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Founding family ownership and the agency cost of debt ☆

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Abstract

We investigate the impact of founding family ownership structure on the agency cost of debt. We find that founding family ownership is common in large, publicly traded firms and is related, both statistically and economically, to a lower cost of debt financing. Our results are consistent with the idea that founding family firms have incentive structures that result in fewer agency conflicts between equity and debt claimants. This suggests that bond holders view founding family ownership as an organizational structure that better protects their interests.

JEL classification: G3

Keywords: Ownership structure; Agency costs of debt; Corporate governance; Blockholders

1. Introduction

Prior literature suggests that equity ownership structure affects the manager-shareholder agency conflict. Morck et al. (1988) and McConnell and Servaes (1990) observe that managers' and shareholders' interests become more closely aligned as

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managerial ownership increases, resulting in improved firm performance. However, as managers' equity stakes continue to increase, their interests begin to diverge from those of the shareholders, leading to greater agency problems and declining firm performance.[1] Grossman and Hart (1980) and Shleifer and Vishny (1997) suggest that large, unaffiliated stockholders can also impact manager-shareholder agency conflicts, because they have powerful incentives to monitor managers.

Although a substantial amount of research addresses the relation between ownership structure and the manager-shareholder agency problem, little, if any, work examines the relation between ownership structure and the shareholder-bondholder agency conflict. Jensen and Meckling (1976) observe that diversified shareholders have incentives to expropriate bondholder wealth by investing in risky, high expected-return projects (asset substitution). Bondholders, anticipating such incentives, demand higher rents, resulting in a higher cost of debt capital. However, equity holders with large undiversified ownership stakes may have different incentive structures relative to atomistic shareholders (Shleifer and Vishny, 1997). Since firms regularly re-enter debt markets for financing, these concentrated equity holders, who are typically long-term investors with substantial wealth at risk, potentially have a strong impetus to mitigate agency conflicts with bondholders.

We explore whether the presence of large, undiversified shareholders mitigates diversified equity claimants' incentives to expropriate bondholder wealth (i.e., the agency cost of debt). We focus on a prevalent form of undiversified ownership in public firms, that of founding families. Gersick et al. (1997) estimate that family firms account for 65% to 80% of all businesses. Similarly, among our sample of Standard and Poor's (S&P) 500 firms, one third have continued founding family ownership, with families on average holding about 19 percent of the firm's shares. Founding families are a unique class of investors. The combination of undiversified family holdings, the desire to pass the firm onto subsequent generations, and concerns over family and firm reputation suggest that family shareholders are more likely than other shareholders to value firm survival over strict adherence to wealth maximization. As such, we posit that the divergence of interests between founding family shareholders and bondholders is potentially less severe than between diversified, atomistic shareholders and bondholders. If so, we anticipate that family ownership in public firms is associated with a lower agency cost of debt.

Using a sample of 252 industrial firms from the Lehman Brothers Index database and the S&P 500, we find evidence that family ownership is associated with a lower agency cost of debt. After controlling for industry and firm specific characteristics, our analysis indicates the cost of debt financing for family firms is about 32 basis points lower than in non-family firms. Our results further indicate that the gains in debt financing are not uniform over the entire range of family ownership. Specifically, the greatest gains accrue to those firms with less than 12% founding

[1] Other research on this topic includes Woidtke (2002), Zhou (2001), DeAngelo and DeAngelo (2000), Himmelberg et al. (1999), and Karpoff et al. (1996). For an overview of the manager-shareholder agency conflict and corporate governance see Shleifer and Vishny (1997).

family ownership.[2] Overall, our investigation suggests that bond investors view founding family ownership as an organizational structure that better protects their interests. The results are both statistically and economically significant and are robust to concerns of endogeneity, outliers, nonlinearities in credit markets, and alternative measures of the key variables.

Our results also indicate that founding families can have a detrimental effect on the shareholder-bondholder relation by holding the CEO position. Specifically, we find that when family members hold the CEO position, the cost of debt financing is higher relative to family firms with outside CEOs. The higher debt costs are primarily attributable to founder descendents rather than founder CEOs. This evidence implies that founders bring unique, value-adding skills to the firm, while descendents are more likely to detract from firm performance, perhaps because they obtain the CEO position through family ties rather than job qualifications. This interpretation is consistent with the results in Johnson et al. (1985), Morck et al. (1988), and Gomez-Mejia et al. (2001) suggesting that founder CEOs are associated with strong performance early in their careers, poorer performance in later years, and that family member CEOs are more entrenched in their positions. However, after controlling for CEO type, we find that family firms continue to experience significantly lower costs of debt financing relative to non-family firms. Finally, we examine another independent firm monitor, outside blockholders, that are more likely to be strong advocates for equity value maximization rather than firm value maximization. We find that outside blockholdings do not appear to have an impact on the cost of debt. One interpretation is that institutional investors represent the holdings of a well-diversified stockholder (e.g., Fidelity Investments), while founding family ownership represents a committed and undiversified stake that generates strong incentives for the family to monitor the firm.

Our research contributes to the literature in three important ways. First, we find that family ownership impacts the cost of debt financing, providing the first evidence that equity ownership structure influences the cost of debt.[3] Second, our analysis suggests that large blockholders have varying incentive structures. Institutional investors, such as mutual funds and insurance companies, have a significantly different effect on the cost of debt financing than family blockholders. Third, prior literature is divided on whether stockholders or bondholders bear the agency costs of debt. Jensen and Meckling (1976) suggest that equity holders bear this cost, while Barnea et al. (1981) suggests that bondholders bear the cost. Our analysis, at least in relation to family firms, suggests that these costs are born by equity claimants through higher debt financing costs.

[2] We find that firms with family ownership levels of less than 12% enjoy about a 43 basis point reduction in the cost of debt financing, while firms with greater than 12% ownership have about a 22 basis point reduction in the cost of debt (all relative to non-family firms). This issue is explored in detail in Section 4.

