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29 June 2011

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June 2, 2015

Abstract

We examine the relation between firm reputation and the cost of debt financing. We posit that corporate reputation represents "soft information" not captured by balance sheet variables, which is nonetheless valuable to lenders. Using Fortune magazine's survey of company reputation, we find an inverse relation between a company's reputation and its bond credit spreads. We also find that firms with high reputation face less stringent covenants and are less likely to be the target of SEC fraud investigations. Further testing shows that bad reputation is a good ex ante predictor of corporate failure. Our study provides evidence that firm reputation is an important consideration in the pricing of corporate public debt.

JEL Classifications: G11, G12, G14, G32, G33, M4, L14, D82

Keywords: Cost of debt and firm reputation, cost of capital and firm reputation, credit risk and firm reputation, cost of debt and firm intangibles, covenant restrictions and firm reputation, fraud and firm reputation, bankruptcy risk and firm reputation.

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1. Introduction

Prior research has demonstrated the role that reputations play in mitigating agency problems between principals and agents. The literature has shown that reputations emerge from information asymmetries (Milgrom and Roberts 1982). Asymmetric information about a player's true type gives rise to reputation, a formalized belief about the player's type based upon their past actions. In their seminal work on repeated games, Milgrom and Roberts show that players, through their actions, can shape their reputations. By taking actions that are in the principal's interests even without a formal or explicit contract, a player can develop a reputation for a certain characteristic that helps reduce agency problems and increase payoffs at a later stage.[1] Since it is costly to build and maintain, a "good" reputation must allow a player to earn future rents. Theoretical literature in economics predicts that firms with higher reputations will enjoy rents in the form of access to capital markets at relatively lower cost (Diamond 1989 and 1991). Because a good reputation serves as a signal that the company will take actions consistent with investors' interests, a company that acts to enhance its reputation is rewarded by investors with a lower cost of capital. Empirical evidence supporting this prediction, however, is limited. The only direct research to date comes from Cao, Myers, Myers, and Omer (2014), who document a negative association between firm reputation and the cost of equity.[2]

In this paper, we extend the literature by examining the relation between firm reputation and the cost of capital from a different perspective, namely that of bondholders. In doing so, we attempt to answer the following two main questions: (i) Is firm reputation priced in the debt market, and (ii) if so, what are the channels through which firm reputation affects the cost of debt. To the best of our knowledge, there is no empirical research on this topic. The closest studies focus on a company's relationship with its employees. Bauer, Derwall and Hann (2009) find that firms with strong employee relationships enjoy a lower cost of debt and higher bond ratings. Similarly, Verwymeren and Derwall (2010) show that employee well-being is associated with higher credit ratings. But while employee relationships may constitute one aspect of firm

[1] For example, a player might take actions counter to their short-term interests, such as offering money back guarantees or engaging in socially responsible activities, to establish a reputation for acting in both parties' long-term interests instead of opportunistically (see e.g., Mailath and Samuelson 2001).

[2] Recent indirect research examining firm reputation and the cost of equity include Edmans (2011), Anginer and Statman (2010), and Jones, Jones and Little (2000).

reputation, the reputation of a company encompasses several dimensions (e.g., quality of product, innovation, financial soundness etc.). Using scores from Fortune magazine's "most admired companies" survey, we find an inverse relation between a company's reputation and its bond credit spreads. We also find that firms with high reputation face less stringent covenants and are less likely to be the target of SEC fraud investigations. Further testing suggests that reputation is a good ex ante predictor of corporate failure. Overall, our study provides evidence that firm reputation represents "soft information" that is nonetheless valuable to lenders.

We begin our analyses by examining the association between the firm's reputation and its credit yield spread. We argue that since bondholders have limited upside potential in their investment, they have different demands for numerous attributes of accounting information (Armstrong, Guay, and Weber 2010), and especially for financial reporting quality. This issue is important because debt contracts generally include clauses and covenants that are often based on reported financial statement variables (e.g., balance sheet leverage and earnings-based interest coverage ratios), and where violations are triggered by decreases in the value of the firm. These violations allow lenders to dictate future managerial actions including major financing and investment decisions. Therefore, better financial reporting quality provide for better debt valuation since it leads to accurate revisions of book value of assets, liabilities, equity, and earnings, and therefore precise violations of financial covenants (Ball, Robin, and Sadka 2008).

We posit that reputable firms will provide quality financial reporting leading to a lower cost of debt financing. In line with this argument, Cao, Myers, and Omer (2012) examine the association between firm reputation and financial reporting quality and find a negative relation between reputation and the likelihood of misstatements. They find that companies with higher reputations are less likely to misstate their annual financial statements, report less extreme discretionary accruals, and are willing to pay higher audit fees, evidence consistent with the idea that higher-reputation companies produce higher-quality financial statements. Financial reporting quality is also an outcome of better corporate governance and better business decisions (Dechow, Sloan, and Sweeney 1996; Klein 2002; Krishnan and Visvanathan 2008). Further, a fundamental benefit of reputation is that it reduces the confidence interval around hard (quantifiable) information estimates, thereby increasing creditor reliance on publicly available accounting statements (Reeb and Roth 2014).

Next, we examine the channels through which firm reputation affects the cost of debt. Specifically, we investigate the relation between firm reputation and three channels: debt covenants, SEC enforcement actions, and default probability. First, shareholders can expropriate bondholder wealth by liquidating the firm's assets and distributing them to shareholders, undertaking risky projects after the issuance of debt, under-investing, and diluting existing bondholders' claims through the issuance of new debt with higher seniority. The agency theory of covenants suggests that rational debt holders aware of such conflicts will require a premium for holding the firm's debt. As a result stockholders will bear these costs ex-ante and will use debt covenants to limit management's ability to expropriate wealth from bondholders in an attempt to reduce the firm's cost of debt (Jensen and Meckling 1976; Smith and Warner 1979; Bradley and Roberts 2004).

Prior literature has identified certain company characteristics that lead to more intense covenant use. Malitz (1986) finds that the covenant use decreases with the size of the firm and increases with existing leverage ratio. Begley (1994) shows that firms with higher default probabilities, fewer assets in place and that generate small amounts of operating cash flows use covenants to restrict dividend payments and additional borrowing. Bradley and Roberts (2004) find that cash flow volatility is an important determinant of covenant intensity and interpret this as evidence of the relevance of financial health and asymmetric information in the contracting decision process. Therefore, based on the agency theory of covenants we expect that more reputable firms will face fewer covenant restrictions.

Second, we examine whether a firm's reputation is related to SEC enforcement actions due to fraud. We conjecture that reputation is a valuable asset that firms attempt to preserve by avoiding actions that reduce its value. In particular, Karpoff and Lott (1993) and Karpoff, Lee, and Martin (2008) show that reputational costs of corporate fraud are large and constitute most of the costs incurred by firms accused or convicted of fraud. Chava, Huang and Johnson (2014) show that firms that misreport financial information pay higher loan spreads for at least six years following disclosure of misreporting. Therefore, we test whether firms with high reputation scores avoid fraudulent behavior and thus have lower costs of borrowing.

Third, we investigate whether highly reputable firms are less likely to face bankruptcy. This is ultimately an empirical question and given that firm size and profitability increase while

idiosyncratic volatility and leverage decrease with firm reputation, we expect to find highly reputable firms to have lower likelihoods of failure. Therefore, it is essential for us to control for other firm characteristics known to influence credit risk when analyzing the effect of firm reputation on bond spreads as these characteristics are significantly correlated with reputation.

We proxy for corporate reputation using ratings from Fortune magazine's annual ranking of "most admired companies." To produce its ranking, Fortune magazine conducts an annual survey in which industry experts are asked to rate companies along a number of dimensions, from financial soundness to social responsibility.[3] The participants in the survey are senior executives, directors, and securities analysts from the same industry as the companies being measured. They are familiar with the companies they assess and are thus likely to be informed in their judgments. The ratings are publicly available and convey information from knowledgeable industry insiders to investors about an organization's underlying attributes – attributes that might otherwise be difficult for investors to observe. The Fortune ratings are the most widely-used measure of company reputation in academic research in finance and management[4] and are part of an emerging academic literature in accounting.[5] The Fortune ratings are widely used because "they represent an independent measure of company reputation that covers a large number of companies, is publicly available, and appears to embody the construct "reputation" (Cao, Myers and Omer 2012; Fombrun and Shanley 1990; Roberts and Dowling 2002).

