

The effects of corporate governance on firms' credit ratings[☆]

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Abstract

We investigate whether firms with strong corporate governance benefit from higher credit ratings relative to firms with weaker governance. We document, after controlling for firm-specific risk characteristics, that credit ratings are negatively associated with the number of blockholders and CEO power, and positively related to takeover defenses, accrual quality, earnings timeliness, board independence, board stock ownership, and board expertise. We also provide evidence that CEOs of firms with speculative-grade credit ratings are overcompensated to a greater degree than their counterparts at firms with investment-grade ratings, thus providing one explanation for why some firms operate with weak governance.

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1. Introduction

We investigate whether firms that possess strong corporate governance benefit from higher credit ratings relative to firms with weak governance. A firm's credit rating reflects a rating agency's opinion of an entity's overall creditworthiness and its capacity to satisfy its financial obligations (Standard & Poor's, 2002). Credit agencies are concerned with governance because weak governance can impair a firm's financial position and leave debt stakeholders (hereafter referred to as bondholders) vulnerable to losses (FitchRatings, 2004). To structure our analysis, we adopt a framework developed by Standard & Poor's (2002) for assessing firms' corporate governance structures and practices. Standard & Poor's (2002) framework focuses on four major components of governance: Ownership Structure and Influence, Financial Stakeholder Rights and Relations, Financial Transparency, and Board Structure and Processes. The governance attributes we examine within each of these components are designed to increase the monitoring of management's actions to promote effective decision making, limit their opportunistic behavior and reduce the information asymmetry between the firm and its external stakeholders. We investigate what effect, if any, these governance features have on firms' overall credit ratings.

Our analysis yields several key findings. First, we find variables that capture each of the four major components of corporate governance enumerated above help explain overall credit ratings after controlling for firm characteristics that prior research has shown to be related to firms' credit ratings. Specifically, we find that firms' overall credit ratings are: (1) negatively associated with the number of blockholders that own at least a 5% ownership in the firm; (2) positively related to weaker shareholder rights in terms of takeover defenses; (3) positively related to the quality of working capital accruals and the timeliness of earnings; and (4) positively related to overall board independence, board stock ownership, board expertise, and negatively related to CEO power on the board. To provide an indication of the economic significance of our results, we find that moving from the lower quartile to the upper quartile of the governance variables doubles a firm's probability of receiving an investment-grade credit rating—from 0.46 to 0.93.¹ During the time frame of our analysis, the average yield for firms with investment-grade debt with a 10-year maturity was approximately 6.00%. In contrast, the average yield for firms with speculative-grade debt with a 10-year maturity was approximately 14.0%. This 800-basis point spread translates into an annual interest cost differential of \$38.4 million for the median firm in our sample with a speculative-grade credit rating.²

¹For purposes of this analysis, we hold the firm characteristic variables (ROA, LEV, SIZE, etc.) constant at the mean values for the sample. For those governance attributes found to be positively (negatively) related to credit ratings, our benchmark probability is determined by assigning governance values equal to the first (third) quartile and then moving to the third (first) quartile value. For governance attributes measured as 0–1 dummy variables, the benchmark probability is determined with the zero (one) value when the governance attribute is positively (negatively) related to credit ratings.

²To calculate this interest cost differential, we first determine the mean debt-to-asset ratio for our sample of investment-grade firms (0.28). We then multiply this ratio times the total assets of each speculative-grade firm to estimate the "as-if" capital structure if the speculative-grade firm was an investment-grade firm. Finally, we multiply the estimated debt level times the 800-basis point spread to determine a speculative firm's hypothetical incremental interest cost due to weak governance. This additional interest can be viewed as a cost that shareholders bear if the firm chooses not to implement stronger governance to preclude management from stealing firm assets. However, this spread overstates the cost of weak governance from the shareholders viewpoint when weaker governance allows wealth transfers from bondholders to shareholders to take place. To the extent that

Our results suggest that weak governance can result in firms incurring higher debt financing costs. So why are some firms willing to bear additional debt costs by not practicing good governance? We approach this question by considering how CEOs can extract rents from weak governance. One way CEOs can appropriate rents is through excess compensation. To investigate this conjecture, we estimate CEO excess compensation following the work of [Core, Holthausen and Larcker \(1999\)](#). We document that CEOs of firms with weaker governance (greater CEO power or management entrenchment) receive more excess compensation relative to the CEOs of firms with stronger governance (less management entrenchment). Furthermore, we show that firms with speculative-grade debt have a greater propensity to overcompensate their CEOs than do firms with investment-grade debt. For firms with speculative-grade credit ratings, we then compare CEO excess compensation to their share of additional debt costs that these firms bear due to weak governance. We find that the median excess compensation far outweighs the CEO's share of the additional after-tax interest cost from having speculative-grade debt versus investment-grade debt, thus providing one explanation for why all firms do not practice good governance.

Our study makes several contributions to the extant literature on bond (credit) ratings and corporate governance. Prior literature investigating firms' credit ratings and debt costs models the cost of debt as a function of issue characteristics and issuer risk attributes (see e.g., [Horrigan, 1966](#); [Kaplan and Urwitz, 1979](#)) while ignoring the governance mechanisms that are put into place to safeguard the assets of the firm and ensure that bondholder interests are well-served. We extend the traditional bond rating literature by incorporating governance features designed to control agency conflicts between bondholders and management and between bondholders and shareholders.

[Sengupta \(1998\)](#) and [Bhojraj and Sengupta \(2003\)](#) explore the effects of corporate governance on debt ratings and cost of debt financing, but restrict their analysis to a limited set of governance variables. [Sengupta \(1998\)](#) finds a negative relationship between firms' disclosure quality ratings and the cost of debt financing as reflected in realized yields on new debt issues. [Bhojraj and Sengupta \(2003\)](#) find that firms with a higher percentage of outside directors on the board and with greater institutional ownership enjoy lower bond yields and higher ratings on their new debt issues. We extend these two studies by evaluating a broader set of governance variables, thereby providing a more comprehensive analysis of the relevance of corporate governance from the perspective of bondholders.

Much of the prior literature that investigates the effect of corporate governance focuses on the value of corporate governance from the shareholder's perspective ([McConnell and Serves, 1990](#); [Yermack, 1996](#); [Karpoff, Malatesta and Walkling, 1996](#); [Gompers, Ishii and Metrick, 2003](#)). Our study focuses on the value of governance from the bondholders' perspective because debt is a major source of capital for publicly traded firms.³ Thus, to the extent that governance is an important determinant of credit ratings, it can have a significant effect on firms' external financing costs.

(footnote continued)

part of the interest rate spread between investment-grade and speculative-grade debt is due to bondholders price-protecting against potential wealth transfers between themselves and stockholders, this spread represents an upper bound on the cost of weak governance from the shareholder's perspective.

³For example, in calendar year 2000, U.S. firms obtained \$944.8 billion dollars in debt financing whereas equity financing totaled \$311.9 billion dollars (U.S. Census Bureau, 2005).

We investigate how various governance mechanisms that are intended to control agency conflicts between management and all stakeholders impact credit ratings. In addition, our study provides insights into the governance attributes that heighten or attenuate the potential conflict between bondholders and shareholders. The interests of bondholders and shareholders can diverge when there are differing stakes in firm performance and differing views on management's investment policies (FitchRatings, 2004). Gompers et al. (2003) find that firms with stronger shareholder rights have higher share values and enjoy a lower cost of equity capital. We find that firms with stronger shareholder rights have lower credit ratings implying a higher cost of debt financing. Our study is one of the first to demonstrate that governance mechanisms that benefit shareholders may do so at the expense of bondholders.⁴ Thus, governance mechanisms designed to give more power to shareholders can have wealth redistribution effects that leave bondholders worse off.

The remainder of the paper is organized as follows. Section 2 briefly describes the role of governance in mitigating agency conflicts between bondholders and management and between bondholders and stockholders. Section 3 sets forth the framework recently adopted by Standard & Poor's for evaluating the strength of firms' corporate governance mechanisms and develops empirical proxies to capture various elements within this framework. Section 4 describes our sample, data sources, and variable measurements and provides descriptive statistics. Section 5 presents the empirical models used to investigate the relation between various corporate governance mechanisms and firms' credit ratings along with the main empirical results. In Section 6, we present evidence on CEO excess compensation related to weak governance, address endogeneity issues, and conduct sensitivity analyses. Section 7 concludes and offers suggestion for future research.

2. Why governance affects firms' credit ratings

Firm credit ratings are determined by rating agencies' assessments of the probability distribution of future cash flows to bondholders, which in turn, depends on the future cash flows to the firm. A firm's creditworthiness is determined by assessing the likelihood that its future cash flows will be sufficient to cover debt service costs and principal payments. As the mean of the firm's future cash flow distribution shifts downward or the variance of its future cash flows increases, the likelihood of default increases and the firm's credit rating will decline.

Within the Jensen and Meckling (1976) agency theory framework, bondholders, and more generally debt stakeholders, face two types of agency conflicts that can increase the probability of default and, hence, reduce the value of their claims. The first is the conflict between management and all external stakeholders—both bondholders and shareholders. Separation of ownership and control in corporate organizations leads to information asymmetry problems between external stakeholders and managers. Information asymmetry creates a moral hazard problem when managers have incentives to pursue their own interests at the expense of external stakeholders. Self-interested managerial behavior can take several forms including shirking, consumption of perquisites, overcompensation, and empire building, all of which increase the agency risk faced by external stakeholders and

⁴Our results are consistent with a concurrent study by Klock, Mansi and Maxwell (2004) who find that firms with stronger anti-takeover provisions (weaker shareholder rights) enjoy a lower cost of debt financing relative to firms with weaker anti-takeover provisions.

decrease the expected value of the cash flows to the firm and its external stakeholders. As the firm's expected cash flows decline, the default risk of bondholders increases leading to lower credit ratings.

The second agency conflict faced by bondholders is the conflict with shareholders. Shareholders in levered firms have incentives to undertake actions that can transfer wealth from bondholders to themselves. This wealth transfer can take several forms that affect the mean and the variance of the firm's future cash flows. For example, if shareholders demand direct payouts of firm assets (dividends or share repurchases) as opposed to supporting manager's investments in positive net present value projects, then the mean of a firm's future cash flow distribution will be lower. The reduction in a firm's expected future cash flows increases bondholders' default risk. Likewise, if shareholders influence managers to invest in riskier projects that increase the variance of a firm's future cash flows, bondholders face greater default risk. In both examples, bondholders bear greater risk that their fixed contractual claims on the firm's cash flows will not be paid while shareholders potentially are better off.

We hypothesize that governance features impact credit ratings by controlling agency costs that result from conflicts between managers and all external stakeholders as well as between bondholders and shareholders. Many of the governance features we examine are designed to reduce the agency conflict between managers and all stakeholders. Governance mechanisms that provide independent monitoring of management promote effective managerial decision making that increases firm value and guard against opportunistic management behavior that decreases firm value. Governance mechanisms that promote better managerial decision making and limit opportunistic management behavior benefit all stakeholders. Conversely, we posit that if governance is weak, the firm's distribution of future cash flows will shift downward relative to what it would be with more effective governance. This increases the likelihood of default resulting in a lower credit rating. For convenience, we refer to the role that governance plays in mitigating the agency conflicts between management and all stakeholders as the "management disciplining" hypothesis.

Shareholder and bondholder interests are generally aligned when better monitoring of management occurs. However, certain elements of corporate governance have a more ambiguous impact on bondholders (FitchRatings, 2004). For example, some features of governance can place greater power in the hands of shareholders (or selected subsets of shareholders) who can assert their influence to obtain preferential treatment at the expense of other stakeholders (e.g., greenmail or targeted share repurchases (Dann and DeAngelo, 1983)). Alternatively, shareholders can use their voting power to encourage management to undertake risky investments or engage in ownership changes that can harm bondholder interests. Taking on riskier projects increases the likelihood of default, resulting in lower credit ratings. Some of the governance features we consider below (e.g., shareholder rights) have the potential for affecting wealth transfers between bondholders and shareholders. Hence, while beneficial from the shareholders' perspective, certain governance features potentially can be harmful to bondholders.⁵ Or, alternatively, governance features that weaken shareholder rights may actually be viewed positively from the bondholders'

⁵For example, shareholders will only approve mergers or acquisitions that serve their interests. But bondholders do not always benefit under all takeover scenarios (see Asquith and Wizman, 1990; Warga and Welch, 1993). So giving shareholders greater power to determine ownership changes may well be viewed as an additional risk factor by bondholders and rating agencies.

perspective. We refer to this as the “wealth redistribution” hypothesis regarding how governance impacts credit ratings.

In sum, the governance variables introduced in the next section proxy not only for the agency conflicts between external stakeholders and management, but also potential conflicts between bondholders and shareholders that can result in wealth transfer effects between these two stakeholder groups.

3. Corporate governance attributes

Prior studies on corporate governance tend to focus on one attribute of governance, e.g., board independence, as opposed to studying a broad set of governance attributes intended to protect stakeholders’ claims to firms’ resources (Sengupta 1998; Bhojraj and Sengupta, 2003; Hermalin and Weisbach, 1991; Bhagat and Black, 2000). A limitation of this research is that some governance attributes may complement each other in protecting stakeholders’ claims whereas other governance attributes may serve as substitutes. As a result, inferences drawn from studying one attribute of governance may be subject to an omitted variables problem. In 2002, Standard & Poor’s developed a comprehensive framework for evaluating corporate governance that is based on four governance components; ownership structure and influence, financial stakeholders rights and relations, financial transparency and disclosure, and board structure and processes (Standard & Poor, 2002). We use Standard & Poor’s framework, along with prior literature, to identify governance attributes that potentially affect firms’ credit ratings. The four dimensions of governance and the empirical proxies to capture the major attributes of governance within each dimension are discussed below.

