

MANAGERIAL OWNERSHIP AND BEHAVIOR:
THE IMPACT ON CORPORATE CREDITORS

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Abstract

Using relational and adversarial models of managerial behavior, we examine how an important stakeholder, namely corporate creditors, regards chief executive ownership. We posit that corporate creditors consider managerial equity holdings an important governance mechanism by affecting executive effort and identification with the firm. Based on creditors' unique claims on firm assets, we argue that agency and stewardship models of managerial behavior offer key theoretical predictions on the role of chief executive stock holdings. Using a sample of S&P 500 firms, we then test this creditor perspective on managerial ownership. The findings indicate that creditors are particularly concerned with chief executive holdings, even after controlling for managerial stock options, other types of ownership, and firm-level risk factors. We also find that managerial equity holdings have a significant moderating effect on the importance that creditors assign to internal monitoring devices, which is consistent with our agency-based arguments. Further analysis reveals that during the late 1990s and early 2000s (a period of heightened governance interests) creditors placed incrementally greater emphasis on managerial ownership as a mechanism to protect their investments in the firm. Overall, our analysis suggests that creditors perceive the equity holdings of the chief executive as an important governance device in limiting opportunistic behavior.

Management researchers have suggested that executive equity ownership acts as an important governance device, portraying it either as a control mechanism (agency) or as an identification mechanism (stewardship). Agency theorists argued that managers exercise substantial control and influence in allocating firm resources and can use their discretion to divert assets to their private benefit at the expense of the firm's investors (Berle and Means, 1932). In an effort to remedy this concern, firms often provide managers an equity stake in the firm that potentially aligns their interests with those of investors (Alchian and Demsetz, 1972). Stewardship theorists in contrast, have contended that managers often possess sufficient self-motivation to act in the best interests of all firm stakeholders (Davis, Schoorman, and Donaldson, 1997). In this setting, managerial ownership improves identification with the firm and increases organizational commitment, leading to a greater emphasis on protecting corporate assets (Sundaramurthy and Lewis, 2003). Agency theorists have thus portrayed managerial equity holdings as an adversarial governance mechanism that limits opportunistic behavior, while stewardship theorists have suggested it acts as a relational governance device that increases managerial commitment and identification with the organization.

Considerable debate in the empirical governance literature also arises over the effects of managerial equity stakes (Daily, Dalton, and Cannella, 2003). Hoskisson and Turk (1990) suggested that chief executive ownership improves firm performance and reduces managerial incentives to engage in value decreasing diversification. Hall and Liebman (1998) reported that firm performance is positively related to managerial holdings. Yet, in a large-scale, multi-country study, Gugler, Mueller, and Yurtoglu (2004) examined managerial ownership and firm performance and found that executive equity stakes supply few, if any, tangible benefits to the firm. In contrast, Salancik and Pfeffer (1980) described how greater chief executive ownership insulates these managers from dismissal when firms perform poorly. Dalton, Daily, Certo, and Roengpitya (2003) incorporated the results of several studies into their meta-analysis and concluded that managerial ownership provided little benefit to shareholders. Overall, academic

research yields no general consensus on the benefits or costs generated by managers holding an equity stake in the firm (Dalton, Daily, and Cannella, 2003).¹

Both theoretical and empirical studies on the role of managerial ownership have focused primarily on its impact on equity holders. Shareholders however, represent only one type of stakeholder. Mizruchi and Stearns (1994) observe that firms often obtain a substantial portion of their capital from debt, depending on a variety of economic and organizational factors. S&P 500 companies for instance, raise nearly one-third of their long-term investment needs from debt. Creditors, or debtholders, are concerned with the organizational structure of the firm and face many of the same issues that shareholders encounter; including governance problems, environmental uncertainty, and organizational failure (Anderson, Mansi, and Reeb, 2003). The debt claim on the firm however, differs systematically from the equity claim. Differences in priority of pay-out, distribution of risks, and control and payment of governance systems suggests that debtholders' claims potentially exhibit greater sensitivity to factors influencing firm performance than shareholders' claims (Bhojraj and Sengupta, 2003). Specifically, because creditors receive payment prior to shareholders but from the same stream of funds as shareholders, they show great concern over characteristics that affect firm health and viability.

Our study departs from the extant literature by examining the relation between managerial ownership and the returns demanded by another principal stakeholder in the firm; debtholders. We argue from a conceptual perspective that equity holdings provide managers with incentives that influence executive effort and increase managerial commitment to the firm. As a stakeholder sensitive to firm performance, creditors account for the incentive and commitment effects of managerial ownership and accordingly adjust the returns (or interest rate) on the capital they provide to the firm. We extend both relational and adversarial models of corporate governance to consider creditors' perspectives on the effects of chief executive ownership on managerial behavior. We theorize that corporate creditors show

¹ In contrast, prior studies on other shareholder groups such as banks, hedge funds, pension funds, and founding families indicate that larger shareholder presence is associated with better corporate governance (e.g. David, Hitt and Gimeno, 2001; Laszlo et al, 2003; Anderson, Mansi, and Reeb, 2003).

great concern with managerial ownership because it may affect executive behavior and thus the value of the firm's underlying assets.

We also explore whether managerial ownership influences creditor demand or need for other governance mechanisms. Firms do not typically employ a single governance instrument but rather use bundles of devices to affect managerial actions (Rediker and Seth, 1995). Beyond equity ownership, executives confront (amongst other devices) boards of directors, large-block shareholders, and equity-based compensation that potentially affect the quality of corporate governance (e.g. Beatty and Zajac, 1994). Based on the unique nature of creditors' claims, we argue that agency and stewardship models of managerial behavior yield distinct and differing theoretical predictions on the interaction of chief executive ownership and other governance devices.

The study provides several important implications. First, creditors perceive that executive equity ownership influences managerial effort and opportunistic behavior. Expanding the discussion of managerial ownership beyond shareholders to include other stakeholders in the firm provides a broader backdrop to explore its impact on managerial behavior. Second, from a creditor's perspective, agency theory appears to better explain the role of managerial ownership as a governance device than a stewardship model. The concurrent use of managerial ownership with other governance devices appears to limit managerial opportunism, with creditors viewing them as substitutes. Third, our analysis suggests that stock-option holdings and equity holdings provide differing incentives to managers. Equity ownership appears to provide managers with incentives to protect firm assets while option ownership provides incentives to assume more risk. Fourth, firms with strong governance practices during the marked uncertainty of the late 1990s and early 2000s accrued substantial financial benefits. Those with poor practices however, paid a large price through a higher cost of debt financing. Based on our theoretical framework, these implications suggest that equity holdings play an important role in mitigating opportunistic behavior; leading to greater asset protection.

ANOTHER STAKEHOLDER IN THE FIRM - DEBTHOLDERS

Firms raise external capital from two primary sources; debt and equity. Ross, Westerfield, and Jaffe (2006) describe how the owners of these capital forms possess different claims on the firm. Debtholders, in exchange for their cash, possess a fixed claim that promises payment of interest and repayment of principal prior to other claimants receiving profits or funds from the firm. Equity holders provide capital through retained earnings (current shareholders) or through the purchase of new shares (new shareholders). For the provision of their capital, shareholders lay claim to the firm's present and future residual income stream. Shareholders via management, also retain control of decision-making whereas debtholders retain little direct control except for provisions outlined in lending agreements.

Modigliani and Miller (1958) noted that in a perfect world – one without taxes, transaction costs, perfect information, etc. – that a firm's value is independent of its sources of investment capital. In subsequent research, scholars have noted that economic factors such as the tax deductibility of interest payments, agency problems, and bankruptcy costs can also influence the type of capital used to pay for investments (Barton and Gordon, 1988). Other researchers have also examined the determinants of corporate borrowing, suggesting organizational factors such as managerial values, competitor choices, and firm social ties are important in shaping financing decisions (Donaldson, 1961; Myers, 1988; Mizruchi and Stearns, 1994). For instance, Mizruchi and Stearns (1994) argue that board composition and CEO educational background can influence the firm's capital structure choice. Other researchers have examined how financing choices and corporate strategy influence firm value (Barton and Gordon, 1988; Kochhar, 1996; Kochhar and Hitt, 1998; Simerly and Li, 2000; O'Brien, 2003).

We take a different tact and ask whether governance choice affects the returns or yields demanded by the firm's investors (rather than the amount of debt the firm uses). Each investor group – debtholders and shareholders – confronts different risks arising from firm and managerial choices, and thus require different rates of return for the use of their capital. The primary risk borne by equity holders arises over firms' ability to earn economic profits on their invested capital (Jensen and Meckling,

1976). Firms earning less than economic profits, destroy value, and make shareholders worse-off than if they invested in other opportunities of equal risk that realized their expected returns.

Debt holders bear the risk that firms cannot meet interest payments and/or repayment of principal (Kalay, 1982). As the likelihood of default increases on debt payments, creditors demand greater compensation for bearing greater risk; debt holders earn greater compensation by requiring firms to pay higher rates of interest (Smith and Warner, 1979). Shareholders and debt holders face many of the same factors that potentially jeopardize their returns on invested capital, including governance problems, poor economic conditions, and marketing failures. As these jeopardizing factors become more prevalent, both investor groups bear greater risk and demand a greater return on their capital (Harris and Raviv, 1991). Despite the importance of debt in financing investments, we know very little about the relation between debt holder returns and organizational factors.

