

Shareholder-Manager Alignment and the Cost of Debt

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Abstract

We investigate the influence of shareholder-manager incentive alignment on the cost of debt. We address this question in a sample of dual-class firms, where managerial voting rights and cash-flow rights can be separated. We find the cost of debt financing increases in managerial voting rights and decreases in cash-flow rights. In contrast, leverage increases in managerial voting rights and decreases in cash-flow rights. Together the results suggest that while the cost of debt increases as shareholder and manager interests diverge, the cost of debt relative to the cost of equity declines making debt more favorable for firms with high potential agency costs of equity. We conclude the agency cost of equity is not offset by a reduction in the cost of debt.

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I. Introduction

Jensen and Meckling (1976) argue the existence of two kinds of agency costs. The agency cost of equity arises when the interests of managers and shareholders are imperfectly aligned. The agency cost of debt occurs when managers acting on behalf of shareholders take actions that benefit shareholders at the expense of debtholders. Numerous studies provide empirical support of the existence of both agency costs. A lesser explored extension of this line of inquiry, however, is how these two types of agency problems interact.

Theoretically the results could go either way. For example, if managers are more risk averse than shareholders, then managers may pursue lower risk projects (see Shleifer and Vishny (1986) and Bertrand and Mullainathan (2003)). This form of the agency cost of equity lessens the likelihood that managers will engage in asset substitution (i.e., substitute risky projects for safe ones), leading to a negative correlation between the agency cost of equity and the agency cost of debt. Alternatively, managers may pursue self-interests that destroy firm value, without necessarily altering firm risk, in which case both shareholders and debtholders are worse off.¹ We empirically explore this relation between manager-shareholder interest alignment and the cost of debt to see how the agency costs of equity and debt relate to one another.

Prior research has used managerial ownership to measure the alignment between managers and shareholders (Jensen and Meckling (1976)). As a manager's ownership of cash flow rights increases, so increases her incentive to maximizing value. However, managerial ownership can also lead to entrenchment (Fama and Jensen (1983), Demsetz (1983)) given that increased managerial ownership means increased managerial voting power. Morck, Shleifer, and Vishny (1988) illustrate that the relation between managerial ownership and shareholder-manager incentive alignment is nonmonotonic. To better isolate ownership's incentive alignment

¹ This was arguably the case at Gamco Investors. In 2005 the chairperson, Mario Gabelli, received \$55 million in compensation, equivalent to 87% of the firm's net income that year. Mr. Gabelli was deeply entrenched through his ownership of class B shares that have 10 votes per share. Shareholders held a protest vote at the annual meeting which promptly failed. See "Is Gabelli's Game, 'Rules Are for You'?" (*Wall Street Journal*, May 13, 2006, p. B14).

effect from its entrenchment effect, we focus on a sample of US dual-class firms where managers' cash-flow rights and voting rights can be separated. Dual-class firms typically have two classes of stock outstanding with one issue having superior voting rights to the other. Among dual-class firms, there is substantial variation in managerial holdings of superior versus inferior shares, allowing us to exploit the cross-sectional differences in managerial cash-flow rights and voting rights. Following Gompers, Ishii, and Metrick (2007) (henceforth GIM (2007)), Harvey, Lins, and Roper (2004), and numerous other studies, we use the notion that the agency cost of equity increases in managerial voting rights and decreases in managerial cash-flow rights.² We then examine how these ownership rights influence the cost of debt, measured as the at-issue yield spread on straight bonds.

We find the cost of debt increases in the misalignment of manager and shareholder interests. Specifically, the cost of debt rises in managerial voting rights and falls in managerial cash-flow rights. These results are economically as well as statistically significant. An increase in managerial voting rights from the first quartile value (21%) to the third quartile value (77%) results in a 46 basis point increase in the cost of debt. Similarly, moving from the first quartile of cash-flow rights (9%) to the third quartile (53%) is associated with a 33 basis point reduction in the cost of debt. Examination of firm credit ratings confirms this finding that debtholders benefit from manager-shareholder incentive alignment.

We investigate the use of debt by dual-class firms and find that leverage increases in voting rights and declines in cash-flow rights.³ This may at first seem surprising given that a higher cost of debt should, all else equal, lower debt capacity. However, we find that credit ratings worsen as voting rights rise and improve as cash-flow rights rise, suggesting higher debt

² In constructing our measures of shareholder-manager agency conflicts, we do not make presumptions on whether dual-class firms are more agency-problematic than single-class counterparts. What we contend, in similar spirit to the arguments in GIM (2007), Harvey, Lins, and Roper (2004) and others, is that the cross-sectional variation of managerial cash-flow rights and voting rights within dual-class firms allows the incentive and entrenchment effects to be separated.

³ This result is consistent with Harvey, Lins, and Roper (2004) who find that leverage is significantly increasing in the ratio of voting rights to cash flow rights for a sample of emerging market firms with dual-class structures.

capacity does not drive the higher leverage. Rather, combining the cost of debt, amount of leverage, and ratings results suggests that decreasing the incentive alignment of shareholders and managers increases the cost of debt, but the relative cost of debt compared to equity declines. In other words, the cost of equity rises by a greater degree than the cost of debt, which leads to greater debt use and lower credit ratings despite the absolute higher cost of debt. Consistent with this notion, we find the cost of equity is increasing in managerial voting rights and declining in cash flow rights.

To mitigate the concern that our results only apply to dual-class firms, we control for potential sample selection bias using Heckman's method. We find sample selection has little effect on the results. Another concern is that managerial ownership and yield spreads may be endogenously determined. To address this we estimate a joint system of equations similar to that of Harvey, Lins, and Roper (2004). Using the difference between voting rights and cash-flow rights to measure misalignment, we find that yield spreads increase in misalignment. This result is both statistically and economically significant. In addition, we use a number of functional forms of the cash-flow rights and voting rights in our tests, including quadratic specifications.

Taken as a whole, our results expand our understanding of the relation between ownership structure and firm value. Had we found evidence supporting a negative relation between the agency cost of equity and the agency cost of debt, then this would have suggested the value loss from the misalignment of managers and shareholders is somewhat tempered by a lower cost of debt. However, we find the opposite suggesting that the agency costs of equity and debt are positively correlated. Since shareholders bear the agency cost of debt ex-ante (Jensen and Meckling (1976)), this positive correlation suggests the value gain from properly aligning the interests of managers and shareholders may be larger than previously thought.

Our results complement GIM (2007) who show that firm value is declining in managerial voting rights. One potential cause of this value decrease could be excessive managerial risk aversion; however, such a policy would likely benefit debtholders. Combining our results with

theirs suggests that this risk reduction effect does not fully explain the loss in firm value associated with managerial entrenchment.

Our work also adds to a growing amount of empirical work on the cost of debt and firm policy choices that affect shareholders as well as debtholders. Klock, Mansi and Maxwell (2005) find that, while harmful to shareholders, antitakeover amendments lower the cost of debt. Cremers, Nair, and Wei (2007) demonstrate that the cost of debt is higher for firms with high institutional ownership, but only in the case where the firm lacks antitakeover protection. The results of these studies support the notion that the agency costs of debt and equity are negatively related. Our results suggest the opposite. Taken together with our results suggests that while various governance mechanisms may have similar effects on shareholders (and thus be seen as substitutes), these mechanisms can have very different implications for bondholders. This highlights the need to look at incentive aligning mechanisms from a variety of perspectives.