3.1. Ownership structure and influence

Typically, corporate governance is viewed from the perspective that publicly traded firms have dispersed shareholders who demand governance to protect their residual claims. Governance mechanisms that monitor management actions and limit their opportunistic behavior protect the interests of residual claimants (shareholders) and the interests of bondholders as well. At times, however, the interests of shareholders and bondholders can diverge. For example, shareholders with significant ownership positions can exercise their influence to force management to take on more risky investments where shareholders as a group receive the benefits of successful outcomes, but bondholders bear a disproportionate share of the failures. Ownership structure and the influence that certain shareholders exert on management play a key role in determining the potential for wealth transfers between bondholders and stockholders, and are important elements of corporate governance.

Jensen (1993) and Shleifer and Vishny (1997) argue that blockholders or institutional investors that hold large equity positions in a company are important to a well-functioning governance system because they have the financial interest and independence to view firm management and policies in an unbiased way, and they have the voting power to put pressure on management if they observe self-serving behavior. Consistent with this view, Gordon and Pound (1993) find that the structure of share ownership significantly influences voting outcomes on shareholder-sponsored proposals to change corporate governance structures. Outside blockholders and institutions (when institutional holdings are relatively concentrated) tend to align with the proposal sponsor, while insiders and

outside directors who hold significant stock positions tend to align strategically with management, who often oppose the shareholder-sponsored proposals. Nesbitt (1994) finds that firms targeted by the California Public Employees' Retirement System (CalPERS) experience positive long-run stock returns, and Opler and Sokobin (1997) find that firms experience above-market performance the year after being targeted by the Council of Institutional Investors. These results suggest that blockholders and active institutional shareholders lead to more efficient monitoring of management and less managerial opportunistic behavior, which benefits all stakeholders. We characterize this as the "management disciplining" role of governance and we predict a positive relation between our institutional ownership and blockholder measures (described below) and credit ratings.

A competing view in the literature suggests that concentrated ownership allows these shareholders to exercise undue influence over management to secure benefits that are detrimental to minority shareholders and bondholders (Shleifer and Vishny, 1997; Bhojraj and Sengupta, 2003). Examples include greenmail and targeted share repurchases (Dann and DeAngelo, 1983). Under the "wealth redistribution" hypothesis, as the percentage of shares held by institutions increases or as the number of blockholders increases, the likelihood of these shareholders using their influence to affect wealth transfers from bondholders increases, suggesting a negative relation between credit ratings and our institutional ownership and blockholder variables.

We capture the ownership effects of governance with three variables. BLOCK is the number of outside blockholders that own 5% or more of a firm's outstanding voting stock.⁶ %INST measures the percentage of shares held by institutional investors. The relation between these two ownership structure variables and firm credit ratings depends on whether these ownership concentrations, on average, are beneficial to bondholders (management disciplining hypothesis) or further the interests of shareholders at the expense of bondholders (wealth redistribution hypothesis). Because we have no way of predicting, a priori, which effect is likely to dominate, we leave the prediction on these two variables unsigned. The third variable, %INSIDE, is the percentage of shares held by officers or directors.⁷ We predict that %INSIDE will be negatively related to RATING under the assumption that insiders will use their voting power to expropriate firm resources for their personal benefit or resist shareholder-sponsored proposals to increase the monitoring of their actions (Gordon and Pound, 1993), both of which are likely to lead to greater agency risks for bondholders. In addition, we predict a negative relation between %INSIDE and RATING because increasing insider ownership results in stronger incentives for officers and managers, as residual claimants, to invest in projects that have very high returns when successful but low probabilities of success (Jensen and Meckling, 1976)—that is, projects that increase bondholders' risk due to the differential payoff structure between bondholders and shareholders (wealth redistribution hypothesis).

⁶An alternative construct to capture the power of significant ownership is to use the percentage of shares held by the largest shareholder. Board Analyst has a variable labeled dominant shareholder, which reflects whether the firm has a shareholder holding a significant proportion of shares. There are 146 of our 894 sample firms that have a dominant shareholder owning more than 10% of the outstanding shares. When we estimate our model that includes a dummy variable that captures firms that have a dominant shareholder, we find the coefficient on the dominant shareholder variable to be insignificant.

⁷Although this measure includes holdings by both officers and directors, the vast majority of %INSIDE is made up of officer shareholdings. Thus, we expect this measure to largely proxy for managements' self-interests rather than board member incentives to monitor the actions of management.

3.2. Financial stakeholder rights and relations

Financial stakeholder rights reflect the balance of power between stakeholders (bondholders and shareholders) and management. A key element of this dimension of corporate governance is whether the firm maintains a level playing field for corporate control and whether it is open to changes in management and ownership that provide increased shareholder value. Gompers et al. (2003) construct an index based on 24 governance provisions, referred to as the G_SCORE, to measure the power-sharing relationship between investors and management. The 24 provisions are classified into five categories of management power: (1) tactics for delaying hostile bids; (2) voting rights; (3) director/officer protection; (4) other takeover defenses; and (5) state takeover laws. Each firm's G_SCORE is the sum of points, where one point is awarded for the presence of each governance provision. Thus, a higher G_SCORE indicates lower shareholder rights and greater management power.⁸ We use the Gompers et al. (2003) G_SCORE metric to proxy for the stakeholder rights component of governance.

Takeover defenses and other restrictions of shareholder rights like staggered terms of directors, supermajority voting requirements for approval of mergers and ownership changes, and limits on shareholders' ability to meet and act places more power in the hands of management vis-à-vis shareholders and can make it difficult to remove entrenched management that is acting opportunistically. Consistent with the management disciplining hypothesis, governance mechanisms tilted in favor of opportunistic management can lower overall firm value, resulting in losses to both shareholders and bondholders. This line of reasoning leads to a predicted negative relation between G_SCORE and credit ratings. That is, a firm with higher G_SCORE (less shareholder power) is expected to exhibit a lower credit rating because it is more difficult or costly to remove management that is acting opportunistically when managers have greater power vis-à-vis shareholders. Alternatively, we may find a negative relation between G_SCORE and credit ratings because firms with stronger shareholder rights (lower G_SCORE) are likely to provide better monitoring and control over management leading to more effective and efficient managerial decision making, which in turn leads to better overall firm credit worthiness and higher credit ratings.⁹

Giving greater power to shareholders to determine changes in management as well as ownership control does not necessarily make bondholders better off (FitchRatings, 2004). For example, Asquith and Wizman (1990) and Warga and Welch (1993) find that pre-buyout bondholders suffer significant wealth losses in leveraged buyouts. These results suggest that bondholders do not always benefit under all takeover scenarios. Therefore,

⁸Using a sample of 1500 firms during the 1990s, Gompers et al. (2003) find that taking a long position in firms with the strongest shareholder rights and a short position in firms with the weakest shareholder rights yields an average abnormal return of 8.5% per year.

⁹Consistent with this conjecture, Gompers et al. (2003) find that firms with lower G_SCORES have higher firm values, higher profits, higher sales growth, lower capital expenditures, and lower corporate acquisitions. These factors should lower firms' credit risk leading to higher credit ratings. That is, firms with stronger shareholder rights are expected to have higher credit ratings because of lower risk characteristics. Controlling for these additional risk characteristics does not change the sign or significance of the coefficient on G_SCORE reported below.

governance mechanisms that place greater power in the hands of shareholders may actually be viewed negatively by bondholders and credit rating agencies because it increases the likelihood of ownership changes that can transfer wealth from bondholders to stockholders. This line of reasoning predicts a positive relation between G_SCORES and credit ratings. That is, firms with higher G_SCORES (weaker shareholder rights) are expected to have higher credit ratings. Consistent with this conjecture, Klock et al. (2004) find that firms with stronger anti-takeover provisions (weaker shareholder rights) have a lower cost of debt financing relative to firms with weaker anti-takeover provisions.

Given the mixed evidence on whether greater shareholder power translates into benefits for bondholders (management disciplining hypothesis) or greater risk due to potential wealth transfers between bondholders and shareholders, we make no directional prediction for the G_SCORE variable.

3.3. *Financial transparency*

Transparent financial reporting is critical to reducing the information asymmetry between the firm and its capital suppliers. We posit that greater financial transparency facilitates the monitoring of managements' actions and makes it less likely that management will act opportunistically. Sengupta (1998) conjectures that firms with more timely and informative disclosures are perceived to have a lower likelihood of withholding value-relevant unfavorable information. As a result, they are expected to be charged a lower risk premium by creditors. Consistent with this prediction, he finds that firms with higher AIMR disclosure ratings enjoy a lower effective interest cost of issuing new debt. As AIMR disclosure ratings are no longer available, we use the quality of firms' working capital accruals, WCAQ, and the timeliness of firms' earnings, TIMELINESS, to capture the transparency of firms' financial reporting. We describe the measurement of WCAQ and TIMELINESS in detail in Section 4. Briefly, WCAQ is based on the standard deviation of the firm-specific residual from regressing working capital accruals on past, contemporaneous, and future operating cash flows, where smaller residuals reflect a better mapping of working capital accruals to cash flows (Dechow and Dichev, 2002). TIMELINESS is the squared residual from regressing returns on earnings allowing for separate intercepts and slopes for profit and loss firms (Gu, 2002). Earnings that better articulate with market returns are deemed to be more transparent and timely in that they better reflect the economic events that are priced by the market. A high-squared residual indicates that earnings are less transparent/timely. To facilitate the interpretation of these variables, we multiply the variables by negative one and predict a positive relation with firms' credit ratings.

The reliability of financial information is due, in part, to the quality and integrity of the audit process. To proxy for the quality and integrity of the audit process, we use three measures: (1) the total fees (audit plus non-audit) charged to the client firm divided by the total revenues of the audit firm (TOTFEES); (2) %AUD_IND is the percentage of the audit committee made up of outside independent directors; and (3) a dummy variable, FIN_EXPERT coded one if the firm's audit committee has at least one individual deemed to be a "financial expert," and zero otherwise. Using the attributes of a financial expert set forth by the Securities and Exchange Commission (SEC, 2003) this variable is coded one if

the audit committee has an outside independent director that is a CPA or who has experience as a chief financial officer of another company.¹⁰

DeAngelo (1981) posits that auditor independence is threatened as the economic bond between the auditor and client firm increases. Concern over economic bonding between the client firm and its auditor was the major impetus behind the restrictions that Sarbanes-Oxley placed on the kinds of non-audit services that auditing firms can perform for their clients (U.S. Congress, 2002). However, the evidence on whether economic bonding between the audit firm and its client impairs auditor independence as proxied by abnormal accruals is mixed. While Frankel, Johnson and Nelson (2002) find evidence consistent with economic bonding impairing auditor independence, Ashbaugh, LaFond and Mayhew (2003), Chung and Kallapur (2003) and DeFond, Raghunandan and Subramanyam (2002) do not find evidence of independence impairment. We use our TOTFEES variable to measure the economic bonding between the audit firm and its client.¹¹ If credit rating agencies perceive that auditor independence, and thus the quality of financial statements is impaired due to economic bonding, then we expect a negative relation between this variable and firms' credit ratings. However, if credit rating agencies perceive that the economic bond between auditors and their audit clients do not threaten the quality of firms' financial reporting, as some of the studies noted above indicate, then we expect to find no relation between TOTFEES and credit ratings.

The conventional wisdom is that audit committees more effectively carry out their oversight of the financial reporting process if they include a strong base of independent outside directors. Klein (2002) provides evidence to support this assertion. She finds a negative relation between audit committee independence and abnormal accruals. She also reports that as audit committee independence declines, abnormal accruals increase. To the extent that better monitoring of the financial reporting process leads to less managerial opportunism and better financial transparency, this should lead to lower default risk for bondholders. Accordingly, under the management disciplining hypothesis, we predict a positive relation between %AUD_IND and credit rating.

Several recent studies investigate whether including independent directors with financial expertise on the audit committee is likely to improve the quality and integrity of a firm's financial statements. Klein (2003) finds that placing independent directors with professional certifications in accounting or law or prior banking experience on the audit committee reduces earnings management. Agrawal and Chadha (2003) provide corroborating evidence and find that companies whose boards or audit committees have an independent director with a background in accounting or finance face a lower

¹⁰The SEC recently adopted this provision of the Sarbanes-Oxley Act (SEC, 2003) and defined an "audit committee financial expert" to mean a person who has the following attributes:

- (1) An understanding of financial statements and generally accepted accounting principles.
- (2) An ability to assess the general application of such principles in connection with the accounting for estimates, accruals, and reserves.
- (3) Experience preparing, auditing, analyzing, or evaluating financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of issues that can reasonably be expected to be raised by the registrant's financial statements, or experience actively supervising one or more persons engaged in such activities.
- (4) An understanding of internal controls and procedures for financial reporting.
- (5) An understanding of audit committee functions.