Using Fortune magazine's "most admired companies" survey, we find that higher reputation scores are associated with lower monthly credit spreads on risky bonds. A half-point (0.5) improvement in the reputation score, or moving up one quintile in the reputation rankings, reduces credit spreads by roughly 14 basis points. We obtain our results after taking into account the impact of firm-level variables known to affect credit risk. Moreover, we find that the effect of the reputation score on credit spreads varies with the information environment: firm reputation has an even larger impact on credit spreads when other information about a firm is less-widely

[3] The dimensions are quality of management, quality of products or services, innovativeness, long-term investment value, financial soundness, responsibility to the community and the environment, wise use of corporate assets, and ability to attract, develop, and keep talented people.

[4] See for example Fombrun and Shanley 1990; Fombrun, Gardberg and Sever 1999; Roberts and Dowling 2002; Barber, Heath and Odean 2003; Flanagan and O'Shaughnessy 2005; Anginer and Statman 2010.

[5] See for example Cao, Myers and Omer (2012), Cao, Cassell, Myers and Omer (2012), and Cao, Myers, Myers and Omer (2014).

disseminated to outsiders as in the case when a company is covered by fewer analysts. We perform a series of tests to examine the robustness of our results. In our main regressions, we include firm fixed effects, Fama-Macbeth style regressions, and an instrumental variable approach to address possible endogeneity. In all, we find that the Fortune reputation score substantially improves our ability to explain the cross-section of corporate bond credit spreads.

Additional testing shows that firms with high reputation face less stringent covenants and are less likely to be the target of SEC fraud investigations. We also find that the Fortune reputation score captures an aspect of credit risk not captured by traditional measures of distress risk. We find a highly significant inverse relation between our measure of reputation and the likelihood of firm default, even after controlling for credit rating, Merton's distance-to-default measure, and a comprehensive list of accounting and market variables used by Campbell, Hilscher and Szilagyi (2008, hereafter CHS). While many firm-level characteristics, such as leverage, profitability and idiosyncratic volatility, have been found to predict firm failures, we identify an additional variable that is derived from industry experts' knowledge and perception of the firm. This additional failure predictor reflects unique information about whether a firm's true type is one that honors its commitments. Overall, the evidence suggests that reputation is an important determinant in the pricing of public corporate debt.

Our paper is related to a strand of literature that examines the role of reputation as an informal enforcement mechanism when there are limits to contracting and adjudication. Studies have found that reputation concerns facilitate commercial transactions by encouraging firms to perform even in the absence of formal contract enforcement (e.g., MacLeod 2007; Klein and Leffler 1981). Recent empirical work shows that reputation is a qualitatively important determinant of default rates under commercial contracts, deterring short-term opportunism (Banerjee and Duflo 2000; McMillan and Woodruff 1999). Corporate reputation can also be considered a complement to corporate governance, as both are means to reduce agency problems. But while corporate governance mechanisms rely upon explicit contracts and external monitoring, reputation-based mechanisms rely upon self-discipline by the agent and repeated interactions between players. Cao, Myers and Omer (2012) find that reputation concerns motivate companies to maintain high financial reporting quality. Research has found that reputation concerns influence the behavior of auditing firms, investment banks, financial analysts, and directors into taking actions that provide long-term benefits instead of exclusively

short-term ones (e.g., Reynolds and Francis 2001; Larcker and Richardson 2004; Jackson 2005; Fich and Shivdasani 2007; Ljungqvist et al. 2007). Despite the growing interest in company reputation and an increasing amount of reputation-related research, we know of no prior research that explicitly studies the effect of a company's reputation on its borrowing costs.

Our study also contributes to the literature on the determinants of the cost of debt. Prior studies have attempted to explain variation in credit spreads on corporate bonds using firm characteristics, such as leverage and profitability, that are associated with financial distress (e.g., Collin-Dufresne, Goldstein and Martin 2001; Duffee 1999; Amato and Remolona 2003; Elton et al. 2001). These studies conclude that there is a large component of credit spread variation that remains unexplained. Reputation enters these models only indirectly - to the extent captured by equity prices. In this paper, we show that by explicitly incorporating firm reputation directly, we improve our understanding of credit risk.

We further contribute to the literature on firm reputation by documenting an additional economic benefit associated with reputation. While prior work has suggested that reputational capital is an important asset for many firms, allowing firms to charge premium prices for high quality products (Klein and Leffler 1981; Allen 1984; Milgrom and Roberts 1986) or lowering their cost of equity (noted above), our study shows that firm reputation can also lower the cost of debt. The findings should be of interest to researchers and company leaders interested in the benefits of building and protecting company reputation.

The rest of the paper is organized as follows. Section 2 describes the Fortune reputation score and other data utilized in this study, and gives an overview of the methodology used. Section 3 provides descriptive statistics. Section 4 establishes that the Fortune reputation score is not merely another proxy for default risk. Section 5 provides our main results. Section 6 concludes.

2. Data and Methodology

We measure firm reputation using Fortune magazine's annual ranking of "most admired companies." Fortune magazine has published an annual survey of company reputations since 1983. Each year, Fortune asks senior executives, directors and securities analysts to rate the ten largest companies in their industry on eight attributes of reputation, using a scale from zero

(poor) to ten (excellent). The attributes are quality of management, quality of products or services, innovativeness, long-term investment value, financial soundness, responsibility to the community and the environment, wise use of corporate assets, and ability to attract, develop, and keep talented people. The overall score of a company is the mean of the ratings on the eight attributes. This overall mean score is used to rank companies by reputation. Our approach follows that taken by Anginer and Statman (2010) and Statman, Fisher and Anginer (2008) in the equities literature. Those studies compare the stock performance of high-reputation companies to the stock performance of low-reputation companies. In this paper, we compare the cost of debt incurred by high reputation companies to the cost of debt incurred by low reputation companies.

We obtain reputation scores published in years 1983-2007. The Fortune surveys are completed by respondents around September 30th of each year, and the results are published during the first quarter of the subsequent year. Since we are interested in the opinions of respondents at the time they are surveyed (as opposed to the time the information becomes public), we match a company's Fortune reputation score with its firm-level data as of September 30 (when the Fortune surveys are completed). We also construct portfolios on that date. The Fortune survey completed in September, 2006 and published in early 2007 includes 590 companies. In conducting the survey, Fortune asked roughly 10,000 senior executives, directors and securities analysts to rate the ten largest companies in their industries on eight attributes of reputation (from zero (poor) to ten (excellent)). In 2007, FedEx Corporation ranked highest with an overall score of 8.70, followed by CHS with an overall score of 8.67 and Procter & Gamble with an overall score of 8.58. Dana Corporation ranked at the very bottom with an overall score of 3.09. The different attributes are highly correlated, suggesting that there is common component driving all attributes.[6]

Firm-level accounting information is obtained on a quarterly basis from COMPUSTAT and price information is obtained on a monthly basis from CRSP. We exclude financial firms (SIC codes 6000 through 6999) from the sample. It is important for us to control for known

[6] We find that the first principal component of the eight attributes explains 85% of the variation in the reputation score. Moreover, there is a 99.97% correlation between the first principal component and the mean reputation score, justifying use of the mean value. We also repeated our main analyses using the first principal component of the attributes and obtained results that are qualitatively and quantitatively similar to the results using the overall Fortune score.

determinants of credit spreads, especially those that relate to credit risk. We use a number of distress measures that have been previously used in the literature (e.g., Anginer and Yildizhan 2012; Campbell, Hilscher and Szilagyi 2008). The variables we use are the following: ROFITABILITY is a geometrically declining average of past values of the ratio of net income to total assets; LEVERAGE is the ratio of total liabilities to the market value of total assets; EXCESS RETURN is a geometrically declining average of monthly log excess stock returns relative to the S&P 500 index; CASH is the ratio of cash to the market value of total assets; IDIOVOL is the standard deviation of regression errors obtained from regressing daily excess returns on the Fama and French (1993) factors; MARKET-TO-BOOK is the market-to-book ratio; SIZE is market capitalization; MERTONDD is the Merton (1974) "distance-to-default" measure, which is the difference between the asset value of the firm and the face value of its debt, scaled by the standard deviation of the firm's asset value; CHS-Z is the Campbell-Hilscher-Szilagyi default score; RATING is the corporate credit rating obtained from Standard & Poor's; and INST OWNERSHIP in residual institutional stock ownership. The construction of the variables is described further in Appendix I. To ensure that statistical results are not heavily influenced by outliers, we set all observations higher than the 99th percentile value of a given variable to the 99th percentile value. All values lower than the first percentile of each variable are winsorized in the same manner.