On a practical perspective, debt represents a central and vital form of financing for most firms. S&P 500 firms for instance, obtain over one-third of their long-term capital from debt. On a combined basis – current and long term – debt provides nearly 65% of large firms total capital requirements. Yet, there is a paucity of academic research on the relation between debt costs and organizational factors. Bhojraj and Sengupta (2003) found that firms with greater institutional ownership experience a lower cost of debt financing; and suggest that debt holders demand lower returns because institutional shareholders can monitor managerial actions. Anderson, Mansi, and Reeb (2003) argued that because founding families place greater value on firm survival than well-diversified investors (who value wealth maximization), bondholders experience less risk when they invest in family firms and thus require lower rates of return on their capital. Although limited, extant literature indicates that debt holders vary their required returns depending on organizational characteristics.

An important distinction between the debt and equity claim concerns the existence of bond covenants. Bond covenants are detailed contractual arrangements that restrict managerial actions in an effort to protect creditors' investment; suggesting that debt holders potentially contract against

managerial opportunism and thus debt returns bear no relation to governance practices. In practice however, no set of prearranged restrictions can cover every contingency (Smith and Warner, 1979). Berlin and Loeys (1988) concluded that debt covenants are relatively rigid and inefficient tools for controlling managerial behavior; indicating that debt yields (interest rates) potentially exhibit a relation to governance mechanisms.

We build on these bodies of research by examining the relation between an important firm strategic decision – corporate governance choice – and the returns demanded by debtholders. Shareholders, as residual claimants, are responsible for establishing the bundle of governance mechanisms that control managerial actions and choice (Kerr and Bettis, 1987). Although shareholders set the types and levels of control devices to maximize their returns, other stakeholders in the firm potentially capture or garner benefits from the same devices (Schneper and Guollen, 2004). Governance systems affecting managerial effort or avarice for instance, arguably generate greater returns to shareholders but also potentially limit the risk borne by debtholders. By bearing less risk, debtholders require less compensation and thereby require lower returns (lower interest rates) for the use of their capital (Smith and Warner, 1979).

Opportunism, Commitment and Debtholder Returns

Berle and Means (1932) characterized the largest U.S. firms as being run by professional managers, with many small and poorly informed investors that supplied the firm's capital. Agency theory revolves around a simple question on such an organizational structure: how can atomistic investors ensure that managers do not expropriate or waste the supplied capital? Early economists argued that professional managers would be less diligent than owners in decision-making and could also select projects and investments that provide personal benefits, rather than benefits to the suppliers of capital (Berle and Means, 1932). Others suggested that once investors supplied funds, they typically contribute little else, and managers can abscond with the capital (Shleifer and Vishny, 1997). Agency

theory indicates that investors bear great concern about opportunistic managerial behavior.

The formal agency theory model put forth by Jensen and Meckling (1976) comprises firms with managers and investors who all act in their own self-interests. The model further depicts firms as a set of contracts that attempt to define managerial functions and the manner in which profits are allocated to investors. Because all future contingencies cannot be foreseen and contracted upon, investors give managers the right to make decisions in situations not contractually covered (Grossman and Hart, 1986). Shleifer and Vishny (1997) observed that contracts must be easily interpretable to be enforced in outside courts; leaving managers with substantial discretion in allocating firm resources. Managers can waste or expropriate firm wealth in several ways, including; producing fraudulent or inaccurate accounting reports (WorldCom and Enron), confiscating corporate funds (Tyco and Adelphia), engaging in nepotism (Rite-Aid), and setting transfer prices to companies owned by the manager (Hollinger International). Recent passage of the Sarbanes-Oxley Act in 2002 by the U.S. Congress indicates that managers misrepresenting and obfuscating corporate activities and reports has been a particularly prevalent form of the principal-agent conflict over the last decade.

Prior research posits that supplying equity stakes to managers can alleviate the classic principal-agent conflict (Jensen and Meckling, 1976). Equity stakes arguably provide monetary incentives for managers to improve firm performance and increase firm cash flows, thereby benefiting investors (Beatty and Zajac, 1994). Jensen and Meckling's (1976) model indicated that managers' incentives to expropriate or waste firm wealth depends on the cost that managers bear from misbehaving relative to the benefits that managers accrue from consuming firm resources. Their model showed that managers incur greater costs from misconduct as their ownership stake in the firm increases. Misconduct becomes especially costly as managers' human capital and wealth become increasingly undiversified in the firm. Stein (1989) showed that equity ownership mitigates myopic investment decisions and provides incentives for managers to invest for the long-term. Agency theory as such, specifies that equity stakes mitigate managerial

incentives to waste and expropriate firm resources and thus lead to lower risk premiums on the capital supplied by investors.

Although agency theory perhaps provides the most common structure for investigating corporate governance issues, stewardship theory depicts an alternative model of managerial behavior. Stewardship theory focuses on empowering managers and fostering their commitment and identification with the firm. More specifically, stewardship focuses on the idea that managers can identify with the firm and internalize the organization's mission, leading to a collaborative management approach (Sundaramurthy and Lewis, 2003). Stewards of corporate assets eschew purely self-serving behavior that harms the firm and rather, focus on promoting group interests because they inherently seek to do a good job (Donaldson and Davis, 1991). The theory first stressed that managers maintain incentives that benefit all stakeholders; not simply to provide benefits to themselves or shareholders. Consequently, the influence that corporate actions have on other stakeholders such as employees, creditors, and the community play an important role in managerial decision-making.

More recently, Davis, Schoorman, and Donaldson (1997) noted that firms developing organizational structures that foster long-term relationships and high levels of trust, also tended to develop steward relationships between managers and investors. In this context, managerial identification with the firm leads to a situation where managers incorporate firm well-being into their utility function. Becker (1981) defined altruists as individuals whose behavior is influenced by their own and someone else's well-being. In a similar sense, stewardship theory depicts managers as showing concern for their own well-being and the well-being of the firm. Pierce, Rubinfeld, & Morgan (1991) argued that ownership among the firm's employees yields marked attitudinal and behavioral effects; suggesting a relation between managerial ownership and steward-like behavior. Consequently, to enhance the steward relationship with the firm, Sundaramurthy and Lewis (2003) prescribed providing managers with an equity stake because it encourages firm identification and assists in developing long-term relationships. Similarly, Hambrick and

Jackson (2000) advocated meaningful equity stakes to increase identification with the firm, encouraging collective behavior and strengthening commitment.

Donaldson and Davis (1991) and Davis, Schoorman, and Donaldson (1997) proposed organizational structures that strengthen managerial commitment and extend managerial power, thereby enhancing the benefits of the steward relationship. Rousseau and Shperling (2003) argue that ownership plays a key role in developing managerial identification with the firm. From this perspective, ownership grants greater discretion, enhances authority, and increases effectiveness. Stewardship theory thus suggests that as equity stakes become larger, managers become better stewards of corporate wealth.

Using agency and stewardship arguments, we theorize that corporate debtholders show great concern with managerial ownership. Because behavior that reduces and/or enhances the value of the firm's underlying assets similarly affects the value of creditors' claims on the firm, we argue that the compensation (interest rate) that debtholders require from the firm exhibits a relation to managerial ownership. If equity stakes control managerial opportunism (agency view) or promote greater managerial commitment (stewardship view), then debtholders bear less risk and thus require less compensation on their invested capital.² Our specific hypothesis, pertaining to agency and stewardship theory is:

Hypothesis 1a (H1a): The greater the percentage of managerial ownership in public firms, the lower the compensation required by debtholders (i.e., the lower the cost of debt financing).

The Late 1990s and Early 2000s

The collapse of the dot-com bubble in 2001 and the subsequent failures of Enron and WorldCom lead many industry and legal analysts, as well as investors, to the collective belief that a

² Albanese, Dacin, and Harris (1997) observe that a broader conceptualization of agency theory could also incorporate several aspects of stewardship theory, whereby investors' and managers' interests coincide with one another. Prest (1998) suggests that the key distinction between these models of managerial behavior is in terms of the manager's motivation; with agency theory focusing on the potential for self-interests and stewardship theory focusing on the welfare of others and self-interests. We argue that both agency and stewardship models of managerial behavior provide similar inferences regarding the effects of executive ownership. However, when we extend stewardship theory to consider corporate creditors, differing responses develop with respect to the use of internal monitoring systems.

governance crisis was occurring in corporate America (Brickey, 2003; Gordon, 2003). In response to these high profile events, the U.S. Congress passed the Sarbanes-Oxley Act in 2002 to enhance corporate governance practices and thereby restore public confidence (Zhang, 2005).

Although no exact definition exists to describe a corporate governance crisis, the period from the late 1990s to the early 2000s arguably represented a time when investors felt particularly vulnerable to managerial opportunism and greed (Brickey, 2003). Debt investors – because they receive payment prior to and from the same pool of funds as shareholders – potentially view periods of instability as placing their investment at greater risk relative to more stable periods (Billet, King, and Mauer, 2004). Given the nature of this perceived crisis, ambiguous theoretical predictions arise on the effects of managerial ownership on debt costs. Specifically, because the crisis appeared to stem from a failure in corporate governance, those mechanisms that were intended to align incentives or create identification could be viewed as meaningless by investors; suggesting either no relation or a substantially less sensitive relation between managerial equity stakes and debt costs. Conversely, if equity holdings mitigate opportunism or generate greater identification with the firm (Jensen and Meckling, 1976; Sundaramurthy and Lewis, 2003), then debtholders potentially place incrementally greater emphasis on managerial ownership during such a perceived crisis. The late 1990s and early 2000s thus represent a particularly robust environment to examine the efficacy of managerial ownership in mitigating agency problems and/or creating a steward relationship with the firm. The two-sided hypothesis relating to the period is;

Hypothesis 1b (H1b): During a period of instability, greater managerial ownership will exhibit no relation or a significantly weaker relation to the compensation (interest rate) required by debtholders relative to periods of greater stability.