[3] The only related work is that of Bagnani et al. (1994), who explore the effect of CEO ownership on bond holding period returns. Holding period returns are a function of interest rate variability as they are based on the annual change in bond prices. Elton and Gruber (1995) note that holding period returns bear little resemblance to the cost of debt financing, and that corporate decision making or capital budgeting is typically described in terms of the cost of debt financing (i.e., yield to maturity in computing the weighted average cost of capital).

The remainder of this paper is organized as follows. Section 2 reviews the related literature and presents our hypotheses. Section 3 describes our sample, data, and variable measures. Section 4 describes the research design and presents the empirical results. Section 5 tests the robustness of our results using alternative measures and specifications, and Section 6 concludes the paper.

2. Family firms and the agency cost of debt

The agency costs of debt are typically described in terms of the asset substitution or the risk-shifting problem. The potential conflict between equity and debt claimants is such that shareholders expropriate wealth from bondholders by investing in new projects that are riskier than those presently held in the firm's portfolio. In this case, shareholders capture most of the gains (i.e., when high-risk projects payoff), while debtholders bear most of the cost (Jensen and Meckling, 1976; Fama and Miller, 1972). Alternatively, the potential conflict between security claimants can be examined in an option-pricing framework. Equity holdings, or the call option, are only exercised in those states where asset value is greater than the value of the debt claim. As firm risk increases, the option becomes more valuable, causing the value of the debt claim to decline.

Due to the shareholder-incentive problem arising from outside debt, bondholders typically insist on protective covenants and monitoring devices to protect themselves from risk shifting. However, the costs of writing and enforcing such contracts are not trivial. In addition, it is not possible to contract for all future contingencies. For example, covenants that deal with additional financing, dividend or lease restrictions, and mergers are relatively straightforward contractual arrangements. However, convenants that restrict managers' ability to invest in negative NPV projects are much more difficult to monitor and enforce. As these agency costs of debt increase, the premium that debtholders require increases. Consequently, conflicts of interests between shareholders and bondholders lead to higher debt costs.

2.1. Founding family ownership and the agency cost of debt

Large public firms are often characterized as having dispersed ownership, atomistic shareholders, and a separation between ownership and control (Demsetz and Lehn, 1985). While the potential for conflicts of interest among shareholders, debtholders, and managers are well recognized in the literature (Berle and Means, 1932), the presence of large shareholders can alleviate some of these conflicts because these shareholders have advantages in monitoring and disciplining control agents.[4]

[4] Tufano (1996) notes that not all large shareholders have the same incentives to monitor managers. Institutional investors often have large shareholdings in multiple firms (e.g., Fidelity Investments Group), suggesting they may not be strong monitors of management but rather seek high return/risk projects similar to atomistic owners.

Yet, costs can arise with concentrated equity holdings that are not present in firms with diffuse ownership. These costs can take many forms, including expropriation of wealth from small shareholders in the form of special dividends, excessive compensation packages, and risk avoidance.

Founding families represent a special class of large shareholders that potentially have unique incentive structures, a strong voice in the firm, and powerful motives to manage one particular firm. The unique incentives of founding families suggest that these shareholders can alleviate agency conflicts between the firm's debt and equity claimants.[5] Specifically, beyond the undiversified nature of their holdings, we argue that founding families are different from other shareholders in at least two respects; the family's interest in the firm's long-term survival and the family's concern for the firm's (family's) reputation.

First, we posit that founding families are interested in firm survival as they often hold undiversified portfolios relative to atomistic shareholders and because they seek to pass the firm to their heirs.[6] Casson (1999) and Chami (1999) propose (following Becker 1974, 1981) that founding families view their firms as an asset to bequeath to family members or their descendents rather than as wealth to consume during their lifetimes. Specifically, families' interests lie in passing the firm as a going concern to their heirs rather than merely passing their wealth. Firm survival is thus an important concern for families, suggesting that, relative to other large shareholders, they are more likely to maximize firm value rather than shareholder value when a divergence occurs between the two. As such, the divergence of interests between bondholders and shareholders is potentially less severe in family firms than in non-family firms. If so, we anticipate that family firms will exhibit lower costs of debt relative to non-family firms.

Second, founding families face reputation concerns that arise from the family's sustained presence in the firm and its effect on third parties.[7] The long-term nature of founding-family ownership suggests that external parties, such as bondholders, are more likely to deal with the same governing bodies and practices for longer periods in family firms than in non-family firms. For example, banks and other parties often develop personal and well-informed relationships with company executives, suggesting that the family's presence allows these relationships to build over successive generations. Consequently, an exploitive action on the part of the family is

[5] Filatotchev and Mickiewicz (2001) show how concentrated equity claimants can collude with bankers or other fixed-claim holders to expropriate wealth from minority shareholders; suggesting that large shareholders and debtholders have the same goal of firm value maximization rather than shareholder wealth maximization. In contrast, Mueller and Inderst (2001) argue that concentrated ownership could be associated with a higher agency cost of debt.

[6] Using the *Forbes*' Wealthiest Americans data, we find that on average, families have more than 69% of their wealth invested in the firm.

[7] Founding family members also face a unique internal labor market that potentially creates important reputation concerns. Specifically, family members often vie to obtain senior management positions, board seats, or voting control of the family's shares. This suggests that family members can gain economic benefits from building and maintaining a favorable reputation internal to the family. These internal reputation concerns can enhance any effects that the family's reputation plays with external parties.

likely to lead bondholders to expect additional similar actions in the future as long as the family maintains its ties to the firm. Thus, the family's reputation is more likely to create *longer*-lasting economic consequences for the firm relative to non-family firms where managers and directors turnover on a more frequent basis. If families seek to maintain favorable reputations, we expect a negative relation between debt yields and founding family ownership.

Founding families can further influence agency conflicts by placing one of their members in the CEO position. By holding the role of CEO, families can more closely align the firm's actions with their own interests; suggesting an incremental reduction in the agency cost of debt relative to non-family firms or family firms with outside CEOs. However, choosing the CEO from a restricted labor pool (i.e., from among family members) potentially excludes more qualified outside personnel. Morck et al. (1988) find that in older firms, Tobin's Q is lower for firms that have founding family members as CEO but the result appears to be limited to founder descendents rather than to founders. Johnson et al. (1985) suggest that even founders have a detrimental influence on firm performance by noting a positive stock-price reaction upon the announcement of sudden death of a founder. Gomez-Mejia et al. (2001) extend this argument and posit that family ownership leads to greater executive entrenchment. If creditors perceive that family CEOs lead to poorer operating performance, we expect bondholders to require higher yields from firms with family CEOs.