Our findings are also important in the context of prior research examining ownership structure and debt. Ortiz-Molina (2006) finds that single-class firms exhibit a positive correlation between managerial ownership and the cost of debt. Assuming that ownership increases shareholder-manager alignment, he concludes that the relation between the agency cost of equity and the cost of debt is negative. This conclusion, however, may be unclear given that increased ownership can either increase or decrease shareholder-manager alignment depending on whether the incremental votes or cash-flow rights dominate.⁴ Our results support and extend Ortiz-Molina (2006). Like Ortiz-Molina, we document a strong relation between ownership and the cost of debt. However, given we can separate the aligning effect of managerial cash-flow rights from the entrenching effect of managerial voting rights, we show that shareholder-manager alignment benefits, rather than harms, debtholders.

⁴ For example, Morck, Shleifer and Vishny (1988) and McConnell and Servaes (1990) both document a nonlinear relationship between managerial ownership and firm value indicating that managerial entrenchment dominates over some regions while alignment dominates over others.

The remainder of the paper is organized as follows. Section II reviews the existing literature and develops empirical predictions. Section III describes our sample. Section IV reports empirical findings, and Section V concludes.

II. Predictions for Managerial Ownership and the Cost of Debt

The link between firm value and managerial ownership has been widely explored in the finance literature. Morck, Shleifer and Vishny (1988) and McConnell and Servaes (1990) document a nonlinear relation between managerial stock ownership and firm value, proxied by Tobin's Q. Firm value is found to initially increase in managerial ownership before turning downward. At high levels of ownership the direction of this relation switches again and becomes positive (Morck, Shleifer, and Vishny (1988)). The nonlinear function documented by these studies is likely driven by the fact that each additional share a manager owns brings both an additional cash-flow right and an additional voting right. Cash-flow rights serve to align the interest of managers with shareholders since managers will benefit from value maximizing decisions. Voting rights, however, will have the opposite effect. The greater the votes held by management, the more entrenched management becomes, and the more likely that they can pursue self-interested actions that harm shareholders without repercussion. The nonlinearity arises because the marginal influence of a vote relative to a cash-flow right varies as ownership increases.⁵

Given the fact that managerial cash-flow rights and voting rights are perfectly correlated for most firms, it is difficult to disentangle these two opposing effects. GIM (2007) argue that as dual-class structures break the link between cash-flow rights and voting rights, they offer a way to separate the aligning effects of managerial cash-flow rights from the entrenching effect associated with managerial voting control. Note, the key to this line of inquiry is not whether

⁵ It is also possible that nonlinearities can result if managerial risk aversion increases in wealth. We later explore this possibility by including nonlinear functions of both cash flow rights and voting rights.

dual-class and single-class firms differ, but rather that the cross-sectional variation of managerial cash-flow rights and voting rights within dual-class firms allows these effects to be separated.⁶

Different from single-class firms who represent the conventional one-share one-vote structure, dual-class firms have multiple classes of shares outstanding with unequal voting rights. Managers typically own more of one class than the other resulting in a disproportionate number voting rights than cash-flow rights. GIM (2007) exploit these differences to disentangle how managerial voting rights and cash-flow rights affect Tobin's Q. They find evidence that firm value increases in managerial cash-flow rights and declines in managerial voting rights.⁷

GIM (2007) also find that dual-class firms have greater leverage than single-class firms. One possibility is that divergence in the interests of managers and shareholders results in managers engaging in lower risk activities. Since managerial portfolios tend to be poorly diversified, managers may be more risk averse than a typical diversified shareholder. Indeed, Shleifer and Vishny (1986) suggest that one of the most important costs that large shareholders can impose on the firm is excessive risk aversion. Bertrand and Mullainathan (2003) present supporting evidence that managers engage in risk-reducing projects upon the adoption of anti-takeover state law provisions.⁸ While excessive managerial risk aversion is suboptimal for shareholders, it is likely to benefit debtholders, who may subsequently charge a lower rate or lend more.

An alternative conjecture is that, independent of managerial risk incentives, managers are more likely to pursue value destructive endeavors as they become more entrenched and less aligned with shareholders. In this case, the agency cost of equity will also be harmful to debtholders, and both the cost of equity as well as the cost of debt will rise. However, if the cost

⁶ In fact, GIM (2007) point out that in order to generalize the results to firms in general, sample selection techniques must be used to control for systematic differences in single-class and dual-class firms.

⁷ Masulis, Wang , and Xie (2007) find evidence that dual-class firms hinder firm value via acquisitions, capital expenditures, and executive compensation. Smart and Zutter (2008) also report that dual-class firms are worth less than single-class firms both at their IPO and in the years following the IPO.

⁸ Garvey and Hanka (1999) report substantial reduction in leverage in firms protected from second-generation state anti-takeover laws.

of equity rises (falls) relative to the cost of debt, then debt capital will be relatively attractive (unattractive) leading to greater (lesser) leverage.⁹ Thus, to see if manager-shareholder alignment affects debtholders, it becomes necessary to examine the cost of debt directly, given that higher leverage can be consistent with debtholders benefiting or suffering from misaligned managers and shareholders.

III. Sample and Variable Construction

A. Sample of Dual-Class firms

We begin with the sample of dual-class firms collected by GIM (2007).¹⁰ Their dataset comes from compiling potential dual-class firms from a variety of machine readable data sources (SDC, Compustat, CRSP, and IRRC). They then check SEC filings to confirm a dual-class structure and to collect insider ownership data. Their final dataset includes 735 firms that had a dual-class structure in at least one year during the period 1995 to 2002.

We then match this sample of dual-class firms with the SDC New Issues Database to obtain characteristics on all straight bonds issued by these dual-class firms. SDC collects information from sources including regulatory filings, news sources, company releases and prospectuses. For each bond issue, SDC provides detailed information including the issue date, yield-to-maturity (YTM), maturity, proceeds and ratings. If a firm has more than one bond issue in a given year, we construct a single observation by taking a proceeds-weighted average of all the issues (Anderson, Mansi, and Reeb (2004), Klock, Mansi, and Maxwell (2005)). We have 124 firm-year observations in our sample where this is the case.

⁹ Ashbaugh, Collins, and Lafond (2006) empirically show how the cost of equity falls as shareholder rights increase. Under certain parameter assumptions the theoretical model of Childs and Mauer (2007) predicts both agency costs can lead to both increased yields and leverage due to the relative cost of equity and debt. Li, Ortiz-Molina, and Xinlei (2007) find that dual-class firms have lower institutional holdings, which could lead to a higher cost of equity.

¹⁰ We are grateful to Andrew Metrick for making the data available. See GIM (2007) for more details.

For each firm-year observation we verify the firm's dual-class structure from SEC filings obtained from Lexis-Nexis and Edgar.¹¹ We also collect managerial ownership structure, prior to the issue date, from the filings. In cases where proxy statements do not provide information on managerial ownership, we examine 10K reports. We exclude observations where information on managerial ownership is insufficient to calculate our managerial ownership variables. Our final sample consists of 262 firm-year observations made by 111 dual-class firms spanning 1990-2005. For these observations we obtain accounting variables from Compustat as of the fiscal year-end prior to the bond issuance, and stock variables from CRSP.