Hypothesis 1c (H1c): During a period of instability, the greater the percentage of managerial ownership, the stronger the relation to the compensation (interest rate) required by debtholders relative to periods of greater stability.

Increasing Levels of Chief Executive Ownership

Prior research – from an agency theoretic view – suggests that the alignment or incentive effects of managerial ownership change as the level of holdings increase (Morck, Shleifer, and Vishny, 1988).

Specifically, at low levels of holdings, ownership provides monetary incentives to managers that align their interests with those of shareholders. As executive ownership continues to increase however, managers arguably become increasingly risk averse and powerful; suggesting an ability to entrench themselves and/or expropriate firm resources to their private benefit (Jensen and Meckling, 1976). Prior agency research as such, posits a curvilinear relation (an inverted U-shape) between managerial ownership and firm performance.

We argue that the stewardship model of managerial decision-making also indicates a potential non-linear relation between chief executive ownership and firm performance. Formal equity holdings and feelings of ownership (psychological ownership) represent two distinct aspects of ownership, with equity holdings recognized by legal systems and psychological ownership generated *within* by the manager (Pierce, Rubinfeld, and Morgan, 1991). Although a congruent relation potentially exists between these two ownership forms, possible divergences also exist (Pierce, Kostova, and Dirks, 2001). On the one hand, once managers reach the point where they view the firm as an extension of themselves (Belk, 1988), additional chief executive holdings in the firm may have little impact on their commitment or decision-making; suggesting diminishing returns to chief executive ownership. On the other hand, psychological ownership and firm identification may affect managerial control and power within the firm (Wilpert, 1991). If low-levels of equity holdings provide relatively little power and control, but higher levels grant greater authority, then we would expect a non-monotonic relation between ownership and managerial identification with the firm. This leads to our second hypothesis, based on both agency and stewardship models of managerial decision-making, which is;

Hypothesis 2a (H2a): At low levels of managerial holdings, the greater the ownership of managers, the lower the risk premium required by debtholders.

Hypothesis 2b (H2b): At high level of managerial holdings, the greater the ownership of the managers, the higher the risk premium required by debtholders.

Ownership, Other Governance Mechanisms, and Debtholder Returns

Agency and stewardship models of managerial decision-making underpin our arguments that greater levels of managerial ownership lead to lower debt-financing costs. Yet, other governance mechanisms beyond equity ownership control and affect managerial actions. Early research focused on a single mechanism while later research examined multiple mechanisms in seeking to understand the joint effects of governance devices on the shareholder-manager relation (Rediker and Seth, 1995). The empirical research examining the efficacy of single or multiple governance mechanisms on shareholder wealth provides mixed findings (Cyert, Kang, and Kumar, 2002).

In the following sections, we focus on the joint effect of equity ownership and internal monitoring and their relation to debtholder returns. Using agency theory and stewardship theory, we explore whether creditors perceive alternative governance mechanisms as substitutes in controlling managerial actions or whether these alternative devices limit or diminish managerial commitment to the firm. Although our adversarial and relational based arguments provide similar inferences on the association between managerial ownership and the cost of debt, we argue that agency- and stewardship-theory yield distinct and unique predictions on the relation between debt costs and additional/multiple governance devices. In the following section, we develop hypotheses that differentiate between the agency and stewardship explanation of the role of executive equity ownership.

Agency Theory, Debt Returns, and Internal Monitoring

Agency theory suggests that equity ownership provides incentives that align managers' interests with those of the shareholders; thereby potentially improving firm performance. Although creditors maintain a senior claim on the firm relative to equity holders, they still face many of the same risk factors as shareholders. Debtholders thus bear great concern over activities that increase firm risk and affect the value of their investment and wealth (Bhojraj and Sengupta, 2003). Agency costs produce such risks. Managerial expropriation of firm assets for example, draws valuable resources away from investments

and thus increases the probability that firms cannot service debt payments. Executives placing less effort (shirking) into decision-making and oversight also increase the probability that firms experience problems, thereby affecting debtholder wealth. Overall, the nature of the debt claims suggests that creditors greatly value devices that promote beneficial executive behavior and decision-making.

Equity ownership, as outlined earlier, provides one method to lessen the principal-agent problem by aligning managerial interests with those of the shareholders. Yet, other governance systems potentially restrict managerial actions; suggesting a further mitigation of risk factors – thereby better protecting debtholders’ investments. Internal monitoring arguably functions as such an additional governance layer. Internal monitoring can arise from boards of directors and large shareholders. Prior research generally hypothesizes that boards, independent from senior management, provide objectivity and expertise that limits managerial opportunism and expropriation (Bacon, 1985; Dalton, Daily, Ellstrand and Johnson, 1998). Likewise, large shareholders maintain substantial economic incentives to monitor managers and possess the power to ensure that managers act in investors’ best interests (Demsetz and Lehn, 1985). Shleifer and Vishny (1997) suggested that large shareholders are perhaps the most direct way to mitigate conflicts of interests between managers and investors. Internal monitoring thus potentially provides an additional layer of governance – beyond equity ownership – that further mitigates firm risk.

In our agency based theoretical development, we propose a substitution effect between managerial ownership and other governance devices. Most researchers approach the substitution hypothesis from the perspective of transaction cost economics (TCE). TCE suggests shareholders will only introduce governance mechanisms to the extent that these devices reduce significant exchange hazards. Once absent these hazards, shareholders incur no further costs to govern the exchange (Williamson, 1988, 1991). Strong boards of directors for example, may sufficiently control managerial actions indicating that shareholders have less need to rely on equity ownership to affect executives’ effort. Although shareholders bear the direct cost of governance devices, bondholders bear an

opportunity cost from the implementation of these mechanisms. Resources spent on governance systems for instance, alternatively could have been invested in R&D, advertising, or other projects that increased firm value and thereby reduced bondholder risk. Because creditors potentially benefit from shareholder implemented governance devices and bear an implicit cost, we argue that bondholders (similar to shareholders) should view these mechanisms as substitutes to one another.

In summary, from an agency perspective, we expect internal monitoring devices to lead to a lower cost of debt; however, we expect these additional mechanisms to exert a moderating effect on the relation between managerial ownership and debt costs (a positive coefficient estimate on the interaction of ownership and the other governance devices).

Hypothesis 3a (H3a): The greater the level of managerial ownership and the greater the level of internal monitoring in publicly-traded firms, the lower the cost of debt financing.

Hypothesis 3b (H3b): Managerial ownership and internal monitoring systems function as substitutes to one another in explaining the cost of debt financing.

Stewardship Theory, Debt Returns, and Internal Monitoring

Despite agency theoretic reasoning to view equity ownership and internal monitoring as substitutes for one another from a creditor perspective, stewardship theory and relational governance provide compelling arguments for an alternative view. As noted earlier, stewardship theory focuses on developing organizational structures that foster long-term relationships and high levels of trust (Davis, Schoorman, and Donaldson, 1997). Managerial equity stakes arguably give rise to this trust and commitment. Prior research generally views greater trust levels as obviating or diminishing the need for other governance mechanisms (Dyer and Singh, 1998; Poppo and Zenger, 1998; Malhotra and Murnighan, 2002). Steward-based or trust-based relationships for instance, potentially replace formal governance systems such as internal monitoring that rely on restricting and controlling managerial actions. Other research from a stewardship perspective suggests that implementing governance mechanisms potentially has a detrimental effect upon managerial effort. Specifically, because governance mechanisms limit managerial authority, executive motivation suffers and negatively affects organizational

wealth (Tosi, Brownlee, Silva and Katz, 2003). Firm performance depends on building organizational structures that, rather than limit executive discretion, grant greater authority and freedom and thereby empower managers (Davis, Schoorman, and Donaldson, 1997; Donaldson and Davis, 1991). Accordingly, Lee and O'Neill (2003) suggested that firms waste valuable capital by requiring governance systems that limit managerial discretion and power. Pierce, Kostova, and Dirks (2001) argued that a loss of power over what we view as *ours* can have severe psychological and behavioral effects. In this setting, internal monitoring and equity ownership do not serve the same function; managerial ownership increases commitment and influence, while monitoring diminishes commitment and influence.

The previous stewardship-based arguments suggest that internal monitoring systems act to limit or diminish managerial commitment and identification with the firm. If so, we expect board of director independence and large-shareholder presence to have a moderating effect on managerial ownership. More importantly however, if these alternative governance devices diminish managerial commitment and identification, then we also expect these devices to lead to a higher cost of debt financing. This leads to our final stewardship hypothesis.

Hypothesis 4a (H4a): The greater the level of internal monitoring devices in public firms, the weaker the effect of managerial ownership on debt costs.

Hypothesis 4b (H4b): The greater the use of internal monitoring devices in the firm, the higher the costs of debt financing.

