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CEO Inside Debt and Firm Debt

Randy Beavers
Seattle Pacific University

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Purpose: CEO inside debt and firm debt are examined jointly to further investigate the compensation incentives on risky decision-making and the resulting financial policy decisions concerning the debt structure of the firm.

Design: Using S&P 1500 data from CRSP, Compustat, Execucomp, and Capital IQ between 2006 and 2011, statistical analysis and regression models are used to determine potential correlations between the variable of interest, inside debt, and debt control variables, including specialization.

Findings: Firms with high inside debt specialize in commercial loans and drawn credit lines. Larger firms diversify their debt holdings among commercial instruments and senior bonds. As firm size increases with inside debt, the effects are counteracted. Larger firms with high CEO inside debt have lower interest rates on these debt instruments and shorter maturities, suggesting a more conservative financing policy concerning debt.

Research Implications: Debt diversification is partially affected by compensation in the form of inside debt. Future studies of debt diversification should include CEO compensation controls.

Practical Implications: For struggling companies or for those that want to return to a conservative financial policy, they can influence the CEO to make this decision by deferring his compensation to retirement.

Originality: This paper considers debt policy through the lens of a key decision-maker, the CEO, and utilizes compensation as an incentive to determine what choices are made concerning debt.

1. Introduction

This paper extends the literature by analyzing the various components of a firm's total debt and the new data on CEO's compensation structure in the United States from 2006 to 2011. Specifically, using Capital IQ, this paper breaks down the specific components of short-term and long-term debt to determine what types of debt instruments are preferred among CEOs with greater incentives to cater to debt holders. Doing so provides greater insight into how CEO incentives affect important financial policy decisions, such as specialization, maturity, and yields. New empirical research demonstrates imprinting theory (the founder-CEO sets initial policies) is especially true for debt policies but changes with new CEOs (Hanssens et al. (2016)); thus, we should look to the CEO and his or her incentives and the implications of this on financial policies. These new data provide opportunities to address several different empirical questions related to compensation incentives. Does inside debt lead to firm debt diversification or firm debt specialization? In the presence of inside debt, is short-term debt or long-term debt used more? How does inside debt relate to debt holder concerns over yield and maturity? Answering these questions is essential to fully understanding the financial policy implications of incentivizing a CEO with more inside debt.

First, inside debt is analyzed as another supply-side factor of debt specialization since firms have to compensate staff, especially the CEO, for their use of human capital. Using the Herfindahl-Hirschman index of type usage, firms who pay the CEO with more inside debt tend to specialize the firm's capital structure more often than other firms do. This is especially true for firms with 90% or more of their debt structure based on a specific class of debt. However, when the interaction between inside debt and firm size (a proxy for information asymmetry) is considered, larger firms with larger amounts of CEO inside debt diversify their debt holdings.

Second, we examine the relationships between inside debt and the various components of total debt. Firms with high CEO inside debt are more likely to use commercial paper, senior bonds, and commercial loans; have a higher percentage of debt from drawn credit lines, and have a lower percentage of term loans; however, larger firms with high CEO inside debt are less likely to use commercial paper and senior bonds, have a lower percentage of debt from drawn credit lines and commercial loans, and have a higher percentage of debt from term loans.

Finally, specific components of debt important to debt holders, namely, interest rates and maturity, are considered. Since higher inside debt compensation is associated with lower levels of CEO risk-seeking behavior (Cassell et al., 2012), CEO's with higher debt compensation might be expected to make bonds less risky and thus warranting a lower rate. However, after controlling for factors related to bankruptcy, such as profitability and cash flow volatility, we find firms with higher inside debt tend to reward debt holders, on average, with higher interest rates and longer issue maturities. Higher inside debt, especially above the firm's debt-to-equity ratio, incentivizes the CEO to cater more to the needs and desires of debt holders through higher interest payments, just as shareholders prefer higher dividends. In addition, longer maturities are preferred for investors concerned about retirement. Similarly, Sundaram and Yermack (2007) find CEOs with higher inside debt are also concerned with longer time horizons. However, the effect is the opposite for larger firms with large CEO inside debt holdings. One explanation for this can be asymmetry. In smaller firms, the issuance of long-term securities is more of a signal of sustainability, and this signal is more believable the more inside debt the CEO has, whereas in larger firms the long-term sustainability of the firm is less of a concern; thus, there is no need to signal and thus the CEO makes conservative safe decisions.

This paper contributes to the literature in several ways. First, we provide another variable to consider with supply-side effect analysis of debt specialization with inside debt. Second, we provide a benchmark for future analysis of specific debt instruments left unexplored, including total trust-preferred stock, a component of "other" debt. Third, we demonstrate structures of inside debt and firm debt are interrelated. Finally, the evidence here provides regulatory authorities with further evidence on how CEO inside debt affects financial decision-making.

The remainder of the paper is organized as follows. Section 2 describes the characteristics of debt, both for the firm and CEO, in the context of the United States. Section 3 provides a theoretical framework, leading to an empirical literature review and hypotheses development in Section 4. Section 5 describes the research design implemented to provide findings, which are discussed in detail in Section 6. Section 7 summarizes and concludes.

2. CEO inside debt, firm debt and executive compensation

Firm capital structure and Chief Executive Officer (CEO) compensation structure have been of interest to academicians and regulators for years. Until recently, capital structure has been analyzed in the context of *total* debt and *total* equity. However, the Capital IQ database, starting in 2001, provides details of debt capital structure, such as types and term structures of debt instruments. New studies by Rauh (2006) and Colla et al. (2013) introduce the use of the new and comprehensive Capital IQ database to breakdown the components of total debt, into commercial paper, drawn credit lines, senior and subordinated bonds and notes, term loans, and capital leases. Firms who debt specialize have higher bankruptcy costs, are less transparent, and lack access to debt markets. However, their work did not include consideration of CEO compensation incentives, which could influence decision-making on financial policies.

Only recently has the literature on executive compensation expanded from primarily stocks and stock options to include the overall compensation structure; specifically, it has started to analyze CEO inside debt holdings, defined as pensions and deferred payments. For example, Sundaram and Yermack (2007) use IRS filings for pension data. Starting in 2006, Execucomp provides new details about executive compensation after the enactment of Securities and Exchange Commission (SEC) Regulation S-K, which mandated improved compensation disclosures on proxy statements Cassell et al. (2012) show how to use this new data to calculate measures of CEO inside debt.

Lastly, we chose the United States for this study not just because all of the data were available to test debt specialization and agency theory jointly but the United States corporate debt market is the largest and deepest in the world. Also, 80% of businesses in the United States obtain their debt financing domestically (Brandon et al., 2017). These environmental statistics combined with the new data provide a rich environment for theoretical research development and empirically testing our hypotheses.

3. Theoretical framework

This greater insight into firm capital structure can also provide additional insight into CEO compensation structure since modeling executive compensation similar to the firm's financing of assets with debt and equity has important implications for the alignment of manager incentives with stakeholders (Jensen and Meckling, 1976). Agency theory describes principals and agents have different ideas, including varying levels of risk tolerance, due to the separation of ownership and control. In order to mitigate these issues, firms should match debt and equity incentives of the firm and CEO in order to mitigate agency costs (Agrawal and Mandelker, 1987, Barnea et al., 1980). They argue agency cost of debt could be eliminated if the CEO's

compensation contract is set so his debt to equity ratio equals the debt to equity ratio of the firm so the owner-manager has no incentive to favor either security holder. However, inside debt above the optimal level will incentivize management to cater more to debt holder interests at the expense of shareholders. This is the classical moral hazard argument and issue of executive compensation. CEOs may create credit default swaps on their pension obligations to ensure their claims are senior, and the lenders may subordinate in the case of default. This also introduces the agency cost of adverse selection.

Similarly, greater long-term debt in the CEO's compensation contract should lead to more conservative debt choices for the firm. Edmans and Liu (2011) argue long-term debt is more expensive over time and thus more short-term debt will be preferred to maintain a lower probability of default for the firm. They find as a manager's debt-to-equity ratio relative to the firm's debt-to-equity ratio decreases, firm risk increases.

4. Empirical literature review and hypotheses development

Debt heterogeneity can provide additional understanding of the firm's capital structure and previous literature demonstrates this. For example, Rauh and Sufi (2010) find low-credit-quality firms are more likely to use debt with various types of covenants. Rauh and Sufi (2012) find the capital structure of other firms producing similar output is related to assets used in the production process. Colla et al. (2013) find debt diversification occurs for large rated firms, but small, unrated firms tend to specialize. Hackbarth and Mauer (2012) find financially unconstrained firms with few growth opportunities prefer senior debt, but constrained firms, irrespective of growth opportunities, prefer junior debt; lower-rated firms diversify across debt classes. Since firms with high CEO inside debt are larger, older, and unconstrained firms (Sundaram and Yermack, 2007), these firms are expected to engage in debt diversification.

H1a: There is a negative relationship between CEO inside debt and firm debt specialization.

Conversely, a different perspective considers the safer financing decisions of a CEO paid with inside debt (Cassell et al., 2012). However, they control for just the debt-to-equity ratio without exploring the various types of debt. Sundaram and Yermack (2007) find inside debt increases as CEOs age, and higher inside debt incentivizes CEOs to manage firms more conservatively. Rauh (2006) finds firms with large pension obligations are financially constrained and invest less. Thus, prior literature reveals CEO compensation incentives affect firm investment and firm risk. Engaging in debt diversification involves many credit holders, which increases agency costs. Thus, the CEO would opt to choose fewer agents to prevent increasing the agency cost of debt (Jensen and Meckling, 1976). Kabir, Li, and Veld-Merkoulova (2013) find evidence suggesting defined benefit pension plans reduce borrowing costs, but executive compensation with stocks increases borrowing costs. Moreover, conflicts of interest among many different debt holders can affect capital structure depending on the various claimants and their seniority. In addition, the free-rider concern (Holmstrom, 1982) also makes having multiple creditors challenging.

H1b: There is a positive relationship between CEO inside debt and firm debt specialization.

Cassell et al. (2012) find large CEO inside debt holdings are negatively associated with risky investing and financial policies at the balance sheet level. They argue CEOs want to reduce bankruptcy risk to preserve firm value. However, value can be skewed toward debt holders. Liu et al. (2014) find CEO inside debt is positively associated with firm cash holdings. They find this relationship deteriorates during credit events, and the overall cash value declines as CEO inside debt increases. In sum, these findings reveal CEO inside debt can have significant effects on the firm's balance sheet. High inside debt firms have loans characterized by lower interest rates and fewer covenants (Anantharaman et al., 2013). Other debt instruments have this same characteristic,

assuming the security and in this case, the compensation, are truly debt-like (Anantharaman and Lee, 2014).

H2a: There is a negative relationship between inside debt and issue interest rates.

Alternatively, paying the CEO with relatively more debt than equity will incentivize him to cater to debt holders at the expense of shareholders (Jensen and Meckling, 1976; Edmans and Liu, 2011). This catering could increase debt interest payments, lowering net income and payouts to shareholders. In addition, higher interest rates mean a lower price on debt for investors due to the discounted present value of cash flows and additional riskiness of receiving cash flows from higher interest payments.