B. Descriptive Statistics

We report the distribution of the sample over time and descriptive statistics in Table 1. Examination of Panel A suggests our sample is reasonably distributed over the 1990 to 2005 period. Panel B reports the characteristics of the bond issues. We define *Spread* as the difference between the yield-to-maturity of the bond and a comparable maturity US Treasury bond, measured in basis points. On average, the yield on the bond issues in our sample exceeds that of US Treasuries by 191 basis points. Following Klock, Mansi, and Maxwell (2005) and Anderson, Mansi, and Reeb (2004), *Credit Rating* is the Standard and Poors' credit rating of the bond where an AAA rating corresponds to a value of 22 down to a D rating corresponding to a value of 1. The mean rating of 14 corresponds to a BBB rating. The average bond issue has a maturity in years, *Maturity*, of 9.81 years. The amount raised from the issue, *Proceeds*, is inflated to 2005 dollars using the CPI. We see the average issuance for our firm-year observations is \$718 million. When scaled by assets, *Proceeds/Assets*, we see the median issuance represents 15% of firm size, suggesting that the majority of the bond issues in our sample are significant capital raising activities.

¹¹ Lexis-Nexis coverage of proxy statements appears to begin in 1988 and Edgar begins in 1994. Our sample begins in 1990, resulting from the fact that we require the proxy statement prior to the bond issue.

The descriptive statistics for firm characteristics are contained in Panel C. We measure *Assets* by the book value of assets in millions of dollars (Compustat data6). *Sales* is the annual sales in millions of dollars (data12). *MV_equity* is the market value of equity in millions of dollars, where the market value for dual-class firms with non-trading classes is calculated using shares outstanding from proxy statements and assuming prices equal to that for the traded class of shares. *Assets*, *Sales* and *MV_equity* are converted to 2005 dollars using CPI. *Leverage* is the ratio of long-term debt to assets (data9/data6). *ROA* is income before extraordinary items divided by assets (data18/data6). *M_B* is the market value of equity divided by the book value of equity ($MV_equity/data60$). *Q* is calculated as the market value of assets ($MV_equity-data60+data6$) divided by the book value of assets. All of the above variables are measured at the fiscal year-end prior to the bond issue. Finally, *StdRet* is the annualized standard deviation of daily returns over the fiscal year prior to the bond issue.¹²

We now examine the managerial ownership structure of our dual-class sample and report descriptive statistics in Table 2. We see the superior voting shares carry an average of 8.93 votes per share. We also see managers tend to own most of these shares. The percent of superior shares held by managers averages 69.29%, and the median is 83.61%. For the inferior shares there is typically one voting right per share, however, there are cases where the inferior shares are nonvoting. Managers tend to own a smaller fraction of the inferior shares (with a mean value of 20.07% and a median of 7.76%).

To measure managerial voting rights and cash-flow rights we combine their holdings of the share classes.¹³ We see managers control a large fraction of the total votes (*VT*) on average (50.25%). We also see a substantial amount of variation across managers with minimum, first

¹² Note we have some extreme values for our firm characteristics. For example, the minimum value of *M_B* is -145.42. Later when we use these characteristics as control variables in regressions we check to ensure these outliers do not materially affect our results. As a robustness check we winsorize the controls at the 1 and 99% level and find similar results.

¹³ Following Gompers, Ishii, and Metrick (2003b), we assume that cash-flow rights are proportional to the ordinary dividends on shares if information on dividends is non-missing. If dividend data does not exist or the dividend distribution is not ordinary, cash-flow rights are assumed to be equal across classes.

quartile, third quartile, and maximum percentage of votes held by managers of 0.00%, 21.47%, 76.68%, and 100%. The descriptive statistics on the percentage of cash-flow rights held by managers (*CF*) indicate managers own an average of 33.27% of the cash-flow rights. While this is smaller than the average for *VT*, the distribution of *CF*, like that of *VT*, exhibits substantial cross-sectional variation. The minimum, first quartile, third quartile, and maximum percentage of cash-flow rights held by managers are 0.04%, 8.97%, 53.32%, and 89.46%.

Managerial control increases with their voting rights making them more entrenched and freeing them to pursue self-interested policies. In contrast, cash-flow rights will serve to align shareholders and managers since managers will have more to lose from value destructive policies. We combine managerial voting rights and cash-flow rights into a single measure to capture the degree to which a manager may be more influenced by control (*VT*) versus cash-flow rights (*CF*). Following Claessens et al. (2004), La Porta et al. (1997) and GIM (2007), we measure *Wedge* as the difference between *VT* and *CF*. As an alternative measure, we follow Harvey, Lins, and Roper (2004), Cronqvist and Nilsson (2005), and Lins (2003) and calculate the vote-to-capital ratio, *V_C*, as the ratio of *VT* to *CF*. These measures are intended to proxy for manager-shareholder alignment stemming from ownership. Specifically, *Wedge* and *V_C* are argued to be negatively correlated with shareholder-manager alignment, and hence, positively correlated with potential agency costs of equity.¹⁴ Examination of the descriptive statistics for these two measures indicates there is substantial cross-sectional variation in managerial ownership structure and incentive. We can also see *V_C* is dramatically increasing in the highest quartile of the sample, suggesting *V_C* is highly skewed.

Finally, as pointed out by GIM (2007), focusing on dual-class firms may lead to faulty inferences about firms in general if there are significant sample selection problems. To control for this, they use Heckman's two-step procedure where the first step requires the estimation of a

¹⁴ Claessens et al. (2002) show that firm value decreases when managerial voting ownership exceeds their cash flow ownership in eight East Asian countries. GIM (2007) report similar evidence in U.S. dual-class firms. Lins (2003) and Harvey, Lins, and Roper (2004) find that a higher *V_C* ratio is associated with lower firm value.

selection model of whether a firm is single or dual-class. Including the inverse-Mill's ratio from this probit model in regressions on the dual-class sample helps alleviate sample selection concerns and makes inferences about the population of firms (rather than simply the sample firms) more reliable.

Following GIM (2007), we estimate a probit model of whether or not a firm has a dual versus single-class equity structure. For each dual-class issuer, we identify a single-class matching firm that is in the same 2-digit SIC industry, issues bonds in the same year and has book value of assets closest to that of dual-class issuer at the fiscal-year end prior to the bond issuance. The determinants for the choice of dual- versus single-class structures include dummies to indicate whether a firm is a media company, whether a firm's name contains a person's name, and whether the firm is incorporated in states with anti-takeover laws. Also included are the level of the firm's IPO-year sales (and profits) relative to other IPO firms in the same year, the fraction of all Compustat firms existing in the same metropolitan area one year prior to the firm's IPO and the fraction of Compustat sales by all pre-existing firms in the same metropolitan area one year before the firm's IPO.¹⁵ GIM (2007) argue that these variables are good proxies for benefits and costs associated with dual-class structures. We label the inverse-Mill's ratio from this probit model *Lambda* and include it in our later regressions to alleviate sample selection concerns.

IV. Results

A. Univariate Tests

We begin our investigation of the effect of managerial ownership on the cost of debt by examining *Spread* for subsamples based on managerial ownership characteristics. Table 3 reports mean values of *Spread* by quartile values of *Wedge* and *V_C*. As argued above, the potential for shareholder-manager agency conflicts should be increasing in these two variables. Panel A

¹⁵ Information on a metropolitan area is obtained from the Office of Management and Budget, U.S. Census Bureau. For details in constructing these variables, please refer to GIM (2007).

divides the sample by quartiles of *Wedge*. As we look across the quartiles of *Wedge* we see a monotonic increase the average *Spread*. The difference between the *Spread* of the first and fourth quartile is 48 basis points. This difference is statistically significant at the ten percent level. Panel C provides a similar analysis by quartiles of *V_C*. The average *Spread* increases from the first quartile to the second, and from the second to the third; however, we see a large decline from the third quartile to the fourth. This highlights the need to allow for the possibility of a nonlinear relationship. The results indicate that the cost of debt may be decreasing in the degree of shareholder-manager alignment. However, we have yet to control for numerous other factors that affect the cost of debt. We explore this further below.