Corporate bond data used in this study come from three separate databases: the Lehman Brothers Fixed Income Database (Lehman) for the period 1982 to 1997, the National Association of Insurance Commissioners Database (NAIC) for the period 1994 to 2006, and the Trade Reporting and Compliance Engine (TRACE) system dataset from 2003 to 2007. We also use the Fixed Income Securities Database (FISD) for bond descriptions. Our sample includes all U.S. corporate bonds listed in the above datasets that satisfy a set of selection criteria commonly used in the corporate bond literature (e.g., Duffee 1999; Collin-Dufresne, Goldstein and Martin 2001; Anginer and Yildizhan 2012; Anginer and Warburton 2014). We exclude all bonds that are matrix-priced (rather than market-priced) from the sample. We remove all bonds with equity or derivative features (i.e., callable, puttable, and convertible bonds), bonds with warrants, and bonds with floating interest rates. Finally, we eliminate all bonds that have less than one year to maturity.

A firm-year observation is included in our analysis if we have a reputation score, bond data from three bond databases (Lehman, NAIC, and TRACE), firm specific data from Compustat, institutional ownership data from Thomson Financial, stock return data from CRSP, and corporate governance data from RiskMetrics. These limitations result in 15,434 firm years and 315 unique firms with credit spread and firm-level data for which we also have a corresponding Fortune reputation score.

3. Descriptive Statistics

Table 1 provides descriptive statistics for the sample of firms using the mean, median, standard deviation, and 25th and 75th percentiles. Our main variable reputation has mean and median scores of about 6.4 (out of 8) with a standard deviation of 0.90. The bonds in the sample have mean (median) credit spreads of about 140 (100) with a standard deviation of about 160 basis points. Bonds also have mean credit ratings of about BBB+. In terms of firm characteristics, firms in the sample have median leverage ratio of 48%, cash ratio of 2.2%, market-to-book ratio of 2.1, governance index of about 10 (more shareholder than management rights), and 62% institutional ownership.

[Insert Table 1 Here]

Reputation is highly positively correlated with firm characteristics that are associated with higher likelihood of firm survival. Specifically, firms with higher profitability, lower leverage, lower idiosyncratic volatility, higher past returns and larger size also enjoy higher reputations. Firms with higher reputations hold less cash. Higher reputation also implies lower likelihood of default as measured by traditional measures of distress risk - Merton's distance to default, Standard & Poor's corporate credit rating, and CHS z-score.

To better understand how firm reputation is related to various default risk measures and other firm characteristics, we form portfolios based on reputation. Table 2 reports summary statistics for portfolios of companies sorted on the Fortune reputation score. According to Table 2, more reputable firms have lower credit spreads, both economically and statistically. A one point increase in the reputation score would take a firm from the second-lowest reputation quintile to

the second-highest reputation quintile while reducing its credit spread from 133 basis points to 106 basis points, a difference of 27 basis points. More reputable firms also have higher market-to-book ratios, in both an economic and statistical sense, suggesting that more reputable firms are valued similar to growth companies.

[Insert Table 2 Here]

There is a monotonic relation between the reputation score and Merton's distance-to-default measure. As the reputation score increases so does the distance-to-default measure. There is a similar monotonic relation between the reputation score and corporate ratings obtained from Standard and Poor's (S&P).[7] The numerical value of the S&P rating decreases as we move from the lowest reputation group (L) to the highest reputation group (H) indicating once again that high reputation firms have lower default risk. A move from the lowest reputation group (L) to the highest reputation group (H) is equivalent to a firm increasing its rating from BBB/BBB- to A+/A. We observe a similar monotonic pattern in portfolios that are sorted with respect to the CHS z-score. The value of the CHS z-score increases as we move from the lowest reputation group (L) to the highest reputation group (H). These monotonic relationships suggest that there may be some overlap between the reputation score and standard distress measures. To better understand the extent of any potential overlap, we conduct a more detailed analysis in Section 4.

4. Disentangling the Fortune Reputation Score from Default Risk

Previous research has identified that low default risk firms have substantially lower credit spreads, i.e. lower costs of debt. Could it be that high reputation firms have lower costs of debt simply because reputation is a direct proxy for default risk? In this section, we investigate in detail the relation between reputation and default risk.

In particular, we want to see if the inverse and monotonic relation between firm reputation and cost of debt persists once we explicitly control for the impact of distress risk. To control for the effect of distress risk, we perform a double sort. We sort firms into five groups each

[7] We follow convention and use a numerical rating scale to covert ratings. The numerical values corresponding to rating notches are 1 for AAA, …, 20 for CC.

September from 1982 to 2006 based on the most recent measure of distress risk (using, alternatively, Merton's distance to default (MERTONDD), S&P rating (RATING), and CHS z-score (CHS-Z)). Then, within each distress risk group, we sort firms according to their reputation scores (REPUTATION), creating a total of 25 portfolios. The credit spreads (SPREAD) for the five reputation portfolios are averaged over each distance to default portfolio to account for the impact of distress risk. Hence, the reputation portfolios control for the impact of distress risk. The same procedure is repeated using S&P rating (RATING) and using CHS z-score (CHS-Z). We also calculate the spread for a high-reputation minus low-reputation hedge portfolio.

We report, in Panel A of Table 3, average values of Merton's distance to default, S&P rating and CHS z-score for each of the five reputation portfolios. There is a strong relation between reputation and the three distress risk measures. Merton's distance to default increases monotonically from 4.36 for the lowest reputation group to 13.77 for the highest reputation group. S&P rating decreases from 11.7 for the lowest reputation group to 4.18 for the highest reputation group. Similarly, CHS z-score increases monotonically from 7.37 for the lowest reputation group to 8.83 for the highest reputation group.

[Insert Table 3 Here]

Panel B shows the spreads for the individual 25 portfolios formed by double-sorting based on CHS z-score and the reputation score. Panel B shows that the impact of reputation is greatest for firms in the highest distress risk portfolios. A zero cost portfolio formed by going long high-reputation firms and shorting low-reputation firms has an average spread difference of -284.54 basis points, when these firms are in the highest distress risk group. However, the zero cost portfolio has an average spread difference of only -57.70 basis points, when these firms are in the lowest distress risk group. These results suggest that borrowing costs of high distress risk firms are a lot more sensitive to the impact of reputation.

Panel C of Table 3 reports average spreads for the five reputation portfolios without controlling for distress risk, as well as average spreads after controlling for each of the three distress risk measures. According to Panel C, a zero cost portfolio formed by going long high-reputation firms and shorting low-reputation firms has an average spread difference of -109.5

basis points. This premium decreases to only -93.6 basis points when we control for the effect of distress risk using the CHS z-score. When we control for distress risk using Merton's distance to default or S&P rating, the spread difference for the hedge portfolio is not reduced. To the contrary, it is somewhat higher than in the uncontrolled case. These results suggest that the cost of debt difference to high-reputation minus low-reputation bond portfolios cannot be explained away by the impact of distress risk, when traditional measures of distress risk are used. The reputation score measures a distinct characteristic affecting the cost of debt that is not captured by the traditional distress risk measures.

5. Empirical Results

In this section, we first examine in greater detail the relation between the cost of debt and a firm's reputation as measured by its Fortune score. Regressing credit spreads on the Fortune reputation score and control variables, we find that a higher reputation score leads to a lower cost of debt (Section 5.1). We then show that firms with higher reputation scores are associated with fewer debt covenants (Section 5.2) as well as fewer corporate fraud investigations (Section 5.3). Finally, we show empirically that the reputation measure is a good ex ante predictor of corporate default (Section 5.4). We find that our measure of reputation contains information on default risk above and beyond that conveyed by the standard measures.

5.1 Reputation and Credit Spreads

To examine the relation between the cost of debt and firm reputation, we run regressions where we proxy for the cost of debt via firm-level corporate bond spreads described in Section 2. Table 4 reports OLS regressions of credit spreads on the reputation score, with standard credit-risk controls and other determinants of corporate spreads. It shows a robust inverse relation between a firm's reputation and the credit spread on its bonds. In each specification, the coefficient on the reputation variable is significant and takes a negative value. Firms with better reputations enjoy lower credit spreads.