Although we posit that family ownership is associated with a lower agency cost of debt, an alternative perspective is that families can exacerbate agency conflicts because they possess the voice as well as the power to force the firm to meet their demands. Anecdotal accounts in the popular press commonly imply that families expropriate wealth from their firms' other constituents. A recent recapitalization at Ford Motor Company, for example, increased the voting power of the Ford family's special stock, which led to widespread criticism that the company's board of directors had structured a plan to benefit the family at the expense of other claimants. If family ownership increases agency conflicts, then we expect bondholders to require higher yields from family firms.

2.2. *Research focus*

Our central research question is the effect of equity ownership structure on the agency cost of debt. Since founding families arguably have similar incentive structures, they provide a clean and powerful test of whether firm ownership influences debt costs. To this end, we address two specific questions. First, do family firms enjoy lower costs of debt financing than non-family firms? Second, does the level or type of family participation in the firm further impact the cost of debt financing? After controlling for other factors affecting debt costs, we posit that founding-family incentive structures reduce agency conflicts between equity claimants and bondholders, causing debt yield spreads to decrease. This study provides a comprehensive empirical analysis on the subject, using firm-level data on publicly traded, non-provisional debt.

3. Data description

For our sample, we collected information on firms that are in both the Lehman Brothers Bond Database (LBBD) and the S&P 500 Industrial Index. The LBBD provides month-end security-specific information on corporate bonds, including market value, coupon, yield, credit ratings from S&P and Moody's, duration, and maturity on nonprovisional bonds. Lehman Brothers base their criteria for inclusion in the database on firm size, liquidity, credit ratings, subordination, and maturity. The database contains bonds of differing maturities, differing credit ratings, and differing debt claims (senior and subordinated debt). The database's goal is to provide a representative sample of outstanding, publicly traded debt. While the database does not contain the universe of traded debt, we have no reason to suspect any systematic bias within the sample.

We manually collect data on family ownership and family board representation from proxy statements. The literature provides no commonly accepted measure or criterion for identifying a family firm. As such, we collect data on the fractional equity ownership of the founding family. For some firms, the process is straightforward since the proxy statement denotes the founder, his/her immediate family members, and their holdings. However, several generations after the founder, the family typically expands to include distant relatives or in-laws with different last names. We resolve descendent issues by manually examining corporate histories for each firm in the sample. Histories are from Gale Business Resources, Hoovers, and from company press releases and literature. We attempt to capture all family firms and their equity holdings. However, U.S. reporting requirements could cause a downward bias in our estimates of family ownership. This creates a bias toward zero in our testing and also suggests that a binary variable approach could be more robust.

We use the Compustat Industrial Files to garner any firm-specific financial information not already included in the Lehman Brothers Database or in annual corporate proxy statements. This yields 1,052 firm-year observations on 252 firms for the period 1993 through 1998. To assess the representativeness of our sample based on the LBBD Indices data, we also collect data on the remaining 151 industrial firms in the S&P 500 (as of 1992). We find that (in the complete S&P data) the percentage of family firms is about 34%, family ownership is about 18%, the natural log of firm size is $8.55, and leverage is 18.4%. Comparing these results to our data, we find that our sample is comprised of the larger firms in the S&P 500, and that as firm size decreases, family ownership becomes more common. Descriptive statistics on the variables used in the analysis are presented in Section 3.3.

3.1. Measuring family ownership and the cost of debt financing

A potential concern with using family ownership data is that some families are able to exert control with minimal fractional ownership, while others require larger stakes for the same level of control due to differences in firm size, industry, business practices, and product placement. Therefore, we use a binary variable to denote

firms with family ownership. We use this ownership-based dummy-variable approach as the primary indicator of family participation in our testing. For robustness, we consider alternative approaches based on board of director membership, the size of the family's ownership stake relative to other blockholders, and family equity holdings as a fraction of outstanding shares. The results are provided in Sections 4.4 and 5.

The cost of debt financing is measured using the yield spread (Spread), or the difference between the weighted-average yield to maturity on the firm's outstanding traded debt and yield to maturity on a Treasury security with corresponding duration. This measure is commonly used in the fixed-income literature to compute the debt risk premium (Duffie, 1998). The yield on a corporate debt security is defined as the discount rate that equates the present value of the future cash flows to the security price. The yields on Treasury securities are constant maturity series yields published by the Federal Reserve Bank of New York in its H15 release. In the cases where there is no equivalent Treasury maturity, the yield is computed using interpolation based on the Nelson and Siegel (1987) functional form (Jordan and Mansi, 2001).

3.2. Control variable measures

Family ownership can potentially reduce the cost of debt in several ways. First, founding family monitoring and control of the firm could result in better operating performance and thereby generate superior cash flows to meet debt obligations. Second, because families hold poorly diversified portfolios, they have strong incentives to reduce firm risk and cash flow variability. This suggests bondholders experience less risk and, as a result, demand lower yields. Third, families could simply use less debt to minimize the probability of default. Finally, family shareholders could be less likely to expropriate bondholder wealth than other shareholders. Only the last explanation however suggests that family ownership mitigates the agency costs of debt. Consequently, we introduce various control variables to account for firm performance, cash-flow volatility, firm leverage, firm size, debt duration, debt credit ratings, and debt liquidity. We measure firm performance as the ratio of cash flows (net income plus depreciation and amortization) to total assets. That is

$$Perform = \frac{Cashflow}{Assets}. \tag{1}$$

Firm risk (Risk) is the standard deviation of the firm's cash flows scaled by long-term debt for the previous 5 years. That is

$$Risk = \sqrt{\frac{\sum\{(Cashflow/Debt) - (Cashflow/Debt)_{avg}\}^2}{n-1}}. \tag{2}$$

We measure leverage as the ratio of long-term debt to total capital as

$$Leverage = \frac{Debt}{(Debt + Equity)}, \tag{3}$$

where Debt is measured as the sum of the firm's traded (market value) and non-traded (book value) debt, and Equity is the market value of equity. We find similar results using several alternative measures of performance, risk, and leverage. The market value of debt is computed by multiplying the face value of the outstanding debt by its trading debt price (as a percentage of par), while the market value of equity is computed by multiplying the number of shares outstanding by the trading stock price.