B. Shareholder-Manager Alignment and Credit Ratings

One of the most important factors influencing *Spread* is the firms' credit ratings. We begin by asking whether credit rating agencies incorporate managerial ownership characteristics in bond ratings. We use an ordered probit model to relate bond ratings to our measures of managerial ownership structure and firm characteristics. We use ordered probit models because the categories of credit ratings convey ordinal risk assessments.¹⁶ Given the numerical values assigned to the ratings, a negative coefficient indicates the variable is associated with lower credit ratings.

Results are presented in Table 4. We include control variables following Anderson, Mansi, and Reeb (2004). We also include industry and year dummy variables and *Lambda*. Consistent with prior literature, firm size (*lnSALES*) is found to be significantly positively related to credit ratings. The coefficients on *Leverage* and *StdRet* suggest higher debt ratios and greater equity volatility lower credit ratings. We also see from the log likelihood that the overall specifications are significant.

¹⁶ See Bhojraj and Sengupta (2003) for other papers using an ordered probit model for this purpose.

The first column reports the estimates using *VT* and *CF* to measure shareholder-manager alignment. The coefficients on *VT* and *CF* are negative and positive, respectively, and both coefficients are highly significant. Both of these results suggest that shareholder-manager alignment is associated with better credit ratings. These results are also significant from an economic perspective. Moving from the first to the third quartile of *VT* results in a rating decline of -0.91 , while a similar move in *CF* results in an increase of 1.10 . Thus, changes in ownership structure can have a substantial impact on the credit rating.

Model 2 repeats the analysis but includes squared-terms of *VT* and *CF*. In this specification we see *VT* has a negative coefficient and VT^2 has a positive coefficient. The relative size of the coefficients and the fact that *VT* ranges from 0 to 1 suggests a nonlinear but also monotonically decreasing relation between *VT* and *Rating*. We measure shareholder-manager alignment in Model 3 by replacing *VT* and *CF* with *Wedge*, and Model 4 includes the squared term $Wedge^2$. Consistent with the previous two models, we find significantly negative coefficients on *Wedge* in both of these specifications. Finally, models 5 and 6 use V_C and V_C^2 . In Model 5 the coefficient on V_C is insignificant. However, in Model 6 we see this is due to nonlinearity. When we include the squared-term we find a negative coefficient on V_C and a positive on V_C^2 . The magnitudes of these coefficients suggest that the relation worsens the rating until V_C reaches 12.5 (i.e. when *VT* is 12.5 times larger than *CF*) when the relation reverses. This is likely due to extreme outliers given the construction of V_C (see discussion of Table 2 above). The third quartile value of V_C is 2.21 and we have only 2 observations greater than 12.5. Eliminating these 2 observations leads to a monotonically negative relation between *Rating* and V_C .

We also examine the relation between credit risk and managerial ownership structure for the full sample of dual-class firms from GIM (2007). Given many of these firms do not have credit ratings, we measure firms' default risk following Altman (1968) and compute Altman's Z-score as follows: $Z=0.012X_1+0.014X_2+0.033X_3+0.006X_4+0.999X_5$, where X_1 is the working capital (data4 minus data 5) to total assets (data6) ratio, X_2 is retained earnings over total assets

(data36/data6), X_3 is EBIT (data13 minus data14) over total assets (data 6), X_4 is the market value of equity (data24 multiplied by data25) to total liabilities (data181) ratio and X_5 is the sales (data12) to total assets (data6) ratio. Z-score has been widely used in the literature to measure firm bankruptcy risk. Higher Z-score is deemed as having lower default risk.

Results are reported in table 5 for the full sample of dual-class firms from GIM (2007). In model 1, the coefficient of VT is negative and significant at 5% level, while that of CF is positive and significant at 1% level. The evidence suggests that higher managerial voting rights increase default risk but their cash-flow rights have the opposite effect. In addition, Z-score declines in Wedge and V_C ratios, indicating that greater gap between managerial voting rights and cash-flow rights also increase firm default risk.

Overall, the results in Table 4 and 5 suggest that shareholder-manager alignment lowers debtholders' risk. This contradicts the notion that entrenched managers impose excessive risk aversion on their firms, or at least suggests that any risk aversion effects are dominated by the potential for value destruction.

C. Multivariate Analysis of Shareholder-Manager and Yield Spreads

We now examine the relation between managerial voting and cash-flow rights on *Spread*. We regress *Spread* on our measures of cash-flow and voting rights in addition to our control variables. We include control variables based on Anderson, Mansi, and Reeb (2004). Given credit ratings depend on many firm characteristics, *Rating* may subsume the effects we intend to capture with our other explanatory variables. Therefore, we orthogonalize *Rating* to the other explanatory variables in order to get clean interpretations. Specifically, we regress *Rating* on the right-hand side variables (other than the dummy variables) and use the residual from this regression, *Orthrating*, in the *Spread* regressions (Klock, Mansi, and Maxwell (2005)).

Our control variables include *Lamda*, which is intended to alleviate sample selection concerns. Interestingly, the coefficient on this variable is never significant. We include the same controls as used in the credit rating regressions with the addition of rating variables. The

coefficients on the controls are generally consistent with previous studies examining yield spreads. The significantly negative coefficient on *Orthrating* suggests that the credit rating captures important determinants of *Spread* that are not captured by the other control variables. Finally, as in Klock, Mansi, and Maxwell (2005), we include *Junk*, a dummy variable indicating a below investment-grade credit rating, to control for the fact that yield spreads exhibit a distinct jump when going from investment to non-investment ratings.¹⁷

The results are reported in Table 6. Turning to the impact of shareholder-manager alignment on *Spread*, Model 1 reports the coefficients on *VT* and *CF*. Consistent with the rating results, we find a positive coefficient on *VT*, significant at the 5% level. The coefficient on *CF* is negative and significant at the 10% level. Again, these results suggest that as shareholder-manager alignment decreases, the cost of debt increases. Interpreting the magnitudes of the coefficient suggests these results are economically significant. Moving from the first quartile to the third quartile of *VT* implies a 46 basis point increase in *Spread*. Similarly, moving from the first to the third quartile of *CF* is associated with a 33 basis point reduction in *Spread*.

Model 2 incorporates squared terms of *VT* and *CF*. While the coefficients on the VT^2 and CF^2 are insignificant, we see a dramatic increase in the magnitude of the coefficients on *VT* and *CF* when compared to Model 1. This suggests there may be some nonlinearity. Models 3 and 4 illustrate that *Wedge* is also significantly positively related to *Spread*. Finally, the coefficient on *V_C* is insignificant in Model 5, but becomes positive and significant in Model 6 when we include the squared term, V_C^2 . Taken as a whole, these results are consistent with shareholder-manager alignment lowering the cost of debt.

Finally, we explore whether potential endogeneity of the yield spread and ownership variables could be influencing the results. Harvey, Lins, and Roper (2004) estimate a three-equation simultaneous system of Tobin's Q, Leverage, and *V_C*. We estimate a similar system with *Spread* in place of leverage. We also include additional controls in the *Spread* equation

¹⁷ Our results are robust whether or not we include *Junk* in the regression, and whether or not junk is orthogonalized to the other right-hand side variables..

(namely, the same controls in Table 5). The results are reported in Table 7. We find V_C is positively related to *Spread*, although the coefficient is not significant. When we use *Wedge* in place of V_C we find the coefficient on *Wedge* in the *Spread* equation is positive and significant at the 1% level. Overall, these results suggest endogeneity is not driving our results.