In the theoretical and empirical analysis, we attempt to differentiate between agency theory and stewardship theory in explaining the incentives effects of managerial ownership. We use both perspectives to argue that internal monitoring will moderate the impact of managerial ownership on the cost of debt (H3a and H4a). However, from an agency theoretic viewpoint, we argue that because debtholders bear less risk with use of additional governance devices, bondholders will require lower returns; suggesting that these alternative or additional mechanisms lead to lower debt costs (H3b). Conversely, from a stewardship perspective, if ownership creates or generates trust and commitment with the firm, then other governance devices can be detrimental and weaken managerial commitment;

indicating that these alternative mechanisms lead to higher debt costs (H4a and H4b). By focusing on internal monitoring devices, we develop distinct predictions that attempt to differentiate whether executive ownership serves to strengthen managerial alignment (agency) or acts to strengthen managerial commitment (stewardship) to the firm.

METHOD

Sample, Variables, and Econometric Technique

For our sample, we collected information on firms that are in both the Lehman Brothers Fixed Income database (LBFI) and the S & P 500 Industrial Index as of December 31, 1992. The LBFI provides security specific information on firms' outstanding publicly traded debt; specifically, coupon rates, bond yields (market interest rate), time to bond maturity, credit ratings from Moody's and S & P, and bond prices. Although the database does not contain the universe of publicly traded debt, we have no reason to suspect any systematic bias with our sample. Financial and utility firms are excluded from the sample because of potential regulatory effects on the cost of debt financing.

We manually collected information on managerial ownership, board of director structure, and family ownership from corporate proxy statements. To gather firm-specific financial data not already included in the LBFI, we use the Compustat Industrial Files and the Mergent Bond Record. Combining these databases, information from corporate proxy statements, and data from the Compustat Industrial Files, yields a sample of 1,906 firm-year observations on 278 firms for the period 1993 through 2004.

Our dependent variable, the risk premium on debt financing, was measured as the difference between the firm's cost of debt financing less the cost of debt financing on a U.S. Treasury security with an equivalent duration.³ In debt markets, U.S. Treasury securities are typically assumed to be the least risky debt investment available to bondholders and as such, provide the lowest return to its holder. By differencing each firm's cost of debt financing with that of an equivalent duration U.S. Treasury security,

³ Duration is defined as the weighted average time to full recovery of principal and interest payments.

we obtain a measure of the additional return that a bondholder earns for holding a corporate debt security, above and beyond that of a U.S. Treasury. This measure reduces concerns of serial correlation and economy-wide changes in interest rates.

We used a two-way fixed effects model (panel data) for our regression analysis; the fixed effects are dummy variables for each year of the sample and for each 2-digit standard industrial classification (SIC) code. The construction of our dependent variable (differencing the firm's cost of debt with that of a U.S. Treasury) mitigated concerns of serial correlation. In robustness testing, we also considered several different econometric techniques to examine the relation between debt costs and equity ownership (fixed-effect, random-effect, mean regressions, and median regressions). All of these techniques yield estimates consistent with the primary specifications and note that our results appear to be generally insensitive to the regression technique.

Independent Variables

The term managerial ownership is ambiguous. Some researchers interpret the term manager to mean the firm's chief executive officer (CEO) and note that decision-making authority rests with the CEO (Hall and Leiberan, 1998). CEOs most heavily influence corporate culture, strategy, and control the actions of other senior level managers. Employees further down the corporate ladder typically have a less direct link with investors and corporate wealth. Consequently, in examining agency and stewardship theory, CEO ownership perhaps provides the strongest and cleanest tests. Additional researchers note however, that other top managers have the ability and incentives to expropriate or to be stewards of firm resources (Dalton, Daily, Certo, and Reongpitya, 2003). U.S. regulators also tend to support this view by requiring that firms disclose information on the firm's five highest paid employees. We considered both approaches in our analysis. Our primary measure of managerial equity ownership was defined as the percent of equity held by the firm's top executive; the chief executive officer (CEO). We also used the percent equity holdings of the firm's top five managers as an alternate measure of

managerial ownership. Our measures of CEO ownership and top management ownership exclude stock options holdings, which we include in a later defined variable.

Internal monitoring of managers can arise from several sources, including; boards of directors, other senior managers, institutional shareholders, large-block shareholders, and auditors. We used two proxies for internal monitoring that prior literature suggests play an important role in affecting managerial actions and firm performance; board of director independence and founding-family ownership.

For board of director classification, we used a three tier classification system; independent, affiliated, and insiders. Directors employed by the firm, retired from the firm, or who are immediate family members are insiders. Affiliate directors are directors with potential or existing business relationships with the firm but are not full-time employees. Consultants, lawyers, financiers, and investment bankers are examples of affiliate directors. Independent directors are individuals whose only business relationship to the firm is their directorship. We use the fraction of independent directors on the boards as our measure of board independence; specifically board independence equals the number of independent directors on the board divided by total board size.

We proxy for large shareholder presence by using the fractional equity holdings of founding-family shareholders. Anderson and Reeb (2004) noted that family shareholders provide oversight and monitoring of the firm that leads to better firm performance. Following their definition, we measured family ownership as the fractional equity holdings of the founding family as reported in annual corporate proxy statements. For firms with multiple share classes, we use total firm voting power as our proxy for family ownership. We also introduce binary variables that denote the type of CEO serving in family firms; i.e., founder, founder descendant, or hired-manager.

Equity-based compensation, particularly stock options, receives substantial interests from academics and practitioners because of its potential to align managers' and shareholders' interests (Westphal and Zajac, 1994; Zajac and Westphal, 1995). We measure stock-option holdings in a similar

fashion to equity holdings. Specifically, we sum the number of unexercised options (both exercisable and non-exercisable) held by the manager and then divide by number of outstanding shares. The resulting number gives the percent of equity – in stock option form – held by the CEO or the top management team. Compensation data came from S&P's ExecuComp Database.

We introduced several control variables into our analysis to account for firm and security specific characteristics. Firm size was measured as the natural log of total assets. We created a proxy for firm risk by using the standard deviation of stock returns for the previous thirty-six months. Firm profitability or performance was measured as the return on assets calculated as earnings before interest, taxes, depreciation, and amortization divided by total assets. We measured firm leverage as the ratio of long-term debt divided by sum of equity and debt invested in the firm. Large shareholders such as mutual or pension funds potentially influence managerial actions and incentives. We identified institutional investors using data from Thomson Financial and incorporate their fractional equity holdings into our analysis.

Our analysis included four control variables that are specific to debt securities. First, because not all debt expires on the same date, we controlled for difference in debt maturity using duration. Duration was computed as;

$$Duration = \sum (t * CF_t) / P (1 + Y)^t$$

Where CF_t is the cash flow (coupon or principal) at time t , t is the number of periods until the cash flow, P is the market price of the bond, and Y is the bond's yield to maturity.

The second security specific variable, credit ratings, controlled for differences in default risk for each firm's bonds. Credit ratings were measured as the average of Moody's and S & P bond ratings. Bond ratings are computed using a conversion process in which *AAA* rated bonds are assigned a value of 22 and *D* rated bonds receive a value of one. For example, a firm with *A1* rating from Moody's and an *A+* rating from S&P would receive an average score of 18. Because credit rating may already incorporate the impact of managerial ownership, we mitigate this issue by developing a measure of credit

ratings without the managerial ownership component (Anderson, Mansi, and Reeb, 2003). We achieved this by regressing credit ratings (dependent variable) on managerial ownership (independent variable). The error term from this regression incorporates the credit rating information without the influence of managerial ownership. We labeled the error term from this regression as Credit and use it as our primary measure of credit ratings.

The third debt specific control variable, bond liquidity, accounted for differences in the speed and ease which a bond can be converted to cash. We used bond age as our measure of liquidity (Sarig and Warga, 1989). Bond age is the number of years that a bond has been outstanding or publicly traded. Finally, credit ratings may exhibit non-linearities as many institutions are barred from holdings securities below a certain grade. Therefore, we also include a binary variable, Non-linear Credit Rating, to denote those firms with non-investment grade debt.

RESULTS

Summary Statistics

Table 1 presents two panels of descriptive information for our sample of firms. Panel A provides means, medians, standard deviations, and minimum and maximum values for each variable. Panel B of Table 1 provides a simple correlation matrix for the variables.

The first row of Panel A in Table 1 shows our dependent variable, the debt risk premium or the additional return that bondholders require for investing in corporate debt securities relative to investing in a U.S. Treasury security of the same maturity. Debtholders, on average, demand an additional 171.89 basis points (100 basis points = 1.0%) for holding corporate bonds versus holding a U.S. Treasury. The minimum value for the risk premium is 2.24 basis points and the maximum value is 1,146.75 basis points.

CEOs hold, on average, about 0.75% of the firm's outstanding equity while the firm's top management team (top 5 executives) own 1.35% of the firm's stock. The amount of equity held by

CEOs in our sample varies substantially with a low of zero percent and ranging to a high of 57.1%. Family firms constitute 27.1% of our total sample (515 observations) and within these firms, families control about 18.8% of the firm's votes. Board of director independence varies greatly across our sample with a minimum of zero percent to a maximum of about 94%. Average board independence is 64.7%. CEOs, on average, hold option portfolios that represent 0.60% of the firm's outstanding shares – slightly less than one-half the size of their equity ownership positions.