Firm size is measured as the natural log of the debt and equity of the firm:

$$Size = Ln(Debt + Equity). \tag{4}$$

We also control for various debt-specific issues, including duration, credit ratings, and liquidity. We use duration to control for differences in maturity and coupon of the firm's outstanding debt. Duration in this case is the Macaulay duration, shown as

$$DUR = \sum_{t=1}^{K} \frac{t \times CF_t}{P(1 + Y)^t} \tag{5}$$

or the discounted time-weighted cash flow of the security divided by its price. Here CF_t is the security cash flows at time t, t is the number of periods until the cash flow, Y is the yield to maturity, and K is the number of cash flows. We compute the weighted-average duration of the outstanding debt (Duration) as a linear combination of the weighted durations of each bond for each firm.

We control for differences in default risk using credit ratings (Rating). As in Reeb et al. (2001), we use the average of Moody's and S&P credit ratings to measure the default risk premium. Rating is computed as the average firm credit rating at the date of the yield observation (i.e., credit ratings are not based on historical rating at bond issuance but are updated as the bond seasons). Bond ratings are computed using a conversion process in which AAA+ rated bonds are assigned a value of 23 and D rated bonds receive a value of 1. For example, a firm with an A1 rating from Moody's and an A+ rating from S&P would receive an average score of 18. Table 1 provides the conversion numbers for both Moody's and S&P firm bond ratings used in the analysis.

A potential problem is that the credit rating variable can incorporate family ownership. Thus, we estimate credit rating without the family ownership component. That is, we estimate a regression with credit ratings (Rating) as the dependent variable and family ownership as the independent variable. The error term from this regression incorporates the credit rating information without the influence or impact of family ownership. We label the error term from this regression (Credit) and use it as our primary measure of credit ratings in the multivariate analysis. An alternative approach based on modeling credit ratings is presented in Section 5.

Table 1
Bond rating numerical conversions
This table provides bond rating conversion codes for Moody's and S&P ratings used in the analysis. Each credit rating is listed along side the corresponding conversion number.

Conversion number	Moody's ratings	S&P ratings
23	Aaa+	AAA+
22	Aaa	AAA
21	Aa1	AA+
20	Aa2	AA
19	Aa3	AA−
18	A1	A+
17	A2	A
16	A3	A−
15	Baa1	BBB+
14	Baa2	BBB
13	Baa3	BBB−
12	Ba1	BB+
11	Ba2	BB
10	Ba3	BB−
9	B1	B+
8	B2	B
7	B3	B−
6	Caa1	CCC+
5	Caa2	CCC
4	Caa3	CCC−
3	Ca	CC
2	C	C
1	D	D

Bond liquidity is measured using the age of the debt, or the length of time the bond has been outstanding. This is a weighted-average difference between the settlement date and the original bond issue date. For example, a bond with an observation date of April 30, 1993, and an issue date of January 31, 1990, would have an age of 3.25 years. Researchers find that liquidity is positively priced in the debt market since more recently issued bonds are more liquid than older ones (Green and Odegaard, 1997). We follow previous research and use age as a proxy for bond liquidity.

3.3. Descriptive and univariate statistics

Panel A of Table 2 presents the descriptive statistics for the variables used in the sample. Included are the mean, median, standard deviation, and maximum and minimum values for the key variables in the analysis.

For the full sample, debt has an average yield spread of 136 basis points in excess of the Treasury yield, with a standard deviation of 110 basis points. The family ownership measure (FamFirm) is a binary variable that takes a value of one for family firms and zero otherwise. Family firms comprise 30% of the sample. Firm size, the natural log of total debt and equity (in millions), has a mean of $8.88, a

Table 2
Sample description of variable measures and industry data

Panel A: Descriptive statistics for variable measures
This table provides summary statistics for the data employed in our analysis. The data set is comprised of 1,052 firm-year observations from 1993 to 1998. The descriptive statistics variables include: a binary variable for family firms (FamFirm), weighted-average yield spread (Spread), weighted duration of debt (Duration), average credit rating (Rating), firm size (Size; Ln(Debt + Equity)), average bond age (Age), firm leverage (Leverage), cash-flow volatility (Risk; standard deviation of cash flows divided by debt), and firm performance (Perform; cash flow divided by total assets). Finally, we provide information on the range of family ownership among the family firms in our sample.

Variables	Mean	Median	St. dev.	Maximum	Minimum
Spread (basis points)	135.961	102.7006	109.454	1067.866	2.239
FamFirm	0.300	0.000	0.459	1.000	0.000
Duration (years)	6.287	6.276	2.454	13.621	0.083
Rating	15.979	16.0000	3.209	22.143	1.000
Size (firm)	8.877	8.705	1.28	12.782	4.398
Age (bond age)	3.917	3.511	2.689	25.655	0.033
Leverage	0.219	0.203	0.133	0.943	0.000
Risk	0.030	0.024	0.035	0.274	0.002
Perform	0.138	0.127	0.075	0.786	−0.119
Family Ownership (among family firms)	0.190	0.115	0.198	0.851	0.010

Panel B: Industry data
This panel includes the number of firm-year observations for each industry group in the sample using single digit SIC codes.

SIC Code	Titles of industries	Number of firm-year obs.
1	Mining	41
2	Construction	359
3	Manufacturing	322
4	Transportation	62
5	Wholesale Trade	138
6	Retail Trade	82
7	Agricultural Services	42
8	Forestry	6

standard deviation of $1.28, and a maximum and a minimum size of $12.78 and $4.40, respectively. Average firm performance, measured as cash flows scaled by total assets, is 12.03%. The remaining variables in the sample are security specific. The mean-traded debt has duration of approximately 6.3 years, a standard deviation of approximately 2.5 years, with a maximum duration of 13.6 years. Further, the mean-traded debt has been outstanding for 3.9 years, with a maximum age of 25.6 years. The mean leverage ratio is 21.9%, with a standard deviation of 13%.