D. Leverage and shareholder-manager alignment

GIM (2006, 2003) report that dual-class firms have higher leverage than single-class firms. Moreover, Harvey, Lins, and Roper (2004) find that leverage is significantly increasing in V_C . At first this is somewhat surprising given we find that the cost of debt is increasing in managerial voting rights, and given that dual-class managers, on average, tend to have much higher percentages of voting rights. We explore the relation between leverage and managerial ownership to see how leverage varies with shareholder-manager alignment. We include all dual-class firms from GIM (2007) rather than restricting the sample to our much smaller sample of bond-issuers.¹⁸ Our dependent variable is *excess leverage* defined as the ratio of long-term debt to assets minus the industry median. We run the same basic specifications as reported for the credit rating and *Spread* analysis. Table 8 reports the results.

Model 1 shows that leverage is increasing in VT and decreasing in CF . The coefficients on VT and CF are 0.054 and -0.042 , significant at the 1 and 10% level, respectively. From an economic perspective, a move from the first to the third quartile of VT results in an increase in excess leverage of 0.024. Like the statistical significance, the economic significance of CF is smaller than that of VT , but it remains meaningful. A similar first to third quartile change in CF results in a decline of leverage of 0.015. Incorporating squared terms results in insignificant results and suggests nonlinearity is not a concern. Finally, the results on *Wedge* support the findings of VT and CF , while the coefficient on the V_C ratio is positive but insignificant.

¹⁸ The results are similar when we limit the sample to our bond issuer sample.

Overall, these results suggest that leverage increases in the misalignment of shareholders and managers, in spite of the fact that the cost of debt is also increasing. One possible explanation is that while the cost of debt is rising in misalignment, the cost of equity is rising by a greater degree. This possibility has been shown to be feasible theoretically (Childs and Mauer (2007)). This would make debt relatively more attractive than equity and would lead to an increase in leverage. This is also consistent with the finding of GIM (2007) that firm value declines in *Wedge*.

E. The cost of equity and shareholder-manager alignment

We next examine whether the cost of equity indeed is rising in shareholder-manager misalignment, a necessary (but not sufficient) condition for our story of how leverage increases simultaneously as the cost of debt increases. We follow Dong et al. (2006) and calculate the firm-specific annualized cost of equity (R_e) based on the Capital Asset Pricing Model (CAPM).¹⁹ The time- t beta is estimated using monthly return data from CRSP of the most recent 5 years, or of at least 2 years if there is not enough data. The market premium in the CAPM is estimated as the average annual premium over the risk-free rate, proxied by the 10-year treasury rate, for the CRSP value-weighted index over the preceding 30 years.

Table 9 reports the OLS regression results of R_e on managerial ownership of voting and cash-flow rights, controlling for firm size, market-to-book ratios, leverage and firm risk (Ashbaugh-Skaife et al. (2005), Huang et al. (2006)). For consistency with the yield spread results, we measure the R_e in basis points. Model 1 shows that the cost of equity is increasing in VT and decreasing in CF. The coefficients on VT and CF are 59.71 and -63.66, significant at the 1% and 5% level respectively. Further, the results on *Wedge* also support the findings on VT and CF. The results are similar when we estimate the cost of equity for the GIM's full sample of dual-class firm, and when we estimate the regressions using the Fama-MacBeth approach.

¹⁹ A similar approach is used by Ashbaugh-Skaife, Collins and LaFond (2005).

Combining our findings on the cost of debt with these on the cost of equity suggests that the agency cost of debt and the agency cost of equity are positively related through the degree of shareholder-manager alignment. Our evidence supports the notion that both shareholders and debtholders are concerned about managerial self-interested behavior and the resulting firm value destruction. Therefore, mechanisms that better align manager with shareholders have the additional benefits of reducing the cost of debt and greater gains than previously realized in the literature.

F. Robustness Checks

F. 1. Dual-class IPOs

We use the sample of GIM (2007), which includes firms that become duals at or before IPO as well as those switching to dual-class structures via recapitalization. Given the different paths these firms have taken, it is likely that dual-class IPOs differ from dual-class recaps (see Smart and Zutter (2003) and Smart, Thirumalai, and Zutter (2008)). For example, from the perspective of shareholders, investors choose to hold dual-class IPOs while investors are often coerced to hold dual-class recaps (Ruback (1988)). We rerun our credit rating and yield spread regressions using only dual-class IPOs that issued straight bonds. Our results are qualitatively similar, though the significance level is reduced somewhat as a result of the small sample size. Thus, how our sample firms assumed their dual-class structures does not affect our main results.²⁰

F. 2. Q regression

GIM (2007) provide strong evidence that firm value is decreasing in managerial holdings of voting rights and increasing in their ownership of cash-flow rights. Since we use a subsample

²⁰ The results are available from the authors upon request. It would be also interesting to examine changes in the cost of debt and credit ratings around events such as dual-class recapitalizations and unifications. If the cost of debt is a function of the separation of managerial control and ownership, we expect to see an increase in the cost of debt post-recapitalization and a decline in the cost of debt subsequent to unification. Unfortunately, there are very few changes in dual-class status among bond issuers in our sample.

of theirs, our arguments have proceeded so far without providing direct evidence on firm value and managerial ownership among dual-class bond issuers. To address this concern, we run a regression of Tobin's Q, defined as the market value of assets divided by the book value of assets, on firm size, capital expenditure, total leverage, our measures of managerial ownership (VT, CF, Wedge, V_C) as well as the interaction terms of ownership variables and leverage. We find a significant negative relation between Q and VT (Wedge, V_C), verifying that these variables are indeed associated with agency cost of equity consistent with our conjecture.

V. Conclusions

In this paper we examine how shareholder-manager alignment affects bondholders. Theory suggests that bondholders could gain if shareholder-manager misalignment leads managers to engage in risk reducing activities. Alternatively, bondholders may suffer if shareholder-manager misalignment results in managers pursuing value destructive activities. We test which effect dominates using managerial ownership within a sample of dual-class firms where we can separate the aligning effects of managerial cash-flow rights from the entrenching effect of managerial voting rights.

We find strong evidence that bondholders perceive the costs of shareholder-manager conflicts exceed any benefits. All else equal, bondholders demand higher yields on bonds issued by firms with greater potential for shareholder-manager conflicts. The positive relation between bond yields and measures of shareholder-manager conflicts is robust to alternative model specifications and after controlling for sample selection. We also find evidence that bond ratings incorporate the extent of shareholder-manager conflicts. Specifically, bond rating agencies assign lower ratings when manager-shareholder misalignment is more severe.

We examine leverage and find that leverage increases in shareholder-manager misalignment. This seems surprising given the cost of debt is also rising in misalignment. One possibility is that the cost of debt is rising by less than the cost of equity. This would make debt more attractive relative to equity and reconcile the cost of debt and leverage results. Indeed

when we examine the cost of equity we find evidence consistent with this idea. This also points out the need to be cautious in interpreting higher leverage ratios as indicative of lower agency costs of debt.

Alignment of shareholders and managers can be affected through a number of mechanisms other than managerial ownership, including the structure of corporate governance and the use of equity-based compensation. For example Klock, Mansi, and Maxwell (2005) and Litov (2005) report a monotonic negative relation between managerial entrenchment, as measured by the governance index (g-index),²¹ and bond yields. Contrary to our results, these studies suggest that shareholder-manager misalignment benefits debtholders. One reason for the differing results could be that not all incentive alignment mechanisms work in the same way. For example, Coles, Daniel and Naveen (2005) show equity-based compensation can lead to excessive risk taking or to excessive risk aversion depending on the structure of the compensation. Our examination of managerial ownership structure suggests that incentives arising from cash-flow rights and voting rights affect both bondholders and stockholders in the same direction. As a whole, our results in conjunction with the prior literature suggest that mechanisms used to align manager-shareholder interests may have very different influences on debtholders.