[Insert Table 4 Here]

In the first column, credit spreads are regressed on the reputation variable along with control variables. Controls include firm-level variables known to affect credit risk (CHS 2008), PROFITABILITY, LEVERAGE, CASH, RETURN, IDIOVOL, MARKET-TO-BOOK, and SIZE (log). We also control for corporate credit rating (RATING) and the fraction of shares held by institutional investors (INST OWNERSHIP). The specification employs firm-level fixed effects to mitigate potential endogeneity and unobservable firm heterogeneity that could cause a spurious relationship between credit spreads and company reputation. The reputation measure (REPUTATION) is statistically significant. The impact of reputation on the cost of debt, in addition to being statistically significant, is also economically meaningful. A half-point (0.5) increase in the reputation score, or moving one quintile up in the reputation ranking, reduces the cost of debt by an economically significant 13.75 basis points.

Corporate reputation might be considered a complement to corporate governance, as both are means to reduce agency problems. Hence, in the second column, we add the governance measure (GOVERNANCE) as in Gompers, Ishii and Metrick (2003) to measure the extent of shareholder rights. The impact of reputation on cost of debt retains its statistical and economic significance in the presence of the governance control.

The reputation scores of companies in some industries might be higher on average than those in other industries. Hence, in the third column, we employ industry fixed effects in place of firm fixed effects. The coefficient on the reputation variable is highly significant statistically and economically.

Past research ties CEO reputation to firm reputation. In order to control for the effect of CEO reputation on the firm's cost of debt, in the fourth column, we employ CEO fixed effects in place of firm fixed effects, and once again find the coefficient on the reputation variable to be statistically significant with comparable economic impact.

In column seven of Table 4, we find the same robust inverse relation between firm reputation and credit spreads when we use Fama-Macbeth regressions. Overall, columns one, two, three, four and seven of Table 4 indicate that the Fortune reputation measure is negatively related to

credit spreads.[8] We obtain our results after taking into account the impact of firm-level variables known to affect credit risk. And the results are robust to alternative regression specifications, including fixed effects and Fama Macbeth regressions.

These results contribute to the literature that tries to explain the variation in credit spreads. Prior studies have relied upon conventional financial health indicators, largely based upon accounting and market data, to explain variation in credit spreads (e.g., Collin-Dufresne, Goldstein and Martin 2001; Duffee 1999; Amato and Remolona 2003; Elton et al. 2001). Those studies find that a large component of credit spread variation remains unexplained. Reputation enters these models only indirectly, to the extent it is being captured by equity prices. By explicitly incorporating reputation, we find that we improve our ability to explain cross-sectional variation in credit spreads.

Since theoretical work (e.g., Diamond 1989, 1991; Milgrom and Roberts 1982) views reputation as emerging out of asymmetric information, it is also important to examine how the information environment affects the relation between reputation and the cost of debt. Reputation can substitute for tangible information about a borrower. When tangible information about a firm is less-readily available to investors, reputation should play a greater role in determining the cost of debt. Thus, the ability of market participants to observe and gather tangible information about the firm should affect the value they attach to a company's reputation.

In columns five and six of Table 4, we examine whether the effect of reputation on the cost of debt varies with information availability. In particular, we expect reputation to have a larger impact when firms are opaque and there is greater information asymmetry. Prior research suggests that financial analysts play a key role in mitigating information asymmetry between firms and market participants (e.g., Brennan and Hughes 1991; Lang and Lundholm 1996; Hong, Lim and Stein 2000; Mansi, Maxwell and Miller 2004; Mansi, Maxwell and Miller 2011; Agarwal and O'Hara 2006). Hence, reputation should be more important for firms with lower analyst coverage. We include the number of analysts following a firm, ANALYST, in column

[8] To further examine the robustness of the reputation-spread relationship, we also repeat our analyses using the first principal component of the reputation attributes and find that the results are qualitatively and quantitatively similar.

(5) of Table 4. To construct that variable, we take the average number of analysts making annual estimates for a firm in a given year.

The coefficient on ANALYST is significant and negative. Firms with lower analyst coverage have greater credit spreads, consistent with the prior literature. More importantly, the reputation variable remains significant despite the inclusion of the ANALYST variable. The impact of reputation is not subsumed by the firm's analyst coverage.

If firm reputation helps to determine a company's cost of debt, its effect should be most pronounced when this type of information is most valuable to investors – when other information about the firm is less-readily available from analysts. To conduct this test, we interact the analyst coverage measure with the reputation variable (REPUTATION * ANALYST). The coefficient on this interaction term is positive and significant. Firms with lower analyst coverage, but higher reputation scores, have lower credit spreads. The result indicates that firm reputation has an even larger effect on credit spreads when a company is covered by fewer analysts.

In addition to analyst coverage, we also use firm size to measure the availability of information.[9] Fama (1985) argues that the information supplied by a firm increases with its size. Similarly, Easley and O'Hara (2004) show that size acts as a measure of the information structure of the firm. Hence, reputation should play a greater role for smaller companies. Results are in column (6). The significant negative coefficient on log SIZE indicates that small firms have higher credit spreads. More importantly, the coefficient on the interaction term, REPUTATION * log SIZE, is significant and positive. The effect of reputation on credit spreads is greater for smaller firms.

Whether we measure the availability of information using analyst coverage or firm size, we reach a similar conclusion: as less information is available to outsiders, a firm's reputation carries more weight in the pricing of its debt. The value that market participants attach to a firm's reputation varies with their ability to observe and gather other information about the firm. Stating it in broader terms, the effect of firm reputation on the cost of debt varies with the information environment of the firm. In that sense, our study extends recent papers that examine

[9] We also used PIN (Probability of Informed Trading), an alternative measure of information asymmetry, and got qualitatively similar results. However, we do not include in this paper the results with the PIN measure, as there can be alternative interpretations of what PIN measures in this context.

how firms can lower borrowing costs by engaging reputable third-party certifiers, such as auditors, underwriters, banks and securities exchanges. Studies suggest that third-party certification can lower borrowing costs by overcoming information problems between insiders and outsiders (Fang 2005; Pittman and Fortin 2004; Mansi, Maxwell and Miller 2004; Andres, Betzer and Limbach 2012; Livingston and Miller 2000). We show that, in addition to exploiting the reputations of third-party certifiers, firms can also exploit their own good reputations to lower their cost of debt. [10]

In sum, we find a robust and significant inverse relation between the Fortune reputation score and the cost of debt. A half-point (0.5) improvement in the reputation score, or moving up a quintile in reputation rankings, reduces the cost of debt by approximately 6.2 to 21 basis points, even after taking into account the effect of other firm-level variables that are known to affect credit risk. This impact is more significant for smaller firms and when other information about the firm is disseminated less widely.

5.1.1 Reputation and Credit Spreads: Instrumental Variable Analysis

Diamond (1991) suggests that firm age can be used as a proxy for firm reputation. For robustness, we use age of the firm from its initial public offering as an instrumental variable for Fortune scores to alleviate potential endogeneity concerns. Prior research suggests that firm age is related to reputation and is likely to affect corporate bond spreads through the reputation channel.

In columns (8) and (9) of Table 4 we report the results of the first stage and second stage instrumental variable analyses where Reputation is instrumented via firm age. Results reported in column (8) show that firm age is significantly related to Fortune scores. Results reported in

[10] The existing literature on the cost of debt has attempted to proxy for firm reputation by measuring narrower attributes of a company. To ensure that our reputation measure contains unique information not contained in these other measures, we included them as independent variables in our regressions. Controls for firm size, analyst coverage and credit rating are included in the results shown in Table 4. We also added controls for disclosure quality, auditor quality, underwriter quality, CEO tenure, and length of time the bonds have been outstanding. Since these additional controls are generally available for smaller subsamples of firms, we did not include them in the results shown in this paper but analyzed them separately as robustness tests. We find that our reputation measure is not subsumed by these other measures and is instead robust to their inclusion. The results suggest that the Fortune score is capturing unique information about company reputation.

column (9) verify earlier findings by showing a significant negative relationship between corporate bond spreads and firm reputation using firm age as an instrument.

5.2 Reputation and Covenants

The agency theory of covenants predicts that small, highly levered, volatile firms with significant information asymmetries would be more likely to include covenants in their debt agreements (Bradley and Roberts 2004). As it was shown earlier, highly reputable firms tend to be larger, with smaller leverage, lower volatility as well as being more transparent in their financial reporting, which taken together suggest that more reputable firms should face fewer covenant restrictions. In an attempt to measure the marginal effect of firm reputation on covenant intensity we control for variables such as firm size, leverage, volatility and analyst coverage that are known to affect covenant intensity and at the same time are highly correlated with firm reputation.