Panel B shows a simple correlation matrix for the variables of primary interest. Debt risk premiums exhibit a positive relation to CEO equity ownership, top management equity ownership, and stock option holdings. In addition, we find that the debt risk premium is positively associated with board independence, but bears a negative association to family ownership. To control for firm size and other firm and security-specific attributes, we used a multivariate framework to examine whether managerial ownership influences the firm's cost of debt financing.

Multivariate Results

Hypothesis 1a predicted that debt costs decrease as CEO (top management) equity ownership increases. In particular, a negative relation exists between the cost of debt financing and managerial ownership. The results in table 2 support our hypotheses. CEO ownership bears a significant and negative relation to debt risk premiums. Economically, the coefficient estimate on CEO equity indicates that the cost of debt decreases by 28.35 basis points for a one standard deviation increase in CEO equity holdings (one standard deviation equals 2.10%). The cost savings from such an increase in CEO ownership is nearly \$22.9 million per year for the average firm in the S&P 500. We calculate this savings as follows: (coefficient estimate * one standard deviation of CEO equity * average debt level of S&P 500 firms = $-.001350 * 2.10 * \$8.087 \text{ billion} = \23.50 million).

Column 4 of table 2 shows the results of the analysis when using top management equity holdings – the firm's top five executive officers – as the independent variable. Consistent with the prior

regression, we find that equity holdings exhibit a significant and negative relation to debt costs. The magnitude of the coefficient, although less than with CEO ownership, indicates that the average firm in the S&P 500 would create annual cost savings of about \$15.3 million by increasing top management equity holdings by one standard deviation (one standard deviation of top management ownership equals 4.57%). Again, we calculate this as follows: (coefficient estimate * one standard deviation in top management equity * average debt level of S&P 500 firms = $-0.000415 * 4.57 * \$8.087 \text{ billion} = \15.3 million).

The Late 1990s and Early 2000s

Hypotheses 1b and 1c predicted that the perceived crisis in corporate governance in the late 1990s and early 2000s influenced the relation between debt costs and managerial ownership. If equity incentives failed to align managerial interests with those of the firm, then either no relation or a weakened relation was theorized between equity stakes and debt returns during this period (Hypothesis 1b). Alternatively, equity ownership potentially played a more important role during the crisis indicating an incrementally stronger relation between equity stakes and debt returns (Hypothesis 1c).

Because no specific dates exist to define the apparent crisis, we run regressions on a year-by-year basis to examine the relation between debt costs and CEO equity holdings. The results are shown in Table 3. To conserve space, we report only the variables of interest and note that all control variables were included in the regressions.

From 1993 through 1999, the analysis reveals a fairly stable but significant relation between managerial holdings and debt costs. Debt costs decrease, on average, about 9.7 basis points for each 1% of equity held by the CEO. We calculate this as an arithmetic average across these seven years. However, the following three years – 2000, 2001, and 2002 – reveal a vastly more sensitive relation between equity ownership and debtholder returns. For each 1% of equity held by the CEO during this period, debt costs on average decrease by 53.7 basis points (we calculate this as an arithmetic average

across 2000, 2001, and 2002). The magnitude of the relation from pre-crisis (1993 through 1999) to crisis (2000 through 2002) increases by a factor of 5 and F-tests ($F=6.21$) indicate that this difference is significant at the 1% level. For 2003 and 2004, the relation between debt costs and equity ownership returns to pre-crisis levels. F-tests indicate that the years 1993 through 1999 are not significantly different from 2003 and 2004.

Table 3 also provides the coefficient estimates of the other key governance variables in our analysis. Interestingly, board independence, family ownership, and institutional ownership exhibit substantially heightened sensitivities to debt cost during the alleged crisis period relative to pre- or post-crisis. Based on these traditional governance measures, our analysis indicates that firms with better governance practices accrued substantial financial benefits via lower debt costs. Firms with poorer practices however, paid substantially higher rates for their borrowed capital. Corporate governance consequently, appeared to be highly priced or valued during the late 1990s and early 2000s.

Overall, our analysis provides support to Hypothesis 1c; indicating that during periods of increased uncertainty, equity ownership becomes particularly important in mitigating managerial opportunism and/or generating managerial commitment/identification with the firm.

Increasing Levels of Chief Executive Ownership

Morck, Shleifer, and Vishny (1988) suggested that the incentives effects of managerial ownership may change as executives own larger-and-larger fractions of the firm's outstanding shares. Consistent with this proposition, Hypotheses 2a and 2b predicted a curvilinear relation (an inverted U-shape) between debt costs and managerial ownership. To empirically examine whether a curvilinear relation describes the relation between debt costs and equity ownership, we included ownership and the square of ownership in our regression model. Column 3 of table 2 shows the results for CEOs and Column 5 presents the results for the top-management team. In both cases – CEOs and top management – the coefficient estimates for ownership are marginally significant but the estimates for the square of

ownership are insignificant, suggesting that a curvilinear relation does not explain the link between managerial ownership and debt costs. Rather, as shown in the earlier regressions, a simple linear model appears to best describe the relation between debt costs and executive behavior; indicating from a creditor's perspective, that greater levels of ownership mitigate managerial opportunism (agency perspective) and/or promote greater managerial commitment (stewardship view).

Managerial Ownership, Internal Monitoring, and Debtholder Returns

The results from the prior sections are consistent with both agency and stewardship arguments on the role that equity ownership plays in aligning managerial incentives with those of the firm's stakeholders. Yet, other governance mechanisms beyond equity ownership control and affect managerial actions. To attempt to differentiate between these arguments, we empirically investigate the joint effect of equity ownership with two other important internal governance devices; board independence and large-concentrated shareholder presence. We use the following regression equation:

$$\begin{aligned} \text{Debt Costs} = & \beta_0 + \beta_1(\text{CEO Equity}) + \beta_2 (\text{Internal Monitoring Device}) + \\ & \beta_3 (\text{CEO Equity} * \text{Internal Monitoring Device}) + \beta_4 (\text{Controls}) \quad (1) \end{aligned}$$

Without the interaction term, β_1 is interpreted as the unique effect of CEO equity on debt costs. The introduction of the interaction term indicates that the unique effect of CEO equity on debt costs is not limited to β_1 , but also depends on the value of the interaction term, β_3 , which represents the marginal effect of internal monitoring on debt costs as a function of the CEO's equity stake in the firm. Finally, β_2 provides the unique effect of the alternative governance device(s) on the cost of debt.

Our agency-based hypothesis on the joint effect of managerial ownership and internal monitoring systems suggests a substitution effect. Specifically, from an empirical perspective, a positive coefficient estimate on the interaction term would be indicative of a substitution between managerial holdings and the respective governance device. The agency predictions further indicate negative

coefficient estimates on the stand-alone internal monitoring devices (board independence and family ownership).

The stewardship hypothesis also indicates a positive coefficient estimate on the interaction term. More importantly however, the stewardship-based arguments indicate that internal monitoring diminishes or weakens managerial commitment. If so, we expect bondholders to require higher interest rates in the presence of these alternative mechanisms, indicating positive coefficient estimates on the stand-alone terms for the internal monitoring devices. In summary, our expectations on the coefficient estimates are;

Variable	Indicative of Agency Arguments	Indicative of Stewardship Arguments
<i>CEO Equity</i>	-	-
<i>Internal Monitoring Device</i>	-	+
<i>CEO Eqty * Internal Monitoring Device</i>	+	+

Column 1 of Table 4 presents the regression results examining the joint-effect of managerial ownership and board independence on debt costs. Consistent with our prior analysis, we continue to find a negative and significant relation between CEO holdings (β_1) and debt costs. The interaction term between CEO ownership and board independence (β_6) is positive and significant; suggesting that board independence attenuates the relation between managerial holdings and debt costs. Specifically, the results suggest a substitution effect and indicate that managerial ownership plays a less influential role as boards become progressively more independent. However, the coefficient estimate on the stand-alone board independence term indicates that bondholders deem greater levels of board independence as better protecting their investment; consistent with an agency theoretic explanation. This result though is inconsistent with the stewardship ideal of empowering managers in order to create greater organizational commitment.

Column 2 of table 3 examines the joint effect of managerial ownership and our second measure of internal monitoring; founding family ownership. For this analysis, we examine three different

specifications because of the effects of founder-CEOs and founder-descendant CEOs on firm performance (Anderson and Reeb, 2004). Column 2 shows a regression where we include the level of family ownership without regard to CEO type. Column 3 presents a specification that excludes observations where a family member (founder or founder-descendant) serves as CEO of the firm. Finally, column 4 shows the results where we include all firms but introduce binary variables that denote whether a founder or a founder-descendant serves as CEO.

All three specifications provide relatively similar results on family ownership. First, the analysis indicates that CEO holdings (β_1) continue to exhibit a negative and significant relation to debt costs. Next, we note that the interaction term between family ownership/presence and CEO ownership bears a positive and significant relation to debt costs, suggesting managerial ownership plays a less important role in controlling executive effort/actions in the presence of a large, committed investor. Third, the stand-alone family variable(s) bears a significantly, negative relation to the debt costs. This last result supports an agency theoretic view in that bondholders appear to value large-shareholder monitoring that limits or diminishes CEO discretion and influence. The negative coefficient estimates on the stand-alone family variables however, provide evidence inconsistent with the stewardship notion of creating greater managerial commitment through greater executive discretion.

