 13$	Democracy $G \le 5$	Dictatorship $G \ge 14$
Intercept	0.007	0.007	0.006	0.010	0.007	0.006	0.008
t-stat	(0.98)	(0.87)	(0.64)	(1.14)	(0.74)	(0.7)	(0.57)
Financing Deficit (t)	0.62***	0.61***	0.60***	0.68***	0.69***	0.625***	0.647***
t-stat	(5.017)	(4.25)	(4.28)	(8.29)	(4.89)	(3.94)	(2.93)
Average Observations (per year)	323	410	417	337	171	98	50
Average R-squared stat	57.3%	57.5%	57.3%	63.5%	68.4%	58.7%	61.6%
T-stat for [5]-[1]					*[2.15]*		*[0.35]*
	Panel B: Random Year and Industry Effects with Robust Standard Errors & AR (1) Correlation Correction						
	1 (Low) $G \le 6$	2 $G = \{7,8\}$	3 $G = \{9,10\}$	4 $G = \{11,12\}$	5 (High) $G \ge 13$	Democracy $G \le 5$	Dictatorship $G \ge 14$
Intercept	0.006***	0.006***	0.005***	0.011***	0.006***	0.006***	0.007**
t-stat	(4.7)	(4.31)	(3.74)	(8.26)	(3.64)	(3.09)	(2.53)
Financing Deficit (t)	0.54***	0.58***	0.58***	0.72***	0.69***	0.55***	0.61***
t-stat	(12.38)	(14.9)	(15.38)	(22.55)	(13.36)	(8.96)	(9.18)
Observations	2,215	2,796	2,749	1,974	1,190	1,329	561
Chi-squared stat	153.2	222.2	236.4	508.4	178.6	80.3	84.3
T-stat for [5]-[1]					*[2.25]*		*[0.79]*
	Panel C: Fixed Year and Industry Effects						
	1 (Low) $G \le 6$	2 $G = \{7,8\}$	3 $G = \{9,10\}$	4 $G = \{11,12\}$	5 (High) $G \ge 13$	Democracy $G \le 5$	Dictatorship $G \ge 14$
Intercept	-0.004	-0.006	0.016***	0.002	-0.025***	-0.007	-0.044***
t-stat	(0.66)	(1.52)	(2.78)	(0.42)	(7.99)	(0.65)	(7)
Financing Deficit (t)	0.56***	0.57***	0.56***	0.68***	0.68***	0.58***	0.65***
t-stat	(15.26)	(16.36)	(17.31)	(24.37)	(18.63)	(11.00)	(12.08)
Observations	2,767	3,507	3,640	2,847	1,665	1,570	795
Chi-squared stat	53.1%	54.9%	55.2%	64.3%	69.7%	55.3%	64.4%
T-stat for [5]-[1]					*[8.25]*		*[2.83]*