H2b: There is a positive relationship between inside debt and issue interest rates.

Paying the CEO with relatively more debt than equity will incentivize him to cater to debt holders at the expense of shareholders (Jensen and Meckling, 1976; Edmans and Liu, 2011). This catering would increase debt interest payments, lowering net income and payouts to shareholders. In addition, short-term debt is believed to be an important monitoring mechanism for lenders to protect against expropriation by stockholders; therefore, it has the potential to mitigate the agency costs arising from stockholder-debtholder conflicts from information asymmetry, managerial risk incentives, and foregone growth opportunities (Barnea, Haugen, and Senbet 1980, Brockman, Martin, and Unlu 2010). As CEO inside debt mitigates stockholder-debtholder conflicts and the likelihood of debtholders being expropriated, the need for short-term debt could go down, leading to a lengthening of issue maturities.

H3a: There is a negative relationship between inside debt and issue maturities.

However, CEOs with higher levels of inside debt are conflicted: CEOs are incentivized to cater more towards debt holders who are concerned about credit risk and bankruptcy, but CEOs have

compensation contingent on firm performance. From the lender viewpoint, a firm with more debt and higher seniority ranking of CEO pay makes the company a more risky prospect, since CEO inside debt compensation is relatively smaller in value than an outside debt instrument, but the seniority ranking of the inside debt may be an issue for potential lenders (Anantharaman et al., 2013). Therefore, a contract with more debt may arise from the firm's standpoint through the channel of longer maturities; i.e., the firm pays a longer period to compensate the lender for additional risk.

Hypothesis 3b: There is a positive relationship between inside debt and issue maturities.

5. Research design

Debt data comes from Capital IQ. Financial information is from The Center for Research in Security Prices (CRSP) and Compustat. Executive compensation data comes from ExecuComp. Financials and utilities are excluded from the analysis due to major differences in government regulation from other companies. After removing observations with no data either for company debt compensation or for inside debt information, the constraints yield 3,725 observations for six years for 1,019 firms. Data construction details are provided in Appendix C. Full details of variable definitions are provided in the Appendix A.

This paper follows Cassell et al. (2012) and defines four measures of CEO inside debt. The first is CEO relative debt-to-equity [CEO RDE], which is the natural log of the CEO's inside debt to the firm's debt, where the CEO has debt in the form of pension benefits and deferred compensation and equity in the form of stock and stock options. Let us define inside debt holdings as IDH, equity holdings as EH, firm debt as FD, and firm equity as FE. This is equal to [(CEO IDH / CEO EH)/(FD / FE)], where CEO IDH is the aggregated present value of pension benefits and deferred (long-term) compensation, CEO EH is the value of stock (year-ending market capitalization) and stock

options (valued using Black-Scholes (1973)), FD is total current liabilities and long-term debt, and FE is the reported stockholders' equity. This variable measures the ratio of the CEO's compensation structure to the firm's capital structure. The second measure of CEO inside debt is an indicator variable if [CEO RDE > 1], which indicates if the firm has aligned interests more in favor of the debt holders rather than the stockholders.

The other two inside debt variables involve CEO incentives. We calculate the CEO relative incentive ratio [CEO RIR] using the same methodology for [CEO RDE] except the option value is calculated using Black-Scholes (1973) delta valuations for each type of option (exercised, unexercised, exercisable, and unexercised unexercisable). We also calculate FE using employee options and the average exercise price. This measure indicates how option incentives affect both the CEO and employees. The final inside debt variable uses [CEO RIR] but adjusts for future cash compensation, called the CEO relative incentive ratio cash-adjusted [CEO RIRCA]. This may affect the CEO's decision in whether or not to exercise his options. [CEO RIRCA] is calculated using the CEO expected decision horizon, which takes differences between the industry medians of tenure and age and sums them together. If this is equal or less than zero, the cash compensation for the current fiscal year is used. Otherwise, the cash compensation is multiplied by the expected decision horizon and added to the deferred compensation and pension values.

The debt variables from Capital IQ follow Colla et al. (2013). The seven types of debt considered are commercial paper (CP), drawn credit lines (DC), term loans (TL), bonds and notes broken into categories of senior (SBN) and subordinated (SUB), capital leases (CL), and other debt including total trust-preferred stock (OTHER). Note other types of debt, including undrawn credit lines, are unavailable or are lumped together in the (OTHER) category. Using the relative percentages of each debt type to total debt, we calculate (EXCL90), which is an indicator variable if a firm has

more than 90% of debt in one type, and (HHI), which is the Herfindahl-Hirschman Index of debt type usage. Unlike Colla et al. (2013), we do not use the total adjustment variable due to incompatibility in comparisons with Capital IQ and Compustat. For example, we took a random sample of three companies to determine how to adjust debt to yield total debt. In two of the three cases, ten worked, but another case required 100,000. Thus, to avoid over manipulating and inputting data, we use totals found in Capital IQ to calculate necessary variables and values from Compustat to compute financial and compensation variables. Other variables calculated from Capital IQ include interest, defined as the natural log of the weighted average interest rate at issuance on all debt issues for each fiscal year, and maturity, defined as the natural log of the weighted average length of time to maturity at issuance on all debt issues for each fiscal year.

This paper follows Colla et al. (2013) and define the following controls for supply-side factors. (Profitability) is operating income before depreciation scaled by total assets. (Tangibility) is net property, plant, and equipment scaled by total assets. (MB) is the market value of equity (stock price at the end of the fiscal year multiplied by common shares outstanding) plus the market value of debt (sum of debt in current liabilities, long-term debt, and preferred stock liquidating value less deferred taxes and investment tax credit) scaled by total assets. (Size) is the natural log of total assets. (Dividend Payer) indicates if a firm has positive common stock dividends. (RD expenses) is defined as research and development expenses scaled by total assets. (Unrated) indicates if the firm is not rated by Standard & Poor's (S&P). (CF volatility) is the standard deviation of quarterly operating income over the previous 12 quarters scaled by total assets. To prevent the influence of outliers, all inside debt variables and (CF volatility) are Winsorized by 1% at both tails. Summary statistics are provided in Table 1.

Comparing the sample to Colla et al. (2013), we find the sample has slightly higher percentages of (HHI) and (EXCL90). This may be due to historically low interest rates in the United States during the time period studied. As reported in Table 1 Panel A, dividend-paying firms occur almost twice as often in our sample (66% vs. 34%). This is due to more firms paying dividends after the crisis. Measures of tangibility and market-to-book are slightly lower than their sample due to lower stock market valuations after the recession. Percentages of commercial paper, drawn credit lines and other debt are higher in the sample, whereas term loans, subordinated bonds and notes, and commercial loans are slightly lower than their sample. Comparing the inside debt variables to Cassell et al. (2012), whose sample is in the midst of the financial crisis from 2006 to 2008, we find the inside debt variables have lower means and medians. High compensation concerns and record drops in the stock market during the sample period may explain these lower figures. Twenty-eight percent of the sample has inside debt at a level above the theoretical optimum (CEO RDE > 1).

Table 1 Panel B shows differences in firms with high or low CEO inside debt as defined by CEO RDE > 1 or CEO RDE < 1, respectively. Firms with high CEO inside debt use more commercial paper, senior bonds, credit lines, and other debt. Firms with low CEO inside debt use more term loans and subordinated bonds. Firms with high CEO inside debt have lower maturities than low CEO inside debt firms. Low CEO inside debt firms are more likely to be unrated than high CEO inside debt firms. High CEO inside debt firms are characterized by higher profitability, tangibility, market-to-book, and size relative to low CEO inside debt firms. High CEO inside debt firms pay a dividend more often than low CEO inside debt firms. Panel C explores differences in medians and demonstrates similar results.

Table 1 Panel D provides correlations between the variables of interest and the other dependent variables and controls. Three of the four variables of interest are significantly positively correlated at the 5% level with debt diversification. Since CEO RDE > 1 represents a structural break and an extreme level of inside debt, note the signs are the opposite for this inside debt variable of interest with the others in terms of relationships with some of the controls and other dependent variables. High levels of inside debt will lead to more extreme financing decisions during times of duress (Lee and Shen (2016)). The variables of interest are all significantly positively associated with each other, as should be expected. Panel E provides Spearman correlations. The data here only represent observations containing interest rate information. Similar results hold except for some loss of significance with CEO RDE > 1.

To compare further the results with Colla et al. (2013), we replicate their Table 8 (available in Appendix B), in Table 2 here. They regress supply-side factors on the debt specialization variables of interest (HHI and EXCL90). Similar to their results, this paper finds size is negative and significant. We find market-to-book is only significant in the first three models. R&D expenses is positive and significant in this analysis. Differing results may be due to a lack of a constant in their models, which this paper includes in all the specifications, and the sample periods are different. The sample includes years just before, during, and after the Great Recession.

$$(1) HHI \text{ or } EXCL90$$

$$= Intercept + Size_{t-1} + \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1}$$

$$+ Tangibility_{t-1} + CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1}$$

$$+ Book\ Leverage_{t-1} + Industry\ Dummies + Year\ Dummies + \varepsilon$$

For the following results in Section 3, all models include year and industry fixed effects at the 2-digit Standard Industrial Classification (SIC) level. Firm-clustered standard errors robust to heteroscedasticity are included below all coefficients. All independent variables are lagged to reduce endogeneity concerns. Tobit models are double-censored, i.e., there is a lower limit set to zero and an upper bound set to one for all proportional variables of interest and HHI. The next section details analysis of inside debt and specialization using the measures of Colla et al. (2013). Then, we break down the HHI into its seven components for individual analysis of each debt type. Finally, we conclude with analysis on the associations between inside debt and debt characteristics of interest rates and maturity.