¹¹We consider alternative ways of measuring this construct in the "sensitivity analysis" section below.

probability of earnings restatements. DeFond, Hann and Xu (2004) and Davidson, Xie and Xu (2004) find a positive market reaction to firms' announcements that an accounting financial expert has been appointed to the audit committee. To the extent that having a financial expert on the audit committee improves board effectiveness and enhances the integrity of the financial reporting process, we predict this will lead to less managerial opportunism. Accordingly, under the management disciplining hypothesis, we predict a positive relation between FIN_EXPERT and credit ratings.

3.4. Board structure and processes

This component of corporate governance deals with such things as: (1) board size and composition in terms of proportion of inside, outside, and affiliated directors; (2) board leadership and committee structure; (3) how competent and engaged board members are; (4) whether there are a sufficient number of outside independent directors on the board that represent the interests of all stakeholders, and how those members are distributed across the various committees; and (5) whether board members are remunerated and motivated in ways that ensure the long-term success of the company.

The first three elements address the board's role and ability to provide independent oversight of management performance and hold management accountable to stakeholders for its actions. Boards often delegate oversight of key functions or decision making to standing committees—e.g., audit, compensation, nominating or governance, finance and investment. These committees, made up of subsets of board members, meet separately from the full board and generally have specific, narrowly defined functions.

Prior research generally posits a positive relation between board and committee independence and firm performance. Better firm performance should benefit all stakeholders leading to higher credit ratings. However, research findings on the relation between board and committee composition and overall firm performance are mixed. Baysinger and Butler (1985) and Hermalin and Weisbach (1991) find no significant association between the percentage of outsiders on the board and same-year measures of corporate performance. Bhagat and Black (2000) find no relation between overall board independence and four measures of firm performance (Tobins' Q, return-on-assets, market-adjusted stock returns and ratio of sales-to-assets) measured over a 3-year window. Agrawal and Knoeber (1996) investigate the relation between firm performance (Tobin's Q) and seven control mechanisms including percentage of non-officer board members. Using a simultaneous equations framework to control for the interdependence among the various control mechanisms, Agrawal and Knoeber find a significant *negative* relation between outside membership on the board and firm performance, leading them to conclude that boards seem to have too many outsiders.

Klein (1998) extends the previous research on board composition and firm performance by examining the relation between the composition of the overall board and of various committees and firm performance. Consistent with prior evidence, Klein finds no association between firm performance and overall board composition. Moreover, she finds no association between the level of independence on audit, compensation and nominating committees, and firm performance. Interestingly, she does find a significant *positive* association between the percentage of *inside* directors on finance and investment committees and accounting and stock market performance measures. One explanation for this result is that inside board members bring specialized institutional and industry-specific

knowledge to the table that helps these committees select long-term investment and financing strategies that enhance firm value. Thus, inside board members appear to serve a useful role in overall corporate governance if strategically placed on committees that have more of an operating focus than a monitoring focus.

Finally, and more germane to bondholder interests, [Bhojraj and Sengupta \(2003\)](#) posit that firms with a greater proportion of outside directors on the board provide better monitoring of management actions. Thus, bondholders face less agency risks vis-à-vis management. They posit that this, in turn, will lead to higher bond ratings and lower debt yields. Consistent with this conjecture, they find that firms with a higher proportion of non-officer directors enjoy lower bond yields and higher ratings on new bond issues.

Based on the literature reviewed above, we use %BRD_IND to measure the percentage of board made up of independent outside (nonaffiliated) directors and predict a positive relation between %BRD_IND and credit ratings.

[Imhoff \(2003\)](#) argues that board governance is severely compromised when the current or former CEO of the company also serves as chairman of the board. This is because the board chairman frequently sets the board's agenda and, therefore, controls issues brought before the board. Moreover, CEOs that serve as board chair frequently have significant influence on the slate of candidates for board seats, thereby increasing the risk that new board appointees will not be independent of management even though they are "outsiders". CEOs can also exert significant influence over the board through the committees they serve on. We use CEOPOWER as a composite measure of the influence that the CEO exercises over the board. A firm receives one point if the CEO is chairman of the board and one point for each committee that the CEO serves on. We posit that CEO power on the board is likely to reduce the board's disciplining of opportunistic management. Accordingly, under the management disciplining hypothesis, we predict CEOPOWER will be negatively related to credit ratings.

Ceteris paribus, we expect that boards comprised of members who are more competent or knowledgeable will do a better job of monitoring the activities of management and make better decisions leading to less default risk. Similar to [Klein \(1998\)](#), we measure board competency or expertise by the percentage of outside board members that sit on boards of other companies (%BRD_EXPERT). We predict a positive relation between this variable and credit ratings.

Board compensation is another element of the "Board Structure and Process" component of governance. Key issues are whether board members are remunerated and motivated in ways that ensure the long-term success of the company. [Jensen \(1993\)](#) argues that boards with greater ownership in the firm are more likely to do a better job of monitoring management and fulfilling their fiduciary responsibilities. Consistent with this conjecture, [Yermack \(2003\)](#) finds that director stock and option awards are positively related to firms' investment opportunities and subsequent firm performance. Yermack shows that tying directors' pay more closely to stock performance through the use of options and other equity awards generally leads to increased performance. We use %BRD_STOCK to measure the percentage of directors that hold stock in the company and predict a positive relation between this variable and credit ratings.

Recently, the SEC endorsed the proposals of the NYSE and NASDAQ that firms adopt a formal governance policy that outlines the roles and responsibilities of directors and establishes an explicit code of business conduct and ethics for directors ([SEC, 2003](#)). We expect that having such a formal governance policy places increased responsibility on

board members and increases their legal liability leading to greater attentiveness on the part of board members. Greater board attentiveness should lead to better monitoring of management which, in turn, should lead to less management opportunism. We code GOVERNANCE_POLICY with a one if a firm has a formal governance policy, and zero otherwise, and predict a positive relation between this variable and credit ratings under the management disciplining hypothesis.

Finally, we use %FINCOM_INSIDE to measure the percentage of insiders on finance committees.¹² Based on Klein's (1998) results that having insiders on finance and/or investment committees improves firm performance, we expect this committee structure variable to be positively related to credit ratings since improved firm performance is expected to improve a firm's creditworthiness.

4. Sample, variables, and descriptive statistics

4.1. Sample and data sources

Data for this study are compiled from four sources:

- Governance measures, audit/non-audit fees, and share ownership data—Board Analyst database and firm proxy statements.
- G_SCORES—Gompers et al. (2003).
- Credit ratings and accounting variables—Standard & Poor's Compustat.
- Stock return data- CRSP.

We obtain the majority of the corporate governance measures from the Board Analyst database compiled by The Corporate Library, an independent research firm that provides data and analysis of corporate governance issues.¹³ This database contains detailed governance, audit fee data, and stock ownership data (including institutional and inside ownership) for over 2000 U.S. companies and profiles on over 22,000 individual directors. The data used in our primary analysis are from the 2003 proxy season covering the board and committee structures of firms for the 2002 fiscal year.

G_SCORES that measure the power-sharing relationship between investors and management were obtained from Gompers et al. (2003). These G_SCORES are available for approximately 1500 firms and are based on the incidence of 24 governance provisions related to shareholder rights and takeover defenses found in 2002 proxy statements.

For firm credit ratings (RATING), we use the long-term issuer credit ratings compiled by Standard & Poor's and reported on Compustat (data item 280). The ratings range from AAA (highest rating) to D (lowest rating—debt in payment default). These ratings reflect S&P's assessment of the creditworthiness of the obligor with respect to its senior debt obligations. For purposes of our analysis, the multiple ratings are collapsed into seven categories according to the schedule provided in Table 1. To facilitate the discussion of the

¹²For those firms without finance committees, we used the percentage of insiders on the overall board for this variable because, in the absence of a finance committee, the overall board would be charged with voting on financial policy matters (see Klein, 1998 for similar treatment).

¹³Board Analyst does not provide information on finance and investment committees. This information was hand-gathered from 2003 proxy statements.

Table 1
Credit rating classifications

S&P Debt rating	Compustat data280	Assigned RATING score	Grade
AAA	2	7	Investment
AA +	4	6	Investment
AA	5	6	Investment
AA–	6	6	Investment
A +	7	5	Investment
A	8	5	Investment
A–	9	5	Investment
BBB +	10	4	Investment
BBB	11	4	Investment
BBB–	12	4	Investment
BB +	13	3	Speculative
BB	14	3	Speculative
BB–	15	3	Speculative
B +	16	2	Speculative
B	17	2	Speculative
B–	18	2	Speculative
CCC +	19	1	Speculative
CCC or CC	20,23	1	Speculative
C	21,24	1	Speculative
D or SD	27,29,90	1	Speculative

Firm credit ratings (RATING) are the long-term issuer credit ratings compiled by Standard & Poor's and reported on Compustat (data item 280). The ratings range from AAA (highest rating) to D (lowest rating—debt in payment default). These ratings reflect S&P's assessment of the creditworthiness of the obligor with respect to its senior debt obligations. For purposes of our analysis, the multiple ratings are collapsed into seven categories according to the schedule provided above. S&P classifies ratings below BBB—as speculative.

economic significance of our results, we also estimate our logistic regression model using a two-category classification scheme—investment grade and speculative grade. The assignment of the credit rating groups into these two classifications are also shown in Table 1.

Table 2, Panel A summarizes the sample selection procedure and number of firms lost because of minimum data requirements from each data source. Essentially, our final sample for the credit rating analysis is determined by the intersection of firms for which required data are available on the four data sources noted above.¹⁴

Panel B of Table 2 provides details on board and committee composition for our sample firms. Out of 894 sample firms, all have audit committees, 99.6% (890) have compensation committees, 90.9% (813) have nominating committees, but only 27.1% (242) have finance committees. The average board (committee) size is 10 (4) directors. The incidence of firms having at least one insider on a committee ranges from 0.7% (6/894) for audit committees to 30.2% (73/242) for finance committees. The much higher incidence of insiders on finance committees presumably reflects the fact that insiders bring valuable institutional-

¹⁴In general, our sample firms are larger than the average firm on Compustat with sample means of assets, sales, market value of equity, and long-term debt (in millions) of \$20,765, \$7,502, \$8,982, and \$4,021, respectively. In addition, 84%, 15%, and 1% of the sample firms' shares trade on the New York Stock Exchange, NASDAQ, and the American Stock Exchange, respectively.

Table 2
Sample details

<i>Panel A: Sample construction (fiscal year 2002)</i>		
	Number of firms	Firms lost
Number of firms in the main Board analyst dataset	2050	0
Number of firms having complete governance data from Board Analyst	1867	183
Number of firms having necessary Compustat data for ratings model	1693	174
Number of firms having G_SCORES	1392	301
Number of firms having credit ratings on Compustat	894	498

Panel B: Sample firms' board composition

Breakdown of inside, outside and affiliate directors by board and by committees for sample firms in fiscal year 2002

	Board	Audit committee	Compensation committee	Nominating committee	Finance committee
Number of firms having a board (committee)	894	894	890	813	242
Average number of directors on board (committee)	10.05	3.93	3.72	3.97	4.31
Average number of insider directors on board (committee)	1.67	0.01	0.02	0.06	0.39
Average number of outside directors on board (committee)	7.02	3.63	3.37	3.46	3.42
Number of firms having at least one insider on the board (committee)	885	6	17	42	73
Number of firms having the CEO as chairman of the board (committee)	652	3	10	31	65

Notes: This table presents the sample selection and data requirements. Panel B presents the size of the board and committees for the sample of firms for which the specific committee exists. The difference between the average number of directors on the board (committee) and number of insiders and outsiders on the board (committee) is due to affiliated directors.

and industry-specific knowledge and expertise to this committee (Klein, 1998). Roughly 73% of our sample firms have CEOs that serve as Chairman of the Board, and the more common committees that CEOs serve on are the nominating and finance committees.

4.2. Independent variables

4.2.1. Corporate governance measures

The variables identified in Section 3 that we use to capture key governance attributes within the S&P framework are summarized in Panel A of Table 3 along with their predicted relation with RATING. Except for our measures of financial transparency, the variable measurements were described in detail in Section 3 when introduced, so we do not take time to repeat them here.