Table VI
Financing policy and managerial entrenchment

Panel A. Regressions of net equity, net debt issuance and change in long term-debt issuance on financing deficit, the entrenchment index, interaction of financing deficit and the entrenchment index, interactions of financing deficit and control variables, and the levels of the control variables. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. Refer to Table 1 for variable definitions. Regressions are performed using fixed year and industry (2-digit SIC code) effects (not reported). All variables are demeaned prior to computing the interacted effects. Models (1), (3) and (5) present OLS estimates. Models (2), (4) and (6) present second stage regression estimates of the two-stage least squares results where we treat the entrenchment index as endogenous. We instrument it with the initial value of the entrenchment index in our sample. The partial R-squared is the fraction of the variation of the entrenchment index interaction explained by the instruments, net of their effect through the exogenous variables. The test of overidentifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The Hausman test examines whether the OLS and 2SLS coefficients on the entrenchment index interaction with the financing deficit are statistically different. P-values for the F-test of excluded instruments, the J-test, and the Hausman test for coefficient of the entrenchment index interaction with financing deficit are shown in parentheses. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Net Equity Issues		Net Debt Issues		Change in LT Debt	
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	2SLS	OLS	2SLS	OLS	2SLS
Financing Deficit $_t$	0.3458***	0.3452***	0.5875***	0.5879***	0.4758***	0.4754***
	(24.39)	(24.63)	(38.96)	(39.41)	(23.43)	(23.52)
Entrenchment Index $_{t-1}$	-0.0004***	-0.0004**	0.0003**	0.0003	-0.001**	-0.0011**
	(2.81)	(2.47)	(2.01)	(1.43)	(2.07)	(2.18)
Entrenchment Index $_{t-1}$* Financing Deficit $_t$	-0.0086*	-0.0111**	0.0099**	0.0121**	0.013*	0.011
	(1.92)	(2.32)	(2.09)	(2.40)	(1.76)	(1.49)
Δ Tangibility$_{t-1}$ * Financing Deficit $_t$	-0.305*	-0.3099*	-0.183	-0.180	-0.326	-0.329
	(1.74)	(1.77)	(1.02)	(1.01)	(0.90)	(0.91)
Δ Log Firm Size$_{t-1}$ * Financing Deficit $_t$	-0.055***	-0.054***	0.049***	0.049***	0.121**	0.122**
	(3.48)	(3.47)	(3.0)	(2.98)	(2.21)	(2.23)
Δ Profitability$_{t-1}$ * Financing Deficit $_t$	0.024	0.022	-0.152	-0.151	-0.4763*	-0.478*
	(0.14)	(0.13)	(0.82)	(0.81)	(1.79)	(1.81)
Δ Market-to-book$_{t-1}$ * Financing Deficit $_t$	-0.016	-0.016	0.016	0.016	-0.020	-0.019
	(1.12)	(1.08)	(1.18)	(1.15)	(1.2)	(1.18)
Δ Tangibility$_{t-1}$	-0.0434***	-0.0437***	0.0502***	0.0504***	0.027	0.027
	(3.38)	(3.42)	(3.87)	(3.9)	(0.76)	(0.75)
Δ Log Firm Size$_{t-1}$	-0.0055**	-0.0054**	0.0067**	0.0067**	-0.008	-0.008
	(2.28)	(2.28)	(2.54)	(2.54)	(1.44)	(1.45)
Δ Profitability$_{t-1}$	0.0674***	0.0672***	-0.0667***	-0.0665***	0.007	0.006
	(5.53)	(5.55)	(4.93)	(4.94)	(0.23)	(0.22)
Δ Market-to-book$_{t-1}$	0.0048***	0.0048***	-0.0045***	-0.0045***	-0.002	-0.002
	(5.81)	(5.87)	(4.91)	(4.93)	(1.11)	(1.11)
Observations	12,887	12,887	12,738	12,738	12,738	12,738
R-squared stat	40.8%	40.8%	58.0%	58.0%	15.2%	15.2%
F-statistic for excluded instruments	-	1,763.1 (0.0)	-	1,705.3 (0.0)	-	1,705.3 (0.0)
Partial R-squared	-	75.8%	-	76.1%	-	76.1%
Hansen J-Statistic	-	0.0 (1.0)	-	0.0 (1.0)	-	0.0 (1.0)
Hausman test for endogeneity (p-value)	-	0.95 (0.33)	-	0.51 (0.47)	-	0.22 (0.64)

Table VI
Financing policy and managerial entrenchment: robustness checks

Panel B. Regressions of net equity, net debt issuance and change in long term-debt issuance on financing deficit, the entrenchment index components, interaction of financing deficit and the entrenchment index components, and control variables, as in Panel A. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industry. For brevity we report only the coefficients on the entrenchment index components, and their interactions with financing deficit. Refer to Table 1 for variable definitions. Regressions are performed using fixed year and industry (2-digit SIC code) effects (not reported). Models (1), (3), and (5) present OLS estimates, while models (2), (4), and (6) present the second-stage regression results from 2SLS estimation of net equity, net debt issuances and changes in LT debt, where the delay, voting, protection and state laws indices are treated as endogenous. We instrument these (and their interactions) with their initial values in our sample. The partial R-squared is the fraction of the variation of the risk-taking proxy explained by the instruments, net of their effect through the exogenous variables. The test of over-identifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors, cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Net Equity Issues		Net Debt Issues		Change in LT Debt	
	(1)	(2)	(3)	(4)	(5)	(6)
Independent Variables	OLS	2SLS	OLS	2SLS	OLS	2SLS
Financing Deficit $_t$	0.342***	0.343***	0.592***	0.591***	0.474***	0.474***
	(23.62)	(23.67)	(37.66)	(37.41)	(21.73)	(21.86)
Sub-Index "Protection" $_{t-1}$	-0.001***	-0.001**	0.001*	0.001	-0.004*	-0.006**
	(2.72)	(2.07)	(1.8)	(1.46)	(1.91)	(2.45)
Sub-Index "Delay" $_{t-1}$	-0.0009*	-0.0011*	0.0009*	0.001	0.000	0.001
	(1.89)	(1.87)	(1.75)	(1.66)	(0.09)	(0.52)
Sub-Index "Voting" $_{t-1}$	0.002***	0.003***	-0.002**	-0.003***	0.002	0.002
	(2.82)	(3.23)	(2.04)	(2.71)	(0.57)	(0.44)
Sub-Index "State Laws"$_{t-1}$	0.000	0.001	-0.001	-0.001	-0.001	-0.001
	(0.91)	(1.55)	(1.08)	(1.46)	(0.36)	(0.39)
Sub-Index "Protection" $_{t-1}$ * Financing Deficit $_t$	-0.027**	-0.034***	0.031***	0.036***	0.023	0.035**
	(2.59)	(3.0)	(2.69)	(2.74)	(1.48)	(2.05)
Sub-Index "Delay" $_{t-1}$ * Financing Deficit $_t$	0.020	0.020	-0.019	-0.023	-0.004	-0.001
	(1.53)	(1.14)	(1.41)	(1.29)	(0.22)	(0.06)
Sub-Index "Voting" $_{t-1}$ * Financing Deficit $_t$	0.000	-0.022	-0.010	0.020	0.021	0.031
	(0.01)	(0.64)	(0.38)	(0.56)	(0.58)	(0.67)
Sub-Index "State Laws"$_{t-1}$ * Financing Deficit $_t$	-0.0228**	-0.017	0.0239*	0.017	0.009	0.009
	(2.04)	(1.29)	(1.9)	(1.11)	(0.5)	(0.42)
Observations	12,887	12,887	12,738	12,738	12,738	12,738
R-squared stat	41.5%	41.4%	58.4%	58.3%	15.3%	15.2%
Robust F-statistic for Excluded instruments for "Protection" interaction (p-value)	-	196.3 (0.0)	-	196.3 (0.0)	-	196.3 (0.0)
Partial R-squared	-	64.3%	-	64.3%	-	64.3%
Hansen J-statistic	-	0.0	-	0.0	-	0.0