Table 3
Univariate analysis
This table provides data for family and non-family firms. The variables include: weighted-average yield spread (Spread), family ownership, weighted duration of debt (Duration), average credit rating (Rating), firm size (Size; Ln(Debt + Equity)), average bond age (Age), firm leverage (Leverage), cash-flow volatility (Risk; standard deviation of cash flows divided by debt), and firm performance (Perform; cash flow divided by total assets).

Variables	Family firm ($n = 316$)	Non-family firms ($n = 736$)	Difference	t-Statistic
Spread (basis points)	136.053	135.921	0.132	0.018
Family ownership	0.190	0.000	0.190	17.074
Duration (years)	6.125	6.346	−0.221	−1.319
Rating	16.147	15.908	0.239	1.113
Size (firm)	8.495	9.040	−0.545	−7.168
Age (bond age)	3.732	3.989	−0.257	−1.432
Leverage	0.246	0.208	0.038	3.870
Risk	0.027	0.031	−0.004	−1.999
Perform	0.129	0.141	−0.012	−2.718

Panel B of Table 2 describes the industry distribution of the sample using the standard Security Industry Classification (SIC) codes. Industries include: agriculture; forestry and fishing; construction; manufacturing; transportation; wholesale trade; retail trade; and services (excluding financial and utility firms).

Table 3 provides a univariate analysis between family and non-family firms. We present information on the yield spread, family ownership, duration, credit ratings, firm size, bond age, leverage, risk, and firm performance for both family and non-family firms. Founding families on average hold 19% of the firm's outstanding equity, with family members serving as CEO in 29.6% of the family firms. Outside CEOs make up the remaining 70.4% of CEOs in family firms. Results of the univariate analysis imply that family firms utilize more leverage, are smaller in size, have lower risk and performance, but still enjoy a similar cost of debt capital and credit ratings. As size and leverage are both significant determinants of the cost of debt (Reeb et al., 2001), this implies that family firms potentially have a lower cost of debt financing. We explore this issue further in a multivariate framework.

4. Multivariate testing results

In the primary specification,

$$\begin{aligned} Spread_{i,t} = {} & A_0 + A_1(FamFirm_{i,t}) + A_2(Duration_{i,t}) + A_3(Credit_{i,t}) + A_4(Size_{i,t}) \\ & + A_5(Age_{i,t}) + A_6(Leverage_{i,t}) + A_7(Risk_{i,t}) + A_8(Perform_{i,t}) \\ & + A_9(Time\_Dum_{i,t}) + A_{10}(Ind\_Dum_{i,t}) + \varepsilon \end{aligned} \tag{6}$$

we test the cross-sectional relation between family ownership and the cost of debt financing, and various control measures. Here, spread is the bond yield in excess of

the Treasury yield with corresponding maturity. The independent variables in our regression include family ownership (FamFirm), Duration, Credit, Size, Age, Leverage, Risk, Perform, and both year and industry dummy variables. Our principal concern in the analysis is the family ownership coefficient estimate, A_1. A negative coefficient would provide support for the hypothesis that family ownership reduces the agency costs of debt.

4.1. Evidence on yield spreads with family ownership

For our control variables, we expect duration to be negatively related to yield spread as higher duration securities demand higher coupons at issuance and greater chance of lower yields. However, as the yield spread is computed using the duration-equivalent Treasury security, the construction of the dependent variable mitigates this concern. Credit should be negatively related to the yield spread as firms with lower ratings have a higher cost of debt financing. Size can also be negatively related to yield spread as larger firms enjoy economies of scale and greater stability. However, size could be fully incorporated into credit ratings. Age of the firm's outstanding debt should be positively related to yield spread, as liquid securities (i.e., less seasoned) demand higher prices and lower yields. Leverage and Risk should also be positively related to the cost of debt financing, as higher debt usage and greater risk are associated with a higher cost of debt. That is, as the debt to equity ratio of a firm increases and as firm risk increases, the probability of default increases, which causes the rate of return to the bondholders to increase. We expect firm performance to be negatively related to the cost of debt financing, as better performance indicates a lower default risk. However, leverage, risk, and performance could all be captured in credit ratings. Finally, we include year and industry dummy variables to control for possible time and industry effects. Table 4 provides the predicted sign for each of the coefficient estimates.

Column 2 of Table 4 presents the regression results using Eq. (6). The t-statistics are corrected for heteroskedasticity using White (1980) standard errors. We control for serial correlation by subtracting the Treasury security yield from the firm yield and by including yearly dummy variables. Repeating the analysis on a year-by-year basis leads to similar inferences. Our results indicate that family firms experience a lower cost of debt financing. The coefficient estimate on family firms is 31.965 with a t-statistic of -5.584, consistent with the notion that family and market forces provide strong incentives for founding families to monitor the firm and reduce agency conflicts.

In terms of the control variables, the coefficient estimate for credit is negative and significant at the 1% level, while the leverage coefficient estimate is not significantly different from zero.[8] The coefficients on both size and performance are significant and negative as expected. The firm risk and bond age coefficient estimates are positive and significantly different from zero at the 1% and 5% levels. The duration

[8] Excluding credit ratings and performing the regression lead to a significant and positive effect of leverage. This suggests that leverage effects on yield to maturity can be captured in the credit rating.