6. Empirical findings and discussion

After analyzing the original specification of (Colla et. al, 2013) in Table 2, now we introduce a control for CEO inside debt in the regressions in Table 3. Three of the four measures of inside debt are positive and statistically significant in their specifications. Six of the models have significance at the 1% level. Thus, firms with higher CEO inside debt specialize their debt structures. Larger firms tend to diversify debt, which confirms previous findings (Colla et. al, 2013). Market-to-book is significant only in the Tobit regressions. RD Expenses, Unrated, and Book Leverage have statistically significant coefficients consistent with previous literature.
All models also include an interaction term between the inside debt variable of interest and size, a proxy for information asymmetry. In six of the eight models, we find a negative coefficient and statistical significance at the 1% level. This suggests larger firms with large CEO inside debt holdings diversify their debt instruments, which is consistent with H1a. The negative sign suggests firm size diminishes the RDE effect; thus, the CEO inside debt incentive is most

effective in smaller firms. Thus, agency costs are reduced through debt diversification in larger firms but exacerbated through debt specialization in smaller firms.

$$(2) HHI\ or\ EXCL90$$
$$= Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1}$$
$$+ \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$
$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$
$$+ Industry\ Dummies + Year\ Dummies$$
$$+ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE$$
$$> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Table 4 analyzes commercial paper usage. Interestingly, in Model 1 we find firms who pay their CEOs above the optimal ratio of one use a higher percentage of commercial paper. Also in Model 2, we find the interaction term between inside debt and firm size is negative, suggesting larger firms who pay the CEO well above the optimal ratio use a lower percentage of commercial paper. Models 3 and 4 show the opposite. This suggests a conservative debt policy unless the CEO is incentivized to cater more to credit holders. CEOs with a high vega-to-delta ratio have a negative association with commercial paper usage. Larger firms with a higher market-to-book ratio and higher profitability use more commercial paper. Also, dividend payers use more commercial paper. Firms with higher cash flow volatility or are unrated use a lower percentage of commercial paper.

$$(3) PerCP = Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} + \frac{M}{B}_{t-1}$$
$$+ Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$
$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$
$$+ Industry\ Dummies + Year\ Dummies$$
$$+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE$$
$$> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Models 5 through 8 analyze the likelihood of using commercial paper. Larger firms with higher inside debt have a higher likelihood of using commercial paper, but the interaction between inside debt and size is negative, suggesting information asymmetry mitigates this effect which is consistent with H1a. Concerning the other controls, similar coefficients and significance are found in the other models.

$$(4) CP = Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} + \frac{M}{B}_{t-1}$$
$$+ Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$
$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$
$$+ Industry\ Dummies + Year\ Dummies$$
$$+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE$$
$$> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Table 5 investigates drawn credit lines. Models 1 and 2 show significance at the 1% level for firm size, suggesting larger firms use a lower percentage of drawn credit lines. According to Models 3 and 4, firms with higher inside debt incentives use a higher percentage of drawn credit

lines. Larger firms use less drawn credit, and the interaction between size and inside debt is negative. Firms with higher R&D and leverage use a lower percentage of drawn credit. Unrated firms use more drawn credit. Models 5 through 8 show little significance with respect to the likelihood of drawn credit. Similar results occur only for size and R&D. Thus, larger firms with higher inside debt demonstrate conservatism through less drawn credit, which is consistent with H1a.

$$(5) PerDC \text{ or } DC = Intercept + VOI + Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} + \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1} + CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1} + Industry\ Dummies + Year\ Dummies + \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE > 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Table 6 provides regressions for term loans. The first four models demonstrate a negative and statistically significant relationship between term loan usage and inside debt. The interaction between inside debt and size is positive and significant in all regressions, suggesting asymmetric information leads firm to have a higher percentage of term loans, consistent with H1b. Dividend non-payers with a lower market-to-book ratio, higher profitability, and higher leverage use more term loans. Besides firm size and CEO inside debt, the controls in Models 5 through 8 for the likelihood of term loans is similar in size and significance. Thus, larger firms with larger CEO inside debt holdings use a higher percentage of term loans, again suggesting a more conservative

debt policy as firm size increases. However, CEO inside debt has more of a role in smaller firms than in larger firms.

$$(6) PerTL \text{ or } TL = Intercept + VOI + Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} + \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1} + CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1} + Industry\ Dummies + Year\ Dummies + \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE > 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Table 7 analyzes bond usage. Panel A reports results for senior bonds. Model 1 shows a positive significant relationship between the percentage of subordinated bonds and firm size at the 1% level. Model 2 shows a negative and significant coefficient for firms who pay CEOs a portion of inside debt above the optimal ratio. Larger firms also use a higher proportion of senior bonds. The interaction term yields a negative result, suggesting information asymmetry leads to a lower usage of senior bonds. Models 3 and 4 demonstrate the opposite with respect to inside debt levels. Larger firms who pay dividends, have high R&D and leverage, and are rated use more senior bonds. With respect to the likelihood of using senior bonds in Models 5 through 8, three of the four inside debt variables are positive and significant, which is consistent with H1b. The interaction term for size and inside debt is negative and significant, once again suggesting conservatism through a lower usage of senior bonds. The controls are statistically significant with the same sign across all models. Thus, a lower likelihood and usage of senior bonds is demonstrated for larger firms who pay the CEO with a disproportionate amount of inside debt.

$$(7) PerSBN \text{ or } SBN$$

$$= Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1}$$

$$+ \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$

$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$

$$+ Industry\ Dummies + Year\ Dummies$$

$$+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE$$

$$> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Panel B provides results for subordinated bonds. With respect to inside debt and size, there are no statistically significant results. From the controls, we find unrated non-dividend payers with a lower market-to-book ratio and higher R&D and leverage have a higher percentage and likelihood of subordinated bonds, suggesting a capital structure heavily using debt.

$$(8) PerSUB \text{ or } SUB$$

$$= Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1}$$

$$+ \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$

$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$

$$+ Industry\ Dummies + Year\ Dummies$$

$$+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE$$

$$> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Table 8 provides analysis of commercial loans. Models 1 and 2 show no significance among CEO RDE, firm size, and their interaction, respectively. CEO RIR and CEO RIRCA are positive

and statistically significant in Models 3 and 4, respectively. The interaction term between these inside debt variables and size is negative and statistically significant, suggesting asymmetric information leads larger firms with high inside debt to use a lower percentage of commercial loans. Non-dividend payers with low profitability and low cash flow volatility use more commercial loans. Thus, a conservative debt policy emerges through using fewer loans.

$$
\begin{aligned}
(9) PerCL\ or\ CL \\
&= Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} \\
&+ \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1} \\
&+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1} \\
&+ Industry\ Dummies + Year\ Dummies \\
&+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE \\
&> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}
\end{aligned}
$$

Two other topics of interest related to debt instruments are interest rates and maturity. We discuss these separately, but a paper by Dang and Phan (2016) jointly finds inside debt has a positive effect on short-term debt maturity and cost. Note, we take the weighted average cost and duration for interest and maturity, respectively, so the calculation and implementation may lead to varying results. Table 9 provides results concerning debt interest rates. Due to the lack of interest rate data available in Capital IQ, the data for this regression is 80% smaller when compared to the previous models. Model 1 has no significance among CEO RDE, firm size, and their interaction, respectively. In Model 2, for firms who pay their CEOs with more debt than what is theoretically optimal (CEO RDE > 1), we find a significant positive association with higher interest rates at a 5% level. A statistically weaker result at the 10% level is demonstrated

with CEO RIR and CEO RIRCA in Models 3 and 4, respectively. The interaction between inside debt and size is negative and significant in three models, suggesting larger firms who incentivize CEOs with relatively more inside debt have a lower weighted average cost of debt capital. Thus, the agency cost of debt through the channel of interest rates is reduced through higher inside debt, which confirms Dang and Phan (2016). Firms with a high market-to-book ratio, lower profitability, and lower cash flow volatility have higher interest rates. We further ensure ordinary least squares (OLS) is a satisfactory model by testing variance inflation factors. None of the variables in the models had a VIF above 10, the threshold of concern, with the highest values ranging from 5.83 to 8.75.

$$(10) Interest = Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} + \frac{M}{B}_{t-1}$$
$$+ Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1}$$
$$+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1}$$
$$+ Industry\ Dummies + Year\ Dummies$$
$$+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE > 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}$$

Maturity is analyzed in Table 10. Note, leverage and maturity are jointly determined (Johnson, 2003; Billett et al., 2007). Since the inside debt variables contain a component of leverage in the denominator of their calculations, these tests and results should be considered for association, not causation. Models 1 and 2 show a significant negative relationship between average debt maturity and firm size at the 5% level. We find higher inside debt is positively related to higher maturity of debt issues in Models 3 and 4 with CEO RIR and CEO RIRCA, respectively. This effect is significant at the 1% level for the level of inside debt incentives after adjusting for cash

compensation, and it is significant at the 5% level for inside debt incentives only. Thus, firms with higher inside debt are more likely to have longer maturity on their debt issues. Thus, we conclude CEOs paid with higher amounts of inside debt cater, on average, to debt holders through the channels of yield and maturity. However, once one considers size, the effect is mitigated. Size is negative and significant at the 5% level in all specifications. Thus, we find agency costs are reduced through the channel of maturity in large firms, similar to Dang and Phan (2016), and exacerbated in small firms. We test the variance inflation factors (VIFs) for multicollinearity issues in the models and find the highest VIFs are 5.9 and 4.35, respectively, after excluding industry controls. Some industry controls had high VIFs due to only a few firms representing those specific industries. Models 3 and 4 show the interaction between inside debt and size is negative and significant, suggesting firms with higher asymmetric information utilize it to achieve shorter maturities on the debt portion of their capital structure. Unrated firms with lower R&D and lower leverage have longer maturities. We again test for multicollinearity with VIF. One can also use the inverse of the VIF, and in these models we found none below the threshold concern of 0.1. The lowest was 0.17.

$$
\begin{aligned}
(11) Maturity \\
&= Intercept + VOI + \ Size_{t-1} + VOI * Size_{t-1} + CEO\ Vega/Delta_{t-1} \\
&+ \frac{M}{B}_{t-1} + Profitability_{t-1} + Dividend\ Payer_{t-1} + Tangibility_{t-1} \\
&+ CF\ Volatility_{t-1} + R\&D\ Expense_{t-1} + Unrated_{t-1} + Book\ Leverage_{t-1} \\
&+ Industry\ Dummies + Year\ Dummies \\
&+ \ \varepsilon, where\ VOI\ are\ the\ Variables\ of\ Interest: CEO\ RDE_{t-1}, CEO\ RDE \\
&> 1_{t-1}, CEO\ RIR_{t-1}, OR\ CEO\ RIRCA_{t-1}
\end{aligned}
$$

Cassell et al. (2012) and Cen (2011) test for the endogeneity of inside debt using IVs such as industry medians of inside debt, tax status, executive personal wealth, and state tax rate. We run instrumental variable (IV) regressions for Table 2. In the first stage, we include the industry median of inside debt, CEO age, an indicator if the CEO is new, total assets, market-to-book ratio, an indicator if the firm has a positive tax carry-forward, and the state tax rate. We then use the predicted value of the inside debt variables in the second stage where all controls are used. In unreported results, we are unable to reject the null from the Wald test of exogeneity, suggesting the previous models are preferred over IV regressions. We also use panel techniques to show the results are further robust to model specification. In unreported results, we use Tobit and Probit random effects and OLS fixed effects and find similar results to the main findings.

With respect to size, we also tested to see if any effects changed if a size dummy, indicating if the firm were in the top half of size, affected the results. Over all of the models, none of the effects changed. The size dummy had the opposite sign for all inside debt variables, and the interaction term further mitigated the inside debt effect. We also tested baseline models without the interaction term and found similar results.

Another concern is the calculation of the inside debt ratio. Is the CEO leverage or firm leverage driving the results? In unreported results, we test all regressions by including a leverage indicator if it is greater than one. Only one model has both CEO RDE > 1 and Leverage > 1 as significant, but the magnitude, direction, and significance are the same for both. For a more detailed piece concerning the negative association between inside debt and firm leverage, see Brisker and Wang (2017).