We obtain covenant information from FISD. For each bond issue, FISD reports more than 50 variables on bondholder protective, issuer restrictive, and subsidiary restrictive covenants. Because there can be multiple covenants that restrict the same activity, we group the covenant variables into 22 dummies, which indicate whether a specific type of activity is restricted.

Our construction of the 22 covenant dummies is similar to that of Mansi, Qi, and Wald (2013) and Billett, King, and Mauer (2007). Appendix II provides details on the covenant variables. Finally, we create an overall covenant intensity index by summing the 22 covenant indicators for each bond (TOTAL COVENANTS). We also create a dichotomous variable taking the value of 1 if the bond contains more than the median number of covenants (HIGH COVENANTS).

Table 5 reports the effect of firm reputation (REPUTATION) on the number of covenants. Columns (1) and (2) report results from logit regressions of the covenant indicator variable HIGH COVENANTS on REPUTATION and other predictor variables. REPUTATION has a significant negative effect on HIGH COVENANTS. Firms with higher reputations are less likely to issue bonds with extensive covenants. Columns (3) through (6) report results from Poisson regressions of the total number of a bond's covenants (TOTAL COVENANTS) on

REPUTATION and other predictor variables. Again, firms with higher reputations are less likely to issue bonds with extensive covenants. These results suggest that the participants in the bond market recognize the firm level differences in reputations and incorporate this information in the way they design bond contracts.

[Insert Table 5 Here]

5.3 Reputation and Fraud

As discussed earlier, firms with high reputations are more likely to avoid fraudulent behavior in an attempt to preserve their lower costs of borrowing. Diamond (1991) theorizes that firms borrow and repay consistently in order to establish a good credit history and build up reputation over time. We conjecture that the reputation is a valuable asset that firms attempt to preserve by avoiding actions that may reduce its value. In particular, Karpoff and Lott (1993) and Karpoff, Lee, and Martin (2008) show that reputational costs of corporate fraud are large and constitute most of the costs incurred by firms accused or convicted of fraud. We test whether firms with high reputation scores avoid fraudulent behavior. In particular, we examine the empirical relation between a firms' Fortune scores and SEC enforcement actions due to fraud.

We identify firms that have been subject to enforcement actions by the U.S. Securities and Exchange Commission (SEC) for allegedly violating a securities fraud statue under either the Securities Act of 1933 or the Securities Exchange Act of 1934. Data on fraud come from the SEC Enforcement Action Database of Karpoff, Lee, and Martin (2008) updated to September 2009. The charges filed by the SEC against the firm identify the period over which the firm allegedly engaged in financial misconduct. We classify as fraud years the violation period in which the firm engaged in financial misconduct. We create an indicator variable (FRAUD FLAG) taking the value of 1 if an SEC enforcement action includes a violation of a securities fraud statue under either the Securities Act of 1933 or the Securities Exchange Act of 1934.

Table 6 reports results from logit regressions of FRAUD FLAG on REPUTATION and other control variables. The controls that we use are similar to those used in the literature that has examined fraud prediction. The prior literature suggests that corporate governance may also be

an important determinant of fraudulent behavior (see for instance, Agrawal and Chadha 2005). We control for corporate governance in separate regressions as its inclusion results in a significant reduction in the number of observations in the sample. We also report results separately for the full sample of firms with Fortune scores as well as the sample of firms with Fortune scores that have corporate bonds outstanding.

Columns (1) and (2) report results from the full sample, and columns (3) and (4) report results for the subset of firms with bonds outstanding. For all the specifications reported in Table 6, the coefficient on REPUTATION is significant and negative suggesting that firms with better reputations are less likely to face SEC enforcement due to fraud. The effect of the control variables on the probability of fraud are similar to those reported in the prior studies. The results become slightly weaker when we consider only firms with bonds outstanding, which results in a reduction in the number of observations included in the regression. Overall, the empirical results are consistent with the notion that firms with high reputations avoid fraudulent behavior to preserve their lower costs of borrowing. These results are also consistent with the theoretical literature that emphasizes that reputation built over time is an important intangible asset that affects credit relationships.

[Insert Table 6 Here]

5.4 Reputation and Failure Prediction

In Section 5.1 we show that higher reputation leads to lower cost of debt, in section 5.2 we document that firms with better reputations face less covenant restrictions and in section 5.3 we show that highly reputable firms are less likely to face S.E.C enforcement actions due to fraud. In this section, we show that highly reputable firms are less likely to face bankruptcy lending further support to our findings in the previous sections.

To measure the probability of a corporate failure, we estimate a dynamic panel model using a logit specification, following Anginer and Yildizhan (2012), Shumway (2001), Chava and Jarrow (2004), and CHS (2008). We use information available at the end of

the calendar year to predict failures twelve months ahead. Specifically, the marginal probability of failure (*PF*) for company *i* over the next year *t* is assumed to follow a logistic distribution:

$$PF_t^i = \frac{1}{1 + \exp\left(-\alpha - \beta X_t^i\right)} \quad (1)$$

where *X* is a vector of explanatory variables available at the time of prediction, and includes a comprehensive list of explanatory variables that have been used by previous papers to predict corporate failures. Our failure measure is defined as rating downgrade to CCC+ or below by Standard and Poor's, a severely negative assessment of a company's capability of meeting its obligations. We employ accounting variables used in CHS (2008) as well as Merton's distance-to-default measure. All variables included in the hazard regressions that follow are described in detail in Appendix I.

Results are reported in Table 7. In the first two columns, we include only covariates used by CHS (2008). The first column includes all observations, and the second column includes only observations with an associated reputation score. The coefficient estimates, and the McFadden's pseudo R^2 values[11], are very similar, indicating that the sub-sample of firms with a reputation score does not differ significantly from the overall sample. The coefficients on PROFITABILITY and EXCESS RETURN are significant and negative, indicating that greater profitability and greater stock performance lower default probability, in line with the literature's findings. The coefficients on LEVERAGE and IDIOVOL are significant and positive, indicating that greater leverage and greater stock volatility increase default probability, again in line with established results. The coefficients on CASH and MARKET-TO-BOOK are statistically insignificant, which is not surprising given that these are large firms.

[Insert Table 7 Here]

[11] McFadden's pseudo R^2 is calculated as 1 − L1/L0, where L1 is the log likelihood of the estimated model and L0 is the log likelihood of a null model that includes only a constant term.

In the third column, we add the reputation score, REPUTATION, as an additional covariate to the credit risk variables. A higher reputation score significantly lowers failure probability, even with the credit risk control variables included.

We confirm the results by running additional regressions in columns (4) and (5). Column (4) uses Merton's distance to default alone. The reputation score is added as a covariate to Merton's distance to default in column (5). The coefficient on REPUTATION remains highly significant, with the anticipated negative sign. The reputation score contributes failure-related information that is not already captured by Merton's distance to default.

The conclusion is that the reputation of a firm among industry experts improves failure prediction, even after we control for the more traditional determinants of credit risk. The success of the reputation variable in failure prediction suggests that reputation captures unique information not contained in the standard credit risk measures. The results also suggest that reduction in default risk (and its associated costs) is the channel through which reputation affects credit spreads.

6. Conclusion

We show that firm reputation plays an important role in determining the cost of debt. We employ a direct and comprehensive measure of company reputation using the annual ranking of "most admired companies" published by Fortune magazine, which surveys industry experts about firm reputations along a host of dimensions. We find a robust inverse relation between a firm's reputation as measured by its score in the Fortune survey and the firm-level value-weighted credit spread on its bonds. A half-point (0.5) improvement in the reputation score, or moving up one quintile in the reputation ranking, leads to a reduction of 14 basis points in the cost of debt, after controlling variables that are known to impact bond spreads as well as other traditional reputation proxies used in prior work. We find that the impact of reputation on the cost of debt is more pronounced when other information about the firm is less-widely disseminated. In addition, we find that reputation's impact is more pronounced in smaller firms and firms with higher distress risk.

We show how the Fortune reputation score helps to explain variation in credit spreads: it captures unique information about whether a firm will honor its commitments. The Fortune reputation variable is a good ex ante predictor of corporate distress, improving upon standard measures used in the literature. It contains information about default risk above and beyond that conveyed by accounting and market variables, corporate ratings and structural parameters. We also find that firms with high reputation face less stringent covenants and are less likely to be the target of SEC fraud investigations. In all, we find that by explicitly accounting for firm reputation, we improve our understanding of credit risk. We also find that favorable firm reputation conveys tangible financial benefits to a company through a reduction in its cost of debt capital.