Table 4
Yield spread and family ownership ($n = 1,052$)
This table gives the estimated coefficients from regressing corporate yield spreads (the difference between the weighted-average yield on the firm's outstanding debt and the yield on a Treasury security with a similar maturity) on a binary indicator of family ownership and various control variables. These variables are: a 0 or 1 indicator of family firms (FamFirm), weighted-average duration (Duration), yield spread (Spread), adjusted credit rating (Credit), firm size (Size; ln(Debt + Equity)), average bond age (Age), firm leverage (Leverage), cash-flow volatility (Risk; standard deviation of cash flow divided by debt), firm performance (Perform; cash flow divided by total assets), and dummy variables for both time period and industry. The primary specification is:

$$Spread_{i,t} = A_0 + A_1(FamFirm_{i,t}) + A_2(Duration_{i,t}) + A_3(Credit_{i,t}) + A_4(Size_{i,t}) + A_5(Age_{i,t}) + A_6(Leverage_{i,t}) + A_7(Risk_{i,t}) + A_8(Perform_{it}) + A_9(Time\_Dum_{,t}) + A_{10}(Ind\_Dum_{it})\varepsilon.$$

These results are reported in column 2. In columns 3 through 6, we add dummy variables to indicate a family member serving as CEO (CEO Family), an outsider serving as the CEO in a family firm (CEO Hire), the founder of the firm serving as the CEO (CEO Founder), and a descendent of the founder serving as the CEO (CEO Descendent). In column 7 we report the results of including a dummy variable to indicate the presence of another potential firm monitor, namely outside blockholders (Outside Blockholders).

Variable	Sign	Dependent variable = spread					
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept		484.445*	484.070*	483.930*	484.247*	484.990*	473.619*
		(12.176)	(12.071)	(12.131)	(12.155)	(12.093)	(11.239)
FamFirm	?	−31.965*	−36.101*	−24.363*	−32.211*	−35.512*	−31.066*
		(−5.584)	(−6.530)	(−3.003)	(−5.613)	(−6.413)	(−5.532)
Duration	−	1.304	1.155	1.256	1.298	1.162	1.315
		(1.379)	(1.213)	(1.322)	(1.374)	(1.219)	(1.389)
Credit	−	−20.230*	−20.276*	−20.119*	−20.208*	−20.392*	−20.021*
		(−14.126)	(−14.076)	(−14.115)	(−14.016)	(−14.000)	(−14.153)
Size	−	−45.166*	−44.805*	−44.938*	−45.142*	−44.872*	−44.498*
		(−12.354)	(−12.144)	(−12.241)	(−12.318)	(−12.185)	(−12.020)
Age	+	6.654*	6.672*	6.693*	6.676*	6.569*	6.611*
		(5.086)	(5.055)	(5.078)	(5.083)	(4.996)	(4.996)
Leverage	+	0.172	0.100	0.155	0.174	0.075	0.182
		(0.640)	(0.365)	(0.576)	(0.648)	(0.282)	(0.670)
Risk	+	3.838*	3.905*	3.854*	3.844*	3.886*	3.850*
		(3.792)	(3.861)	(3.807)	(3.797)	(3.848)	(3.770)

Perform	–	−0.892*	−0.888*	−0.901*	−0.896*	−0.867*	−0.876*
		(−2.761)	(−2.735)	(−2.782)	(−2.771)	(−2.675)	(−2.712)
CEO Family	?		17.082**				
			(2.179)				
CEO Hire	?			−11.127			
				(−1.483)			
CEO Founder	?				3.986		
					(0.410)		
CEO Descendent	?					19.642**	
						(2.062)	
Outside Blockholders	?						21.779
							(0.683)
Adjusted R Square		0.566	0.568	0.566	0.566	0.568	0.566

*,**Significant at the 1% and 5% level, respectively. The *t*-statistics, given in parenthesis below each estimate, are corrected for heteroskedasticity.

coefficient estimate is insignificant, suggesting that the dependent variable controls for duration differences. Overall, our results indicate that family ownership is associated with a lower cost of debt financing.

4.2. Delineating between family founder, descendent, and outside CEOs

Morck et al. (1988) suggest that firm founders and founder descendents, as CEO, have differing impacts on firm performance. As a result, we explore the influence of two potential CEO choices, Family Member or Outsider. To investigate the impact of CEO affiliation, we repeat the testing in Eq. (6) by adding dummy variables for each CEO type. Specifically, in columns 3 and 4 of Table 4 we include dummy variables (one per regression) for a family member as CEO (CEO Family) and for an outside hire as CEO (CEO Hire). Interestingly, we find that having a family member as CEO is associated with a significantly higher cost of debt financing (17.082 basis points), while outside CEOs appear to have no significant effect on bond yields.

In further testing, we delineate between the founder as CEO (CEO Founder) and founder descendents as CEO (CEO Descendent). Our results are shown in columns 5 and 6 of Table 4 and indicate founder descendents acting as CEO increase debt costs while founders bear no significant relation to the cost of debt. Seemingly, bondholders view passing firm leadership from founders to descendents as detrimental to their wealth and thus require higher yields. Our results are consistent with Morck et al. (1988) and Johnson et al. (1985) and suggest that family member CEOs lead to poor firm performance and a higher cost of debt, relative to outside CEOs. However, F-tests indicate that even after controlling for CEO type, family firms still have a lower overall cost of debt financing. Family firms with outside CEOs, founders, and founder descendents enjoy a 35.5, 32.2, and 15.9 basis point advantage over non-family firms, respectively. The 35.5 basis point reduction in the cost of debt financing is similar in magnitude to the average spread between A and BBB rated debt (based on the intermediate and long-term indexes in the LBBD database for the period 1990–1998) and as such represents an important competitive advantage for family firms.

4.3. The impact of outside blockholders

In Table 4, we also consider another class of owners or firm monitors that potentially affect the firm's cost of debt to assess the robustness of our results. Other large shareholders may also have powerful incentives to monitor and discipline firm managers, suggesting a relation between blockholdings and the cost of debt financing. We use a binary variable to indicate outside blockholders, defined as entities holding 5% or more of the firm's shares and having no other relationship to the firm except for their ownership (e.g., pension funds, mutual funds, etc.). The coefficient estimate on outside blockholders is positive but insignificant in column 7 of Table 4, suggesting these entities have no effect on the cost of debt financing. From an empirical perspective, our results suggest that the family's undiversified

holdings and concerns of firm survival and reputation provide substantively different incentive structures as compared to institutional investors.