Table VII

Changes in leverage and managerial entrenchment: the case of second-generation antitakeover laws introduction

Panel A. Part I presents the 1983 means (medians shown in parentheses) for firms with available data, excluding utilities (SIC headers 40, 48 and 49), financials (SIC headers 60 through 69), and firms in states that passed a second generation antitakeover law before 1987. Antitakeover state designation indicates incorporation in a state that passed a second generation antitakeover laws in the period 1987 to 1990. The control group includes all firms not in antitakeover states. The replication sample includes only firms with complete 1982-1990 COMPUSTAT and CRSP data (a total sample size of 11,835 firm years) as in Garvey and Hanka (1999). The extended sample does not require complete 1982-1990 data (a total sample size of 30,494 firm years). All variables are winsorized at 1% in both tails.

Part I	**Replication Sample**		**Extended Sample**	
Independent Variables	**Antitakeover States**	**Pro-Takeover Control Group**	**Antitakeover States**	**Pro-Takeover Control Group**
Long-term debt/ assets	0.17	0.16	0.17	0.15
	(0.14)	(0.12)	(0.13)	(0.08)
Log total assets ($M)	5.02	3.92	4.48	3.19
	(4.93)	(3.96)	(4.3)	(3.05)
Operating earnings/ assets	0.12	0.10	0.09	0.00
	(0.13)	(0.13)	(0.12)	(0.08)
Book Debt / (Book Debt + Market Equity)	0.22	0.23	0.22	0.24
	(0.19)	(0.18)	(0.19)	(0.19)
Number of firms	**906**	**94**	**5,630**	**776**

Part II presents the number of firms across the two samples. The replication sample includes all U.S.-incorporated firms with complete 1982-1990 COMPUSTAT and CRSP data, excluding utilities (SIC headers 40, 48 and 49), financials (SIC headers 60 through 69), and firms in states that passed a second-generation antitakeover law before 1987. The extended sample does not require complete 1982-1990 COMPUSTAT and CRSP data. The antitakeover states are those that passed second-generation antitakeover laws in the period 1987 to 1990. The control group sample includes all firms not in antitakeover states.

Part II		
Location of Incorporation	**Number of Firms**	
Antitakeover States	**Replication Sample**	**Extended Sample**
Delaware	602 (66%)	3,863 (69%)
Pennsylvania	51 (6%)	144 (3%)
Minnesota	43 (5%)	231 (4%)
Ohio	48 (5%)	141 (3%)
New Jersey	35 (4%)	178 (3%)
Florida	35 (4%)	184 (3%)
Virginia	27 (3%)	75 (1%)
Other states	65 (7%)	814 (14%)
Total	**906**	**5,630**
Control sample		
California	38 (40%)	336 (43%)
Texas	30 (32%)	182 (23%)
Colorado	18 (19%)	214 (28%)
Other states	8 (9%)	44 (6%)
Total	**94**	**776**

Table VII (continued)

Changes in leverage and managerial entrenchment: the case of second-generation antitakeover laws introduction