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Table 1
Summary Statistics

Variable	Mean	Median	Standard Deviation	25th Percentile	75th Percentile
REPUTATION	6.431	6.440	0.903	5.860	7.050
SPREAD	140.1	100.3	160.2	70.4	150.2
PROFITABILITY	0.006	0.007	0.008	0.003	0.010
LEVERAGE	0.492	0.475	0.232	0.309	0.648
EXCESS RETURN	-0.003	0.000	0.027	-0.018	0.014
CASH	0.042	0.022	0.057	0.009	0.050
IDIOVOL	0.016	0.014	0.007	0.012	0.018
MARKET-TO-BOOK	2.354	2.096	1.284	1.396	3.061
SIZE	8,258	1,956	23,880	586	6,059
MERTONDD	8.999	8.059	4.845	5.539	11.501
CHS-Z	7.914	7.983	0.547	7.594	8.297
RATING	7.617	7.000	2.728	6.000	9.000
MOMENTUM	0.165	0.149	0.372	-0.044	0.323
GOVERNANCE	9.851	10.000	2.625	8.000	12.000
INST OWNERSHIP	0.616	0.624	0.151	0.526	0.717

Note: This table reports summary statistics for firm characteristics and distress measures for companies in the sample. REPUTATION is the firm's reputation score, SPREAD is the firm-level credit spread, PROFITABILITY is net income to total assets, LEVERAGE is the total liabilities to total assets, EXCESS RETURN is the average monthly return in excess of the S&P 500 index, CASH is cash to total assets, IDIOVOL is idiosyncratic volatility, MARKET-TO-BOOK is the market-to-book ratio, SIZE is market capitalization (measured in millions), MERTONDD is Merton's distance to default, CHS-Z is CHS z-score, RATING is the Standard & Poor's corporate rating converted into numeric value (AAA=1, …, CC=20), MOMENTUM is cumulative return over the prior twelve months, GOVERNANCE is a governance index, INST OWNERSHIP is the fraction of shares outstanding held by institutional investors. The variables are defined in Appendix I. P25, P50 and P75 represent 25^{th}, 50^{th} and 75^{th} percentiles, respectively.

Table 2
Fortune Companies

	L	2	3	4	H	H-L
REPUTATION	5.176	5.972	6.430	6.908	7.663	2.487***
SPREAD	207.5	133.0	118.8	105.5	82.1	-125.4***
PROFITABILITY	0.003	0.006	0.007	0.007	0.008	0.005***
LEVERAGE	0.612	0.547	0.492	0.453	0.364	-0.248***
EXCESS RETURN	-0.007	-0.003	-0.005	-0.001	0.002	0.009***
CASH	0.053	0.039	0.044	0.039	0.038	-0.014***
IDIOVOL	0.020	0.016	0.015	0.015	0.014	-0.006***
MARKET-TO-BOOK	1.853	2.072	2.191	2.437	3.189	1.335***
SIZE	4,441	6,848	8,547	13,603	34,712	30,271***
MERTONDD	6.782	8.213	8.821	9.494	11.512	4.730***
CHS-Z	7.636	7.832	7.941	7.996	8.147	0.511***
RATING	9.496	8.380	7.730	7.159	5.642	-3.853***
MOMENTUM	0.196	0.162	0.144	0.186	0.140	-0.056*
GOVERNANCE	9.772	10.152	10.004	10.058	9.257	-0.515**
INST OWNERSHIP	0.558	0.601	0.612	0.609	0.597	0.039***

Note: This table reports summary statistics for firm characteristics and distress measures for portfolios of companies sorted by the level of the REPUTATION score from low (L) to high (H). H-L reports the difference between the highest reputation portfolio and the lowest. REPUTATION is the firm's reputation score, SPREAD is the firm-level credit spread in basis points, PROFITABILITY is net income to total assets, LEVERAGE is the total liabilities to total assets, EXCESS RETURN is the average monthly return in excess of the S&P 500 index, CASH is cash to total assets, IDIOVOL is idiosyncratic volatility, MARKET-TO-BOOK is the market-to-book ratio, SIZE is market capitalization (measured in millions), MERTONDD is Merton's distance to default, CHS-Z is CHS z-score, RATING is the Standard & Poor's corporate rating converted into numeric value (AAA=1, …, CC=20), MOMENTUM is cumulative return over the prior twelve months, GOVERNANCE is a governance index, INST OWNERSHIP is the fraction of shares outstanding held by institutional investors. The variables are defined in Appendix I. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively.

Table 3
Cost of Capital in Reputation-Sorted Portfolios, Controlling for Default Risk Measures

Panel A: Mean Values of Default Risk Measures in Reputation-Sorted Portfolios

	REPUTATION					
	L	2	3	4	H	H-L
MERTONDD	4.36***	6.22***	7.79***	9.53***	13.77***	9.41***
RATING	11.7***	8.96***	7.21***	5.78***	4.18***	-7.49***
CHS-Z	7.37***	7.87***	8.15***	8.41***	8.83***	1.48***

Panel B: Cost of Capital in Double-Sorted Portfolios Based on CHS Z-Score and Reputation

	REPUTATION					
CHS-Z	L	2	3	4	H	H-L
L	383.57***	225.21***	158.88***	127.46***	99.02***	-284.54***
Highest Default Risk	(5.25)	(3.90)	(10.08)	(7.76)	(10.02)	(4.16)
2	240.55***	152.04***	109.92***	114.76***	91.71***	-148.84***
	(6.48)	(9.84)	(11.86)	(8.76)	(9.03)	(4.66)
3	214.48***	130.84***	120.49***	114.37***	76.73***	-137.76***
	(4.38)	(8.48)	(11.370	(8.70)	(11.76)	(3.03)
4	147.93***	128.85***	105.13***	102.15***	76.32***	-71.61***
	(8.25)	(9.41)	(11.48)	(13.97)	(13.53)	(4.09)
H	136.50***	111.78***	107.44***	91.55***	78.81***	-57.70***
Lowest Default Risk	(8.14)	(8.32)	(7.92)	(8.72)	(11.80)	(3.80)

Panel C: Average Spreads for Reputation-Sorted Portfolios (in basis points) Before and After Controlling for Default Risk

	REPUTATION					
	L	2	3	4	H	H-L
Before controls	203.6***	142.5***	118.1***	113.2***	94.1***	-109.5***
	(9.31)	(11.21)	(18.66)	(13.67)	(11.66)	(5.05)
Controlling for MERTONDD	226.6***	148.9***	129.8***	112.6***	96.6***	-129.9***
	(7.23)	(10.26)	(9.27)	(12.74)	(12.70)	(4.78)
Controlling for RATING	212.1***	163.4***	136.6***	110.4***	88.8***	-123.3***
	(8.65)	(7.48)	(5.44)	(7.77)	(13.87)	(5.61)
Controlling for CHS-Z	198.8***	141.8***	131.4***	112.1***	105.2***	-93.6***
	(6.71)	(10.02)	(7.98)	(13.03)	(10.07)	(4.25)

Note: This table reports the mean annual spreads (in basis points) for reputation portfolios after controlling for different measures of default risk, i.e. Merton's distance to default (MERTONDD), S&P ratings (RATING) and CHS z- score (CHS-Z). Default risk portfolios are formed by sorting firms into five groups each September from 1982 to 2006 according to the most recent measure of distress risk (using, alternatively, MERTONDD, RATING, and CHS-Z). Then within each default risk group we sort firms into five groups based on the Fortune reputation score (REPUTATION), creating a total of 25 portfolios. The spread (SPREAD) in basis points for the five reputation portfolios are averaged over each distance to default portfolio to account for the impact of distress risk. Hence, the reputation portfolios control

for distress risk. The same procedure is repeated for S&P rating (RATING) and CHS z-score (CHS-Z). Finally we calculate the spread for a high-reputation minus low-reputation hedge portfolio. Panel A reports the average values of different distress risk measures in the five reputation portfolios as well as the mean difference for these measures for the high-reputation minus low-reputation hedge portfolio. Panel B reports the average spread in basis points for the 25 portfolios formed by double-sorting based on CHS-Z and REPUTATION. Panel C reports the mean annual spread in basis points for reputation portfolios before and after controlling for the different measures of default risk (MERTONDD, RATING, CHS-Z). The variables are defined in Appendix I. Absolute values of t-statistics are reported in parentheses below coefficient estimates. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively

Table 4
Reputation Regressions

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) OLS	(7) Fama MacBeth	(8) IV STEP-1	(9) IV STEP-2
VARIABLES	SPREAD	SPREAD	SPREAD	SPREAD	SPREAD	SPREAD	SPREAD		SPREAD
REPUTATION	-27.50**	-25.90*	-27.50***	-33.6*	-42.0***	-185.5***	-12.8***		-75.3***
	(2.08)	(1.80)	(3.20)	(1.83)	(2.66)	(4.71)	(3.50)		(2.67)
PROFITABILITY	-1518.6***	-1551.0***	-1239.7**	-2091.3**	-1748.4***	-1545.6***	-282.30	7.319**	-277.2
	(2.68)	(2.66)	(2.27)	(2.39)	(3.34)	(2.69)	(0.50)	(2.16)	(0.37)
LEVERAGE	85.30	61.20	96.70***	4.00	95.60*	48.50	99.70**	-0.354***	5.00
	(1.63)	(1.06)	(3.19)	(0.06)	(1.69)	(0.89)	(2.59)	(3.28)	(0.18)
CASH	85.50	94.90	-71.90	58.40	92.30	121.10	-1.20	-0.688**	-168.40***
	(1.06)	(0.97)	(1.07)	(0.57)	(0.96)	(1.31)	(0.02)	(2.16)	(2.74)
RETURN	-201.80*	-157.30	-212.60**	25.7	-170.4	-187.90*	-471.8**	0.052	-185.30
	(1.80)	(1.46)	(1.98)	(0.24)	(1.50)	(1.77)	(2.23)	(0.06)	(1.03)
IDIOVOL	7516.30***	8002.30***	8058.80***	5522.40***	7825.00***	7718.90***	6426.00**	-15.726***	5885.90***
	(5.08)	(5.44)	(6.63)	(3.36)	(5.88)	(5.59)	(2.63)	(3.38)	(4.12)
MARKET-TO-BOOK	-60.20*	-54.40*	-51.30***	-84.60**	6.30	4.20	12.30***	0.057***	11.50*
	(1.89)	(1.65)	(2.62)	(2.40)	(0.73)	(0.51)	(3.16)	(2.85)	(1.95)
Log SIZE	-59.70***	-67.40***	-10.50**	-81.10***	-60.90***	-190.00***	-13.70**	0.262***	27.10*
	(3.13)	(3.12)	(2.33)	(2.90)	(2.73)	(5.09)	(2.26)	(13.79)	(1.92)
RATING	5.10*	2.60	7.00***	-1.50	2.60	2.60	11.00***	-0.049***	0.60
	(1.82)	(0.67)	(3.33)	(0.30)	(0.70)	(0.68)	(3.61)	(5.44)	(0.17)
INST OWNERSHIP	-0.80	-0.70	-0.60	-0.50	-0.50	-1.10	-37.80**	-0.008*	-2.10**
	(1.14)	(1.17)	(1.00)	(0.83)	(0.83)	(1.57)	(2.19)	(1.69)	(2.33)
GOVERNANCE		5.60	-0.00	6.20*	4.70	4.70	1.42		-153.50***
		(1.40)	(0.00)	(1.77)	(1.21)	(1.15)	(0.96)		(2.64)
ANALYST					-11.90***				
					(2.90)				
REPUTATION×ANALYST					2.00***				
					(3.33)				
REPUTATION×Log SIZE						0.191***			
						(4.90)			
FIRM AGE								0.005***	

								(5.10)	
Firm FE	Y	Y	N	N	Y	Y	N	N	N
Industry FE	N	N	Y	N	N	N	N	N	N
CEO FE	N	N	N	Y	N	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y	N	Y	Y
Observations	2,798	2,029	2,029	1,796	2,026	2,029	2,029	2,187	2,187
R-squared	0.775	0.788	0.636	0.85	0.792	0.796	0.583	0.385	0.388

Note: Table 4 reports OLS and Fama-Macbeth regressions of SPREAD on firm characteristics and distress measures. SPREAD is the firm-level credit spread, REPUTATION is the firm's reputation score, PROFITABILITY is net income to total assets, LEVERAGE is the total liabilities to total assets, CASH is cash to total assets, RETURN is the cumulative return over the past year, IDIOVOL is idiosyncratic volatility, MARKET-TO-BOOK is the market-to-book ratio, Log SIZE is the logarithm of market capitalization (measured in millions), RATING is the Standard & Poor's corporate rating converted into numeric value (AAA=1, …, CC=20), INST OWNERSHIP is the fraction of shares outstanding held by institutional investors, GOVERNANCE is a governance index, ANALYSTS is the number of analysts (divided by 100) that follow the firm. The variables are defined in Appendix I. Columns 1 through 6 report OLS coefficient estimates using year fixed effects. In addition, firm fixed effects are used in columns 1, 2, 5, and 6, industry fixed effects are used in column 3, and CEO fixed effects are used in column 4. Column 7 reports results using Fama-Macbeth regressions. Absolute values of t-statistics are reported in parentheses below coefficient estimates. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively.

Table 5
Covenant Use

VARIABLES	(1) Logit High Covenants	(2) Logit High Covenants	(3) Poisson Total Covenants	(4) Poisson Total Covenants	(5) Poisson Total Covenants	(6) Poisson Total Covenants
REPUTATION	-0.107***	-0.0915**	-0.046**	-0.046**	-0.011*	-0.006*
	(0.00)	(0.03)	(0.04)	(0.05)	(0.07)	(0.09)
PROFITABILITY	18.894	10.933	2.084	1.982	-0.203	-0.328
	(0.18)	(0.43)	(0.31)	(0.32)	(0.88)	(0.82)
LEVERAGE	0.452	0.498	-0.149	-0.162	-0.258***	-0.246**
	(0.59)	(0.55)	(0.13)	(0.11)	(0.00)	(0.01)
CASH	-8.413***	-9.659***	-0.735**	-0.872***	-0.006	-0.065
	(2.483)	(2.716)	(0.306)	(0.307)	(0.249)	(0.256)
RETURN	7.236**	8.100**	0.066	0.060	0.202	0.209
	(0.03)	(0.02)	(0.88)	(0.89)	(0.71)	(0.73)
IDIOVOL	38.908*	32.544	4.901	5.470	1.574	2.398
	(0.06)	(0.12)	(0.13)	(0.14)	(0.59)	(0.50)
MARKET-TO-BOOK	0.255*	0.279**	0.042**	0.041**	0.005	0.005
	(0.08)	(0.04)	(0.01)	(0.02)	(0.70)	(0.70)
Log SIZE	-0.578***	-0.592***	0.053***	0.057***	-0.080***	-0.081***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
RATING	0.399***	0.425***	-0.106***	-0.104***	-0.005	-0.006
	(0.00)	(0.00)	(0.00)	(0.00)	(0.62)	(0.59)
INST OWNERSHIP	-0.472	-0.566	-0.002	-0.003	-0.001	-0.002
	(0.16)	(0.11)	(0.69)	(0.55)	(0.62)	(0.51)
GOVERNANCE		-0.125**		-0.016**		-0.005
		(0.02)		(0.02)		(0.32)
Lag COVENANTS					1.894***	1.929***
					(0.00)	(0.00)
Year FE	Y	Y	Y	Y	Y	Y
Observations	1,320	1,259	1,331	1,259	580	561

Note: Table 5 reports the effect of firm reputation (REPUTATION) on the number of covenants in corporate bonds. Columns (1) and (2) report results from logit regressions of a covenant indicator variable (HIGH COVENANTS) on predictor variables. HIGH COVENANT is a dichotomous variable taking the value of 1 if a bond contains more than the median number of covenants. Columns (3) through (6) report results from Poisson regressions of the total number of a bond's

covenants (TOTAL COVENANTS) on predictor variables. REPUTATION is the firm's reputation score, PROFITABILITY is net income to total assets, LEVERAGE is the total liabilities to total assets, CASH is cash to total assets, RETURN is the cumulative return over the past year, IDIOVOL is idiosyncratic volatility, MARKET-TO-BOOK is the market-to-book ratio, Log SIZE is the logarithm of market capitalization (measured in millions), RATING is the Standard & Poor's corporate rating converted into numeric value (AAA=1, …, CC=20), INST OWNERSHIP is the fraction of shares outstanding held by institutional investors, GOVERNANCE is a governance index, Lag COVENANTS is TOTAL COVENANTS lagged by one year. The variables are defined in Appendix I. All columns include year fixed effects. P-values are reported below coefficient estimates. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively.