7. Summary and conclusion

Both CEO compensation structure and firm capital structure are important factors in other firm decisions. Companies who pay CEOs later specialize their debt holdings. They hold relatively higher percentages of drawn credit lines and commercial loans relative to total debt. They have lower percentages of term loans and senior bonds. If CEO RDE > 1, they hold higher percentages in commercial paper and senior bonds. Firms with CEO RDE > 1 are more likely to hold senior bonds. As inside debt increases, firms are more likely to hold commercial paper and commercial loans, but less likely to hold term loans and senior bonds. As inside debt increases, interest rates increase, and maturities become longer. As firm size increases, the effects of inside debt are counteracted. Larger firms are more likely to diversify their debt holdings. They are more likely to use commercial paper and loans, senior bonds, and term loans. They have higher percentages of commercial paper, but lower percentages of drawn credit lines and term loans. Overall, larger firms have debt with shorter maturities. As firm size increases and inside debt increases, these firms diversify their debt holdings. They have higher percentages of commercial paper, term loans, and senior bonds, but lower percentages of drawn credit lines and commercial loans. Larger firms with high inside debt are less likely to hold commercial paper and senior bonds. If CEO RDE > 1, they hold a lower percentage of commercial paper and senior bonds. Thus, inside debt in large firms reduce agency costs by reducing risk; large inside debt in smaller firms can exacerbate problems.

We find size is still an important determinant in the firm's current and future financial health. The larger the firm, the more likely it will be to survive, especially given the current environment of "too big to fail" in certain countries, like the United States. For small to mid-sized companies, inside debt plays a role in lowering risky decisions CEOs make, including financing decisions. With respect to both compensation and financing policy, companies should look to diversify both,

if possible. However, the firm should balance compensation with the target debt-to-equity ratio of the firm; otherwise, the CEO will be tempted to align his interests more so with whomever he has more compensation incentives. More inside debt will incentivize her to be more lenient with bondholders interests, who are interested in timely interest payments and/or longer guaranteed maturities; more stocks and options will incentivize her to be more lenient with shareholders, who are interested in higher dividends. Aligning compensation and financing policy will reduce agency conflict between management and credit holders and management and shareholders.

We acknowledge the study has three major limitations. First, inside debt was not available from 2001 to 2005. Another potential study could look at other forms of compensation, such as long-term incentive plans, to see how compensation affected financial policy in the years before the major compensation disclosure requirement occurred. See Beavers (2017) for sample variable construction and consideration. Second, this study only focuses on the United States. Recent research has shown debt specialization occurs in Pakistan (Khan et al. (2016)) and financial reform increases debt specialization in India (Jadiyappa et al. (2016)), but more work can be done in linking this to executive compensation. Other regulatory environments may provide various results due to different incentive structures and rules regarding debt issuances. This is also another potential avenue for future research. Last, this study occurred during a unique period when the interest rate environment was low. What would occur if the interest rate environment were high in nature? Other studies could research this question from a past perspective or in economies where interest rates are in the double digits. Another interesting perspective would be to consider economies or periods when inflation is high to see if CEOs with high inside debt make similar decisions aligned with bondholder interests or if they modify their behavior.

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Appendix A: Variable Definitions

HHI	Herfindahl-Hirschman index of debt type usage
EXCL90	Colla et al. (2013) indicator if a firm has more than 90% of debt in one type
CP	Commercial paper
DC	Drawn credit line
TL	Term loans
SBN	Senior bonds and notes
SUB	Subordinated bonds and notes
CL	Capital leases
OTHER	Other debt and total trust-preferred stock
PERCP	Percentage of commercial paper used by the firm
PERDC	Percentage of drawn credit line used by the firm
PERTL	Percentage of term loans used by the firm
PERSBN	Percentage of senior bonds and notes used by the firm
PERSUB	Percentage of subordinated bonds and notes used by the firm
PERCL	Percentage of capital leases used by the firm
PEROTHER	Percentage of other debt and total trust-preferred stock used by the firm
INTEREST	Natural log of the weighted average interest rate on all debt issues
MATURITY	Natural log of the weighted average length of time to maturity on all debt issues
CEO RDE	Natural log of the CEO's inside debt to the firm's debt established by Cassell et al. (2012), where the CEO has debt in the form of pension benefits and deferred compensation and equity in the form of stock and stock options (valued by Black-Scholes (1973) and the firm has current liabilities and long-term debt and equity valued as the total number of common shares outstanding multiplied by the current market price at the end of the fiscal-year
CEO RDE > 1	Indicator if CEO RDE is greater than 1, suggesting the CEO's compensation structure is geared more toward debt relative to the overall capital structure of the firm
CEO RIR	$\frac{pension_{value_{tot}} + defer\_balance_{tot}}{shrown_{excl_{opts}} * prccf + \sum_1^3 delta_i * \ option\ type_i} \Big/ \frac{dltt + dlc}{optosey * optprcby}$ Natural log of the CEO relative incentive ratio established by Wei and Yermack (2011), where the CEO has debt in the form of pension benefits and deferred compensation and equity in the form of stock and stock

	options (valued according to option delta by exercisability tranches using Black-Scholes (1973)) and the firm has current and long-term debt and equity options (valued by total employee options, the average outstanding exercise price, and assumed expiration of 4 years). I = 1 to 3 for each type of option (exercised, unexercised exercisable, and unexercised unexercisable), optosey is the total number of employee options, and optprcby is the average exercise price.
CEO RIRCA	CEO RIR adjusted to include the present value of expected future cash compensation, which is computed by estimating the CEO expected decision horizon (Industry median tenure – CEO tenure + industry median age – CEO age) x the current level of cash compensation, with pensions and deferred compensation as inside debt
Profitability	Operating income before depreciation / total assets
Tangibility	Net property, plant, and equipment / total assets
M/B	(Stock price x Common shares used to calculate earnings per share + debt in current liabilities + long-term debt + preferred stock liquidating value – deferred taxes and investment tax credit) / total assets
Size	Natural log of total assets
Dividend Payer	Indicator if common stock dividends are positive
RD Expenses	Research and development expenses / total assets
Unrated	Indicator if the firm is not rated by S&P
CF Volatility	Standard deviation of quarterly operating income over previous 12 quarters / total assets
Book Leverage	Assets less equity scaled by assets

Appendix B: Colla et al. (2013) Table 8

Table VIII. Multivariate Evidence on Debt Specialization

This table presents regression results to examine the relation between firm characteristics and debt specialization. The dependent variables are our two measures of debt specialization: *HHI* and *Excl90*. In columns (1) and (5) we include common determinants of capital structure choices. In columns (2) and (6) we add cash flow volatility and R&D expenses. In columns (3) and (7) we add the unrated dummy. In columns (4) and (8) we further add book leverage. Definitions of the variables are provided in Table A.1. All right-hand side variables are lagged. All specifications include (Fama-French 48) industry fixed effects and year fixed effects. Robust standard errors are clustered at the firm level and reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	HHI	HHI	HHI	HHI	Excl90	Excl90	Excl90	Excl90
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Size	−0.012***	−0.009**	0.006	0.004	−0.026*	−0.018	0.025	0.018
	(0.004)	(0.004)	(0.005)	(0.005)	(0.016)	(0.016)	(0.020)	(0.020)
M/B	0.039***	0.027***	0.027***	0.026***	0.128***	0.090***	0.091***	0.089***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.022)	(0.022)	(0.022)	(0.022)
Profitability	−0.105**	0.099*	0.091*	0.066	−0.339**	0.292	0.267	0.190
	(0.046)	(0.053)	(0.053)	(0.053)	(0.164)	(0.197)	(0.197)	(0.201)
Div. payer	−0.011	−0.011	−0.012	−0.027*	−0.049	−0.050	−0.052	−0.100
	(0.016)	(0.016)	(0.016)	(0.015)	(0.062)	(0.061)	(0.061)	(0.061)
Tangibility	−0.196***	−0.187***	−0.188***	−0.148***	−0.792***	−0.771***	−0.774***	−0.656***
	(0.042)	(0.042)	(0.042)	(0.041)	(0.171)	(0.172)	(0.171)	(0.172)
CF volatility		0.782**	0.889**	0.924**		3.007**	3.317**	3.449**
		(0.365)	(0.365)	(0.366)		(1.329)	(1.329)	(1.344)
R&D exp.		0.508***	0.489***	0.456***		1.483***	1.431***	1.339***
		(0.101)	(0.100)	(0.100)		(0.362)	(0.360)	(0.365)
Unrated			0.085***	0.050***			0.240***	0.126*
			(0.018)	(0.018)			(0.070)	(0.072)
Book lev.				−0.286***				−0.942***
				(0.036)				(0.139)
Industry and Year FEs	YES	YES	YES	YES	YES	YES	YES	YES
Obs.	7,770	7,770	7,770	7,770	7,770	7,770	7,770	7,770
Model	Tobit	Tobit	Tobit	Tobit	Probit	Probit	Probit	Probit
Pseudo R^2	0.125	0.138	0.147	0.171	0.056	0.061	0.064	0.073

Appendix C: Sample Construction

S&P 1500 Firms	1,500 observations
2006-2011	6 Years
Total Possible Observations	9,000 observations (1,500x6)
Observations with no data for compensation or debt	5,775 observations
Total Usable Observations	3,725 observations

Table 1: Summary Statistics

Panel A: Full Sample

Variable	N	Mean	Standard Deviation	Minimum	Maximum
Dependent Variables					
HHI	3725	0.562	0.267	0	1
EXCL90	3725	0.248	0.432	0	1
CP	3725	0.186	0.389	0	1
DC	3725	0.803	0.398	0	1
TL	3725	0.470	0.499	0	1
SBN	3725	0.748	0.434	0	1
SUB	3725	0.186	0.389	0	1
CL	3725	0.410	0.492	0	1
OTHER	3725	0.530	0.499	0	1
PERCP	3718	0.025	0.078	0	1
PERDC	3718	0.323	0.334	0	1
PERTL	3718	0.118	0.222	0	1
PERSBN	3718	0.388	0.340	0	1
PERSUB	3718	0.047	0.153	0	1
PERCL	3718	0.023	0.115	0	1
PEROTHER	3718	0.077	0.171	0	1
INTEREST	864	-0.670	1.157	-7.952	2.163
MATURITY	3573	6.016	1.147	-3.795	6.908
Variables of Interest					
CEO RDE	3725	-1.257	3.259	-30.216	9.099
CEO RDE > 1	3725	0.281	0.450	0	1
CEO RIR	3725	-2.726	3.573	-18.402	12.182
CEO RIRCA	3725	-1.908	3.359	-18.299	14.493
Independent Variables					
PROFITABILITY	3723	0.132	0.095	-0.498	0.949
TANGIBILITY	3694	0.255	0.233	0	0.951
MB	3725	1.307	1.024	0.043	14.273
SIZE	3725	8.168	1.645	2.963	14.633