Overall, our results indicate, that from a debtholders' perspective, managerial ownership and internal monitoring (board independence and large shareholders) act as substitutes to one another. Our agency and stewardship hypotheses both suggested this moderating effect. Yet, board independence and large, shareholder presence – as stand alone terms -- continue to be associated with lower costs of debt; indicating that bondholders view these mechanisms as better protecting their investment in the firm. The results on the relation between executive ownership and internal monitoring provide evidence generally consistent with an agency explanation on the role of equity ownership in affecting managerial behavior.

An Alternative Test: The Role of Equity-Based Compensation

Managers often obtain at least a portion of their ownership stakes from stock-option pay, suggesting that equity compensation plays an important role in affecting executive behavior and in understanding the implications of our results. (Zajac and Westphal, 1994). Sanders (2001) and Hanlon, Rajgopal and Shevlin (2004) found that stock options and equity ownership do not provide congruent incentives to managers. Specifically, options appear to increase risk-taking behavior and stock ownership tends to increase risk aversion.⁴ Greater managerial risk-taking could arguably lead to greater shareholder wealth. However, this increased risk-taking behavior can decrease the value of bondholders' stakes depending on the manner in which managers increase risk. From an agency theoretic perspective, stock options potentially provide executives with incentives to transfer wealth from bondholders to stockholders via asset substitution, excessive dividend payouts, or more generally risk-shifting (Jensen and Meckling, 1976). Option-based compensation also potentially induces managers to manipulate earnings or commit fraud (Kadan and Yang, 2006; Erickson, Hanlon, and Maydew, 2006), which would also increase the risk to bondholders. Similarly, option compensation may provide executives with incentives to manage accounting reports (Johnson, Ryan, and Tian, 2005) that are used in debt covenants to monitor firm activity. If option pay creates incentives for executives to increase their wealth at the expense of debtholders, we expect to observe a higher cost of debt (interest rate) as managers stock-option holdings increase; providing evidence consistent with an agency theoretic explanation.⁵

Stewardship theory however, provides an alternative prediction on the relation between stock option compensation and debt costs. Because corporate stewards maintain incentives that benefit all stakeholders in the firm (Donaldson and Davis, 1991), managers potentially refrain from activities that

⁴ Early research on the incentives effects of equity-based compensation often viewed option pay and equity stakes as substitutes for one another; implicitly assuming that both securities provide congruent incentives to managers (Shleifer and Vishny, 1997; Yermack, 1995). Sanders (2001) and Hanlon, Rajgopal and Shevlin (2004) directly test this assumption and find that stock options and stock ownership provide differing risk incentives to managers.

⁵ In this setting, the agency issues centers on the conflict between bondholders and stockholders (agency cost of debt) rather than the conflict between managers and investors. Yet, engaging in such activities provides relatively consistent evidence of managers acting in their own self-interest rather than the interest of all stakeholders.

transfer wealth from debtholders to creditors. Even in the presence of option pay, managers eschew self-serving behavior and promote both stockholder and bondholder interests, i.e., managers seek methods of increasing risk that do not harm creditor interests. Further, if equity pay enhances the underlying value of the firm’s assets, debtholders potentially benefit because their claim on the firm becomes less risky and more valuable. From a stewardship perspective, we expect bondholder returns either to exhibit no relation to managerial option holdings, or to exhibit a negative relation.

Column 5 of Table 4 investigates the effect of executive stock option holdings on the firm’s cost of debt. Our analysis provides strong support, at least from a debtholder’s perspective, that equity ownership and stock options do not provide the same incentives to managers. The coefficient estimate on CEO holdings (β_1) remains negative and significant. However, stock-option holdings (β_4) exhibit a significantly, positive relation to debt costs, suggesting that as managers hold more-and-more options, debtholders bear greater risk and thus demand higher returns on their investment. Column 6 shows an alternative specification with an interaction term between option holdings and equity ownership. The results indicate a moderating effect on CEO ownership and suggest that stock options partially offset or diminish the beneficial (debt-cost reducing) aspects of executive equity ownership. Overall, our analysis suggests that creditors view option pay as a mechanism that generates incentives for managers to transfer wealth from bondholders to shareholders; providing evidence consistent with an agency explanation.

Robustness of Model Specification

Empirical work examining the relation between managerial ownership and firm performance frequently suffers from an unobserved heterogeneity problem; i.e., other factors explain the observed relation. To provide further insights into this concern, we examine a first-difference or “change” specification of our primary model. The model is;

$$\Delta(\text{Debt Costs}_{(t)-(t-1)}) = \Delta(\text{CEO Equity}_{(t)-(t-1)}) + \Delta(\text{Control Variables}_{(t)-(t-1)}) \quad (2)$$

The change in debt costs is calculated as the increase (or decrease) in the interest rate from year $t-1$ to year t for firm i . In a similar fashion, we calculate the change in CEO shareholdings and control variables for each firm. The power of this specification rests in the notion that if managerial holdings influence debt costs, then a change in the independent variable (CEO Equity) should result in a direct change in the dependent variable (debt costs). The specification addresses concerns of an omitted variable bias.

Table 5, columns 1 and 2, provide a simple and more complex specification of the change model. The estimates from the regression in column 1 indicate that a one-percent increase (decrease) in CEO equity holdings results in a 14.01 basis point decrease (increase) in the firm's debt costs. Column 2 suggests that the inclusion of additional explanatory variables does not substantively change the magnitude or significance of the coefficient estimate on Changes in CEO Equity. Overall, the first-difference specifications provide relatively strong support for the hypothesis that managerial ownership influences the firm's cost of debt.

Another explanation that potentially describes a negative relation between managerial equity ownership and debt costs concerns risk aversion. As executives own progressively greater portions of the firm's equity, they may be less willing to undertake riskier investments and projects. Creditors and bondholders thus bear less risk and potentially accept lower returns on their investment. Although we controlled for firm risk in our multivariate analysis, we further examined this proposition by introducing interaction terms between CEO equity ownership and firm risk. The results shown in Table 5, column 3 indicate that the relation between managerial holdings and debt costs do not appear to be substantively affected by the level of firm risk. The interaction terms between equity and firm risk (last variable in the column) is insignificant.

To test the sensitivity of our results, we eliminated observations denoted as outliers and/or influential observations using the R-student statistic and the DFFITS statistic. These tests examine a sample to determine if any observations have a dramatic effect on the fitted least-squares function. The

results are similar to those reported in the tables and did not change substantively when truncated for outliers at the largest 1 percent, 3 percent, and 5 percent levels at each tail of the distribution for each variable.

DISCUSSION

Our findings provide a new perspective on the role that managerial ownership plays in corporate governance and in affecting firm performance. Rather than using traditional stock- or accounting- based measures of firm performance to examine executive behavior, we focused on another important stakeholder, corporate creditors. Because debtholders receive payment prior to shareholders and from the same stream of funds as shareholders, we argued that their claim on the firm systematically exhibited greater sensitivity to factors influencing firm performance than shareholders' claim.

From an agency perspective, managerial equity ownership presumably provides executives with strong monetary incentives to improve firm performance (Daily, Dalton, and Rajagopalan, 2003). Likewise, stewardship theory also indicates that equity ownership enhances executive commitment and identification with the organization and thereby improves organizational wealth (Donaldson and Davis, 1991). We extended both agency and steward theory, and hypothesized that creditors demand a lower return on their capital as CEO equity ownership increases. The results of the empirical analysis indicated that increasing management ownership appeared to affect managerial behavior and resulted in creditors requiring less compensation from the firm.

We also examined the importance of equity ownership in aligning managers' and investors' interests during a markedly volatile and uncertain period of American corporate history; the late 1990s and early 2000s (Brickey, 2003). During this perceived corporate governance crisis, our results indicate that debtholders became particularly sensitive to equity ownership in affecting managerial behavior. Prior to the crisis, debt costs were diminished by about 10 basis points when CEOs held one-percent of the firm's equity. During the crisis, the relation intensified to suggest that a one-percent equity stake

diminished debt cost by 54 basis points. Further, although not our primary focus, the results indicated that debtholders became highly sensitive to other forms of corporate governance during the late 1990s and early 2000s. Small changes in board independence, institutional ownership, family ownership, and managerial option-holdings were associated with large changes in the firm's cost of debt. At least from a creditors' perspective, corporate governance systems played an important role in affecting managerial behavior during the turbulent years of 2000, 2001, and 2002.

Our study also contributes to the organization and governance literature by finding fairly strong evidence that some governance forms substitute for one another in affecting or controlling managerial behavior. We use both agency and stewardship based arguments to predict a moderating relation between managerial ownership and the cost of debt financing in the presence of other governance devices. However, from an agency theoretic viewpoint, we argue that debtholders bear less risk with use of governance devices to limit managerial discretion and will require a lower returns; suggesting these devices are related to lower debt costs. Alternatively, from a stewardship perspective, managerial ownership increases their commitment to the firm, while other governance devices act to weaken this commitment; indicating that these internal monitoring devices would be related to higher debt costs.

Our results provide evidence more consistent with the agency explanation. Greater internal monitoring (board independence and family ownership) significantly mitigated the impact of managerial ownership on the debt costs. Additionally, creditors apparently view CEO holdings as an alternate governance device for independent boards and the presence of large, concentrated shareholders; suggesting a substitution effect which is consistent with an agency explanation for role of equity ownership.