Table 3
Variable definitions

Variables	Predicted sign	Definitions and data source
Ownership structure and influence		
BLOCK	?	Number of block holders, where block is defined at the 5% ownership level (source Compact Disclosure).
%INST	?	% of shares held by institutional investors (source Board Analyst).
%INSIDE	–	% of shares held by insiders (officers and directors) (source Board Analyst).
Financial stakeholder rights and relations.		
G_SCORE	?	Shareholder rights governance score (source Gompers et al., 2003)).
Financial transparency		
WCAQ	+	Negative one times the standard deviation of the firm-specific residual from the prior 3–5 years, where residuals are from the following cross-sectional estimation of Dechow and Dichev's (2002) model: $WCA_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon$ where regressions are estimated by three-, two-, or one-digit SIC codes conditional on having at least 10 firms in each SIC group. WCA = working capital accruals $-(Compustat \# 302 + Compustat \# 303 + Compustat \# 304 + Compustat \# 305 + Compustat \# 307)$; CFO = cash flow from operations (Compustat # 308); all variables are scaled by average total assets (Compustat # 6).
TIMELINESS	+	Negative one times the squared residual from the following regression $RET = \beta_0 + \beta_1 NIBE + \beta_2 LOSS + \beta_3 NIBE * LOSS + \beta_4 \Delta NIBE + \varepsilon$ where the regression is estimated by three-, two-, or one-digit SIC codes conditional on having at least 10 firms in each SIC group. RET = the market-adjusted return over the fiscal year (from CRSP); NIBE = net income before extraordinary items (Compustat # 18) scaled by beginning of period market value of equity (Compustat # 25*Compustat # 199); LOSS = one if NIBE is negative, zero otherwise; $\Delta NIBE$ = the change in net income before extraordinary items (Compustat # 18) scaled by beginning of period market value of equity (Compustat # 18*Compustat # 199).
TOTFEES	–	Total fees paid by the firm to its auditor divided by total revenues of the audit firm multiplied by 100 (source firms' proxy statements, <i>Accounting Today</i> Top 100 firms and D&B's Million Dollar Database).
%AUD_IND	+	% of audit committee made up of independent directors (source Board Analyst).
FIN_EXPERT	+	One if the firm has an independent financial expert on the audit committee, where financial expert is defined as an audit committee member being a CFO or having a CPA, zero otherwise (source Board Analyst).
Board structure and processes		
%BRD_IND	+	% of independent directors on the board (source Board Analyst).
CEOPOWER	–	Composite score representing the power of the CEO where a firm receives one point if the CEO is the chairman of the board, and one point for each committee (compensation, nominating, audit) that the CEO sits on (source Board Analyst).
%BRD_EXPERT	+	% of independent directors that hold seats on other firms' boards (source Board Analyst).
%BRD_STOCK	+	% of directors that own stock in the firm (source Board Analyst).
GOVERNANCE_POLICY	+	One if the firm has a formal governance policy, zero otherwise (source Board Analyst).

Table 3 (continued)

Variables	Predicted sign	Definitions and data source
%FINCOM_INSIDE	+	% of insiders on the finance committee (source proxy statement).
%NOM_IND	+	% of independent directors on the nominating committee (source Board Analyst).
%COMP_IND	+	% of independent directors on the compensation committee (source Board Analyst).
Firm characteristics		
LEV	–	Total debt (Compustat #9 plus Compustat #34) divided by total assets (Compustat #6).
ROA	+	Net income before extraordinary items (Compustat #18) divided by total assets.
LOSS	–	One if the net income before extraordinary items is negative in the current and prior fiscal year, zero otherwise.
INT_COV	+	Operating income before depreciation (Compustat #13) divided by interest expense (Compustat #15) or (Compustat #339).
SIZE	+	Natural log of total assets.
SUBORD	–	One if the firm has subordinated debt, zero otherwise.
CAP_INTEN	+	Gross PPE (Compustat #7) divided by total assets.
FIN_UTILITY	+	One if firm is a financial institution (one-digit SIC code 6) or a utility (two-digit SIC code 49), zero otherwise.

Our first measure of financial transparency, WCAQ, is an accounting-based measure of financial reporting quality based on the work of Dechow and Dichev (2002). Dechow and Dichev (2002) derive a measure of working capital accruals quality that is a function of how well working capital accruals map into cash flows. The calculation of WCAQ is a two-step process beginning with the cross-sectional estimation of the following OLS model:

$$WCA_t = \beta_0 + \beta_1 CFO_{t-1} + \beta_2 CFO_t + \beta_3 CFO_{t+1} + \varepsilon_t, \quad (1)$$

where WCA is the working capital accruals $-(\text{Compustat \# 302} + \text{Compustat \# 303} + \text{Compustat \# 304} + \text{Compustat \# 305} + \text{Compustat \# 307})$ scaled by average total assets (Compustat # 6), CFO is the cash flow from operations (Compustat # 308) scaled by average total assets.

We estimate regressions by three, two, or one-digit SIC codes conditional on having at least 10 firms in each SIC group. WCAQ is the standard deviation of the firm-specific residual from the prior 3–5 years. Firms with smaller WCAQ values report working capital accruals that better map into cash flows, i.e., are considered to have higher quality working capital accruals. To facilitate discussion of our results, we multiply WCAQ by negative one. Thus, larger WCAQ values imply higher quality working capital accruals.

Our second measure of financial transparency, TIMELINESS, is derived from the following regression equation:

$$RET_{it} = \beta_0 + \beta_1 NIBE_{it} + \beta_2 LOSS_{it} + \beta_3 NIBE_{it} * LOSS_{it} + \beta_4 \Delta NIBE_{it} + \varepsilon_{it}, \quad (2)$$

where RET_{it} is the market-adjusted return for firm i over fiscal year t (from CRSP), $NIBE_{it}$ is net income before extraordinary items (Compustat # 18) scaled by beginning of period market value of equity for firm i in period t (Compustat # 25 * Compustat # 199), $LOSS_{it}$

is one if NIBE is negative, zero otherwise, ΔNIBE_{it} is the change in net income before extraordinary items scaled by beginning of period market value of equity, and $\text{NIBE}_{it} * \text{LOSS}_{it}$ is an interaction term that allows for a differential market reaction for loss versus profit firms.

We estimate the above regression cross-sectionally within one-, two-, and three-digit SIC codes requiring a minimum of 10 firms in each industry grouping.

Gu (2002) argues that the squared residuals from Eq. (2) can be conveniently interpreted as the degree of price movement (returns) that is not explained by contemporaneous accounting earnings. Higher squared residuals imply less timely earnings. To facilitate interpretation of our results, we multiply this measure by negative one. Thus, larger (less negative) values imply more timely earnings. One can think about financial statement transparency as encompassing the relevance and reliability dimensions of accounting information. The more information about the firm's current economic activities that is embedded in current earnings and the more precise that information (i.e., the more relevant and reliable it is), then the more transparent the economic activities of a company is to its stakeholders. Higher quality, more transparent earnings information means less information asymmetry between the firm and its bondholders, leading to less uncertainty about default risk which, in turn, should lead to higher credit ratings. Barth and Landsman (2003) provide empirical support for this claim in that they find that firms with more value-relevant earnings enjoy a lower cost of debt. We use the Gu measure as one proxy for financial transparency as it captures both the timeliness of firms' financial information and relevance of the financial information for assessing firms' current economic conditions.¹⁵

4.2.2. Control variables—firm characteristics

Additional firm-specific explanatory variables are included in the RATING models based on a survey of prior research on the determinants of corporate bond ratings (e.g., Horrigan, 1966; Kaplan and Urwitz, 1979; Boardman and McEnally, 1981; Lamy and Thompson, 1988; Ziebart and Reiter, 1992). The accounting-based ratios of debt-to-assets (LEV), return-on-assets (ROA), and interest coverage (INT_COV) are used to proxy for firms' default risk, where higher LEV and lower ROA and INT_COV values reflect greater default risk. We use LOSS, a categorical variable set equal to one if the firm reports negative earnings in the current and prior fiscal year, as another control for default risk given that the likelihood of default is greater for firms that are unprofitable.

Firm size, SIZE, is included as a control variable because larger firms face lower risk, and thus are expected to have higher credit ratings. We also control for differences in firms' debt structure by including SUBORD, which is coded one if the firm has subordinated debt. The debt structure of a firm with subordinated debt is considered to more risky due to the differential claims to assets by debt providers. Firms' capital intensity (CAP_INTEN) is included in the model to control for differences in firms' asset structure, where firms with greater capital intensity present lower risk to debt providers, and thus are expected to have higher credit ratings. Finally, FIN_UTILITY is set equal to one if a firm is a financial institution or utility firm, (zero for firms not in these two industries) to control for lower default risk for firms operating in regulated industries.

¹⁵To validate this construct, we regress the AIMR disclosure ratings on TIMELINESS for the same periods. The coefficient is 13.26 with a *t*-statistic of 3.89. Thus, this measure of financial transparency and AIMR disclosure rankings appears to be capturing similar constructs.

The specific measurements of the variables capturing differences in firm characteristic along with their predicted relation with RATING are summarized in Table 3.

4.2.3. Descriptive statistics

Table 4 presents descriptive statistics for the various governance and firm-characteristic variables. Within the “Ownership Structure and Influence” component of governance, we find the average (median) number of blockholders that own 5% or more of the firm’s stock is 4.5 (4.0). The average (median) percentage of shares held by institutional investors is 63% (68%) while the average (median) percentage of shares held by insiders (officers and

Table 4
Summary statistics for credit rating variables

Variables	Mean	Standard deviation	Median	25%	75%
Ownership structure and influence					
BLOCK	4.46	2.80	4.00	2.00	6.00
%INST	0.63	0.24	0.68	0.51	0.80
%INSIDE	0.08	0.11	0.04	0.02	0.08
Financial stakeholder rights and relations					
G_SCORE	9.59	2.59	10.00	8.00	11.00
Financial transparency					
WCAQ	−0.04	0.03	−0.03	−0.05	−0.02
TIMELINESS	−0.10	0.17	−0.03	−0.10	−0.01
TOTFEES	0.11	0.22	0.04	0.02	0.10
%AUD_IND	0.92	0.16	1.00	1.00	1.00
FIN_EXPERT	0.26	0.44	0.00	0.00	1.00
Board structure and processes					
%BRD_IND	0.70	0.16	0.73	0.58	0.83
CEOPOWER	0.78	0.50	1.00	0.00	1.00
%BRD_EXPERT	0.36	0.22	0.36	0.20	0.50
%BRD_STOCK	0.87	0.20	0.92	0.82	1.00
GOVERNANCE_POLICY	0.42	0.49	0.00	0.00	1.00
%FINCOM_INSIDE	0.15	0.12	0.13	0.08	0.22
%NOM_IND	0.79	0.32	1.00	0.67	1.00
%COMP_IND	0.90	0.20	1.00	0.83	1.00
Firm characteristics					
LEV	0.31	0.17	0.30	0.19	0.41
ROA	0.02	0.08	0.03	0.01	0.06
LOSS	0.13	0.34	0.00	0.00	0.00
INT_COV	10.78	18.77	5.16	2.79	10.23
SIZE	8.46	1.49	8.20	7.38	9.44
SUBORD	0.18	0.39	0.00	0.00	0.00
CAP_INTEN	0.54	0.40	0.48	0.19	0.84
FIN_UTILITY	0.23	0.42	0.00	0.00	0.00
RATING	3.83	1.11	4.00	3.00	5.00
INVESTMENT_GRADE	0.63	0.48	1.00	0.00	1.00

Notes: RATING = S&P LT Domestic Issuer Credit Rating (Compustat #280), see Table 1 for numeric coding. INVESTMENT_GRADE = 1 if a firm’s credit rating is investment grade as noted in Table 1, zero otherwise. See Table 3 for other variable definitions.

directors) is 8% (4%). For the “Financial Stakeholder Rights” dimension of corporate governance, the average G_SCORE of our sample firms is 9.59, which is similar to the mean G_SCORE reported by Gompers et al. (2003) of 9.15. Sixty-one of our sample firms (6.8%) fall into Gompers et al.’s dictatorship portfolio (G_SCORES > 13 indicating greater management power) while 41 firms (4.7%) fall into their democracy portfolio (G_SCORES < 6 indicating greater shareholder rights).

Turning to the “Financial Transparency” dimension, the mean (median) WCAQ and TIMELINESS value is -0.04 (-0.03) and -0.10 (-0.03), respectively. Recall the larger (i.e., less negative) values of these variables reflect higher quality financial reporting. The measure of economic bonding between the firm and its auditor is our TOTFEES variable.¹⁶ Because of its small magnitude, we multiply this variable by 100. Before this scaling adjustment, the median firm’s total fees paid to its auditor amount to only 0.04% of the audit firm’s total revenues. Ninety-two percent of the average firm’s audit committee is comprised of outside independent board members, with over three-quarters of the sample firms having 100% independent audit committees. The little variation in %AUD_IND is explained by the fact that the listing rules of the New York Stock Exchange and NASDAQ require listed firms to have audit committees comprised of at least three independent directors. There are, however, exceptions to the rules that result in not all firms having 100% independent audit committees (see Klein (2003) for an overview). Finally, 26% of our sample firms have an outside financial expert (CPA or CFO) serving on their audit committee.

Within the “Board Structure and Processes” dimension, the descriptive statistics indicate that the average (median) percentage of outsiders on the board is 70% (73%) and the lower quartile value is 58%. Consistent with the evidence in Table 2, the majority of our sample firms have CEOs that also serve as Chairman of the Board or on other board committees. On average, 36% of outside directors serve on other boards and 87% of the directors hold stock in the company. Forty-two percent of the sample firms have a formal governance policy. The average percentage of outsiders on the compensation (nominating) committee is 90% (79%), while the average percentage of insiders on the finance committee is 15%.¹⁷

For brevity, we do not describe the summary statistics for the firm-characteristic variables. Turning to the dependent variables, we note that the median credit rating is 4.0 implying a debt rating in the BBB+ to BBB– range, and that 63% of our sample firms have an investment-grade credit rating.

Table 5 presents correlations among the firm-characteristic variables (Panel A) and governance variables (Panel B) and between these variables and credit ratings. The upper right-hand portion of each panel presents Pearson product–moment correlations while the lower left-hand portion presents the Spearman rank-order correlations. In Panel A, the simple correlations between each of the firm characteristics and our RATING variable are in the predicted directions and are statistically significant at the 0.01 level or below except for the capital intensity variable (CAP_INTEN) which is negative and insignificant.