Panel B. Regressions of measures of annual net leverage changes, changes in book leverage, and changes in market leverage. The replication sample comprises U.S.-incorporated firms with complete 1982-1990 COMPUSTAT and CRSP data, excluding utilities (SIC headers 40, 48 and 49), financials (SIC headers 60 through 69), and firms in states that passed a second-generation antitakeover law before 1987. It has 906 antitakeover firms and 94 control firms, for a total of 11,835 firm years. The extended sample is formed similarly, but does not require complete 1982-1990 COMPUSTAT and CRSP data. It consists of 5,630 antitakeover firms and 776 control firms for a total of 30,494 firm years. All variables are winsorized at 1% in each tail. Robust t-statistics that are further cluster-adjusted at the state-level to control for serial correlation are in shown parentheses. Industry mean is the same-year mean among other firms in the narrowest SIC that includes at least four other firms. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Replication Sample, 1983-1993			**Extended Sample, 1983-1993**		
	$\Delta L_{i,t}$	$\Delta ML_{i,t}$	$\Delta BL_{i,t}$	$\Delta L_{i,t}$	$\Delta ML_{i,t}$	$\Delta BL_{i,t}$
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
Protected = 1 if antitakeover state AND after law takes effect	-0.0076*	0.0157*	0.006	0.004	0.0284***	0.0231***
	(1.69)	(1.84)	(0.92)	(1.33)	(5.06)	(6.02)
State Dummy = 1 in states that passed an antitakeover law	0.004	-0.0092**	0.004	0.000	-0.0185***	-0.0087***
	(1.63)	(2.48)	(1.34)	(0.01)	(6.01)	(4.9)
Time Dummy = 1 if post-law, or post-1988 in no-law states	0.005	-0.009	-0.002	-0.0086***	-0.0267***	-0.024***
	(1.12)	(1.06)	(0.26)	(3.38)	(4.85)	(7.06)
Industry mean of dependent variable	0.018	0.4439***	0.0812***	0.1417***	0.5333***	0.1122***
	(1.12)	(35.18)	(3.86)	(10.00)	(49.02)	(9.73)
Book deb_{t-1} / $Assets_{t-1}$	-0.0534***	-0.0421***	-0.052***	-0.0795***	-0.0409***	-0.0697***
	(16.27)	(14.36)	(14.09)	(18.93)	(8.36)	(11.71)
$Profitability_{t-1}$	-0.0233***	-0.1099***	-0.1394***	0.0069**	-0.0266*	-0.0543*
	(3.43)	(8.56)	(8.44)	(2.31)	(1.80)	(1.79)
Δ ROA_t	-0.0626***	-0.2254***	-0.2231***	-0.025***	-0.0634**	-0.1199***
	(11.24)	(9.82)	(9.2)	(4.83)	(2.53)	(3.09)
Loss dummy = 1 if prior year's net income was negative, 0 otherwise	-0.0057***	0.0061**	0.0189***	-0.0049***	0.006	0.0326***
	(3.73)	(2.34)	(9.02)	(3.7)	(1.5)	(5.7)
Stock $return_{t-1}$ (from CRSP)	-0.0033***	0.0106***	-0.0092***	-0.0044***	0.0049***	-0.0111***
	(3.94)	(11.82)	(5.21)	(7.53)	(4.92)	(9.49)
Log total $assets_{t-1}$, \$M	0.0029***	0.0024***	0.0044***	0.0038***	-0.0012**	0.001
	(8.47)	(3.08)	(7.68)	(13.8)	(2.3)	(0.60)
Total $assets_{t-1}$, nonlogged \$ x 10^7	-1.7347***	-1.6177**	-0.817	-3.3649***	0.136	1.338
	(4.25)	(2.02)	(1.67)	(8.41)	(0.23)	(0.98)
Δ log total $assets_t$	0.0734***	0.0953***	0.0674***	0.0495***	0.054***	0.001
	(13.57)	(19.43)	(7.39)	(16.11)	(6.66)	(0.11)
Observations	11,835	11,838	11,855	30,494	31,962	32,135
Adjusted R-squared	12.6%	15.3%	10.1%	11.3%	10.5%	10.2%

Table VII (continued)

Changes in leverage and managerial entrenchment: the case of second-generation antitakeover laws introduction

Panel C. We report the regression coefficients on *protected* (a dummy variable that equals 1 if the firm is shielded by an antitakeover law, 0 otherwise). Except as noted, each coefficient is obtained from an OLS model similar to that described in Panel B. Robust t-statistics shown in parentheses are further cluster-adjusted at the state-level to control for serial correlation. In the rank regression, all non-dummy variables are replaced by their sample rank, following Garvey and Hanka (1999). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Replication Sample, 1983-1993			**Extended Sample, 1983-1993**		
Independent Variables	$\Delta L_{i,t}$	$\Delta ML_{i,t}$	$\Delta BL_{i,t}$	$\Delta L_{i,t}$	$\Delta ML_{i,t}$	$\Delta BL_{i,t}$
	(1)	(2)	(3)	(4)	(5)	(6)
Industry mean replaced by dummy variables for two-digit SIC	-0.007	0.0197***	0.007	0.0041*	0.0345***	0.0238***
	(1.43)	(2.82)	(1.25)	(1.73)	(5.66)	(5.86)
All controls except time and antitakeover dummies excluded	-0.0066***	0.0186***	0.008	-0.001	0.033***	0.0261***
	(2.65)	(3.41)	(1.47)	(0.33)	(6.58)	(6.23)
Added controls for proportion of assets that are fixed, market-to-book ratio, and capital expenditures/assets	-0.007	0.0178**	0.006	0.002	0.0277***	0.0214***
	(1.64)	(2.07)	(0.86)	(1.02)	(6.47)	(5.6)
Including year and state fixed effects instead of time and state dummy variables following Bertrand, Duflo, and Mullainathan (2004)	-0.003	0.011*	0.005	-0.001	0.0189***	0.0122***
	(1.00)	(1.65)	(1.27)	(0.44)	(3.27)	(3.24)
Rank regression	-278.178	611.3***	176.7*	245.378	1926.5***	1217.8***
	(1.38)	(2.65)	(1.84)	(0.74)	(4.92)	(2.82)
Only firms with at least $100M in 1983 assets	-0.004	0.021	0.000	0.0103**	0.0288***	0.0238***
	(1.38)	(1.68)	(0.00)	(2.36)	(4.9)	(2.95)
Only firms with less than $100M in 1983 assets	-0.0111*	0.014	0.008	-0.0064**	0.0278***	0.0222***
	(1.83)	(1.61)	(0.69)	(2.10)	(3.63)	(3.03)
Exclude Delaware	-0.007	0.0155*	0.005	0.004	0.0288***	0.0209***
	(1.45)	(1.71)	(0.73)	(1.21)	(4.45)	(3.73)
Exclude all antitakeover states *except* Delaware	-0.0077*	0.0158*	0.006	0.003	0.0282***	0.024***
	(1.7)	(1.81)	(0.99)	(1.33)	(5.09)	(7.28)
Exclude California and Texas	-0.0079**	0.013	0.0095*	0.0079**	0.035***	0.0258***
	(2.34)	(1.34)	(1.92)	(2.04)	(3.98)	(2.68)
Heteroskedasticity-consistent estimate from *system* GMM estimation	-0.0102**	0.016**	0.005	0.002	0.0273***	0.0214***
	(2.40)	(2.21)	(0.66)	(0.60)	(5.71)	(3.65)