²¹ Gompers, Ishii, and Metrick (2003a) construct the governance index based on 24 anti-takeover provisions followed by the IRRC.

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Table 1: Summary Statistics

The sample contains 262 firm-year observations of straight bond issues by US dual-class firms over the period 1990-2005. If a firm has multiple bond issues in a given year, we combine the issues into one observation using proceeds-weighted averages of the issue characteristics. Panel A reports the sample composition across time. Panel B reports the bond issue characteristics, and Panel C reports firm characteristics. *Spread* is the number of basis points of the issue's *yield-to-maturity* over that of a comparable maturity treasury. *Rating* refers to the bond's S&P credit rating where AAA-rated bonds take on a value of 22 down to D-rated bonds with a value of 1. *Maturity* is bond issues remaining maturity in years. *Proceeds* from the bond issue are converted to 2005 dollars using the CPI and are reported in millions. *Assets* is the book value of assets in millions of dollars (Compustat data6). *Sales* is the annual sales in millions of dollars (data12). *MV_equity* is the market value of equity in millions of dollars, where the market value for dual-class firms with non-trading classes is calculated using shares outstanding from proxy statements and assuming equal prices across classes. *Assets*, *Sales* and *MV_equity* have been converted to 2005 dollars using CPI. *Leverage* is the ratio of long-term debt to assets (data9/data6). *ROA* is the income before extraordinary items over assets (data18/data6). *M_B* is the market value of equity over the book value of equity ($MV_equity/data60$). *Q* is calculated as the market value of assets ($MV_equity-data60+data6$) divided by the book value of assets. All of the above variables are measured at the fiscal year-end prior to the bond issues. *StdRet* is the annualized standard deviations of daily returns over the fiscal year prior to the bond issues.

Panel A: sample distribution by year

Issue year	number of observations	% of sample
1990	2	0.76
1991	8	3.05
1992	13	4.96
1993	16	6.11
1994	10	3.82
1995	22	8.40
1996	23	8.78
1997	25	9.54
1998	27	10.31
1999	25	9.54
2000	15	5.73
2001	22	8.40
2002	17	6.49
2003	18	6.87
2004	6	2.29
2005	13	4.96
Total	262	

Table 1, Continued

Panel B: Issue Characteristics

	N	Mean	Min	Q1	Median	Q3	Max
Spread	248	191.29	27.33	78.78	129.67	288	835
Rating	250	14	5	11	14	17	22
Maturity	251	9.81	1	7	10	10	30
Proceeds	261	718	36	156	294	571	15,652
Proceeds/Assets	258	0.15	0.001	0.04	0.08	0.16	3.01

Panel C: Firm Characteristic

	N	Mean	Min	Q1	Median	Q3	Max
Assets	259	24,282	118	1,713	3,995	12,573	342,220
Sales	259	11,495	1	726	2,177	5,622	194,359
MV_equity	256	8,537	10	756	2,572	7,676	83,538
Leverage	259	0.36	0.00	0.19	0.30	0.46	1.59
ROA	259	0.03	-0.20	0.00	0.03	0.06	0.33
StdRet	252	0.38	0.13	0.26	0.34	0.45	1.21
M_B	256	2.06	-145.42	1.35	2.36	3.43	110.73
Q	256	1.66	0.56	1.12	1.50	1.91	8.10

Table 2: Dual-Class Share Structure and Managerial Ownership

This table summarizes the managerial ownership structure for our sample. *VT* is the number of votes held by insiders divided by the total number of votes outstanding. *CF* is the number of cash-flow rights held by insiders divided by the total number of cash-flow rights outstanding. *Wedge* is the difference between *VT* and *CF* as a decimal. *V_C* is the vote-to-capital ratio, calculated as the ratio of *VT* to *CF*.

	Mean	Min	Q1	Median	Q3	Max
<i>Superior Shares</i>						
# of shares outstanding (in millions)	89	0.1	6	19	67	1,180
# of votes per share	8.93	1	1	10	10	250
% held by managers	69.29	0.00	42.17	83.61	100.00	100.00
<i>Inferior Shares</i>						
# of shares outstanding (in millions)	139	0.01	14	39	97	1,761
# of votes per share	0.84	0	1	1	1	1
% held by managers	20.07	0.00	1.61	7.76	30.97	100.00
<i>Combined Managerial Holdings</i>						
VT: % of votes held by managers	50.25	0.00	21.47	53.14	76.68	100.00
CF: % of cash-flow rights held by managers	33.27	0.04	8.97	29.37	53.32	89.46
Wedge	0.17	-0.61	0.00	0.13	0.29	0.74
<i>V_C</i>	2.18	0	1.04	1.36	2.21	28.43
(N=262)						

Table 3: Univariate Comparison of Yield Spreads

This table reports *Spread* by managerial voting and cash-flow rights. Only observations with non-missing *Spread* are included. *Spread* is the number of basis points of the issue's yield over the comparable maturity treasury. It is proceeds-weighted if a firm has multiple issues. *VT* is the managerial holdings of voting rights. *CF* is the cash-flow rights held by managers and directors. *Wedge* is the difference between managerial voting rights and their cash-flow rights ($VT - CF$). *V_C* is the vote-to-capital ratio, calculated as the ratio of managerial voting rights to their cash-flow rights (VT/CF). Number of observations is in parentheses.

Panel A: by *Wedge*

Q1 (L)	Q2	Q3	Q4 (H)
163.23 (62)	179.31 (62)	210.78 (62)	211.82 (62)

Panel B: by *V_C*

Q1 (L)	Q2	Q3	Q4 (H)
161.63 (62)	204.70 (62)	217.90 (62)	180.92 (62)