DIVIDEND PAYER	3725	0.659	0.474	0	1
RD EXPENSES	3725	0.018	0.042	0	0.684
UNRATED	3725	0.394	0.489	0	1
CF VOLATILITY	3725	0.017	0.055	0	2.093

Panel B: Sample Means of Firms Split by High and Low CEO Inside Debt

Variable	CEO RDE < 1	CEO RDE > 1	Difference	T-Stat	P-value
Number of Observations	*2670*	*1048*			
HHI	0.561	0.566	-0.005	-0.555	0.579
EXCL90	0.251	0.238	0.014	0.878	0.380
CP	0.153	0.270	-0.117	-8.349	0.000
DC	0.809	0.789	0.020	1.354	0.176
TL	0.490	0.420	0.070	3.870	0.000
SBN	0.723	0.814	-0.091	-5.787	0.000
SUB	0.212	0.119	0.093	6.588	0.000
CL	0.395	0.448	-0.053	-2.942	0.003
OTHER	0.513	0.573	-0.061	-3.335	0.001
PERCP	0.019	0.041	-0.021	-7.541	0.000
PERDC	0.326	0.315	0.011	0.933	0.351
PERTL	0.134	0.077	0.057	7.103	0.000
PERSBN	0.363	0.450	-0.087	-7.072	0.000
PERSUB	0.054	0.029	0.025	4.532	0.000
PERCL	0.024	0.020	0.003	0.791	0.429
PEROTHER	0.080	0.068	0.011	1.849	0.065
INTEREST	-0.703	-0.604	-0.099	-0.867	0.386
MATURITY	6.081	5.85	0.231	5.439	0.000
PROFITABILITY	0.129	0.142	-0.013	-3.844	0.000
TANGIBILITY	0.250	0.268	-0.018	-2.076	0.000
MB	1.288	1.355	-0.066	-1.783	0.075
SIZE	8.111	8.311	-0.200	-3.337	0.001
DIVIDEND PAYER	0.606	0.794	-0.188	-11.035	0.000
RD EXPENSES	0.018	0.018	0.000	0.255	0.799
UNRATED	0.407	0.359	0.048	2.721	0.002
CF VOLATILITY	0.018	0.015	0.003	1.552	0.121

Panel C: Sample Medians of Firms Split by High and Low CEO Inside Debt

Variable	CEO RDE < 1	CEO RDE > 1	Difference	Z-Stat	P-value
Number of Observations	*2670*	*1048*			
HHI	0.482	0.506	-0.024	-0.709	0.478
EXCL90	0.000	0.000	0.000	0.878	0.380
CP	0.000	0.000	0.000	-8.273	0.000
DC	1.000	1.000	0.000	1.354	0.176
TL	0.000	0.000	0.000	3.862	0.000
SBN	1.000	1.000	0.000	-5.762	0.000
SUB	0.000	0.000	0.000	6.551	0.000
CL	0.000	0.000	0.000	-2.939	0.003
OTHER	1.000	1.000	0.000	-3.331	0.001
PERCP	0.000	0.000	0.000	-8.466	0.000
PERDC	0.211	0.200	-0.011	1.186	0.236
PERTL	0.000	0.000	0.000	6.138	0.000
PERSBN	0.323	0.493	-0.170	-7.229	0.000
PERSUB	0.000	0.000	0.000	6.609	0.000
PERCL	0.000	0.000	0.000	-2.841	0.005
PEROTHER	0.000	0.001	-0.001	-2.108	0.035
INTEREST	-0.350	-0.396	-0.046	-0.319	0.750
MATURITY	6.354	6.179	0.175	5.551	0.000
PROFITABILITY	0.123	0.138	-0.015	-4.341	0.000
TANGIBILITY	0.171	0.196	-0.025	-4.266	0.000
MB	1.002	1.109	-0.107	-3.527	0.000
SIZE	7.963	8.176	-0.213	-3.704	0.000
DIVIDEND PAYER	1.000	1.000	0.000	-10.861	0.000
RD EXPENSES	0.000	0.003	-0.003	-7.782	0.000
UNRATED	0.000	0.000	0.000	2.718	0.007
CF VOLATILITY	0.008	0.008	0.000	2.328	0.020

Panel D: Pearson Correlations

	CEO RDE	CEO RDE > 1	CEO RIR	CEO RIRCA
HHI	0.1660*	0.0091	0.2876*	0.2852*
EXCL90	0.1623*	-0.0144	0.2669*	0.2608*
CP	-0.0102	0.1356*	-0.2743*	-0.3174*
PERCP	0.0297	0.1228*	-0.1228*	-0.1516*
DC	-0.0770*	-0.0222	-0.0088	0.0047
PERDC	0.0826*	-0.0153	0.3372*	0.3510*
TL	-0.0713*	-0.0633*	-0.1724*	-0.1620*
PERTL	-0.0423*	-0.1157*	-0.0706*	-0.0460*
SBN	-0.1173*	0.0944*	-0.2490*	-0.2617*
PERSBN	-0.0554*	0.1152*	-0.2139*	-0.2364*
SUB	-0.0978*	-0.1074*	-0.1823*	-0.1851*
PERSUB	-0.017	-0.0741*	0.0403*	0.0454*
CL	-0.0294	0.0482*	-0.0446*	-0.0321*
PERCL	0.0432*	-0.013	0.1006*	0.0982*
MATURITY	0.0003	-0.0906*	0.1242*	0.1372*
INTEREST	0.0278	0.0295	-0.0817*	-0.1019*
CEO RDE	1	0.4959*	0.4372*	0.3499*
CEO RDE > 1	0.4959*	1	0.1560*	0.0993*
CEO RIR	0.4372*	0.1560*	1	0.9464*
CEO RIRCA	0.3499*	0.0993*	0.9464*	1
SIZE	-0.1404*	0.0546*	-0.4780*	-0.5153*
CEO VEGA/DELTA	-0.1943*	-0.0323*	-0.0523*	-0.029
M/B	0.1137*	0.0292	0.2733*	0.2551*
PROFITABILITY	0.0790*	0.0629*	0.2066*	0.2067*
DIVIDEND PAYER	-0.0439*	0.1780*	-0.2106*	-0.2373*
TANGIBILITY	-0.0296	0.0341*	-0.0597*	-0.0684*
CF VOLATILITY	-0.013	-0.0254	0.0794*	0.0766*
R&D EXPENSES	0.0942*	-0.0042	0.1575*	0.1512*
UNRATED	0.1582*	-0.0445*	0.3478*	0.3671*
LEVERAGE	-0.0498*	-0.0436*	-0.0691*	-0.0575*

Panel E: Spearman Correlations

	CEO RDE	CEO RDE > 1	CEO RIR	CEO RIRCA
HHI	0.0846*	0.051	0.2105*	0.2483*
EXCL90	0.0472	-0.0009	0.0938*	0.1158*
CP	0.1435*	0.1925*	-0.3182*	-0.3715*
PERCP	0.1579*	0.2034*	-0.2785*	-0.3340*
DC	-0.0514	-0.0126	-0.0029	0.0023
PERDC	-0.0136	-0.0275	0.2799*	0.3067*
TL	-0.1571*	-0.1654*	-0.0444	-0.0445
PERTL	-0.1996*	-0.2142*	-0.0267	-0.0215
SBN	0.0493	0.0509	-0.1122*	-0.1290*
PERSBN	0.1521*	0.1563*	-0.1121*	-0.1350*
SUB	-0.2126*	-0.2096*	-0.3058*	-0.3034*
PERSUB	-0.2110*	-0.2175*	-0.2840*	-0.2804*
CL	-0.0067	0.004	-0.0181	0.0088
PERCL	-0.0046	0.0213	0.0528	0.0776*
MATURITY	-0.1280*	-0.0978*	0.1320*	0.1533*
INTEREST	0.0138	0.005	-0.1323*	-0.1629*
CEO RDE	1	0.8174*	0.2757*	0.1321*
CEO RDE > 1	0.8174*	1	0.0700*	-0.0133
CEO RIR	0.2757*	0.0700*	1	0.9352*
CEO RIRCA	0.1321*	-0.0133	0.9352*	1
SIZE	0.0186	0.1066*	-0.5094*	-0.5636*
CEO VEGA/DELTA	-0.7286*	-0.4428*	-0.2692*	-0.1150*
M/B	0.0899*	0.049	0.3666*	0.3677*
PROFITABILITY	0.0944*	0.0669	0.3031*	0.3076*
DIVIDEND PAYER	0.2166*	0.2867*	-0.2377*	-0.2983*
TANGIBILITY	0.1530*	0.1316*	0.0392	-0.0084
CF VOLATILITY	0.0018	-0.0002	0.3363*	0.3554*
R&D EXPENSES	0.2737*	0.2451*	0.2041*	0.1984*
UNRATED	-0.0452	-0.1037*	0.3483*	0.3810*
LEVERAGE	-0.1341*	-0.1093*	-0.0168	-0.0201

This Table provides summary statistics of the data. Data is collected from Capital IQ from 2006 to 2011. Panel A provides statistics for the full sample. Panel B examines mean differences between high and low levels of CEO inside debt according to CEO RDE > 1. Panel C explores median differences. Panel D provides Pearson correlations. Panel E provides Spearman correlations. * means significance at the 5% level. All variables are defined in Appendix A.

Table 2: Supply Side Factors of Debt Specialization

	Model 1 Tobit HHI	Model 2 Tobit HHI	Model 3 Tobit HHI	Model 4 Tobit HHI	Model 5 Probit EXCL90	Model 6 Probit EXCL90	Model 7 Probit EXCL90	Model 8 Probit EXCL90
Size	-0.056***	-0.057***	-0.033***	-0.028***	-0.321***	-0.324***	-0.206***	-0.183***
	[0.006]	[0.006]	[0.007]	[0.007]	[0.042]	[0.042]	[0.048]	[0.049]
M/B	0.058***	0.058***	0.031***	0.026**	0.186***	0.192***	0.08	0.053
	[0.012]	[0.012]	[0.011]	[0.011]	[0.059]	[0.060]	[0.058]	[0.054]
Profitability	-0.238**	-0.247**	-0.099	-0.095	-0.398	-0.448	0.148	0.106
	[0.116]	[0.116]	[0.106]	[0.100]	[0.584]	[0.592]	[0.580]	[0.570]
Dividend Payer	-0.03	-0.03	-0.017	-0.022	-0.180*	-0.179*	-0.122	-0.126
	[0.019]	[0.019]	[0.018]	[0.017]	[0.097]	[0.097]	[0.099]	[0.098]
Tangibility	-0.086	-0.087	-0.06	-0.054	-0.486	-0.489	-0.397	-0.425
	[0.066]	[0.066]	[0.062]	[0.058]	[0.345]	[0.345]	[0.337]	[0.337]
CF Volatility		-0.206	-0.083	-0.056		-1.226	-0.677	-0.61
		[0.155]	[0.157]	[0.156]		[0.873]	[0.854]	[0.852]
RD Expenses			1.116***	0.946**			3.581**	3.034**
			[0.424]	[0.380]			[1.731]	[1.490]
Unrated			0.124***	0.088***			0.586***	0.379***
			[0.022]	[0.022]			[0.114]	[0.117]
Book Leverage				-0.307***				-1.610***
				[0.043]				[0.299]
Constant	1.080***	1.089***	0.814***	0.962***	2.081**	2.129**	0.918	1.567*
	[0.114]	[0.115]	[0.109]	[0.117]	[0.826]	[0.830]	[0.781]	[0.807]
Observations	2532	2532	2532	2532	2437	2437	2437	2437
Pseudo R^2	0.62	0.62	0.72	0.82	0.2	0.2	0.22	0.25