Consistent with results in the prior tests, the family ownership coefficient estimate remains negative and significant (at the 1% level) after controlling for outside blockholders. These results are also economically significant, indicating that after controlling for firm- and debt-specific attributes, family firms have about 31.1 basis point lower cost of debt than non-family firms.

4.4. On the linearity of family ownership and the cost of debt

Prior research suggests that ownership structure exhibits a non-linear relation with firm performance (Bagnani et al., 1994; McConnell and Servaes, 1990; Morck et al., 1988). Consistent with prior literature, we explore piece-wise linear regression models with one and two breakpoints. Using switching point regression techniques that estimate breakpoints based on minimizing the unexplained variance of the regression model, we find that a two-piece model with a breakpoint at 12% best explains the ownership/debt relation.[9] Based on a 12% ownership breakpoint, we developed an additional variable to describe family holdings. That is *HighOwn* equals 1 if the founding family's holdings are greater than 12% of the firm's shares and zero otherwise.

Our expectation is that families with the greatest level of equity ownership will have the greatest impact on the cost of debt financing. As such, we expect both FamFirm and HighOwn to be negatively related to the cost of debt financing. The test specification is

$$\begin{aligned} Spread_{i,t} = {} & B_0 + B_1(FamFirm_{i,t}) + B_2(HighOwn_{i,t}) + B_3(Duration_{i,t}) \\ & + B_4(Credit_{i,t}) + B_5(Size_{i,t}) + B_6(Age_{i,t}) + B_7(Leverage_{i,t}) \\ & + B_8(Risk_{i,t}) + B_9(Perform_{i,t}) + B_{10}(Time\_Dum_{i,t}) \\ & + B_{11}(Ind\_Dum_{it}) + \varepsilon. \end{aligned} \tag{7}$$

We report the regression results in Column 1 of Table 5. The coefficient estimate for FamFirm is consistent with our prior results and indicates that founding families have a lower cost of debt financing. Family firms with less than 12% ownership stakes enjoy about a 42.9 basis point lower cost of debt financing than non-family firms. However, for high family ownership firms, we note an incremental increase in debt costs of 21.1 basis points, suggesting that large family holdings potentially lead to wealth expropriation from bondholders or that families entrench themselves at the expense of other claimants. However, after controlling for high ownership stakes, we find that family firms still enjoy a 21.8 basis point lower cost of debt than non-family firms.

An alternative approach in considering non-linear impacts is suggested in McConnell and Servaes (1990). In this context, we repeat the analysis above using

[9] We find that this method is preferable to arbitrarily establishing breakpoints. We also employed three-piece models and found similar results. As such we report our testing based on the two-piece models.

Table 5
High family ownership ($n = 1,052$)
Column 1 gives the estimated coefficients from regressing corporate yield spreads (the difference between the weighted-average yield on the firm's outstanding debt and the yield on a Treasury security with a similar maturity) on a binary indicator of family ownership, high family ownership and various control variables. The dependent variables are: a 0 or 1 indicator of family firms (FamFirm), a dummy variable for family ownership above 12% (HighOwn), weighted-average duration (Duration), adjusted credit rating (Credit), firm size (Size), average bond age (Age), firm leverage (Leverage), cash-flow volatility (Risk), firm performance (Perform), and dummy variables for both time period and industry. The specification is:

$$Spread_{i,t} = B_0 + B_1(FamFirm_{i,t}) + B_2(HighOwn_{i,t}) + B_3(Duration_{i,t}) + B_4(Credit_{i,t}) + B_5(Size_{i,t}) + B_6(Age_{i,t}) + B_7(Leverage_{i,t}) + B_8(Risk\_I_{,t}) + B_9(Perform_{it}) + B_{10}(Time\_Dum_{,t}) + B_{11}(Ind\_Dum_{it}) + \varepsilon.$$

In column 2 we repeat the analysis, replacing FamFirm and HighOwn with the fractional equity ownership of the founding family (FamOwn) and the square of fractional family equity ownership ($FamOwn^2$).

Variable	Dependent variable = spread	
	(1)	(2)
Intercept	482.754*	471.331*
	(12.182)	(11.681)
FamFirm	−42.867*	
	(−7.202)	
HighOwn	21.102*	
	(2.846)	
FamOwn		−169.072*
		(−3.451)
$FamOwn^2$		201.882**
		(2.553)
Duration	1.589***	1.198
	(1.665)	(1.247)
Credit	−20.303*	−19.713*
	(−14.016)	(−13.950)
Size	−45.216*	−43.503*
	(−12.297)	(−12.208)
Age	6.859*	6.668*
	(5.116)	(5.069)
Leverage	0.195	0.146
	(0.721)	(0.541)
Risk	3.675*	4.228*
	(3.616)	(4.169)
Perform	−0.866*	−0.895*
	(−2.677)	(−2.738)
Adj. *R*-square	0.568	0.557

*,**,***Significant at the 1% and 5% level, respectively. The *t*-statistics, given in parenthesis below each estimate, are corrected for heteroskedasticity.

the percentage family ownership (FamOwn) and the square of the percentage family ownership ($FamOwn^2$) as the independent variables (instead of FamFirm and HighOwn). These results are reported in column 2 of Table 5. Consistent with the

previous results, we find evidence of a curvilinear relation between family ownership and the cost of debt financing. At the average level of family ownership in our sample of 19%, we find that the cost of debt is 24.8 basis points lower in family relative to non-family firms.

5. Alternative specifications

An assumption of our analysis is that the specification and proxies adequately measure the appropriate attributes. We find that our results are also robust to various alternative specifications.

In Section 2, we examine several non-mutually exclusive reasons that family ownership could alleviate conflicts between debt and equity claimants. Unfortunately, our evidence does not distinguish which aspect of family ownership, either the undiversified nature of family holdings or family reputation/generation concerns, drives the results. To provide some insight on this issue, we examine a subset of 28 family firms for which we can measure the level of family diversification. Family diversification is computed as the value of the families equity holdings in the firm divided by their total wealth, as provided by *Forbes* Wealthiest American List. We proxy for reputation using a binary variable that equals one when the firm bears the family's last name and zero otherwise. Although, we expect that family diversification has the greatest impact on the cost of debt financing, we find that reputation is associated with a 28.7 basis point lower cost of debt. While our test is based on a small subset of family firms and lacks power, the results imply that family reputation is an important issue in understanding agency conflicts with debtholders.