Our analysis also provides new insights on the role that stock options play in providing managerial incentives. Much of the prior literature in management, finance, and economics assumes that options and stock ownership provide the same incentives to managers; i.e., maximize shareholder wealth. We found from a creditors' perspective that these two governance mechanisms impart different

incentives to managers. Ownership reduces creditor risk. Stock options increase creditor risk. Although both of these effects potentially lead to shareholder value-maximization, our results indicate that stock options and equity ownership operate through different channels in affecting executive behavior.

Finally, we add to the growing literature on board of director effectiveness and family ownership. Prior studies found little empirical evidence to support the hypothesis that greater board independence leads to better firm performance (Westphal, 1999). Our results indicated that, at least from a creditor's perspective, board structure plays a valuable role in monitoring managers when managers maintain small equity stakes in the firm. However, as these equity stakes increase, boards appear to have a weakened effect on debt costs. Furthermore, consistent with the hypothesis that family shareholders act as monitors of firm management, we found that family presence had the greatest influence on debt costs when managers held small equity stakes in the firm. The family's influence on debt costs appears to weaken however, as managers hold continually larger stakes in the firm; indicating managerial ownership acts as a substitute for the monitoring role of large, concentrated shareholders.

Future Research Directions

Our study focused on the role that CEO equity plays in improving firm performance from a bondholder or creditor perspective. Substantial past research examined the relation between managerial ownership and firm performance with respect to stockholders. Firms however, have many other important stakeholders such as employees, customers, and suppliers. Additional studies could examine whether CEO equity stakes affect customers and clients via superior quality products or services. For instance, many prestigious product brand-names are controlled by companies with substantial insider equity ownership, i.e., - Campbell Soups, Microsoft, and Starbucks.

This study spanned the volatile period of the late 1990s and early 2000s and indicated that investors developed a hyper-sensitivity to governance systems; suggesting that those companies with good practices accrued benefits and those with poor practices paid a significant financial cost. The

market for corporate governance as such, appeared to be functioning at some level. Yet, in 2002, the U.S. Congress passed the Sarbanes-Oxley Act with the intent of enhancing corporate governance practices. The question thus arises as to whether the Act enhanced the effectiveness of existing governance mechanisms or interfered with a functioning system. Specifically, do governance systems provide managers with the same incentives pre- and post- regulatory intervention?

LIMITATIONS AND IMPLICATIONS

Our study provides strong evidence that managerial ownership influences firm performance. The analysis however, does have limitations. First, our measure of improved performance arises from the savings that firms accrue due to lower financing costs (interest expense) when managers maintain an ownership position. Our estimates suggested that the average S&P 500 firm would save about \$23 million per year in annual interest expense when CEOs hold 2 percent of the firms' equity relative to having no stake. CEOs however, typically acquire at least part of their ownership positions from stock options and/or restricted stock grants; suggesting that to obtain the annual savings in interest expense, firms may need to provide their managers with a costly equity stake. For instance, a one-time provision or grant of 2 percent of the firm's equity to a CEO would cost the average S&P 500 firm about \$226 million.⁶ A rudimentary cost-benefit analysis suggests that CEOs would need to remain on the job for nearly 10 years for the firm to recoup their investment if interest expense savings were the only benefit from managerial ownership. Yet, our analysis also indicates that during periods of extreme volatility, creditors become particularly sensitive to governance devices. For example, from 2000 through 2002, the same 2 percent CEO equity stake resulted in an average cost savings to the firm of \$91 million per year. Cost savings of this magnitude indicate that providing a CEO with a large equity grant would be a value-enhancing investment for the firm. Further, managerial ownership may also provide a credible signal to other stakeholders such as suppliers, customers, and employees that executives maintain a

⁶ Based on an average market capitalization of \$11.304 billion for S&P 500 firms as of December 31, 2004. Data provided by Standard and Poors.

strong commitment to the firm, thereby leading to more favorable or beneficial relationships with these constituents. Corporations also obtain debt from other sources such as banks, suppliers, and private debt placements; potentially indicating that our results do not apply to all types of debt capital.

In this study, we broaden the debate on the influence of equity ownership on firm performance by exploring the incentive effects of managerial holdings using data from publicly-traded corporate debt. In contrast to prior research that examines executive ownership using a stockholder perspective, we focus on another important stakeholder in the firm, debtholders, and examine whether, and how, equity ownership influences managerial incentives. Our analysis indicates that chief executive equity holdings exhibited a negative and significant relation to the cost of debt, suggesting that executive ownership provides incentives to managers that affect firm performance. Additional testing suggests that larger executive equity stakes mitigate the need for board and shareholding monitoring; indicating a substitution effect amongst managerial control devices. These findings suggest that creditors view chief executive holdings as increasing managerial effort and reducing opportunistic behavior.

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Table 1**Panel A: Descriptive Statistics for Variable Measures (n=1,906)**

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
<i>Spread (basis points)</i>	171.89	122.14	192.84	2.24	1,146.75
<i>CEO Equity (%)</i>	0.75	0.11	2.10	0.00	57.04
<i>Top Mgmt Equity (%)</i>	1.35	0.27	4.57	0.00	57.07
<i>Family Ownership (%)</i>	5.10	0.00	12.76	0.00	87.01
<i>Stock Option Holdings (%)</i>	0.60	0.41	0.64	0.00	4.74
<i>Institutional Ownership (%)</i>	63.02	64.01	14.97	0.01	99.37
<i>Board Independence (%)</i>	64.69	66.67	17.93	0.00	93.75
<i>Bond Duration (yrs)</i>	6.46	6.46	2.46	0.08	14.10
<i>Credit Rating</i>	15.67	16.00	3.27	1.00	22.14
<i>Ln (Total Assets)</i>	9.10	8.90	1.21	4.40	13.53
<i>Bond Age (yrs)</i>	3.82	3.51	2.43	0.01	25.65
<i>Risk (%)</i>	0.09	0.08	0.03	0.04	0.27
<i>Leverage (%)</i>	22.56	21.60	12.59	0.00	92.29
<i>Performance (%)</i>	14.45	13.84	8.63	-19.20	69.47

Panel B: Correlation Matrix of Key Variables

	<i>Spread</i>	<i>CEO Equity</i>	<i>Top Mgmt. Equity</i>	<i>Board Indep.</i>	<i>Family Firm</i>
<i>Spread</i>	1.000				
<i>CEO Equity</i>	0.067	1.000			
<i>Top Mgmt Equity</i>	0.060	0.831	1.000		
<i>Board Independence</i>	0.056	-0.203	-0.281	1.000	
<i>Family Firm</i>	-0.031	0.237	0.324	-0.403	1.000
<i>Stock Option Holdings</i>	0.191	0.026	0.082	0.032	0.060

Table 2 - Yield Spread and CEO Ownership (n=1,906)

	<i>Dependent Variable = Debt Costs</i>				
	(1)	(2)	(3)	(4)	(5)
<i>Intercept</i>		671.99** (8.35)	680.50** (9.74)	579.18** (7.52)	579.15** (7.51)
<i>CEO Equity</i>	?	-13.50** (3.87)	-10.15* (1.99)	-	-
<i>(CEO Equity)²</i>	?	-	-0.25 (0.97)	-	-
<i>Top Mgmt Equity</i>	?	-	-	-4.15* (2.07)	-4.52 (1.78)
<i>(Top Mgmt Equity)²</i>	?	-	-	-	0.01 (0.25)
<i>Board Independence</i>		-439.54** (5.40)	-454.14** (7.01)	-269.07** (4.11)	-267.57** (3.99)
<i>Family Ownership</i>		-80.60** (4.91)	-81.49** (6.52)	-53.10** (3.86)	-52.55** (3.58)
<i>Option Holdings</i>	+	21.03** (4.26)	19.52** (4.71)	17.82** (3.18)	17.78** (3.17)
<i>Inst. Ownership</i>		-136.82** (3.46)	-139.27** (3.93)	-122.57** (3.09)	-122.31** (3.06)
<i>Duration</i>	-	-1.53 (0.68)	-2.00 (1.14)	-2.21 (0.96)	-2.22 (0.97)
<i>Bond Age</i>	+	7.54** (4.25)	7.39** (4.86)	7.41** (4.15)	7.41**** (4.15)
<i>Firm Size</i>	+	-15.99* (2.24)	-15.36** (3.10)	-20.75** (3.06)	-20.86 (3.09)
<i>Credit Rating</i>	-	-18.73** (5.36)	-18.93** (6.94)	-10.89** (4.23)	-10.80** (4.05)
<i>Performance</i>	-	-172.26** (2.58)	-164.45** (3.38)	-255.30** (3.83)	-256.48** (3.83)
<i>Leverage</i>	-	257.62** (3.33)	257.01** (4.25)	309.24** (4.08)	309.90** (4.11)
<i>Firm Risk</i>	+	18.46** (6.06)	18.32** (6.76)	17.13** (5.82)	17.08** (5.73)
<i>Non-Linear Credit Rating</i>	+	117.20* (2.03)	103.59* (2.09)	165.11* (3.01)	165.27* (3.02)
<i>Adjusted R Square</i>		0.464	0.461	0.452	0.451

** - indicates significance at the 1% level or better. * - indicates significance at the 5% level or better.

The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. We control for serial correlation in the construction of the yield spread and by including fixed effects for both industry and time.