¹⁶Recall we measure this as total fees (audit and non-audit) paid by the client divided by the audit firm’s total revenue.

¹⁷Recall that in coding this variable, if a firm does not have a standing finance committee, we used the percentage of insiders on the overall board for %FINCOM_INSIDE because the board de facto votes on all major financing decisions in the absence of a finance committee. This explains why the percentage of insiders on this committee appears to be smaller than the numbers imply in Table 2.

Table 5
Correlations

Panel A: Firm characteristics

	RATING	LEV	ROA	LOSS	INT_COV	SIZE	SUBORD	CAP_INTEN	FIN_UTILITY
RATING		-0.28	0.44	-0.42	0.27	0.50	-0.19	-0.03	0.24
LEV	-0.26		-0.22	0.21	-0.42	-0.03	0.21	0.28	-0.03
ROA	0.39	-0.23		-0.60	0.34	0.06	-0.04	-0.01	0.00
LOSS	-0.41	0.17	-0.55		-0.18	-0.16	0.01	0.06	-0.18
INT_COV	0.45	-0.52	0.72	-0.42		-0.02	-0.14	-0.07	-0.13
SIZE	0.51	-0.06	-0.09	-0.15	-0.04		-0.02	-0.20	0.41
SUBORD	-0.21	0.19	-0.13	0.01	-0.19	-0.06		-0.09	-0.04
CAP_INTEN	-0.04	0.33	0.01	0.08	0.03	-0.19	-0.10		-0.18
FIN_UTILITY	0.26	-0.03	-0.16	-0.18	-0.23	0.39	-0.04	-0.23	

Panel B: Governance variables

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
RATING	A	-0.36	0.11	-0.16	0.19	0.30	0.38	0.26	0.03	0.06	0.18	0.16	0.11	0.07	0.31	0.25	0.26	-0.10
BLOCK	B	-0.39	0.22	0.14	-0.05	-0.18	-0.09	-0.20	-0.01	0.02	-0.05	-0.06	-0.01	-0.06	-0.06	-0.12	-0.10	0.04
%INST	C	0.01	0.35	-0.18	0.13	-0.08	0.07	0.02	0.06	0.08	0.18	0.21	0.12	-0.02	0.19	0.04	0.14	-0.04
%INSIDE	D	-0.33	0.29	-0.08	-0.23	-0.10	-0.04	-0.15	-0.04	-0.12	-0.39	-0.31	-0.21	-0.06	-0.24	-0.13	-0.15	0.19
G_SCORE	E	0.21	-0.06	0.09	-0.18	0.10	0.14	-0.07	0.09	0.09	0.27	0.25	0.18	0.05	0.20	0.23	0.12	-0.20
WCAQ	F	0.32	-0.23	-0.18	-0.22	0.07	0.16	0.09	-0.01	0.07	0.08	0.02	0.07	0.02	0.07	0.17	0.07	-0.04
TIMELINESS	G	0.28	-0.11	0.02	-0.06	0.06	0.16	0.02	-0.04	0.03	0.02	0.02	0.07	0.08	0.04	0.13	0.10	0.01
TOTFEES	H	0.25	-0.15	0.05	-0.29	0.04	0.03	-0.01	-0.06	0.06	0.09	0.07	0.05	0.07	0.28	0.06	0.20	-0.05
FIN_EXPRT	I	0.04	-0.01	0.05	-0.05	0.10	-0.01	-0.04	-0.02	0.09	0.10	0.14	0.09	0.01	0.05	0.01	0.04	-0.05
%AUD_IND	J	0.03	0.04	0.08	-0.11	0.07	0.00	0.04	0.05	0.09	0.51	0.38	0.41	0.04	0.27	0.06	0.09	-0.12
%BRD_IND	K	0.19	-0.04	0.15	-0.38	0.27	0.06	0.05	0.13	0.10	0.46	0.56	0.55	0.13	0.54	0.16	0.23	-0.49
%NOM_IND	L	0.14	-0.04	0.18	-0.23	0.20	0.04	0.01	0.06	0.13	0.42	0.55	0.44	0.02	0.36	0.17	0.24	-0.26
%COMP_IND	M	0.10	0.00	0.10	-0.18	0.16	0.03	0.06	0.06	0.10	0.43	0.51	0.50	0.00	0.31	0.09	0.14	-0.14
CEPOWER	N	0.07	-0.06	-0.01	-0.12	0.06	0.02	0.06	0.09	0.01	0.05	0.16	0.01	0.02	0.12	0.07	0.06	-0.09
%BRD_EXPRT	O	0.31	-0.05	0.17	-0.35	0.21	0.01	0.03	0.35	0.05	0.27	0.54	0.36	0.31	0.13	0.14	0.33	-0.33
%BRD_STOCK	P	0.28	-0.16	-0.02	-0.19	0.28	0.19	0.05	0.13	-0.01	0.08	0.24	0.19	0.15	0.10	0.22	0.15	-0.09
GOVERNANCE POLICY	Q	0.25	-0.10	0.11	-0.21	0.12	0.05	0.07	0.21	0.04	0.08	0.22	0.21	0.14	0.08	0.33	0.18	-0.23
%FINCOM_INSIDE	R	-0.15	0.05	-0.01	0.24	-0.22	-0.06	-0.02	-0.16	-0.06	-0.11	-0.49	-0.18	-0.14	-0.07	-0.35	-0.18	-0.23

Notes: Bold text indicates significance at the 0.01 level or better. RATING = S&P LT Domestic Issuer Credit Rating (Compustat #280), see Table 1 for numeric coding. See Table 3 for other variable definitions.

Specifically, we find that ROA, INT_COV, SIZE, and FIN_UTILITY are significantly positively correlated with credit ratings whereas LEV, LOSS, and SUBORD are significantly negatively correlated with ratings. Not surprisingly, several of the firm-characteristic variables exhibit high intercorrelations.

Panel B of Table 5 presents the correlations between the various governance variables and between these variables and RATING. Fourteen of the 16 governance variables exhibit Pearson correlations with the RATING variable that are significant at 0.01 or better. The correlations among the various governance variables generally fall below 0.30 except for the board and committee independence measures (shown in shaded cells) which are generally in the 0.38–0.56 range. The high intercorrelations between the committee and board independence measures are to be expected because the committees are drawn from the board membership. Because of these high correlations, we include only the board and audit committee independence measures in our logit model.

5. Empirical tests and results

5.1. Ordered logit results

Our empirical tests are derived from a general model that represents credit ratings as a function of firm characteristics and corporate governance attributes.

Credit rating = $f(\text{firm characteristics, corporate governance attributes})$.

To test the predicted relations between corporate governance attributes and credit ratings, we estimate an ordered logit model. We use ordered logit because the seven categories of credit ratings convey ordinal risk assessments; we can rank order firms' preferences across the rating categories but cannot assume uniform differences in benefits (costs) between the categories.

The first column of Table 6 reports the full model, where we jointly test whether firm risk characteristics and governance attributes that capture the four components of the S&P corporate governance framework are associated with firms' credit ratings. The model is highly significant with a likelihood ratio χ^2 of 811.55 and a generalized R^2 of 0.60. The coefficients on the firm characteristics have the expected sign and, except for FIN_UTILITY, are significant at the 0.01 level or better. Consistent with prior research (Horrigan, 1966; Kaplan and Urwitz, 1979), we find that credit ratings are positively related to ROA, INT_COV, SIZE, CAP_INTEN, and negatively related to LEV, LOSS, and SUBORD.

Turning to the governance attributes, the highly significant Wald χ^2 indicates that as a group the governance variables add significant explanatory power over and above the firm-level risk characteristics. Further, within each component of the S&P governance framework, there is at least one dominant governance attribute that affects firms' credit ratings. Specifically, when simultaneously considering all attributes representing the four components of governance, we find BLOCK, G_SCORE, WCAQ, TIMELINESS, %BRD_IND, CEOPOWER, %BRD_EXP, and %BRD_STOCK to be significant determinants of credit ratings.

The negative coefficient on BLOCK indicates that firms with a larger number of blockholders have lower credit ratings. This finding is consistent with our "wealth redistribution" hypothesis that blockholders, as influential shareholders, can exercise

Table 6

Logistic regression results of the effects of corporate governance attributes on firms' credit ratings (dependent variable = RATING)

Variables	Predicted	Estimated coefficient		
	Sign	Model 1	Model 2	Model 3
Firm characteristics				
LEV	—	−2.014***	−2.223***	
ROA	+	0.094***	0.108***	
LOSS	—	−0.986***	−1.073***	
INT_COV	+	0.017***	0.015***	
SIZE	+	0.643***	0.869***	
SUBORD	—	−0.604***	−0.744***	
CAP_INTEN	+	0.538***	0.863***	
FIN_UTILITY	+	0.214	0.436***	
Governance attributes				
Ownership structure and influence				
BLOCK	?	−0.165***		−0.243***
%INST	?	0.390		1.209***
%INSIDE	—	0.442		0.603
Financial stakeholder rights and relations				
G_SCORE	?	0.037*		0.050*
Financial transparency and information disclosure				
WCAQ	+	7.372***		14.301***
TIMELINESS	+	3.463***		4.502***
TOTFEES	—	0.340		1.576***
%AUD_IND	+	−0.036		−0.618
FIN_EXPERT	+	0.126		0.157
Board structure and processes				
%BRD_IND	+	0.950*		0.307
CEOPOWER	—	−0.177*		−0.098
%BRD_EXPERT	+	1.003***		1.930***
%BRD_STOCK	+	1.109***		1.298***
GOVERNANCE_POLICY	+	0.179		0.302**
%FINCOM_INSIDE	+	0.317		0.252
Generalized R^2		0.60	0.52	0.41
Likelihood ratio χ^2		811.55***	660.55***	474.32***
Wald χ^2		139.93***		
Sample size		894	894	894

Notes: Table values are coefficient estimates from the following ordered logit models:

Model 1: RATING = f (firm characteristics, governance attributes).

Model 2: RATING = f (firm characteristics).

Model 3: RATING = f (governance attributes).

***, **, * indicate significance at the 0.01, 0.05, and 0.10 level or better, respectively. The Wald χ^2 statistic tests whether the governance attributes added in each model, as a whole, explain a significant portion of the variation in firms' credit ratings. RATING = S&P LT Domestic Issuer Credit Rating (Compustat #280), see Table 1 for numeric coding. See Table 3 for other variable definitions.

influence over management to secure benefits that are detrimental to bondholders. This result is also consistent with the findings of Bhojraj and Sengupta (2003) who document that blockholders have an adverse impact on bond ratings.

We find a positive and marginally significant coefficient on G_SCORE. Recall that the smaller the G_SCORE, the stronger the shareholder rights. Our results suggest that stronger shareholder rights are associated with *lower* firm credit ratings. Gompers et al. (2003) find that firms with stronger shareholder rights have higher firm value and higher profits. Thus, our finding is most consistent with the “wealth redistribution” hypothesis that posits that bondholders may suffer potential wealth transfer effects associated with stronger shareholder rights. That is, from the bondholders’ perspective, the risks of wealth transfer that can result with stronger shareholder rights outweigh the positive firm value effects documented in Gompers et al. (2003). Our finding of a positive association between G_SCORE and credit ratings is consistent with the work of Asquith and Wizman (1990) and Wargha and Welch (1993) who find that ownership changes can result in significant wealth transfers from bondholders to shareholders. Our results are also consistent with Klock et al. (2004) who find that firms with stronger anti-takeover provisions (weaker shareholder rights) have a lower cost of debt financing relative to firms with weaker anti-takeover provisions.

As predicted, we find a positive relation between RATING and the transparency of firms’ financial reporting as measured by WCAQ and TIMELINESS. However, we find no evidence that the quality of the audit process affects a firm’s credit rating. Specifically, we do not find that firms having more independent directors serving on their audit committees and having an independent financial expert on the audit committee have better credit ratings. Moreover, we do not find a significant association between TOTFEES and RATING.

In general, the estimated coefficients on the “Board Structure and Processes” variables support our “management disciplining” hypothesis that better board structure and processes contribute to more efficient monitoring of management that protects all stakeholders’ interests. As predicted, we find a positive coefficient on %BRD_IND, which indicates that the greater the board’s ability to provide independent oversight of management, the better the credit rating. This result is consistent with Bhojraj and Sengupta (2003) who find that firms with a greater proportion of independent outside directors on the board have higher bond ratings. We also find a marginally significant negative coefficient on CEOPOWER. This result suggests that it is costly for firms, in terms of default risk, to cede the chief executive officer with too much board control. The positive coefficient on %BRD_EXPERT indicates that when a greater proportion of the board is comprised of knowledgeable individuals, as proxied by their service to other boards, the higher the firm credit rating. We also document a positive relation between %BRD_STOCK and RATING. This result indicates that as more members of the board have an equity stake in the firm, they have greater incentives to restrict managerial opportunism or to monitor management decision making leading to lower default risk.

To benchmark our results against prior credit rating studies, the Model 2 column of Table 6 reports results for the firm risk characteristics in isolation. Omitting the governance variables reduces the generalized R^2 in Model 1 from 0.60 to 0.52 and lowers the likelihood ratio χ^2 from 811.55 to 660.55. Model 3 column of Table 6 reports results using only the governance variables to explain credit ratings. Interestingly, the governance variables explain nearly as much of the variation in credit ratings as do the firm risk

characteristics (generalized R^2 of 0.41 versus 0.52). In summary, we find that governance attributes explain a significant proportion of the cross-sectional variation in credit ratings. Moreover, the explanatory power of governance attributes, as a group, is comparable to firm risk characteristics that have garnered most of the attention in prior research.