There is also a potential endogeneity problem. Specifically, the concern is whether lower firm risk leads to greater family ownership (or vice versa). While we explicitly control for firm risk above, an alternative approach is to use an instrumental variable, two-stage least-squares framework. Following Himmelberg et al. (1999) in developing an instrumental variable for ownership, we find similar results to those reported in Tables 4 and 5. Specifically, we find that family firms are associated with about a 33 basis point reduction in the cost of debt financing.

We also test the sensitivity of our results to the presence of outliers and influential observations. Observations with an R-Student greater than three or a DFFITS greater than one are considered outliers or influential observations and are then eliminated from the sample. Neter et al. (1996) provide a thorough treatment of outliers and influential observations. The results were similar to those reported in Table 4 and do not change substantively when truncated for outliers at the largest 1%, 3%, and 5% levels at each tail of the distribution for each variable in the model. Further, as firm year observations can intensify the outlier bias, we repeated the analysis using pooled regressions, which also led to similar results.

We also allow for a nonlinear relation between bond yield spreads and credit ratings. As many institutions are barred from holding securities below a certain class, this may create nonlinearities. The initial level of the credit ratings is also important and should be tested (e.g., the difference from AAA to AA+ may be different than

the difference from BBB+ to BBB). Therefore, we use both a binary variable approach (with investment grade coded as 1) and a piecewise linear regression with 23 breakpoints and 22 dummy variables to proxy for credit ratings. We also tried a non-linear specification using the square of the firm's credit rating. The results of these regressions are consistent with the primary specification and indicate that the linear credit specification (Credit) is robust. Another alternative is to model credit ratings, using firm specific characteristics, and then forecast the credit rating without the family ownership portion. We also find similar results using this procedure.

In further tests, we consider an alternative method of measuring bond liquidity. Our primary specification utilized age as a proxy for liquidity. However, a nonlinear specification may be more appropriate because bond liquidity appears to decay exponentially with age (Beim, 1992). Therefore, we replace age with the natural log of age. Liquidity can also be measured using a binary variable to denote bonds less than three years old. Regressions using these two alternate measures are consistent with our primary regression, suggesting that family ownership is indeed associated with lower cost of debt. The number of bond issues a firm has outstanding can also be used as a measure of liquidity. Repeating the analysis including the number of outstanding issues also leads to similar results. We also added intangible assets as another control variable to Eq. (6). Intangibles potentially reflect firm inability to pay creditors in case of liquidation. The results of adding this control variable confirms our initial findings that family ownership is associated with a lower cost of debt.

Because the bankruptcy literature suggests that firm liquidity is an important variable in measuring default risk, we repeat our analysis using the coverage ratio as a proxy for firm liquidity. The coverage ratio coefficient estimate is insignificant and the results are consistent with those reported. We also consider allowing for a non-linear relation between the yield spread and firm leverage. Specifically, we incorporate the square of leverage as another potential control variable and find that our result of a negative relation between the cost of debt and family ownership remains unchanged.

We realize that the relation between family ownership and yield spread may not be stable over time, especially during the 1994 period when the Federal Reserve raised interest rates seven times in succession. Therefore, we use a dummy variable to denote the pre-1995 period along with period subset regressions. The results corroborate those reported. We also control for debt structure by including the proportion of senior debt to total debt in our analysis. Once again we find a negative relation between family ownership and the cost of debt financing.

Finally, we perform the analysis using two alternative indicators of family presence or influence. First, we use family membership on the board of directors as an alternative method to identify family firms. We obtain this information from the proxy statements and find similar results to those reported in Tables 4 and 5. Second, we measure family influence as the ratio of family ownership to other blockholders. Consistent with the previous results, we find that family influence is associated with lower cost of debt financing. Overall, the results suggest a significant relation between family equity ownership and the agency cost of debt.

6. Conclusion

Diversified shareholders potentially have incentives to expropriate bondholder wealth by investing in risky, high expected-return projects since they capture the excess returns should this strategy be successful, while bondholders bear the costs of failure. Recognizing these potential conflicts of interest, bondholders require higher interest rates. In this context, prior research focuses on the use of bond covenants and callable debt to minimize these agency costs of debt. In contrast, our research explores the relation between founding family ownership/influence and the agency cost of debt. Thus, we investigate the impact of concentrated versus dispersed equity ownership on the agency cost of debt. To the best of our knowledge, this is the first empirical study to analyze directly how ownership structure affects the cost of debt financing.

Using a sample of firms from the Lehman Brothers Bond database and the S&P 500, we find that founding family ownership is common, with families present in 30% of firms and holding 19% of the outstanding equity, on average. Because these shareholders typically have undiversified portfolios, are concerned with firm and family reputation, and often desire to pass the firm onto their descendents, we contend they represent a unique class of shareholders that potentially affect agency costs. Our analysis indicates that founding family ownership reduces the cost of debt financing. Specifically, we find that family firms enjoy a 32 basis point lower cost of debt financing relative to non-family firms. The greatest value gains from family ownership occur when families hold less than 12% of the firm's shares. Above a 12% stake, debt costs increase but continue to be lower than those found in non-family firms.

Families, beyond their ownership stake, can exert additional control and possibly reduce agency problems by placing one of their members in the CEO position. Contrary to reducing agency problems, we find that CEOs who are descendents of the founder appear to increase the cost of debt financing. Regardless of CEO status though, family firms enjoy a lower cost of debt financing. In robustness testing, we fail to find any relation between outside blockholders and debt yields.

Overall, we find strong evidence that equity-ownership structure significantly influences the conflicts of interests between shareholders and bondholders. Because of the unique incentives generated by long-term commitments to the firm, undiversified portfolios, and familial pressure, founding families appear to reduce agency conflicts between the firm's equity and debt claimants and thereby reduce the cost of debt financing. Our analysis suggests that bondholders view founding family ownership as an organizational structure that better protects their interests.

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