This Table replicates Table 8 of Colla et al. (2013) with the particular sample. The dependent variables are the Herfindahl-Hirschman index of debt type usage and an indicator if a firm has more than 90% of debt in one type. All independent variables are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 3: Inside Debt Effect on Debt Specialization

	Model 1 Tobit HHI	Model 2 Tobit HHI	Model 3 Tobit HHI	Model 4 Tobit HHI	Model 5 Probit EXCL90	Model 6 Probit EXCL90	Model 7 Probit EXCL90	Model 8 Probit EXCL90
CEO RDE	0.039***				0.202***			
	[0.010]				[0.077]			
CEO RDE > 1		0.001				-0.244		
		[0.087]				[0.525]		
CEO RIR			0.032***				0.259***	
			[0.009]				[0.060]	
CEO RIRCA				0.033***				0.276***
				[0.010]				[0.061]
Size	-0.034***	-0.030***	-0.047***	-0.045***	-0.196***	-0.209***	-0.306***	-0.303***
	[0.007]	[0.007]	[0.009]	[0.008]	[0.050]	[0.054]	[0.055]	[0.053]
CEO RDE * Size	-0.004***				-0.018**			
	[0.001]				[0.008]			
CEO RDE > 1 * Size		0.003				0.057		
		[0.010]				[0.066]		
CEO RIR * Size			-0.004***				-0.032***	
			[0.001]				[0.007]	
CEO RIRCA * Size				-0.004***				-0.035***
				[0.001]				[0.007]
CEO Vega/Delta	0.014	-0.015	-0.019	-0.024	-0.046	-0.35	-0.507	-0.641
	[0.019]	[0.018]	[0.025]	[0.026]	[0.089]	[0.408]	[0.654]	[0.726]
M/B	0.024**	0.025**	0.023**	0.024**	0.049	0.051	0.037	0.042
	[0.011]	[0.011]	[0.011]	[0.011]	[0.054]	[0.054]	[0.056]	[0.056]

Profitability	-0.103	-0.106	-0.073	-0.073	0.026	0.05	0.297	0.307
	[0.104]	[0.101]	[0.100]	[0.100]	[0.609]	[0.583]	[0.584]	[0.580]
Dividend Payer	-0.019	-0.026	-0.018	-0.019	-0.125	-0.15	-0.12	-0.126
	[0.017]	[0.017]	[0.017]	[0.017]	[0.098]	[0.100]	[0.099]	[0.100]
Tangibility	-0.06	-0.048	-0.062	-0.06	-0.425	-0.387	-0.505	-0.503
	[0.057]	[0.057]	[0.057]	[0.057]	[0.338]	[0.337]	[0.340]	[0.340]
CF Volatility	-0.024	-0.051	-0.065	-0.057	-0.381	-0.627	-0.553	-0.499
	[0.153]	[0.159]	[0.165]	[0.165]	[0.906]	[0.887]	[0.886]	[0.900]
RD Expenses	0.935**	0.957**	0.967**	0.940**	3.062**	3.180**	3.190**	3.006**
	[0.368]	[0.376]	[0.376]	[0.373]	[1.479]	[1.491]	[1.509]	[1.482]
Unrated	0.082***	0.088***	0.078***	0.078***	0.358***	0.368***	0.321***	0.309***
	[0.021]	[0.021]	[0.022]	[0.022]	[0.116]	[0.116]	[0.118]	[0.119]
Book Leverage	-0.282***	-0.303***	-0.284***	-0.289***	-1.426***	-1.585***	-1.439***	-1.506***
	[0.042]	[0.043]	[0.044]	[0.044]	[0.297]	[0.298]	[0.306]	[0.304]
Constant	1.002***	0.974***	1.051***	1.029***	1.581*	1.751**	2.198***	2.121***
	[0.120]	[0.127]	[0.114]	[0.112]	[0.812]	[0.883]	[0.806]	[0.819]
Observations	2532	2532	2532	2532	2437	2437	2437	2437
Pseudo R^2	0.85	0.83	0.84	0.84	0.26	0.25	0.26	0.27

This Table provides analysis of debt specialization given the presence of CEO inside debt. The dependent variables are the Herfindahl-Hirschman index of debt type usage and an indicator if a firm has more than 90% of debt in one type. The other panels contain dependent variables of the relative percentage of the debt instrument used or an indicator if the firm uses the debt instrument type in question. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 4: Inside Debt Effect on Commercial Paper Usage

	Model 1 Tobit PerCP	Model 2 Tobit PerCP	Model 3 Tobit PerCP	Model 4 Tobit PerCP	Model 5 Probit CP	Model 6 Probit CP	Model 7 Probit CP	Model 8 Probit CP
CEO RDE	0.019				0.316**			
	[0.020]				[0.148]			
CEO RDE > 1		0.365***				3.039***		
		[0.141]				[0.840]		
CEO RIR			-0.024*				-0.016	
			[0.012]				[0.104]	
CEO RIRCA				-0.038***				-0.114
				[0.014]				[0.107]
Size	0.071***	0.087***	0.085***	0.087***	0.552***	0.725***	0.546***	0.570***
	[0.010]	[0.011]	[0.012]	[0.012]	[0.071]	[0.078]	[0.084]	[0.083]
CEO RDE * Size	-0.002				-0.035**			
	[0.002]				[0.015]			
CEO RDE > 1 * Size		-0.038**				-0.329***		
		[0.015]				[0.095]		
CEO RIR * Size			0.002**				-0.002	
			[0.001]				[0.011]	
CEO RIRCA * Size				0.004***				0.007
				[0.001]				[0.012]
CEO Vega/Delta	-1.165	-1.408*	-1.789**	-1.925**	-9.246	-6.591	-9.127**	-9.538**
	[0.826]	[0.729]	[0.816]	[0.831]	[5.882]	[4.266]	[4.294]	[4.273]

M/B	0.059***	0.060***	0.063***	0.063***	0.288***	0.304***	0.299***	0.302***
	[0.015]	[0.016]	[0.016]	[0.016]	[0.093]	[0.098]	[0.091]	[0.092]
Profitability	0.396**	0.392**	0.422**	0.442**	2.243**	2.243**	2.338**	2.479**
	[0.169]	[0.169]	[0.172]	[0.173]	[1.095]	[1.124]	[1.094]	[1.111]
Dividend Payer	0.155***	0.150***	0.152***	0.152***	0.810***	0.797***	0.799***	0.786***
	[0.034]	[0.033]	[0.034]	[0.034]	[0.185]	[0.186]	[0.181]	[0.183]
Tangibility	-0.016	-0.013	-0.005	0.002	0.313	0.306	0.337	0.373
	[0.098]	[0.093]	[0.099]	[0.100]	[0.620]	[0.604]	[0.618]	[0.623]
CF Volatility	-1.774**	-1.942**	-1.728**	-1.691*	-9.563*	-10.483*	-8.637*	-8.377*
	[0.870]	[0.924]	[0.864]	[0.864]	[5.360]	[5.755]	[5.023]	[4.982]
RD Expenses	-0.785	-0.792	-0.883	-0.88	-3.925	-4.368	-4.324	-4.461
	[0.537]	[0.527]	[0.548]	[0.542]	[3.032]	[3.113]	[3.005]	[3.022]
Unrated	-0.128***	-0.127***	-0.110**	-0.105**	-0.575**	-0.554**	-0.513**	-0.495*
	[0.046]	[0.046]	[0.046]	[0.046]	[0.252]	[0.259]	[0.258]	[0.259]
Book Leverage	0.034	0.037	0.015	0.008	0.296	0.313	0.11	0.05
	[0.066]	[0.067]	[0.065]	[0.064]	[0.400]	[0.398]	[0.395]	[0.390]
Constant	-1.062***	-1.250***	-1.172***	-1.170***	-6.938***	-8.824***	-6.868***	-7.071***
	[0.139]	[0.160]	[0.144]	[0.141]	[1.018]	[1.194]	[1.061]	[1.040]
Observations	2531	2531	2531	2531	2286	2286	2286	2286
Pseudo R^2	0.64	0.65	0.64	0.64	0.4	0.41	0.4	0.4

This Table provides analysis of commercial paper usage given the presence of CEO inside debt. The dependent variables are the amount of commercial paper used or if commercial paper was used at all. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 5: Inside Debt Effect on Drawn Credit Line Usage

	Model 1 Tobit PerDC	Model 2 Tobit PerDC	Model 3 Tobit PerDC	Model 4 Tobit PerDC	Model 5 Probit DC	Model 6 Probit DC	Model 7 Probit DC	Model 8 Probit DC
CEO RDE	0.017				-0.004			
	[0.014]				[0.098]			
CEO RDE > 1		0.087				0.085		
		[0.131]				[0.536]		
CEO RIR			0.043***				0.004	
			[0.012]				[0.063]	
CEO RIRCA				0.045***				0.018
				[0.013]				[0.066]
Size	-0.061***	-0.054***	-0.075***	-0.070***	-0.112**	-0.086*	-0.097*	-0.092*
	[0.009]	[0.010]	[0.011]	[0.011]	[0.044]	[0.045]	[0.050]	[0.048]
CEO RDE * Size	-0.002				-0.007			
	[0.001]				[0.011]			
CEO RDE > 1 * Size		-0.013				-0.042		
		[0.015]				[0.063]		
CEO RIR * Size			-0.004***				0	
			[0.001]				[0.007]	
CEO RIRCA * Size				-0.005***				-0.001
				[0.001]				[0.007]
CEO Vega/Delta	0.003	0.008	0.012	0.007	0.299	2.574	3.211	3.314
	[0.017]	[0.020]	[0.018]	[0.017]	[0.589]	[1.695]	[2.002]	[2.066]
M/B	0.005	0.006	0.001	0.003	-0.09	-0.093	-0.100*	-0.098
	[0.016]	[0.016]	[0.016]	[0.016]	[0.059]	[0.060]	[0.060]	[0.060]
Profitability	0.188	0.187	0.198	0.185	0.873	0.762	0.661	0.633