5.2. Investment versus speculative-grade analysis

As stated above, credit ratings convey ordinal risk assessments. Because of the difficulty in quantifying the marginal effects of changes in each governance variable on credit ratings with multiple categories, we use an alternative classification scheme that partitions credit ratings into two categories—investment grade or speculative grade. Many bond portfolio managers are restricted from owning speculative-grade bonds (Grinblatt and Titman, 2002), and as such, firms incur significant costs if they receive a speculative bond rating. Furthermore, using a dichotomous credit rating classification allows us to more readily assess the economic impact of corporate governance on firms' expected cost of debt.

Table 7 displays the results of estimating the logistic regression using INVESTMENT_GRADE as the dependent variable, where INVESTMENT_GRADE is coded one if the firm's credit rating is BBB or better, and zero otherwise. The results are similar to the results of the RATING analyses reported in Table 6 in that we find that BLOCK, G_SCORE, WCAQ, TIMELINESS, and %BRD_STOCK are significant determinants of INVESTMENT_GRADE. In contrast, the coefficient on INT_COV is insignificant in the INVESTMENT_GRADE analysis whereas it was highly significant in the RATING analyses. In addition, the coefficients on %BRD_EXPERT, %BRD_IND, and CEO_POWER are no longer significant when using INVESTMENT_GRADE as the proxy for credit risk.

In order to provide some insight into the economic significance of our results, we calculate the change in probability of receiving an investment-grade credit rating as a result of changing the levels of various corporate governance variables. The change in probability is calculated using the following steps. First, we calculate the probability of achieving an investment-grade credit rating from our logistic regression model using the following expression:

$$\pi(X) = e^{\beta'X} / (1 + e^{\beta'X}), \quad (3)$$

where β is the vector of coefficients reported in Table 7 and X is the vector of independent variables set equal to their mean values. Next, we calculate the marginal changes in the probability of a firm receiving an investment-grade credit rating as a result of a one standardized unit change in each of our governance variables. This marginal effect is measured by $\partial\pi(X)/\partial x_i = \beta_i\pi(X)[1 - \pi(X)]$, which is calculated at the mean value of the regressors. These marginal effects are reported in column 3 of Table 8 for the governance variables after standardizing each non-binary variable by its mean and dividing by its standard deviation.¹⁸ The marginal effects measure the change in the probability of receiving an investment-grade rating for a one standardized unit change in each governance variable while holding the firm characteristics at their mean values.

¹⁸We use standardized values because the various governance variables are measured in different units. Without standardization, the marginal probabilities are difficult to compare and interpret (Agresti 2002, Chapter 5).

Table 7

Logistic regression results of the effects of corporate governance attributes on firms' credit ratings (dependent variable = INVESTMENT_GRADE)

Variables	Predicted sign	Estimated coefficient
Firm characteristics		
INTERCEPT	?	−7.125***
LEV	−	−3.545***
ROA	+	0.130***
LOSS	−	−1.111***
INT_COV	+	0.007
SIZE	+	0.913***
SUBORD	−	−1.416***
CAP_INTEN	+	0.925***
FIN_UTILITY	+	0.194
Governance attributes		
Ownership structure and influence		
BLOCK	?	−0.226***
%INST	?	0.583
%INSIDE	−	−0.207
Financial stakeholder rights and relations		
G_SCORE	?	0.067*
Financial transparency and information disclosure		
WCAQ	+	6.995**
TIMELINESS	+	4.108***
TOTFEES	−	0.110
%AUD_IND	+	−0.434
FIN_EXPERT	+	−0.004
Board structure and processes		
%BRD_IND	+	0.885
CEOPOWER	−	−0.168
%BRD_EXPERT	+	0.698
%BRD_STOCK	+	1.320***
GOVERNANCE_POLICY	+	0.066
%FINCOM_INSIDE	+	−0.224
Generalized R^2		0.48
Likelihood ratio χ^2		587.35***
Wald χ^2		72.84***
Sample size		894

***, **, * indicate significance at the 0.01, 0.05, and 0.10 level or better, respectively. The Wald χ^2 statistic tests whether the governance attributes added in each model as a whole explain a significant portion of the variation in firms' investment-grade ratings. INVESTMENT_GRADE = 1 if a firm's credit rating is investment grade as noted in Table 1, zero otherwise. See Table 3 for other variable definitions.

An alternative way of assessing the effect of various governance variables on the likelihood of receiving an investment-grade credit rating that is easier to interpret is to calculate the values of the logit function, $\pi(X)$, at selected x_i values such as their lower and upper quartiles (Agresti, 2002, p. 167). This entails substituting the quartile values for each

Table 8

Assessment of changes in probabilities of receiving an investment-grade credit rating

Variables	Predicted sign	Marginal effect standardized variables	Change in probability Q1 versus Q3 values
Governance attributes			
Ownership structure and influence			
BLOCK	?	−0.136	−0.194
%INST	?	0.030	0.036
%INSIDE	−	−0.005	−0.003
Financial stakeholder rights and relations			
G_SCORE	?	0.037	0.043
Financial transparency			
WCAQ	+	0.042	0.045
TIMELINESS	+	0.152	0.081
TOTFEES	−	0.005	0.002
%AUD_IND	+	−0.015	0.000
FIN_EXPERT	+	−0.001	−0.001
Board structure and processes			
%BRD_IND	+	0.031	0.048
CEOPOWER	−	−0.018	−0.036
%BRD_EXPERT	+	0.033	0.045
%BRD_STOCK	+	0.056	0.052
GOVERNANCE_POLICY	+	0.014	0.014
%FINCOM_INSIDE	+	−0.006	−0.007

Notes: The Marginal effects column shows the effects of receiving an investment-grade credit rating due to a one unit change in the variable of interest after standardizing the independent variables. Marginal effects are computed as: $\pi(X) = e^{\beta'X} / (1 + e^{\beta'X})$ where $\beta'X$ is evaluated at the mean values of X . Tabled values in the Change in probability column show the change in the probability of receiving an investment-grade credit rating as a result of moving from the first to the third quartile value of the variable of interest, holding all other variables constant at their mean values. See Table 3 for variable definitions.

x_i explanatory variable into Eq. (2) while holding the other variables constant at their means. The linear approximation to changes in $\pi(X)$ is obtained by multiplying the interquartile range of x_i values (see Table 4 for the interquartile ranges) by the marginal effects based on the unstandardized value of the variables (Agresti, 2002, Chapter 5). These values are reported in the last column of Table 8.

Moving from the first quartile to the third quartile of BLOCK decreases the probability of receiving an investment-grade credit rating by approximately 0.19. The changes in probabilities for G_SCORE, WCAQ, and TIMELINESS are approximately 0.04, 0.05, and 0.08, respectively, while the changes in probabilities for %BRD_IND and %BRD_STOCK are 0.048 and 0.052, respectively. Although the probability changes due to any one governance variable may not appear to be all that dramatic, the aggregate effect across all dimensions of corporate governance can be substantial.

To demonstrate this point, we first calculate the probability of receiving an investment-grade credit rating for a hypothetical firm that takes on the lower (upper) quartile values of

governance variables that are positively (negatively) related to credit ratings while holding all the firm-specific variables at their mean values.¹⁹ This yields a probability of receiving an investment-grade credit rating of 0.46. We next repeat this process but now use upper (lower) quartile values of governance variables that are positively (negatively) related to credit ratings. This yields a probability of receiving an investment-grade credit rating of 0.93. Thus, a firm approximately doubles its probability of receiving an investment-grade credit rating by implementing better governance along multiple dimensions.²⁰ During the time frame of our analysis, the average yield for firms with investment (speculative)-grade debt with a 10-year maturity was approximately 6.00% (14.0%). This 800-basis point spread translates into \$38.4 million in before-tax interest costs for the median firm in our investment-grade sample.²¹ This cost estimate, however, overstates the cost of weak governance from shareholders' perspective when weak governance allows wealth transfers from bondholders to shareholders to take place. To the extent that part of the interest rate spread between investment-grade and speculative-grade debt is due to bondholders price-protecting against potential wealth transfers between themselves and stockholders, the amount computed above represents an upper bound on the cost of weak governance from the stockholder's perspective. Nevertheless, governance mechanisms that increase firms' likelihood of receiving an investment-grade debt rating have significant implications for assessing debt financing costs.

6. Additional analyses

6.1. *Why don't all firms practice good governance?*

The preceding analysis suggests that firms with weak governance have a lower probability of receiving an investment-grade credit rating and, as a consequence, incur significantly higher debt costs. This raises the question of why some firms are willing to bear additional debt financing costs by not practicing good governance. One way to think about answering this question is to consider how managers can appropriate some or all of the rents from outside stakeholders by resisting better governance.

Evidence by Core et al. (1999) suggests one way that managers can extract rents from weak governance. They find that CEOs with greater power over the board or that are more entrenched earn greater compensation after controlling for standard economic determinants of pay. Moreover, they find that the estimated component of overcompensation is significantly negatively related with subsequent firm operating and stock performance. Their results suggest that firms with weaker governance structures exhibit greater

¹⁹For governance attributes measured as a 0–1 dummy variable, the benchmark probability is determined with the zero (one) value when the governance attribute is negatively (positively) related to credit ratings.

²⁰We hasten to note that this illustration does not reflect the typical firm in our sample because any given firm will likely not start from a position of having weak governance (low quartile) along all of the multiple dimensions we consider. Nor is it likely that any given firm would be able to move to a position of having strong governance along all dimensions (upper quartile).

²¹To calculate the interest savings, we first determine the mean debt-to-asset ratio for our sample of investment-grade firms (0.28). We then multiply this ratio times the total assets of each speculative-grade firm to estimate the "as-if" capital structure if the speculative-grade firm was an investment-grade firm. Finally, we multiply the estimated debt level times the 800-basis point spread to determine a speculative firm's hypothetical interest savings.

overcompensation of CEOs and face greater agency problems. Generalizing the [Core et al. \(1999\)](#) results to our research setting, it may be rational for managers to resist efforts to improve governance as long as they receive more overcompensation relative to their share of increased debt costs due to weaker governance. Moreover, various frictions in the market for corporate control such as anti-takeover amendments, super-majority voting rules for ownership changes, poison pills, and golden parachutes contribute to management entrenchment and allow overcompensation and non-optimal governance structures to persist.

To investigate whether overcompensation helps explain why some firms do not seek stronger governance, we model CEO pay in 2002 as

$$\text{CEO_PAY} = f(\text{economic determinants, board and ownership structure attributes}).$$

Following [Core et al. \(1999\)](#), we measure CEO_PAY in three different ways: Salary, Salary + Bonus and Total Compensation. The definitions of the alternative measures of CEO_PAY, the specific board and ownership structure variables and the economic determinants are detailed in the Appendix. As noted in [Core et al. \(1999\)](#), the portion of CEO_PAY explained by the board and ownership variables represents overcompensation. Under the optimal contracting view, there should be no association between these governance provisions and CEO compensation, i.e., CEO compensation is only a function of economic determinants.

The results of estimating the cross-sectional models of CEO_PAY for sample firms (Eq. (A1)) are presented in Panel A of [Table 9](#). As shown, the economic and board and ownership variables explain from 39% (for Total Compensation) to 52% (for Salary + Bonus) of the variation in CEO pay. The *F*-tests on the incremental explanatory power of the set of board and ownership variables relative to the economic determinants of pay are significant at 0.001 level or better.

To estimate the proportion of the CEO's compensation that represents overcompensation (OVERCOMP), we first calculate for each sample firm the predicted excess compensation by multiplying the estimated board and ownership coefficients by the sample firm's board and ownership variables' values. We then scale predicted overcompensation (OC) by the relevant CEO_PAY value (which we label OC_Salary, OC_Salary + Bonus and OC_TotalComp).

Our major findings related to overcompensation are summarized in Panel B of [Table 9](#). The mean (median) overcompensation percentage for firms in our Investment-Grade sample ranges from 34.9% (32.7%) for OC_Salary to 56.1% (50.9%) for OC_TotalComp. For the firms in our Speculative-Grade sample, the corresponding mean (median) overcompensation percentages range from 39.1% (35.5%) for OC_Salary to 59.2% (60.8%) for OC_TotalComp. For two of the three compensation measures, the Speculative-Grade sample exhibits significantly greater overcompensation of CEOs relative to the Investment-Grade sample after controlling for standard economic determinants of pay.