Table VIII
Leverage, credit ratings, and managerial entrenchment

Three-stage least squares analysis of the jointly determined system (S&P long-term issuer credit ratings; book leverage, and entrenchment index) in models (1) through (3) and OLS regressions of book leverage in model (4). The S&P long-term credit ratings are coded from 1 through 6, with 1 being the lowest credit rating; these correspond to S&P's bond ratings closest to B or below, BB, BBB, A, AA, and AAA. When the firm year has no such rating, we code it as 0. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. All variables are defined in Table 1. The R-squared is reported for model (4). The absolute value of the t-statistics is in parentheses below the coefficient estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly. P-values are reported based on an F-test of model specification.

		3-SLS		OLS
	Credit Rating$_t$	**Entrenchment Index$_t$**	**Book Leverage$_t$**	**Book Leverage$_t$**
Independent Variables	(1)	(2)	(3)	(4)
Book Leverage $_t$	-1.93958***	2.7268***		
	(12.44)	(6.81)		
Entrenchment Index $_t$	0.23189***		0.03092***	0.00768***
	(15.41)		(4.12)	(14.73)
S&P Credit Rating $_t$		0.99218***	0.0927***	0.00476***
		(17.98)	(2.75)	(4.16)
Log Firm Size $_{t-1}$	0.72987***	-0.7123***	-0.018	0.04583***
	(65.58)	(15.75)	(0.85)	(33.01)
Firm Age $_{t-1}$		0.02175***		
		(14.23)		
Return Volatility $_{t-1}$	-10.72345***			
	(10.54)			
Tangibility $_{t-1}$			0.0227**	0.02952***
			(2.4)	(2.68)
Profitability $_{t-1}$			-0.36835***	-0.09588***
			(7.75)	(4.28)
Market-to-book $_{t-1}$		-0.09315***	-0.04145***	-0.03121***
		(4.04)	(11.23)	(19.76)
Intercept	-4.82137***	11.35975***	0.53848***	
	(33.03)	(44.05)	(2.69)	
Year Dummies	No	No	Yes	Yes
Industry Dummies	No	No	Yes	Yes
Number of observations	12,481	12,481	12,481	13,363
R-squared	-	-	-	32.8%
P-value	0.0	0.0	0.0	0.0

Table IX
Cumulative abnormal returns to debt and equity issuances

Panel A presents the average cumulative abnormal return within each entrenchment quintile. We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. Our sample includes 1,259 firm-years with public debt issuances and 564 firm-years with seasoned public equity issuances. We calculate the abnormal return by subtracting the market model return from the raw return. Market model is estimated starting 255 days prior to then event, and ending 46 days prior to the event. We further show the rank-sum test of equality of average cumulative abnormal returns across the first and fifth quintiles. In panel B, we show the Heckman (1979) selection model regressions of cumulative abnormal returns, presented in Panel A. We include the inverse Mill's ratio and year dummies (not shown) in the second-stage equation. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

Panel A.

	Public Debt Issues Announcement		**Public Seasoned Equity Issues Announcement**	
Entrenchment index quintile	**CAR [-1 to +1]**	**CAR [-5 to +5]**	**CAR [-1 to +1]**	**CAR [-5 to +5]**
1	0.02%	-0.41%	-1.57%	-1.94%
2	-0.17%	0.17%	-2.52%	-2.22%
3	0.13%	0.46%	-1.90%	-1.36%
4	-0.02%	-0.27%	-1.23%	-1.04%
5	0.11%	0.83%	-1.38%	-0.44%
Overall average	0.02%	0.16%	-1.81%	-1.55%
Q5-Q1	0.08%	1.24%	0.18%	1.50%
P-value of rank test for equality of Q1 and Q5	0.33	0.12	0.86	0.28

Panel B.