Table 3 - Yield Spread and CEO Ownership on a Year-by-Year Basis

	<i>Dependent Variable = Debt Costs</i>					
	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>
<i>CEO Equity</i>	-15.78** (4.02)	-8.09** (2.65)	-9.49** (3.66)	-10.56** (2.76)	-9.12** (3.76)	-9.39** (3.38)
<i>Board Independence</i>	-377.91** (3.95)	-179.89* (2.08)	-240.45** (3.77)	-279.78** (3.46)	-260.20** (4.15)	-234.15** (3.37)
<i>Family Ownership</i>	-57.11** (2.75)	-38.05* (2.01)	-47.45** (3.77)	-85.98** (4.15)	-56.73** (4.34)	-54.28** (4.66)
<i>Option Holdings</i>	-5.87 (0.38)	-3.81 (0.26)	15.74 (1.42)	19.16 (1.83)	15.80** (2.21)	11.29 (1.34)
<i>Inst. Ownership</i>	-42.40 (0.87)	-43.98 (1.14)	-73.15* (1.99)	-134.38** (2.56)	-37.75* (1.98)	-137.54** (3.52)
<i>Adjusted R Square</i>	0.525	0.502	0.481	0.490	0.60	0.588
<i>Observations</i>	188	184	176	187	181	175

All Control Variables Included but are not shown: (Intercept, Institutional Ownership, Duration, Bond Age, Firm Size, Credit Rating, Performance, Leverage, Firm Risk, Non-Linear Credit Rating, One digit SIC Code)

	<i>Dependent Variable = Debt Costs</i>					
	<i>1999</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>
<i>CEO Equity</i>	-11.57** (3.11)	-64.06** (2.78)	-51.84** (4.20)	-45.16** (4.73)	-16.63** (3.88)	-13.23** (2.39)
<i>Board Independence</i>	-302.24** (3.05)	-1,596.13** (2.64)	-1,287.65** (4.26)	-1,012.36** (3.76)	-558.62** (4.68)	-588.70** (3.87)
<i>Family Ownership</i>	-61.94** (2.70)	-304.56** (2.80)	-215.38** (4.29)	-165.81** (3.54)	-87.18** (3.17)	-98.06** (2.74)
<i>Option Holdings</i>	42.11** (3.51)	-27.20 (0.80)	52.56** (1.98)	46.51** (3.77)	28.98** (4.51)	14.81 (1.27)
<i>Inst. Ownership</i>	-51.26 (1.31)	-367.26 (1.83)	-384.60 (1.93)	-155.62 (1.28)	25.03 (0.39)	-10.73 (0.10)
<i>Adjusted R Square</i>	0.631	0.441	0.610	0.597	0.684	0.534
<i>Observations</i>	144	133	138	137	138	125

All Control Variables Included but are not shown: (Intercept, Institutional Ownership, Duration, Bond Age, Firm Size, Credit Rating, Performance, Leverage, Firm Risk, Non-Linear Credit Rating, One digit SIC Code)

** - indicates significance at the 1% level or better. * - indicates significance at the 5% level or better.

Table 4 - Yield Spread, CEO Ownership, and Internal Corporate Governance

	<i>Dependent Variable = Debt Costs</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
β_0 (Intercept)	684.29** (8.44)	673.39** (9.66)	656.78** (7.77)	675.47** (9.76)	671.99** (9.62)	683.27** (9.78)
β_1 (CEO Equity)	-23.33** (4.75)	-15.04** (2.52)	-12.64* (1.99)	-15.88** (2.65)	-13.50** (4.56)	-16.73** (6.18)
β_2 (Board Independence)	-454.59** (5.54)	-439.90** (6.82)	-402.49** (5.24)	-452.91** (7.07)	-439.55** (6.84)	-447.77** (6.97)
β_3 (Family Firm)	-81.39** (4.95)	-81.07** (6.27)	-77.42** (3.53)	-80.77** (6.20)	-80.60** (6.45)	-80.46** (6.42)
β_4 (Option Holdings)	19.42** (4.07)	21.13** (5.03)	21.43** (4.27)	23.53** (5.25)	21.03** (5.02)	16.58** (3.60)
β_5 (CEO Eqty + Options)	-	-	-	-	-	-
β_6 (CEO Equity * Board Indep)	21.94** (2.54)	-	-	-	-	-
β_7 (CEO Equity * Family Firm)	-	14.37** (2.40)	15.13* (2.24)	16.53** (2.73)	-	-
β_8 (CEO Equity * Option H.)	-	-	-	-	-	4.52** (2.43)
β_9 (Founder CEO)	-	-	-	-96.42** (3.20)	-	-
β_{10} (Family Descendant CEO)	-	-	-	0.55 (0.04)	-	-
β_{11} (Inst. Ownership)	-140.77** (3.53)	-136.93** (3.91)	-184.63** (3.75)	-144.88** (4.08)	-136.82** (3.90)	-136.59** (3.89)
β_{12} (Duration)	-1.64 (0.73)	-1.54 (0.88)	-2.65 (1.24)	-1.49 (0.86)	-1.53 (0.88)	1.79 (1.02)
β_{13} (Bond Age)	7.51** (4.25)	7.55** (4.95)	6.67** (3.82)	7.66** (5.01)	7.54** (4.97)	7.43** (4.90)
β_{14} (Firm Size)	-15.85* (2.23)	-16.10** (3.28)	-15.34** (2.40)	-15.17** (3.08)	-15.99** (3.19)	-16.26** (3.25)
β_{15} (Credit Rating)	-18.69** (5.36)	-18.73** (6.87)	-17.09** (5.32)	-19.06** (7.01)	-18.73** (6.87)	-18.76** (6.89)
β_{16} (Performance)	-175.27** (2.61)	-172.36** (3.55)	-109.69* (2.02)	-158.59** (3.27)	-172.26** (3.55)	-171.38** (3.53)
β_{17} (Leverage)	259.99** (3.37)	258.19** (4.26)	302.35** (4.04)	258.52** (4.19)	257.62** (4.26)	261.19** (4.31)
β_{18} (Firm Risk)	18.40** (6.12)	18.44** (6.87)	20.54** (6.43)	18.66** (6.89)	18.46** (6.87)	18.57** (6.94)
β_{19} (Non-Linear Credit Rating)	112.37 (1.94)	105.48 (1.52)	133.90** (2.34)	118.40** (2.43)	117.20** (2.41)	112.23** (2.30)
Adjusted R Square	0.466	0.464	0.460	0.466	0.464	0.464
Observations	1,906	1,906	1,509	1,906	1,906	1,906

** - indicates significance at the 1% level or better. * - indicates significance at the 5% level or better.

The t-values, given in parenthesis below each estimate, are corrected for heteroskedasticity. We control for serial correlation in the construction of the yield spread and by including fixed effects for both industry and time.

Table 5 - Robustness Testing

	$\Delta(\text{Debt Costs}_{(t)-(t-1)})$			<i>Debt Costs</i>
	(1)	(2)		(3)
<i>Intercept</i>	-2.44 (0.87)	-5.14 (1.54)	<i>Intercept</i>	678.34** (8.39)
$\Delta(\text{CEO Equity}_{(t)-(t-1)})$	-14.01** (5.04)	-14.56** (5.25)	<i>CEO Equity</i>	-15.44** (4.35)
$(\text{Board Independence}_{(t)-(t-1)})$	-	14.50 (1.28)	<i>Board Independence</i>	-443.40** (5.40)
$(\text{Family Ownership}_{(t)-(t-1)})$	-	-17.48 (1.61)	<i>Family Ownership</i>	-80.22** (4.89)
$(\text{Option Holdings}_{(t)-(t-1)})$	-	26.40 (1.84)	<i>Option Holdings</i>	21.02** (4.25)
$(\text{Inst. Ownership}_{(t)-(t-1)})$	-	-250.27** (2.88)	<i>Inst. Ownership</i>	-137.26** (3.47)
$(\text{Duration}_{(t)-(t-1)})$	-	-6.35* (2.11)	<i>Duration</i>	-1.51 (0.66)
$(\text{Bond Age}_{(t)-(t-1)})$	-	7.62** (3.28)	<i>Bond Age</i>	7.50** (4.24)
$(\text{Firm Size}_{(t)-(t-1)})$	-	-7.87 (0.45)	<i>Firm Size</i>	-16.20* (2.27)
$(\text{Credit Rating}_{(t)-(t-1)})$	-	-19.49** (2.65)	<i>Credit Rating</i>	-18.81** (5.34)
$(\text{Performance}_{(t)-(t-1)})$	-	-131.57* (2.15)	<i>Performance</i>	-175.95** (2.65)
$(\text{Leverage}_{(t)-(t-1)})$	-	158.37 (1.83)	<i>Leverage</i>	257.81** (3.33)
$(\text{Firm Risk}_{(t)-(t-1)})$	-	27.97** (2.83)	<i>Firm Risk</i>	17.96** (5.82)
	-	-	<i>Non-Linear Credit Rating</i>	113.68 (1.95)
	-	-	<i>CEO Equity * Firm Risk</i>	0.60 (0.98)
<i>Adjusted R Square</i>	0.027	0.163	<i>Adjusted R Square</i>	0.464
<i>Observations</i>	1,530	1,530	<i>Observations</i>	1,906

** - indicates significance at the 1% level or better. * - indicates significance at the 5% level or better.