	[0.148]	[0.147]	[0.148]	[0.147]	[0.698]	[0.681]	[0.673]	[0.675]
Dividend Payer	0.012	0.015	0.017	0.017	0.072	0.116	0.072	0.075
	[0.024]	[0.024]	[0.024]	[0.024]	[0.110]	[0.111]	[0.109]	[0.110]
Tangibility	-0.003	-0.001	-0.01	-0.008	0.452	0.427	0.441	0.434
	[0.083]	[0.083]	[0.083]	[0.082]	[0.410]	[0.406]	[0.408]	[0.406]
CF Volatility	-0.147	-0.158	-0.193	-0.19	-1.408	-1.226	-1.182	-1.222
	[0.202]	[0.205]	[0.206]	[0.208]	[0.986]	[0.981]	[0.982]	[0.974]
RD Expenses	-1.423***	-1.432***	-1.381***	-1.417***	-4.933**	-4.979**	-4.777**	-4.762**
	[0.501]	[0.499]	[0.506]	[0.512]	[2.221]	[2.249]	[2.231]	[2.239]
Unrated	0.149***	0.149***	0.135***	0.134***	-0.008	-0.022	-0.029	-0.037
	[0.028]	[0.028]	[0.029]	[0.028]	[0.127]	[0.125]	[0.127]	[0.128]
Book Leverage	-0.427***	-0.434***	-0.387***	-0.389***	0.277	0.371	0.424	0.454
	[0.051]	[0.052]	[0.052]	[0.053]	[0.289]	[0.284]	[0.290]	[0.291]
Constant	0.892***	0.826***	0.966***	0.922***	0.996	0.732	0.846	0.809
	[0.134]	[0.141]	[0.156]	[0.155]	[0.785]	[0.816]	[0.798]	[0.789]
Observations	2531	2531	2531	2531	2371	2371	2371	2371
Pseudo R^2	0.4	0.4	0.4	0.4	0.18	0.17	0.17	0.17

This Table provides analysis of drawn credit line usage given the presence of CEO inside debt. The dependent variables are the amount of drawn credit lines or if drawn credit lines were used at all. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 6: Inside Debt Effect on Term Loan Usage

	Model 1 Tobit PerTL	Model 2 Tobit PerTL	Model 3 Tobit PerTL	Model 4 Tobit PerTL	Model 5 Probit TL	Model 6 Probit TL	Model 7 Probit TL	Model 8 Probit TL
CEO RDE	-0.031*				-0.081			
	[0.017]				[0.064]			
CEO RDE > 1		-0.348***				-0.737		
		[0.132]				[0.518]		
CEO RIR			-0.034***				-0.019	
			[0.012]				[0.060]	
CEO RIRCA				-0.030**				-0.007
				[0.013]				[0.062]
Size	-0.015	-0.029***	-0.005	-0.01	0.079*	0.049	0.071	0.069
	[0.010]	[0.010]	[0.013]	[0.013]	[0.043]	[0.044]	[0.052]	[0.050]
CEO RDE * Size	0.003*				0.008			
	[0.002]				[0.007]			
CEO RDE > 1 * Size		0.036**				0.07		
		[0.015]				[0.062]		
CEO RIR * Size			0.004***				0.002	
			[0.001]				[0.007]	
CEO RIRCA * Size				0.003**				0.001
				[0.001]				[0.007]
CEO Vega/Delta	0.019	0.032	0.033	0.038	0.283	0.382	0.392	0.413
	[0.030]	[0.025]	[0.029]	[0.028]	[0.204]	[0.285]	[0.308]	[0.336]
M/B	-0.039**	-0.040**	-0.037**	-0.039**	-0.126**	-0.128**	-0.128**	-0.130**

	[0.017]	[0.016]	[0.017]	[0.017]	[0.064]	[0.063]	[0.064]	[0.064]
Profitability	0.302*	0.314*	0.289*	0.300*	1.177**	1.211**	1.171**	1.169**
	[0.170]	[0.166]	[0.169]	[0.169]	[0.594]	[0.589]	[0.589]	[0.590]
Dividend Payer	-0.106***	-0.095***	-0.109***	-0.108***	-0.368***	-0.337***	-0.364***	-0.363***
	[0.028]	[0.028]	[0.028]	[0.028]	[0.103]	[0.103]	[0.103]	[0.103]
Tangibility	-0.086	-0.101	-0.081	-0.084	-0.013	-0.062	-0.024	-0.028
	[0.104]	[0.103]	[0.104]	[0.103]	[0.374]	[0.371]	[0.371]	[0.370]
CF Volatility	-0.048	-0.019	0.026	0.013	-0.596	-0.535	-0.481	-0.51
	[0.265]	[0.263]	[0.275]	[0.275]	[0.955]	[0.955]	[0.976]	[0.974]
RD Expenses	-0.683	-0.684	-0.727*	-0.694	-2.943*	-2.988*	-2.967*	-2.940*
	[0.439]	[0.436]	[0.441]	[0.437]	[1.734]	[1.734]	[1.746]	[1.742]
Unrated	0.024	0.02	0.031	0.029	0.03	0.019	0.024	0.02
	[0.034]	[0.034]	[0.035]	[0.035]	[0.128]	[0.128]	[0.131]	[0.130]
Book Leverage	0.395***	0.400***	0.375***	0.384***	1.539***	1.553***	1.556***	1.576***
	[0.061]	[0.060]	[0.063]	[0.063]	[0.264]	[0.262]	[0.274]	[0.271]
Constant	-0.143	0.014	-0.165	-0.124	-1.698**	-1.378*	-1.624**	-1.615**
	[0.170]	[0.176]	[0.189]	[0.187]	[0.766]	[0.780]	[0.789]	[0.780]
Observations	2531	2531	2531	2531	2447	2447	2447	2447
Pseudo R^2	0.32	0.32	0.32	0.32	0.19	0.19	0.19	0.19

This Table provides analysis of term loan usage given the presence of CEO inside debt. The dependent variables are the amount of term loans used or if term loans were used at all. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 7: Inside Debt Effect on Bond Usage

Panel A: Senior Bonds

	Model 1 Tobit PerSBN	Model 2 Tobit PerSBN	Model 3 Tobit PerSBN	Model 4 Tobit PerSBN	Model 5 Probit SBN	Model 6 Probit SBN	Model 7 Probit SBN	Model 8 Probit SBN
CEO RDE	-0.001				0.193			
	[0.019]				[0.160]			
CEO RDE > 1		0.273**				1.469**		
		[0.139]				[0.698]		
CEO RIR			-0.034**				0.184*	
			[0.015]				[0.109]	
CEO RIRCA				-0.043***				0.217*
				[0.017]				[0.122]
Size	0.057***	0.064***	0.064***	0.063***	0.467***	0.533***	0.425***	0.431***
	[0.012]	[0.013]	[0.015]	[0.014]	[0.072]	[0.075]	[0.080]	[0.079]
CEO RDE * Size	0				-0.029			
	[0.002]				[0.022]			
CEO RDE > 1 * Size		-0.029*				-0.180*		
		[0.015]				[0.094]		
CEO RIR * Size			0.003*				-0.029**	
			[0.002]				[0.014]	
CEO RIRCA * Size				0.004**				-0.037**
				[0.002]				[0.016]
CEO Vega/Delta	0.01	0.012	-0.002	0.004	-1.378	-0.156	-1.112	-1.282
	[0.035]	[0.034]	[0.034]	[0.034]	[3.302]	[2.429]	[2.558]	[2.583]
M/B	0.003	0.003	0.007	0.005	-0.024	-0.022	-0.036	-0.04

	[0.020]	[0.020]	[0.020]	[0.020]	[0.066]	[0.068]	[0.067]	[0.067]
Profitability	-0.141	-0.157	-0.133	-0.122	-1.307*	-1.474*	-1.16	-1.092
	[0.184]	[0.186]	[0.186]	[0.186]	[0.747]	[0.764]	[0.742]	[0.747]
Dividend Payer	0.144***	0.139***	0.142***	0.140***	0.730***	0.722***	0.738***	0.733***
	[0.030]	[0.029]	[0.029]	[0.029]	[0.132]	[0.131]	[0.131]	[0.130]
Tangibility	0.108	0.118	0.119	0.119	0.626	0.687	0.619	0.617
	[0.090]	[0.090]	[0.089]	[0.089]	[0.443]	[0.432]	[0.441]	[0.439]
CF Volatility	0.244	0.244	0.302	0.301	1.097	0.928	1.014	1.068
	[0.252]	[0.257]	[0.254]	[0.256]	[1.573]	[1.589]	[1.520]	[1.518]
RD Expenses	1.312**	1.317**	1.263**	1.297**	2.7	2.718	2.545	2.5
	[0.547]	[0.545]	[0.544]	[0.551]	[1.725]	[1.740]	[1.693]	[1.691]
Unrated	-0.215***	-0.216***	-0.200***	-0.197***	-0.622***	-0.643***	-0.573***	-0.551***
	[0.037]	[0.037]	[0.036]	[0.036]	[0.151]	[0.150]	[0.152]	[0.152]
Book Leverage	0.185***	0.195***	0.137**	0.134**	1.017***	1.120***	1.045***	1.025***
	[0.063]	[0.062]	[0.063]	[0.063]	[0.350]	[0.337]	[0.357]	[0.348]
Constant	-0.268	-0.366**	-0.306*	-0.271*	-3.658***	-4.212***	-3.418***	-3.448***
	[0.171]	[0.182]	[0.168]	[0.160]	[0.682]	[0.705]	[0.723]	[0.722]
Observations	2531	2531	2531	2531	2295	2295	2295	2295
Pseudo R^2	0.41	0.41	0.41	0.42	0.44	0.44	0.44	0.44

Panel B: Subordinated Bonds

	Model 1 Tobit PerSUB	Model 2 Tobit PerSUB	Model 3 Tobit PerSUB	Model 4 Tobit PerSUB	Model 5 Probit SUB	Model 6 Probit SUB	Model 7 Probit SUB	Model 8 Probit SUB
CEO RDE	-0.006				0.009			
	[0.029]				[0.088]			
CEO RDE > 1		-0.316				-0.579		
		[0.284]				[0.699]		
CEO RIR			0.022				0.079	
			[0.026]				[0.083]	
CEO RIRCA				0.022				0.075
				[0.027]				[0.083]
Size	-0.018	-0.02	-0.038	-0.037	0.011	0.017	-0.066	-0.062
	[0.021]	[0.019]	[0.027]	[0.026]	[0.058]	[0.055]	[0.071]	[0.067]
CEO RDE * Size	0				-0.004			
	[0.003]				[0.009]			
CEO RDE > 1 * Size		0.023				0.03		
		[0.032]				[0.083]		
CEO RIR * Size			-0.003				-0.012	
			[0.003]				[0.009]	
CEO RIRCA * Size				-0.003				-0.013
				[0.003]				[0.009]
CEO Vega/Delta	-0.095*	-0.055	-0.073	-0.077	-0.322*	-0.2	-0.280*	-0.291*
	[0.053]	[0.051]	[0.048]	[0.048]	[0.172]	[0.135]	[0.149]	[0.154]
M/B	-0.100***	-0.100***	-0.104***	-0.104***	-0.205**	-0.204**	-0.210**	-0.211**
	[0.038]	[0.038]	[0.038]	[0.038]	[0.085]	[0.084]	[0.084]	[0.084]