Table 4: Credit Ratings and Managerial Voting Rights and Cash-Flow Rights

This table reports the ordered probit regression of credit ratings on managerial ownership. VT (CF) is the number of votes (cash-flow rights) held by managers and directors as a fraction of all outstanding votes (cash-flow rights). VT^2 and CF^2 are the squared terms of VT and CF respectively. $Wedge$ is the difference between VT and CF . V_C is the ratio of VT and CF . $Wedge^2$ and V_C^2 are the squared terms of $Wedge$ and V_C respectively. $Lambda$ is the inverse Mill's ratio, calculated from a probit model with industry-size matching single-class issuers. $lnSales$ is the log of annual sales. $Leverage$ is the long-term debt over total assets. $StdRet$ is the annualized standard deviation of daily returns over the fiscal year prior to the bond issues. ROA is the income before extraordinary items over assets (data18/data6). M_B is the market value of equity (data25*data199) over the book value of equity (data60). $Maturity$ is the number of years bonds are outstanding. All firm characteristic variables are measured at the fiscal year-end prior to the bond issues. The dependent variable is the S&P credit ratings. Chi-square statistics are in parentheses. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VT	-1.65 (10.77)***	-4.70 (9.49)***				
VT ²		3.51 (5.92)***				
CF	2.47 (17.04)***	0.22 (0.01)				
CF ²		2.00 (0.88)				
Wedge			-1.78 (12.66)***	-1.98 (7.01)***		
Wedge ²				0.51 (0.14)		
V_C					-0.03 (1.17)	-0.25 (9.88)***
V_C ²						0.01 (8.75)***
Lambda	-0.85 (5.32)***	-1.00 (7.08)***	-1.03 (8.16)***	-1.02 (8.12)***	-1.07 (8.97)***	-0.97 (7.19)***
lnSALES	0.77 (98.93)***	0.73 (85.80)***	0.72 (95.36)***	0.72 (95.40)***	0.66 (85.24)***	0.73 (92.56)***
Leverage	-3.83 (55.09)***	-4.25 (62.16)***	-3.70 (52.51)***	-3.68 (50.93)***	-3.81 (55.60)***	-3.99 (59.80)***
StdRet	-2.29 (11.83)***	-2.72 (15.92)***	-2.42 (13.31)***	-2.44 (13.43)***	-2.41 (13.29)***	-2.41 (13.23)***
ROA	0.08 (0.00)	-0.37 (0.03)	-0.12 (0.00)	-0.05 (0.00)	0.42 (0.05)	-0.39 (0.04)
M_B	0.004 (0.52)	0.002 (0.12)	0.003 (0.36)	0.003 (0.35)	0.005 (0.72)	0.004 (0.63)
Maturity	0.01 (0.32)	0.01 (0.64)	0.007 (0.18)	0.006 (0.12)	0.01 (0.51)	0.001 (0.00)
Ind. & year Dummies	YES	YES	YES	YES	YES	YES
N	216	216	216	216	216	216
Log Likelihood	-352.03***	-345.31***	-354.27***	-354.20***	-360.06***	-355.67***

Table 5: Z-Score and Managerial Voting Rights and Cash-Flow Rights

This table reports the multivariate regression results of Altman's Z-score on managerial ownership variables. The dependent variable, Z-score, is calculated as: $Z=0.012X_1+0.014X_2+0.033X_3+0.006X_4+0.999X_5$, where X_1 is the working capital (data4 minus data5) to total assets (data6) ratio, X_2 is retained earnings over total assets (data36/data6), X_3 is EBIT (data13 minus data14) over total assets (data 6), X_4 is the market value of equity (data24 multiplied by data25) to total liabilities (data181) ratio and X_5 is the sales (data12) to total assets (data6) ratio. *VT* (*CF*) is the voting (cash-flow) rights held by managers and directors. *Wedge* is the difference between *VT* and *CF*. *V_C* is calculated as the ratio of *VT* to *CF*. *Lambda* is the Inverse Mill's ratio calculated using a group of industry-size matching single-class firms on Compustat. The coefficients of year dummies and 2-digit SIC industry dummies are omitted. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VT	-0.201 (-2.37)**	0.097 (0.34)				
VT ²		-0.299 (-1.24)				
CF	0.458 (4.45)***	0.849 (3.37)***				
CF ²		-0.392 (-1.63)				
Wedge			-0.257 (-3.06)***	-0.368 (-2.59)***		
Wedge ²				0.218 (0.97)		
V_C					-0.019 (-2.36)**	-0.040 (-2.53)**
V_C ²						0.001 (1.54)
Lambda	-0.233 (-3.51)***	-0.219 (-3.10)***	-0.218 (-3.29)***	-0.217 (-3.27)***	-0.204 (-3.09)***	-0.214 (-3.23)***
Ind. & year dummies	YES	YES	YES	YES	YES	YES
N	2,836	2,836	2,836	2,836	2,834	2,834
Adjusted R ²	0.29	0.30	0.30	0.30	0.30	0.30

Table 6: Yield Spreads and Managerial Voting Rights and Cash-Flow Rights

This table reports the regression results of *Spread* on managerial ownership. *VT* (*CF*) is the number of votes (cash-flow rights) held by managers and directors as a fraction of all outstanding votes (cash-flow rights). VT^2 and CF^2 are the squared terms of *VT* and *CF* respectively. *Wedge* is the difference between *VT* and *CF*. *V_C* is the ratio of *VT* and *CF*. $Wedge^2$ and V_C^2 are the squared terms of *Wedge* and *V_C* respectively. *Lambda* is the inverse Mill's ratio, calculated from a probit model with industry-size matching single-class issuers. *lnSales* is the log of annual sales. *Leverage* is the long-term debt over total assets (data9/data6). *StdRet* is the annualized standard deviation of daily returns over the fiscal year prior to the bond issues. *ROA* is the income before extraordinary items over assets (data18/data6). *M_B* is the market value of equity (data25*data199) over the book value of equity (data60). *Maturity* is the number of years bonds are outstanding. All firm characteristic variables are measured at the fiscal year-end prior to the bond issues. Coefficients for industry (based on 2-digit SIC codes) and year dummies are not reported. The dependent variable *Spread* is the number of basis points of the issue's yield over the comparable maturity treasury. T-statistics are in parentheses. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VT	84.20 (2.61)**	211.99 (2.11)**				
VT ²		-122.12 (-1.29)				
CF	-74.02 (-1.91)*	-253.95 (-1.97)*				
CF ²		219.06 (1.53)				
Wedge			78.15 (2.43)**	137.03 (2.82)***		
Wedge ²				-143.69 (-1.61)		
V_C					5.98 (1.38)	36.21 (2.55)**
V_C ²						-4.13 (-2.24)**
Lambda	-7.91 (-0.32)	-12.91 (-0.52)	-16.89 (-0.71)	-16.71 (-0.70)	-18.24 (-0.75)	-19.17 (-0.79)
lnSALES	-31.62 (-6.67)***	-32.53 (-6.70)***	-32.58 (-7.12)***	-33.02 (-7.22)***	-32.04 (-6.68)***	-31.46 (-6.60)***
Leverage	61.66 (1.65)	66.43 (1.74)*	58.50 (1.53)	51.72 (1.40)	67.18 (1.79)*	50.99 (1.33)
StdRet	141.71 (3.03)***	138.44 (2.93)***	127.74 (2.77)***	135.26 (2.93)***	127.37 (2.72)***	128.82 (2.76)***
ROA	-284.98 (-2.21)**	-285.77 (-2.21)**	-279.62 (-2.17)**	-301.14 (-2.33)**	-274.89 (-2.05)**	-310.97 (-2.30)**
M_B	0.56 (1.26)	0.58 (1.30)	0.62 (1.38)	0.62 (1.40)	0.63 (1.41)	0.65 (1.46)
Maturity	0.58 (0.51)	0.64 (0.56)	0.65 (0.57)	0.98 (0.85)	0.96 (0.81)	0.86 (0.72)
Orthrating	-19.69 (-4.36)***	-19.40 (-4.23)***	-18.72 (-4.17)***	-18.98 (-4.24)***	-19.44 (-4.24)***	-17.78 (-3.80)***
Junk	80.14 (2.93)***	85.32 (3.08)***	84.44 (3.08)***	80.55 (2.94)***	86.84 (3.09)***	92.68 (3.28)***
Ind.& year dummies	YES	YES	YES	YES	YES	YES
N	216	216	216	216	216	216
Adjust R ²	0.81	0.81	0.81	0.81	0.81	0.81