To give some idea of the incentives that CEOs of Speculative-Grade firms have for trading off higher firm debt cost due to weaker governance for higher overcompensation paid directly to them, we scale the CEO's overcompensation by his share of additional financing costs that the firm incurs by having Speculative-Grade debt. To calculate the CEO's share of the higher financing costs, we multiply the CEO's percentage ownership in

Table 9
Governance and CEO compensation

Panel A: OLS model of CEO compensation

	Dependent variable		
	Salary	Salary + Bonus	Total compensation
Economic determinants			
SALES	123.143***	331.884***	1873.306***
MB	−1.589	13.675	104.749*
OPROA	223.394	813.621	−774.941
RET	29.145	199.105***	−287.823
STD_OPROA	−57.652	−251.676	3489.100
STD_RET	−43.506	−54.487	1130.478**
Governance determinants			
CEOWPOWER	51.177***	103.168	583.542*
%COMP_CEOAPP	78.960***	485.927***	905.928**
BRD_SIZE	13.835***	45.726***	146.444**
%BRD_INSIDE	−98.787	−248.887	−853.844
%OUT_BUSY	116.613	590.452**	1552.127
%BRD_ActiveCEOs	43.982	64.081	684.285
CEO Ownership	−244.240**	190.693***	22.806
%INST	1.121**	3.832**	11.731
BLOCK	−4.229	−47.030***	−202.682***
Adj R^2	0.47	0.52	0.39
F-stat governance determinants	5.65***	8.21***	2.73***
Sample size	737	737	737

Panel B: Estimates of overcompensation by grade

Overcompensation estimates	INVESTMENT_GRADE <i>n</i> = 492	SPECULATIVE_GRADE <i>n</i> = 245	<i>P</i> -value (two-tailed)
OC_Salary % (mean)	0.349	0.391	0.00
OC_Salary % (median)	0.327	0.355	0.01
OC Salary + Bonus % (mean)	0.535	0.600	0.00
OC Salary + Bonus % (median)	0.478	0.573	0.01
OC_Total Comp % (mean)	0.561	0.592	0.24
OC_Total Comp % (median)	0.509	0.608	0.26

*Panel C: Overcompensation to share of interest costs ratio—speculative grade firms (*n* = 245)*

	<i>Q</i> 1	Median	<i>Q</i> 3
OC_Salary/CEOSHARE_INTEXP	51.242	122.816	435.501
OC Salary + Bonus /CEOSHARE_INTEXP	133.467	334.230	1212.920
OC_Total Comp /CEOSHARE_INTEXP	365.773	905.243	3180.150

Table 9 (continued)

Panel D: Test of significance

	No. of firms where ratio is less than or equal to 1	No. of firms where ratio is greater than 1	χ^2
OC_Salary/CEOSHAIR_INTEXP	5	240	225.41***
OC_Salary + Bonus /CEOSHAIR_INTEXP	4	241	229.26***
OC_Total Comp /CEOSHAIR_INTEXP	4	241	229.26***

Notes: Panel A presents the coefficient estimates for OLS regression, see Appendix. **** indicate significance at the 0.01, 0.05, and 0.10 level or better, respectively. Salary is equal to the dollar value in thousands of the base salary (cash and non-cash) earned by the CEO during fiscal 2002. Salary + Bonus is equal to the current compensation in thousands comprised of salary and bonus earned by the CEO during fiscal 2002. Total Compensation is equal to total compensation in thousands earned by the CEO during fiscal 2002, which is comprised of the following: salary, bonus, other annual pay, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other total pay. OC_Salary % is defined as the dollar amount of Salary due to the governance determinants divided by salary; Salary + Bonus % is defined as the dollar amount of Salary + Bonus due to the governance determinants divided by Salary + Bonus; OC_Total Comp % is defined as the dollar amount of Total Compensation due to the governance determinants divided by Total Compensation. INVESTMENT_GRADE and SPECULATIVE_GRADE are based on a firm's credit rating as noted in Table 1. Median differences are assessed using the Wilcoxon rank sum test for differences in the distributions. All *P*-values are two sided. To calculate the CEO's portion of avoidable interest (CEOSHAIR_INTEXP), we multiply 8% (spread between investment-grade and non-investment-grade debt) times 0.65 (tax benefit to debt) times the CEO's ownership stake in the firm times the total debt outstanding. For CEOs with zero ownership in the firm, we set the OC/CEOSHAIR_INTEXP to the sample median for the respective compensation figure. See Table 3 for other variable definitions.

the firm by the after-tax additional financing costs to the firm.²² The results of this comparison are presented in Panel C of Table 9. The median value of OC_Salary is \$240,000 (untabulated) which is roughly 123 times the CEO's share of the additional after-tax interest cost from having speculative-grade debt versus investment-grade debt. For OC_Salary + Bonus, the median overcompensation is \$646,000 with a multiple of 334, and for OC_TotalComp the median overcompensation is \$1,808,000, which translates into a multiple 905 times the CEO's share of the after-tax interest cost differential.²³

To statistically test the CEO's benefits-to-cost ratio of weak governance, we partition firms in our Speculative-Grade sample into two groups. The first group represents the sub-sample of firms for which the CEO's overcompensation is less than or equal to the CEO's share of the interest expense. The other group is the sub-sample of firms for which the CEO's overcompensation is greater than his portion of interest costs due to weak governance. The latter group reflects the firms for which the CEO benefits outweigh the costs of weak governance. Consequently, these are firms where the CEO is expected to

²²The additional after-tax financing costs are determined by multiplying the firm's long-term debt at the beginning of 2002 times 8% (the spread between investment-grade and speculative-grade debt with 10 year maturity in 2002) times 65% (1–marginal corporate tax rate).

²³A major reason for these relatively large multiples is because CEOs of most firms in the speculative-grade sample hold such a small percentage of the firm's shares. For example, 169 of the 245 speculative-grade firms have CEOs that own less than one-tenth of 1% of the firm's stock. Thus, the typical CEO's share of the higher after-tax interest costs is quite small.

impede governance improvements as they would result in a net loss to the CEO, given his degree of overcompensation and ownership stake in the firm. The χ^2 test results suggest that for the vast majority of firms in the Speculative-Grade debt sample, the degree of CEO overcompensation outweighs his share of the additional debt costs that may result from weaker governance.

A competing explanation for why CEOs may be willing to have the firm incur higher interest costs due to weaker governance is that the higher interest costs are associated with the firm taking on riskier projects with a higher expected return, which benefits shareholders as the residual claimants. The higher interest costs could be offset by higher shareholder value, which can also benefit the CEO indirectly via continued employment or directly via his personal ownership stake in the firm. Moreover, under this competing explanation the “excess compensation” that we have estimated may simply be compensating managers for bearing higher risk.

If this risk explanation for higher compensation is valid, we should observe firms with lower credit ratings exhibiting higher future performance. That is, we would expect riskier firms to earn higher accounting rates of return. Table 10 provides evidence on this competing explanation for our sample of firms. Panel A shows that next year's ROA (ROE) is positively associated with firms having investment-grade credit ratings after controlling for the current year ROA (ROE). Thus, it is not the case that firms with lower credit ratings have higher shareholder value due to stronger future performance. Consistent with results in Core et al. (1999), Panel B shows a significant negative relation between the amount of overcompensation and future period ROA. Moreover, our excess compensation results are not due to risk premia—that is, compensating managers for bearing higher risk. The risk effects on compensation are controlled for through two of the economic determinants of compensation included in the model—the standard deviation of ROA (*STD_OPROA*) and the standard deviation of stock returns (*STD_RET*). These results are consistent with the conjecture that firms with weaker governance have greater agency problems and the resulting CEO overcompensation is a dead weight cost that is borne by all stakeholders.

If it is easier for CEOs of firms with weaker governance to garner excess compensation, as the results presented here suggest, and if the CEO's share of the additional debt costs are low, then there are clear incentives for managers to resist efforts to strengthen governance. Thus, CEO expropriation of rents through excess compensation provides one potential explanation for why some firms continue to operate with weaker governance when doing so may mean lower credit ratings.

6.2. Endogeneity

The preceding analysis treats governance attributes as being exogenously determined. Under the assumption of optimal contracting, a firm's governance structure is unique in equilibrium and endogenously determined (Bushman, Chen, Engel and Smith, 2004; Hermalin and Weisbach, 2003). If governance provisions are endogenously determined such that there is a factor or set of factors that affect governance and also affect credit rating agencies' assessment of firms' creditworthiness, then our study suffers from a potential correlated omitted variable problem. This misspecification causes the parameter estimates to be inconsistent, which clouds the interpretation of results.

Table 10

Relation between future performance, credit ratings and overcompensation

Panel A: Future performance and current credit rating (investment versus non-investment grade)			Dependent variable	
Variables	Predicted sign		Next year's ROA	Next year's ROE
Firm characteristics				
ROA	+		0.436***	
ROE	+			0.470***
INVESTMENT GRADE	?		0.009***	0.055***
Adjusted R^2			0.36	0.44
Sample size			869	869
Panel B: Future performance and current period overcompensation			Dependent variable	
Variables	Predicted sign	Next year's ROA	Next year's ROA	Next year's ROE
Firm characteristics				
ROA	+	0.498***	0.480***	0.496***
OC_Salary %	–	–0.021***		
OC_Salary + Bonus%	–		–0.024***	
OC_Total Comp %	–			–0.023***
Adjusted R^2		0.41	0.42	0.43
Sample size		717	717	717

Notes: Panel A presents the coefficient estimates from the following OLS regressions:

Model 1: $ROA_{t+1} = \beta_0 + \beta_1 ROA_t + \beta_2 INVESTMENT\ GRADE_t + \varepsilon_t$,

Model 2: $ROE_{t+1} = \beta_0 + \beta_1 ROE_t + \beta_2 INVESTMENT\ GRADE_t + \varepsilon_t$.

where ROE is equal to net income before extraordinary items (Compustat #18) divided by book value of common equity (Compustat #60). See Tables 3 and 9 for other variable definitions. Panel B presents the coefficient estimates from the following OLS regressions:

Model 1: $ROA_{t+1} = \beta_0 + \beta_1 ROA_t + \beta_2 OC_Salary\%_t + \varepsilon_t$,

Model 2: $ROA_{t+1} = \beta_0 + \beta_1 ROA_t + \beta_2 OC_Salary + Bonus\%_t + \varepsilon_t$,

Model 3: $ROA_{t+1} = \beta_0 + \beta_1 ROA_t + \beta_2 OC_TotalComp\%_t + \varepsilon_t$.

***** indicates significance at the 0.01, 0.05, and 0.10 level or better, respectively. See Table 9 for variable definitions.

The econometric solution for endogeneity is to use two-stage procedures that rely on instrumental variables to generate predicted values of the independent variables (in our case, the set of governance variables) that are uncorrelated with the error term in the structural model. Unfortunately, instrumental variables are very difficult to identify in most accounting research settings (Ittner and Larcker, 2001). This is particularly true with respect to governance attributes in that there is no well-developed theory or model of the economic determinants of governance (Hermalin and Weisbach, 2003).

The lack of theory on the determinants of corporate governance draws into question the adequacy of any instrumental variable approach to deal with potential endogeneity issues in our setting. However, there is limited empirical evidence (Hermalin and Weisbach,

1991; Bhagat and Black, 2000), that poor past performance (both accounting and stock market) leads to increases in board independence. Therefore, past performance is potentially a correlated omitted variable, at least with respect to our board independence measure.

In Table 11, we expand our full model (Model 6 in Table 6) to include stock returns (PP_RET) as a past performance measure.²⁴ This measure is industry-adjusted and we present results for 1-, 3- and 5-year prior performance horizons.²⁵ With one exception (G_SCORE, 5-year prior performance), all of the variables that were significantly related to credit ratings in our original model continue to be significant in the augmented model. Thus, the inclusion of a past performance measure has little influence on our conclusions regarding the importance of governance on credit ratings.

Another potential competing explanation for our results is that having debt in a firm's capital structure may act as a substitute for strong governance. Jensen (1986) argues that having debt in the capital structure can reduce the agency costs that external stakeholders face when firms have free cash flows available for discretionary spending by managers. The threat caused by failure to make debt service payments serves as an effective motivating force for managers to invest firms' resources in ways that maximize the cash flows available to external stakeholders. Firms with weak governance may choose to have managers pre-commit to achieving a minimal cash flow by issuing debt. Thus, Jensen's free cash flow theory of capital structure implies that firms with weaker governance will have more debt outstanding, resulting in lower credit ratings and higher interest costs.

Merging governance and the traditional capital structure hypothesis suggests that there is a trade-off between governance and capital structure. In other words, strong governance and leverage are negatively related. Thus, the higher interest costs we attribute to having weaker governance may well be costs associated with firms choosing to operate with higher leverage which serves the same role as governance in disciplining managements' opportunistic tendencies towards over investing. However, there are several pieces of evidence in our results that are inconsistent with this competing capital structure hypothesis.

First, differences in sample firms' capital structures are controlled for by including leverage as one of the firm-specific control variables in our credit rating model. That is, the effects of the various governance variables on credit ratings are after taking into account how leverage affects credit ratings. Second, in untabulated results, we find the correlations between the various governance variables and leverage to be quite low, generally falling in the range of + or –0.05. Only one of the governance variables (%BRD_EXPERT) exhibits a significant negative correlation with leverage ($p = -0.09$). As a group, the governance variables explain only 4% of the cross-sectional variation in leverage. Therefore, for our sample, governance does not appear to determine leverage. Finally, firms that issued debt during our sample period actually tended to have stronger

²⁴Including past performance measures in our base model along with the set of governance variable is equivalent to using two-stage procedures where we first regress each of the governance variables on the past performance variables and then include the predicted values from the first stage model into the structural model. We choose the one-step approach because it is simpler to implement given the 14 separate governance variables in our structural model.

²⁵We also conducted analyses using raw performance and market-adjusted performance measures and the results are qualitatively the same as those reported here.