Profitability	-0.214	-0.183	-0.205	-0.2	-0.942	-0.867	-0.897	-0.875
	[0.276]	[0.273]	[0.274]	[0.274]	[0.713]	[0.708]	[0.707]	[0.709]
Dividend Payer	-0.273***	-0.253***	-0.263***	-0.266***	-0.624***	-0.572***	-0.594***	-0.607***
	[0.054]	[0.054]	[0.053]	[0.054]	[0.129]	[0.130]	[0.127]	[0.128]
Tangibility	-0.072	-0.087	-0.072	-0.071	0.003	-0.033	0.007	0.012
	[0.207]	[0.205]	[0.209]	[0.210]	[0.536]	[0.535]	[0.536]	[0.537]
CF Volatility	-0.513	-0.536	-0.486	-0.474	-1.551	-1.628	-1.338	-1.299
	[0.720]	[0.707]	[0.693]	[0.691]	[1.944]	[1.911]	[1.843]	[1.831]
RD Expenses	1.907**	1.866**	1.913**	1.894**	2.816*	2.697	2.775*	2.7
	[0.760]	[0.754]	[0.758]	[0.759]	[1.667]	[1.658]	[1.673]	[1.684]
Unrated	-0.267***	-0.272***	-0.280***	-0.279***	-0.698***	-0.712***	-0.728***	-0.724***
	[0.066]	[0.065]	[0.068]	[0.069]	[0.179]	[0.178]	[0.185]	[0.187]
Book Leverage	0.197*	0.196*	0.213*	0.209*	0.732**	0.726**	0.720**	0.704**
	[0.119]	[0.117]	[0.121]	[0.122]	[0.313]	[0.311]	[0.314]	[0.314]
Constant	0.167	0.207	0.257	0.242	0.011	-0.007	0.413	0.375
	[0.309]	[0.296]	[0.309]	[0.299]	[0.915]	[0.902]	[0.906]	[0.886]
Observations	2531	2531	2531	2531	2257	2257	2257	2257
Pseudo R^2	0.26	0.27	0.26	0.26	0.21	0.22	0.21	0.22

This Table provides analysis of bond usage given the presence of CEO inside debt. Panel A describes senior bonds, and Panel B describes subordinate bonds. The dependent variables are the amount of bonds used or if bonds were used at all. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 8: Inside Debt Effect on Commercial Loan Usage

	Model 1 Tobit PerCL	Model 2 Tobit PerCL	Model 3 Tobit PerCL	Model 4 Tobit PerCL	Model 5 Probit CL	Model 6 Probit CL	Model 7 Probit CL	Model 8 Probit CL
CEO RDE	-0.005				-0.043			
	[0.007]				[0.078]			
CEO RDE > 1		-0.037				0.188		
		[0.049]				[0.511]		
CEO RIR			0.014**				0.08	
			[0.007]				[0.067]	
CEO RIRCA				0.021***				0.143**
				[0.008]				[0.072]
Size	0.002	-0.001	-0.003	-0.003	0.104**	0.095*	0.075	0.073
	[0.005]	[0.005]	[0.006]	[0.006]	[0.048]	[0.050]	[0.057]	[0.055]
CEO RDE * Size	0.001				0.004			
	[0.001]				[0.009]			
CEO RDE > 1 * Size		0.006				0.002		
		[0.006]				[0.061]		
CEO RIR * Size			-0.001*				-0.008	
			[0.001]				[0.008]	
CEO RIRCA * Size				-0.002**				-0.013
				[0.001]				[0.008]
CEO Vega/Delta	-0.017	-0.019	-0.018	-0.018	-1.059**	-0.911***	-0.940***	-0.927***
	[0.023]	[0.026]	[0.034]	[0.032]	[0.456]	[0.323]	[0.353]	[0.354]
M/B	0.01	0.01	0.009	0.009	-0.047	-0.052	-0.059	-0.056
	[0.012]	[0.012]	[0.012]	[0.012]	[0.058]	[0.057]	[0.058]	[0.057]

Profitability	-0.241**	-0.243**	-0.233**	-0.239**	-1.588***	-1.654***	-1.585***	-1.626***
	[0.098]	[0.098]	[0.098]	[0.098]	[0.567]	[0.569]	[0.571]	[0.572]
Dividend Payer	-0.024*	-0.026*	-0.023*	-0.022*	-0.215*	-0.242**	-0.204*	-0.197*
	[0.014]	[0.014]	[0.013]	[0.013]	[0.114]	[0.115]	[0.114]	[0.113]
Tangibility	0.067*	0.068*	0.062	0.061	0.593	0.623	0.56	0.546
	[0.039]	[0.039]	[0.039]	[0.039]	[0.400]	[0.404]	[0.401]	[0.400]
CF Volatility	-0.451**	-0.442**	-0.459***	-0.465***	-3.391**	-3.258**	-3.442**	-3.509**
	[0.176]	[0.179]	[0.174]	[0.173]	[1.468]	[1.499]	[1.473]	[1.468]
RD Expenses	-0.1	-0.093	-0.092	-0.104	-0.675	-0.613	-0.572	-0.639
	[0.227]	[0.227]	[0.226]	[0.227]	[1.615]	[1.635]	[1.612]	[1.629]
Unrated	-0.008	-0.009	-0.013	-0.016	-0.165	-0.176	-0.2	-0.22
	[0.015]	[0.015]	[0.015]	[0.015]	[0.141]	[0.141]	[0.143]	[0.143]
Book Leverage	-0.035	-0.032	-0.017	-0.011	0.4	0.467*	0.542*	0.604**
	[0.033]	[0.033]	[0.033]	[0.032]	[0.280]	[0.274]	[0.288]	[0.286]
Constant	-0.092	-0.063	-0.06	-0.075	-1.705**	-1.664*	-1.570*	-1.651*
	[0.076]	[0.081]	[0.088]	[0.090]	[0.863]	[0.877]	[0.910]	[0.937]
Observations	2531	2531	2531	2531	2458	2458	2458	2458
Pseudo R^2	0.67	0.68	0.68	0.7	0.16	0.16	0.16	0.16

This Table provides analysis of commercial loan usage given the presence of CEO inside debt. The dependent variables are the amount of commercial loans used or if commercial loans were used at all. All controls are lagged. See the Appendix A for variable definitions. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 9: CEO Inside Debt and Debt Interest Rates

	Model 1 OLS Interest	Model 2 OLS Interest	Model 3 OLS Interest	Model 4 OLS Interest
CEO RDE	0.178			
	[0.141]			
CEO RDE > 1		2.651**		
		[1.122]		
CEO RIR			0.286*	
			[0.160]	
CEO RIRCA				0.340*
				[0.194]
Size	0.029	0.119	-0.072	-0.069
	[0.082]	[0.082]	[0.116]	[0.111]
CEO RDE * Size	-0.014			
	[0.012]			
CEO RDE > 1 * Size		-0.249**		
		[0.124]		
CEO RIR * Size			-0.025*	
			[0.014]	
CEO RIRCA * Size				-0.031*
				[0.017]
CEO Vega/Delta	0.166	0.19	0.118	0.145
	[0.223]	[0.230]	[0.230]	[0.227]
M/B	32.217**	18.647**	22.209**	21.624**
	[14.479]	[9.045]	[9.290]	[9.404]
Profitability	-3.747**	-3.837**	-3.782**	-4.052**
	[1.828]	[1.861]	[1.880]	[1.893]
Dividend Payer	0.043	-0.038	0.141	0.168
	[0.328]	[0.325]	[0.322]	[0.337]
Tangibility	0.921	1.021	0.849	0.913

	[0.681]	[0.695]	[0.689]	[0.693]
CF Volatility	-5.222**	-5.440**	-6.410**	-6.362**
	[2.183]	[2.100]	[2.478]	[2.481]
RD Expenses	-5.044	-5.426	-4.272	-4.263
	[4.898]	[4.754]	[4.865]	[4.900]
Unrated	-0.333	-0.267	-0.451	-0.432
	[0.274]	[0.277]	[0.288]	[0.286]
Book Leverage	0.564	0.648	1.003*	1.086*
	[0.549]	[0.533]	[0.581]	[0.625]
Constant	-0.005	-0.681	0.589	0.507
	[0.777]	[0.797]	[0.941]	[0.903]
Observations	590	590	590	590
R^2	0.32	0.33	0.33	0.33

This Table provides OLS regressions of interest rates on debt given the presence of CEO inside debt. The dependent variable is the natural log of the weighted average interest rate on all debt issues. See the Appendix A for variable definitions. All controls are lagged. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.

Table 10: CEO Inside Debt and Debt Maturity

	Model 1 OLS Maturity	Model 2 OLS Maturity	Model 3 OLS Maturity	Model 4 OLS Maturity
CEO RDE	-0.021			
	[0.042]			
CEO RDE > 1		-0.539		
		[0.396]		
CEO RIR			0.079**	
			[0.034]	
CEO RIRCA				0.105***
				[0.037]
Size	-0.072**	-0.088**	-0.099**	-0.093**
	[0.034]	[0.035]	[0.042]	[0.039]
CEO RDE * Size	0.002			
	[0.005]			
CEO RDE > 1 * Size		0.053		
		[0.044]		
CEO RIR * Size			-0.007**	
			[0.004]	
CEO RIRCA * Size				-0.010**
				[0.004]
CEO Vega/Delta	0.04	0.037	0.031	0.036
	[0.050]	[0.049]	[0.050]	[0.049]
M/B	-0.005	0.018	0.042	0.032
	[0.062]	[0.065]	[0.063]	[0.063]
Profitability	0.742	0.765	0.74	0.692
	[0.531]	[0.530]	[0.532]	[0.530]
Dividend Payer	-0.004	0.015	0.007	0.012
	[0.076]	[0.078]	[0.076]	[0.076]
Tangibility	0.218	0.193	0.19	0.187
	[0.223]	[0.219]	[0.221]	[0.220]

CF Volatility	0.158	0.185	0.071	0.056
	[0.476]	[0.481]	[0.484]	[0.481]
RD Expenses	-3.588**	-3.602**	-3.533**	-3.598**
	[1.533]	[1.534]	[1.559]	[1.559]
Unrated	0.365***	0.360***	0.329***	0.319***
	[0.092]	[0.092]	[0.096]	[0.096]
Book Leverage	-0.394**	-0.394***	-0.275*	-0.258
	[0.153]	[0.150]	[0.165]	[0.162]
Constant	5.546***	5.672***	5.787***	5.749***
	[0.271]	[0.263]	[0.309]	[0.293]
Observations	2451	2451	2451	2451
R^2	0.19	0.19	0.19	0.2

This Table provides OLS regressions of debt maturity given the presence of CEO inside debt. The dependent variable is the natural log of the weighted average length of time to maturity on all debt issues. See the Appendix A for variable definitions. All variables are lagged. Industry fixed effects at the 2-digit SIC level and year fixed effects are included in all models. Heteroskedastic-robust standard errors with firm clustering are in brackets. Significance is depicted by *, **, and *** at the 10%, 5%, and 1% levels, respectively.