	Public Debt Issues Announcement		**Seasoned Equity Issues Announcement**	
Independent Variables	**CAR [-1 to +1]**	**CAR [-5 to +5]**	**CAR [-1 to +1]**	**CAR [-5 to +5]**
Entrenchment index	0.00103***	0.00255***	0.000	0.002
	(2.70)	(3.22)	(0.24)	(1.12)
Log(Total Dollar Proceeds)	-0.001	0.000	-0.001	-0.003
	(1.10)	(0.21)	(0.43)	(0.64)
Total Assets $_{t-1}$	0.00693***	0.01239***	0.004	0.00799**
	(3.09)	(2.67)	(1.57)	(2.03)
Inverse Mill's ratio	0.153***	0.033***	0.012	-0.06*
	(2.70)	(2.82)	(0.66)	(1.94)
Year fixed effects	*Yes*	*Yes*	*Yes*	*Yes*
Selection equation				
Entrenchment index$_{t-1}$	0.04821***	0.04821***	-0.01975***	-0.01975***
	(7.34)	(7.34)	(2.66)	(2.66)
Total Assets $_{t-1}$	0.46842***	0.46842***	0.009	0.009
	(30.82)	(30.82)	(0.51)	(0.51)
Market-to-book $_{t-1}$	-0.12131***	-0.12131***	0.04127***	0.04127***
	(5.69)	(5.69)	(2.73)	(2.73)
Tangibility $_{t-1}$	0.56697***	0.56697***	0.22396**	0.22396**
	(6.85)	(6.85)	(2.32)	(2.32)
Profitability $_{t-1}$	1.51849***	1.51849***	-1.21736***	-1.21736***
	(4.65)	(4.65)	(5.74)	(5.74)
Credit Rating Dummy $_{t-1}$	0.2308***	0.2308***	0.18412***	0.18412***
	(5.19)	(5.19)	(3.81)	(3.81)
Intercept	-5.81003***	-5.81003***	-1.72984***	-1.72984***
	(40.07)	(40.07)	(13.3)	(13.3)
N	13,363	13,363	13,363	13,363
Uncensored	1,251	1,251	518	518

Table X
Leverage, Managerial Entrenchment and Shareholder Activism

Panel A. In this table we examine leverage regressions allowing for the interaction of shareholder activism with the entrenchment index. We follow Cremers and Nair (2005) in using the share holdings of the institutional blockholders (defined to be institutional shareholders with equity ownership greater than 5%) or the share holdings of the largest U.S. public pension funds (both recording in percentages) to capture shareholder activism. We de-mean both sets of proxies, before including the interacted effect, in order to be able to interpret the unconditional effects. We include industry (2-digit SIC) and year fixed effects (not shown). We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. Models (1), (2), (5) and (6) show OLS estimates. Models (3), (4), (7), and (8) show two-stage least squares estimates, where we treat the entrenchment index and the proxies for shareholder activism as endogenous. We instrument these with the initial values of both sets of proxies (in that instance we drop the first year of company appearance in our sample). The partial R-squared is the fraction of the variation of the interaction of the shareholder activism proxy with the entrenchment index explained by the instruments, net of their effect through the exogenous variables. The test of over-identifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Market Leverage				**Book Leverage**			
	OLS	**OLS**	**2-SLS**	**2-SLS**	**OLS**	**OLS**	**2-SLS**	**2-SLS**
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entrenchment index $_{t-1}$	0.0047***	0.0049***	0.0049***	0.0055***	0.0074***	0.0076***	0.0087***	0.0092***
	(4.27)	(4.50)	(3.54)	(3.93)	(6.13)	(6.3)	(5.54)	(5.83)
Share holdings of institutional blockholders $_{t-1}$	0.050		0.2815*		0.040		0.2767*	
	(1.28)		(1.94)		(0.91)		(1.73)	
Entrenchment Index $_{t-1}$ * Share holdings of institutional blockholders $_{t-1}$	0.027*		0.0702**		0.0379**		0.0817**	
	(1.89)		(2.09)		(2.32)		(2.13)	
Pension Fund Ownership$_{t-1}$		-0.1269***		-0.133		-0.1228***		-0.094
		(3.62)		(1.26)		(3.24)		(0.75)
Entrenchment Index $_{t-1}$ * Pension Fund Ownership$_{t-1}$		0.008		0.061		-0.007		0.009
		(0.67)		(1.44)		(0.53)		(0.18)
Market-to-book $_{t-1}$	-0.061***	-0.061***	-0.062***	-0.061***	-0.028***	-0.028***	-0.028***	-0.029***
	(22.63)	(22.75)	(21.1)	(21.2)	(11.35)	(11.27)	(10.54)	(10.35)
Tangibility $_{t-1}$	0.063***	0.0659***	0.063***	0.0684***	0.033	0.035	0.032	0.033
	(2.89)	(3.0)	(2.74)	(2.91)	(1.42)	(1.50)	(1.27)	(1.30)
Profitability $_{t-1}$	-0.369***	-0.373***	-0.407***	-0.411***	-0.111***	-0.113***	-0.098***	-0.1015***
	(12.32)	(12.47)	(11.93)	(11.83)	(3.54)	(3.61)	(2.66)	(2.64)
Total Assets $_{t-1}$	0.026***	0.0263***	0.025***	0.025***	0.0399***	0.040***	0.040***	0.0395***
	(9.0)	(9.15)	(7.99)	(8.03)	(13.04)	(13.04)	(11.67)	(11.44)
Credit Rating Dummy $_{t-1}$	0.0129*	0.0126*	0.0149*	0.0159**	0.0464***	0.0461***	0.0478***	0.048***
	(1.72)	(1.69)	(1.89)	(2.02)	(5.51)	(5.48)	(5.25)	(5.30)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,499	15,499	13,158	12,950	15,499	15,499	13,158	12,950
R-squared stat	46.6%	46.7%	47.2%	47.6%	32.7%	32.7%	32.3%	33.3%
F-stat (excl. instruments)	-	-	8.05 (0.0)	46.13 (0.0)	-	-	8.05 (0.0)	46.13 (0.0)
Partial R-squared	-	-	38.0%	14.28%	-	-	38.0%	14.28%
Hansen J-statistic	-	-	0.0	0.0	-	-	0.0	0.0