Table 7: Simultaneous Equation

This table reports the results of simultaneous estimation of Q, yield spread and V_C/wedge using GMM. Only dual-class firms with bond issues are included in this test (N=190). *Tobin's Q* is calculated as market value of equity plus book assets less book value of equity all divided by book assets. *Yield spread* is the number of basis points of the issue's yield spread over the comparable maturity treasury *Leverage* is the long-term debt to book assets. *V_C* is the ratio managerial voting rights to their cash flow rights. *Wedge* is equal to the difference between managerial voting rights and their cash flow rights. *lnSales* is the log of annual sales. *CAPEX* is the ratio of capital expenditure to book assets. *StdRet* is the annualized standard deviation of daily returns over the fiscal year prior to the bond issues. *Beta* is computed from a regression of monthly stock returns on the value-weighted CRSP index over the fiscal year prior to the bond issues. *ROA* is the income before extraordinary items over assets (data18/data6). All firm characteristic variables are measured at the fiscal year end prior to the bond issues. *Maturity* is the number of years bonds are outstanding. *Orthrating* is the orthogonalized S&P credit ratings. *Junk* is equal to one for non-investment bonds and zero otherwise. Coefficients on year and industry (defined by 2-digit SIC codes) dummies are not reported. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1			Model 2		
	Q	Yield spread	V C	Q	Yield spread	Wedge
Intercept	2.581 (4.79)***	286.570 (6.93)***	4.284 (6.27)***	3.905 (5.29)***	290.578 (6.86)***	0.002 (0.03)
Q		-3.834 (-0.53)	-0.828 (-6.46)***		-15.463 (-2.11)**	-0.0004 (-0.03)
Yield spread	-0.002 (-1.52)		0.001 (0.59)	-0.006 (-3.06)***		0.0003 (3.31)***
V_C	0.322 (2.45)**	2.730 (1.22)				
Wedge				0.845 (0.35)	51.298 (2.05)**	
V_C*yield	-0.001 (-1.14)					
Wedge*yield				0.009 (0.94)		
lnSales	-0.190 (-5.44)***	-28.342 (-6.68)***	0.101 (1.64)	-0.269 (-4.65)***	-27.739 (-6.63)***	0.020 (2.83)***
CAPEX	5.871 (3.65)***			1.044 (1.00)		
netPPE			-3.807 (-9.88)***			-0.140 (-4.03)***
ROA		-301.778 (-2.47)**			-140.91 (-1.41)	
BETA			0.086 (0.64)			0.004 (0.25)
StdRet		267.138 (8.05)***	-1.659 (-3.27)***		238.024 (8.58)***	-0.006 (-0.11)
Maturity		-0.689 (-1.03)			-0.591 (-0.95)	
Orthrating		-22.105 (-9.82)***			-22.117 (-11.55)***	
Leverage		44.344 (1.57)			87.902 (3.70)***	
Junk		89.809 (4.57)***			78.965 (5.69)***	
Industry & year dummies	Yes	No	No	Yes	No	No

Table 8: Leverage and Managerial Voting Rights and Cash-Flow Rights

This table reports the multivariate regression results of leverage on managerial ownership variables. The dependent variable is the long-term debt to book assets net of the industry median, where Fama-French industry classification is used to define industry. *VT* (*CF*) is the voting (cash-flow) rights held by managers and directors. *Wedge* is the difference between *VT* and *CF*. *V_C* is calculated as the ratio of *VT* to *CF*. *Lambda* is the Inverse Mill's ratio calculated using a group of industry-size matching single-class firms on Compustat. *Lnsales* is the log of annual sales. *ROA* is the income before extraordinary items over assets (data18/data6). *PPE* is net property, plant and equipment divided by book assets (data8/data6). The coefficients of year dummies and 2-digit SIC industry dummies are omitted. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VT	0.054 (2.64)***	-0.060 (-0.87)				
VT ²		0.107 (1.84)*				
CF	-0.042 (-1.73)*	-0.083 (-1.38)				
CF ²		0.039 (0.68)				
Wedge			0.051 (2.56)**	0.021 (0.62)		
Wedge ²				0.058 (1.07)		
V_C					0.001 (0.75)	-0.0004 (-0.17)
V_C ²						0.00003 (0.75)
Lambda	0.014 (0.89)	0.014 (0.87)	0.015 (0.93)	0.015 (0.93)	0.011 (0.68)	0.010 (0.64)
lnSALES	0.014 (6.19)***	0.013 (5.95)***	0.014 (6.17)***	0.014 (6.21)***	0.014 (6.31)***	0.014 (6.35)***
ROA	-0.003 (-0.50)	-0.003 (-0.48)	-0.003 (-0.46)	-0.003 (-0.48)	-0.003 (-0.45)	-0.003 (-0.47)
PPE	0.286 (11.59)***	0.288 (11.68)***	0.287 (11.64)***	0.288 (11.67)***	0.285 (11.53)***	0.283 (11.48)***
Ind. & year dummies	YES	YES	YES	YES	YES	YES
N	2922	2922	2922	2922	2922	2922
Adjusted R ²	0.22	0.22	0.22	0.22	0.22	0.22

Table 9: Cost of Equity Regression

This table reports OLS regression coefficients of the cost of equity (measured in basis points) on managerial ownership variables for sample bond issuers measured the year of the bond issue. The dependent variable is the annualized cost of equity using the Capital Asset Pricing Model, where the time-t beta is estimated using the monthly return data of the most recent 5 years (or, if there is not enough data, of at least 2 years). The market premium in the CAPM is the average annual premium over the risk-free rate (proxied by 10-year treasury rate) for the CRSP value-weighted index over the preceding 30 years. Any estimate of the CAPM cost of equity that is outside the range of 3-30% is winsorized to lie at the border of the range. *VT* (*CF*) is the voting (cash-flow) rights held by managers and directors. *Wedge* is the difference between *VT* and *CF*. *V_C* is calculated as the ratio of *VT* to *CF*. *Lambda* is the Inverse Mill's ratio calculated using a group of industry-size matching single-class firms on Compustat. *lnSales* is the log of annual sales. *Leverage* is the long-term debt over total assets. *M_B* is the market value of equity (data25*data199) over the book value of equity (data60). *Earnings Volatility* is the standard deviation of earnings before extraordinary items (data18) for the past 5 years. *Leverage* is the long-term debt over total assets. Significance at 10%, 5% and 1% levels are indicated by *, ** and ***.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VT	59.71 (3.02)***	89.44 (1.45)				
VT ²		-21.45 (-0.35)				
CF	-63.66 (-2.55)**	-185.58 (-2.39)**				
CF ²		142.61 (1.58)				
Wedge			59.92 (3.04)***	56.08 (1.69)*		
Wedge ²				9.23 (0.14)		
V_C					0.64 (0.46)	9.01 (2.91)***
V_C ²						-0.41 (-3.01)***
Lambda	-0.12 (-0.01)	-1.28 (-0.10)	0.53 (0.04)	0.80 (0.06)	-1.15 (-0.09)	-1.74 (-0.14)
lnSALES	-1.90 (-0.75)	-2.42 (-0.97)	-1.79 (-0.74)	-1.78 (-0.73)	-0.71 (-0.29)	-1.98 (-0.81)
M_B	-0.19 (-0.75)	-0.22 (-0.82)	-0.20 (-0.75)	-0.199 (-0.76)	-0.20 (-0.74)	-0.19 (-0.72)
Earnings Volatility(*10 ⁴)	37.09 (0.76)	21.60 (0.44)	38.12 (0.79)	38.40 (0.79)	2.13 (0.43)	2.54 (0.05)
Leverage	32.72 (2.11)**	33.72 (2.13)**	32.25 (2.10)**	32.49 (2.10)**	36.28 (2.32)**	36.09 (2.54)**
Intercept	351.91 (13.07)***	365.12 (12.59)***	349.41 (14.05)***	349.11 (13.96)***	350.88 (13.70)***	364.34 (13.76)***
N	217	217	217	217	217	217
R ²	0.08	0.10	0.08	0.08	0.04	0.08