Table 11
Sensitivity tests with prior period performance

Variables	Predicted sign	1-Year prior performance	3-Year prior performance	5-Year prior performance
Firm characteristics				
LEV	–	–2.154***	–1.794***	–1.763***
ROA	+	0.107***	0.089***	0.095***
LOSS	–	–1.089***	–1.155***	–1.045***
INT_COV	+	0.015***	0.029***	0.025***
SIZE	+	0.643***	0.634***	0.628***
SUBORD	–	–0.569***	–0.544***	–0.580***
CAP_INTEN	+	0.490***	0.413**	0.244
FIN_UTILITY	+	0.159	0.250	0.149
PP_RET	?	–0.006***	–0.007**	–0.009**
Governance attributes				
Ownership structure and influence				
BLOCK	?	–0.156***	–0.169***	–0.176***
%INST	?	0.159	0.303	0.133
%INSIDE	–	0.497	0.461	0.503
Financial stakeholder rights and relations				
G_SCORE	?	0.040*	0.036*	0.032
Financial transparency				
WCAQ	+	7.736***	6.738***	10.147***
TIMELINESS	+	3.382***	3.363***	3.034***
TOTFEES	–	0.316	0.323	0.265
%AUD_IND	+	–0.063	–0.216	–0.637
FIN_EXPERT	+	0.189	0.165	0.176
Board structure and processes				
%BRD_IND	+	1.107**	1.362**	1.337**
CEOPOWER	–	–0.167	–0.210*	–0.245**
%BRD_EXPERT	+	1.005***	0.994**	1.214***
%BRD_STOCK	+	0.915***	1.127***	1.133***
GOVERNANCE_POLICY	+	0.116	0.179	0.191
%FINCOM_INSIDE	+	0.276	0.713	0.952*
Generalized R^2		0.60	0.60	0.60
Likelihood ratio χ^2		800.97***	770.74***	709.96***
Wald χ^2		125.40***	128.03***	117.07***
Sample size		870	832	783

See Table 3 for variable definitions. Notes: Table values are coefficient estimates from the following ordered logit models:

Model 1: RATING = f (firm characteristics, prior 1-year return, governance attributes),

Model 2: RATING = f (firm characteristics, prior 3-year return, governance attributes),

Model 3: RATING = f (firm characteristics, prior 5-year return, governance attributes).

***** indicate significance at the 0.01, 0.05, and 0.10 level or better, respectively. The Wald χ^2 statistic tests whether the governance attributes added in each model as a whole explain a significant portion of the variation in firms' credit ratings. RATING = S&P Long Term Domestic Issuer Credit Rating (Compustat #280), see Table 1 for numeric coding, PP_RET is equal to the prior period(s) return over the fiscal year, in the 3 and 5 year columns it is set to the average return over the past 3, 5 years. PP_RET is industry-adjusted, where industry groups are defined by four, three, two and one digit SIC codes with a minimum of 10 firms in each industry group. See Table 3 for other variable definitions.

governance along most dimensions than those firms that did not issue debt.²⁶ Again, these results are inconsistent with debt acting as a substitute for strong governance.

In addition to the supplemental results noted above, there are other features of our setting that suggest correlated omitted variables are not driving our results. In Table 6 we show that there are seven distinct governance variables that are significantly related to credit ratings. There is at least one variable from each of the four S&P components of governance that exhibits significant explanatory power, and there is relatively low correlation among these seven governance variables (see Table 5). Thus, there is no single omitted variable that could simultaneously be correlated with all seven of these governance variables in such a way to provide an alternative explanation for our results. Moreover, it is hard to imagine that there would be a set of omitted economic variables that would be highly correlated with our governance variables and be correlated with credit ratings in a fashion that's consistent with our findings.²⁷

Another feature of our setting that suggests that we have appropriately modeled credit ratings is the evidence from credit rating agencies themselves that indicates that governance features are an important input into the credit rating process. For example, in a recent special report on credit policy entitled, "Evaluating Corporate Governance: The Bondholders' Perspective"²⁸, FitchRatings (2004) states the following:

"The purpose of this global criteria report is to inform the marketplace of Fitch Ratings' approach to evaluating and incorporating the quality of a company's corporate governance within the overall credit ratings process. While Fitch always has taken aspects of corporate governance into account, this report formalizes a more systematic framework for reviewing governance practices that affect credit quality ..." Fitch's framework is grounded in agency theory and defines corporate governance from a creditor perspective.... Ultimately, companies that are found to have exceptionally weak corporate governance (or disclosure practices) could face a downgrade or other negative rating action, while those with very strong practices might warrant a special or favorable mention in the credit analysis." (p. 1)

Statements like these by major credit rating agencies clearly indicate that governance factors are direct inputs to the credit rating process. Moreover, three major rating agencies (S&P, Moody's and Fitch Ratings) have developed infrastructures and have invested significant resources to evaluate firms' governance structures. These actions clearly signal that governance is important to the credit rating process.

6.3. Sensitivity tests

In our original model, we use total audit fees paid to a firm's auditor to proxy for the economic bond between the auditor and client, which potentially threatens auditor

²⁶These results are available from the authors upon request.

²⁷We also acknowledge that there could be other economic variables omitted from the model that are correlated (some positively and some negatively) with credit ratings. We have included all the major economic determinants of credit ratings in our model based on evidence provided in prior research. If there are major economic variables that have been omitted from our model, then these have been systematically overlooked by a vast literature on determinants of debt ratings, and we believe this is unlikely.

²⁸Fitch Ratings, Credit Policy, Special Report, "Evaluating Corporate Governance: The Bondholders' Perspective," April 12, 2004.

independence. Contemporaneous literature investigating the quality of accounting information in the presence of threats to auditor independence uses alternative measures of economic bonding (e.g., Frankel et al., 2002; Ashbaugh et al., 2003). To test the robustness of our results related to the quality of the audit function in governance, we substitute two alternative proxies of economic bonding for the TOTFEE variable in the full model (not tabled). The first substitution uses the ratio of non-audit fees to total fees (FEERATIO) for TOTFEE. The second substitution is a dummy variable coded one if TOTFEE is in the upper quartile of the distribution of TOTFEE and zero otherwise (FEEDUMMY). We expect observations falling into the upper quartile of TOTFEE to be firms where auditor independence is more likely to be threatened. The coefficients on FEERATIO and FEEDUMMY are insignificant at conventional levels. Thus, we continue to find no evidence that measures of economic bonding between the auditor and client firm adversely affects credit ratings.

Our second set of sensitivity tests relates to our proxy for transparent and timely financial reporting. Recall that TIMELINESS is defined as negative one times the squared residual from a cross-sectional regression of returns on the levels and changes in earnings. We substitute two alternative measures of TIMELINESS in our full model. The first substitution defines TIMELINESS as negative one times the variance of the residuals from firm-specific time-series regressions, where we require firms to have a minimum (maximum) of 8 (10) years of data to estimate Eq. (2). The coefficient on this specification of TIMELINESS is positive and significant at the 0.001 level or better.

Gelb and Zarowin (2002) provide an alternative specification of the relation between returns and earnings. Specifically, they posit and provide evidence that current price is reflective of the informativeness of future earnings. Thus, our second substitution for TIMELINESS is the negative squared residual from the regression of returns on contemporaneous and future earnings and earnings changes after controlling for future returns. Once again, the coefficient on this specification of TIMELINESS is positive and significant at the 0.001 level or better.

We use the %BRD_EXPERT, the percentage of outside directors that sit on other boards, as a measure of board competency or expertise following Klein (1998). However, there is evidence in the literature that when board members sit on too many boards monitoring of management is compromised and, as a consequence, firm performance deteriorates (Bhagat and Black, 1999; Klein, 1998). As an additional sensitivity test (not tabled), we include a variable for the percentage of board members that sit on four or more boards. We find no evidence that board members being “too busy” adversely affects credit ratings, and adding this variable does not detract from the significance of our %BRD_EXPERT variable.

The results of these sensitivity tests indicate that our inferences are robust to alternative measures of governance attributes.

7. Summary and conclusions

Weak corporate governance has been singled out as the leading cause for recent high-profile cases of corporate fraud. Using a framework for evaluating corporate governance structures recently developed by Standard & Poor's, this study investigates whether firms that exhibit strong governance benefit from higher overall firm credit ratings relative to firms with weak governance. We present evidence that a variety of governance attributes explain firm credit ratings after controlling for firm characteristics that prior

research has shown to be related to credit ratings. Specifically, we find that firm credit ratings are: (1) negatively associated with the number of blockholders that own at least a 5% ownership in the firm; (2) positively related to weaker shareholder rights in terms of takeover defenses; (3) positively related to the degree of financial transparency; and (4) positively related to overall board independence, board stock ownership and board expertise and negatively related to CEO power on the board. We show that a hypothetical firm that possesses desirable governance characteristics from the bondholder's viewpoint approximately doubles its likelihood of receiving an investment-grade credit rating. Given the spread between investment-grade and speculative-grade bond yields, better governance can translate into significant debt cost savings for firms.

Our primary analysis documents that firms' governance affects firms' credit ratings. Our secondary analysis provides insights into why all firms do not possess strong governance. We note that the cost of weak governance is borne by all stakeholders whereas the benefits of weak governance can accrue to managers when they can appropriate some or all of the rents from outside stakeholders by resisting better governance. Our findings suggest that CEOs of weak governance firms garner overcompensation in excess of their share of additional debt costs due to weak governance. Thus, we provide one explanation for why all firms do not practice good governance.

A number of organizations and companies (Standard & Poor's, Board Analyst, The Board Institute, Moody's Investor Services, and FitchRatings) have begun to compile company ratings of corporate governance practices along several dimensions. Investigating whether these composite ratings are useful determinants of credit ratings is one avenue of future research. Another avenue of future research is to focus on the benefits of governance to equity stakeholders by investigating the relation between governance and firms' cost of equity capital.

Appendix

We use the following alternative measures of CEO pay (see Core et al., 1999; Aboody et al., 2004) to derive measures of overcompensation:

Salary = the dollar value (\$000) of the base salary (cash and non-cash) earned by the CEO during fiscal 2002,

Salary+Bonus = current compensation (\$000) comprised of salary and bonus earned by the CEO during fiscal 2002,

TotalComp = total compensation (\$000) earned by the CEO during fiscal 2002, comprised of the following: salary, bonus, other annual, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other total.

Following Core et al. (1999), we use the following variables to measure the economic determinants of CEO pay:

Sales = the natural log of Compustat #12,

MB = the average market to book ratio as of the end of fiscal 2001 (Compustat #25 x #199 divided by #60) where firms are required to have a minimum of 3 and a maximum of 5 years of prior data,

OPROA = operating income divided by total assets (Compustat #13 minus #14 divided by #6) for the 2001 fiscal year,

RET = the buy and hold return over the 2001 fiscal year,
STD_OPROA = the standard deviation of OPROA as of the end of the 2001 fiscal year where firms are required to have a minimum of 3 and a maximum of 5 years of OPROA,
STD_RET = the standard deviation of buy and hold returns for the fiscal year where firms are required to have a minimum of 3 and a maximum of 5 years of RET.

We use the following board structure and ownership structure variables to capture CEO power/management entrenchment (the predicted relation with CEO compensation is shown in parentheses—see Core et al. (1999) and previous discussion in this paper):

CEOPOWER = Composite score representing the power of the CEO where a firm receives one point if the CEO is the chairman of the board, and one point for each of the committees (compensation, nominating, audit) that the CEO sits on (in some instances the CEO does not have voting power yet still is identified as being part of the committee) (source Board Analyst) (+),

%COMP_CEOAPP = the percent of outside independent directors on the compensation committee appointed by the CEO (+),

BRDSIZE = the number of directors on the board (+),

%BRD_INSIDE = the percent of the board made up of insiders (?),

%OUT_BUSY = the percent of outside independent directors that sit on more than four boards (number of outside independent directors sitting on more than four boards divided by total outside independent directors) (+),

%BRD_ActiveCEOs = the percent of the board that are currently employed as CEO's (+),

%INST = % of shares held by institutional investors multiplied by 100 (source Board Analyst) (-),

BLOCK = Number of blockholders, where block is defined at the 5% ownership level (source Compact Disclosure) (-),

IND_DUM = industry dummies based on firms' two-digit SIC codes and are included for each two-digit SIC group having at least 10 observations, for a total of 23 industry dummies.

The following cross-sectional OLS model is used to estimate the determinants of CEO compensation using fiscal year 2002 data for our sample firms:

$$\begin{aligned} \text{CEO_COMP}_i = & \sum_{n=1}^{23} b_{0n} \text{IND_DUM}_{ni} + b_1 \text{Sales}_i + b_2 \text{MB}_i + b_3 \text{OPROA}_i + b_4 \text{RET}_i \\ & + b_5 \text{STD_OPROA}_i + b_6 \text{STD_RET}_i + b_7 \text{CEOPOWER}_i \\ & + b_8 \% \text{COMP_CEOAPP}_i + b_9 \text{BRDSIZE}_i + b_{10} \% \text{BRD_INSIDE}_i \\ & + b_{11} \% \text{OUT_BUSY}_i + b_{12} \% \text{BRD_ActiveCEOs}_i \\ & + b_{13} \text{CEO_Ownership}_i + b_{14} \% \text{INST}_i + b_{15} \text{BLOCK}_i + \varepsilon_i. \quad (\text{A1}) \end{aligned}$$

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