Table X (Continued)
Leverage, Managerial Entrenchment and CEO protection in bankruptcy

Panel B. In this table we examine leverage regressions allowing for the interaction of shareholder activism with the CEO protection index. We follow Cremers and Nair (2005) in using the share holdings of the institutional blockholders (defined to be institutional shareholders with equity ownership greater than 5%) or the share holdings of the largest U.S. public pension funds (both recording in percentages) to capture shareholder activism. We de-mean both sets of proxies, before including the interacted effect, in order to be able to interpret the unconditional effects. We include industry (2-digit SIC) and year fixed effects (not shown). We exclude all firms in the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries. Models (1), (2), (5) and (6) show OLS estimates. Models (3), (4), (7), and (8) show two-stage least squares estimates, where we treat the CEO protection index and the proxies for shareholder activism as endogenous. We instrument these with the initial values of both sets of proxies (in that instance we drop the first year of company appearance in our sample). We include the same control variables as in Panel A, but do not report them for brevity. The partial R-squared is the fraction of the variation of the interaction of the shareholder activism proxy with the CEO protection index explained by the instruments, net of their effect through the exogenous variables. The test of over-identifying restrictions (Hansen J-test) tests the joint null hypothesis that the excluded instruments are uncorrelated with the error term and are correctly excluded from the second-stage equation. The absolute value of the t-statistics (in parentheses below the coefficient estimates) is based on robust standard errors cluster-adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Market Leverage				**Book Leverage**			
	OLS	**OLS**	**2-SLS**	**2-SLS**	**OLS**	**OLS**	**2-SLS**	**2-SLS**
Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CEO Protection Index $_{t-1}$	0.020***	0.021***	0.0195***	0.0219***	0.028***	0.029***	0.0346***	0.0356***
	(5.46)	(5.7)	(3.11)	(3.44)	(7.11)	(7.25)	(4.91)	(4.98)
Share holdings of institutional blockholders $_{t-1}$	0.0002		0.001		0.0001		0.001	
	(0.46)		(0.79)		(0.11)		(0.6)	
CEO Protection Index $_{t-1}$ * Share holdings of institutional blockholders $_{t-1}$	0.0002		0.0001		0.001		0.001	
	(0.32)		(0.05)		(1.02)		(0.30)	
Pension Fund Ownership$_{t-1}$		-0.001***		-0.001		-0.0012***		-0.001
		(3.52)		(0.99)		(3.11)		(0.59)
CEO Protection Index $_{t-1}$ * Pension Fund Ownership$_{t-1}$		0.001		0.003		0.0001		0.001
		(1.46)		(1.49)		(0.30)		(0.57)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,499	15,499	13,158	12,950	15,499	15,499	13,158	12,950
R-squared stat	46.7%	46.9%	47.6%	47.7%	32.8%	32.9%	32.8%	33.4%
F-stat (excl. instruments)	-	-	25.13 (0.0)	60.21 (0.0)	-	-	25.13 (0.0)	60.21 (0.0)
Partial R-squared	-	-	29.9%	10.84%	-	-	29.9%	10.84%
Hansen J-statistic	-	-	0.0	0.0	-	-	0.0	0.0

Table XI
Debt as an Entrenching Device: Determinant of takeover likelihood

Panel A. We show the estimation results for probit models of the likelihood of a takeover. Our sample includes all Compustat firms, excluding those from the regulated (SIC headers 48 and 49) and financial (SIC headers 60 through 69) industries in the corresponding sample periods i.e. 1980-1990 for model (1), 1985-1995 for model (2), 1990-2000 for model (3), and 1995-2005 for model (4). The dependent variable is a dummy equal to one if the company is target of an announced acquisition in the sample period. We include all acquisitions from SDC, excluding buybacks, exchange offers, and recapitalizations, where the target is a public company and the acquirer is classified as investment-, public-, private-, or subsidiary company. As determinants of the takeover likelihood we include the variables from Table 2 in Cremers, John, and Nair (2008): market-to-book ratio, tangibility, log cash holdings, market equity, book leverage (and second lag thereof), profitability, the presence of at least one 5% block holder, and an industry dummy variable. The industry dummy variable measures whether a takeover attempt occurred in the same industry in the year prior to the acquisition. We define industry at the two-digit SIC code level. Included, but not reported are year fixed effects. All Compustat variables (market-to-book, tangibility, log cash holdings, book leverage, and profitability) are industry-adjusted and recorded as of the end of the prior fiscal year. See Table 1 for description of the remaining control variables. We present the OLS coefficients from the regression instead of the marginal effects. The absolute value of the t-statistics is shown in parentheses below the coefficient estimates, and is based on robust standard errors. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	Rolling-window estimates			
	1980-1990 sample (1991 estimate)	1985-1995 sample (1996 estimate)	1990-2000 sample (2001 estimate)	1995-2005 sample (2006 estimate)
Independent Variables	(1)	(2)	(3)	(4)
Market-to-book ratio $_{t-1}$	-0.083***	-0.071***	-0.043***	-0.047***
	(5.74)	(7.35)	(6.41)	(7.39)
Tangibility $_{t-1}$	0.147*	-0.044	-0.111*	-0.041
	(1.91)	(0.65)	(1.77)	(0.65)
Log(cash) $_{t-1}$	0.038***	0.029***	0.009*	-0.003
	(6.26)	(5.46)	(1.85)	(0.55)
Market equity (in $ million) $_{t-1}$	-0.00003***	-0.00004***	-0.00003***	-0.00002***
	(4.36)	(5.99)	(6.45)	(6.67)
Book Leverage $_{t-1}$	0.258***	0.256***	0.242***	0.235***
	(3.97)	(4.75)	(5.03)	(5.14)
Book Leverage $_{t-2}$	0.111	0.084	0.026	0.044
	(1.53)	(1.42)	(0.5)	(0.9)
Profitability $_{t-1}$	-0.274***	-0.434***	-0.346***	-0.179***
	(3.73)	(7.37)	(7.03)	(3.85)
Presence of at least one 5% blockholder $_{t-1}$	0.164***	0.178***	0.177***	0.227***
	(7.32)	(8.62)	(8.67)	(10.49)
Industry Dummy $_{t-1}$	0.019	0.052*	0.11***	0.088***
	(0.64)	(1.87)	(3.97)	(3.34)
N	24,822	28,971	35,036	40,426
Pseudo R-squared	3.5%	2.3%	2.0%	3.3%
Chi-squared (p-value)	551.8 (0.0)	452.2 (0.0)	417.9 (0.0)	748.7 (0.0)

Table XI (continued)
Debt as an Entrenching Device: Leverage regressions controlling for the takeover probability

Panel B. OLS regressions of book leverage, market leverage, and interest coverage on the entrenchment index and control variables, as in Table IV. We control for the probability of a takeover attempt as estimated in Panel A We exclude all firms in the regulated (SIC headers 48 and 49) and financial (headers 60 through 69) industries. Refer to Table 1 for variable definitions. All variables, except for the entrenchment index and the predicted probability, are winsorized at 1% level in both tails. Regressions use fixed year and industry effects (2-digit SIC code), which we do not report. The absolute value of the t-statistics is shown in parentheses below the coefficient estimates, and is based on robust standard errors cluster adjusted at the firm level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

	11-year rolling-window takeover probability estimates		
	Book Leverage	Market Leverage	Interest Coverage
Independent Variables	(4)	(5)	(6)
Entrenchment Index $_{t-1}$	0.006***	0.002*	-0.33***
	(4.65)	(1.87)	(3.20)
Market-to-book$_{t-1}$	-0.006**	-0.031***	2.722***
	(2.31)	(13.79)	(9.77)
Tangibility$_{t-1}$	0.052**	0.079***	-5.959***
	(2.34)	(4.12)	(3.33)
Profitability$_{t-1}$	0.038	-0.18***	59.793***
	(1.17)	(7.11)	(21.15)
Log Assets$_{t-1}$	0.062***	0.056***	-2.799***
	(19.72)	(20.13)	(11.37)
Credit Rating Dummy $_{t-1}$	0.044***	0.010	-4.093***
	(5.47)	(1.49)	(6.31)
Predicted Takeover Probability $_{t}$	2.481***	3.311***	-152***
(11-year rolling window estimates)	(23.72)	(35.55)	(17.09)
Observations	14,252	14,252	13,194
R-squared	40.8%	59.5%	38.9%