Table 6
Fraud Prediction

	(1) Logit	(2) Logit	(3) Logit	(4) Logit
	Fraud Flag	Fraud Flag	Fraud Flag	Fraud Flag
Sample	Full Sample	Full Sample	Bond Sample	Bond Sample
REPUTATION	-0.233***	-0.186**	-0.339*	-0.407**
	(0.00)	(0.04)	(0.05)	(0.03)
Log SIZE	0.529***	0.476***	0.683***	0.876***
	(0.00)	(0.00)	(0.00)	(0.00)
MARKET-TO-BOOK	0.266***	0.235***	0.144	0.247
	(0.00)	(0.00)	(0.34)	(0.12)
LEVERAGE	1.479***	1.749***	0.495	1.342
	(0.00)	(0.00)	(0.58)	(0.14)
IDIOVOL	2.107***	2.154***	1.636*	1.899*
	(0.00)	(0.00)	(0.07)	(0.05)
PROFITABILITY	-2.189	8.904	-8.091	-11.05
	(0.79)	(0.45)	(0.67)	(0.55)
GOVERNANCE		-0.036		0.311***
		(0.24)		(0.00)
Pseudo R-squared	0.1051	0.0844	0.0894	0.1396
Observations	8,192	5,572	1,991	1,719
Fraud occurrences	188	161	42	39

Note: This table reports results from logit regressions of a fraud indicator variable (FRAUD FLAG) on predictor variables. FRAUD FLAG is a dichotomous variable taking the value of 1 if a Securities and Exchange Commission (SEC) enforcement action includes a violation of a securities fraud statue under either the Securities Act of 1933 or the Securities Exchange Act of 1934. REPUTATION is the firm's reputation score, Log SIZE is the logarithm of market capitalization (measured in millions), MARKET-TO-BOOK is the market-to-book ratio, LEVERAGE is the total liabilities to total assets, IDIOVOL is idiosyncratic volatility, PROFITABILITY is net income to total assets, GOVERNANCE is a governance index. The variables are defined in Appendix I. P-values are reported below coefficient estimates. McFadden pseudo R^2 values are reported for each regression. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively.

Table 7
Failure Prediction

	(1) Dynamic Logit	(2) Dynamic Logit	(3) Dynamic Logit	(4) Dynamic Logit	(5) Dynamic Logit
	Failure	Failure	Failure	Failure	Failure
Sample Period:	1983-2007	1983-2007	1983-2007	1983-2007	1983-2007
PROFITABILITY	-37.327***	-38.796***	-36.142***		
	(0.00)	(0.00)	(0.00)		
LEVERAGE	2.597***	3.842***	3.513***		
	(0.00)	(0.00)	(0.00)		
EXCESS RETURN	-11.385***	-6.403***	-7.478***		
	(0.00)	(0.00)	(0.00)		
IDIOVOL	2.249***	2.266***	2.022***		
	(0.00)	(0.00)	(0.00)		
CASH	-0.776	-1.116	-1.077		
	(0.45)	(0.44)	(0.47)		
MARKET-TO-BOOK	-0.109	-0.119	-0.118		
	(0.18)	(0.43)	(0.43)		
MERTONDD				-0.593***	-0.556***
				(0.00)	(0.00)
REPUTATION			-0.463***		-0.471***
			(0.00)		(0.00)
CONSTANT	-6.548***	-6.929***	-3.892***	-0.847***	1.759**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)
Observations	17350	3689	3689	3479	3479
Failures	302	68	68	63	63
Pseudo R-squared	22.2%	22.6%	24.1%	21.6%	23.4%
Sample	CRSP/Compustat	Reputation	Reputation	Reputation	Reputation

Note: This table reports results from logit regressions of a failure indicator variable (FAILURE) on predictor variables. FAILURE is dichotomous variable taking the value of 1 if a firm is predicted to be downgraded to CCC+ or below by Standard & Poor's in twelve months. PROFITABILITY is net income to total assets, LEVERAGE is the total liabilities to total assets, EXCESS RETURN is the average monthly return in excess of the S&P 500 index, IDIOVOL is idiosyncratic volatility, C ASH is cash to total assets, MARKET-TO-BOOK is the market-to-book ratio, MERTONDD is Merton's distance to default, REPUTATION is the firm's reputation score. The variables are defined in Appendix I. P-values are reported below coefficient estimates. McFadden pseudo R^2 values are reported for each regression. Statistical significance at the 10%, 5% and 1% levels is denoted by *, **, and ***, respectively.

Appendix I
Variable Definitions

Variables	Definitions
SPREAD	Average firm-level monthly credit spread in basis points, calculated over the 12-month period from October of year t to September of year t+1. Credit spread is defined as the beginning-of-month difference between the yield on a firm's bond and the yield on the corresponding maturity-matched Treasury bond. To compute credit spreads at a firm level, a firm's outstanding bond spreads are averaged each month on a value-weight basis using market values of the bonds as weights.
PROFITABILITY	Geometrically declining average of past values of the ratio of net income (COMPUSTAT quarterly data item: NIQ) to adjusted total assets: $$PROFITABILITY_{t-1,\,t-12} = \frac{1-\phi^2}{1-\phi^{12}}\,(NIMTA_{t-1,t-3} + \ldots + NIMTA_{t-10,t-12})$$ where, in order to deal with outliers, we adjust total value of assets, *TA* (COMPUSTAT quarterly data item: ATQ), by the difference between market equity (ME) and book equity (BE, as defined as in Davis, Fama, and French 2000): $MTA_{i,t} = TA_{i,t} + 0.1(ME_{i,t} - BE_{i,t})$ The weighting coefficient is set to $\phi = 2^{-1/3}$, such that the weight is halved each quarter.
LEVERAGE	Ratio of total liabilities (data item: NIQ) to adjusted total assets.
EXCESS RETURN	Geometrically declining average of monthly log excess stock returns relative to the S&P 500 index: $$EXCESS\ RETURN_{t-1,\,t-12} = \frac{1-\phi}{1-\phi^{12}}(EXCESS\ RETURN_{t-1} + \ldots + \phi^{11} EXCESS\ RETURN_{t-12})$$ The weighting coefficient is set to $\phi = 2^{-1/3}$, such that the weight is halved each quarter.
RETURN	Cumulative return over the past year.
CASH	Ratio of cash and short-term investment (data item: CHEQ) to adjusted total assets.
IDIOVOL	Standard deviation of errors obtained from regressing daily excess returns on the Fama and French (1993) factors.
MARKET-TO-BOOK	Market-to-book ratio.
SIZE	Market capitalization (measured in millions).
CHS-Z	CHS z-score is computed as: $$CHS\text{-}Z_t = 9.164 + 20.264\ PROFITABILITY_t - 1.416\ LEVERAGE_t + 7.129\ EXCESS\ RETURN_t - 1.411\ SIGMA_t + 0.045\ RSIZE_t + 2.132\ CASH_t - 0.075\ MARKET\ TO\ BOOK_t + 0.058\ PRICE_t$$ where SIGMA is the standard deviation of daily stock returns over the previous three months; RSIZE is the log ratio of market capitalization to the market value of the S&P 500 index; and PRICE is the log price per share truncated at $15 for shares priced above $15.
RATING	Corporate credit rating obtained from Standard and Poor's. We follow convention and use a numerical rating scale to covert ratings. The numerical values corresponding to rating notches are 1 for AAA, 2 for AA+, 3 for AA, 4 for AA-, 5 for A+, 6 for A, 7 for A-, 8 for BBB+, 9 for BBB, 10 for BBB-, 11 for BB+, 12 for BB, 13 for BB-, 14 for B+, 15 for B, 16 for B-, 17 for CCC+, 18 for CCC, 19 for CCC-, and 20 for CC.
MOMENTUM	Cumulative return over the prior twelve months.
GOVERNANCE	G-Index developed by Gompers Ishii and Metrick (2003) to measure the extent of shareholder rights, ranging from 1 to 24, with 24 indicating the lowest shareholder rights.
INST.	Fraction of shares outstanding held by institutional investors, computed as residual

OWNERSHIP	institutional ownership following Nagel (2005). First, we obtain data on institutional ownership from the Thomson Financial Institutional Holdings (13F) database. We sum the stock holdings of all reporting institutions for each stock in each year.[12] We then divide each stock's institutional holdings by total shares outstanding to obtain the fraction of shares outstanding held by institutional investors (INST), which yields the numbers reported in Tables 1 and 2. For subsequent analyses conducted in Tables 4 and 5, we control for potential correlation between firm size and fractional institutional ownership. We regress prior-year fractional institutional ownership on the log of prior-year firm size. Some transformations, however, are necessary for this regression to be well specified. The fraction of institutional ownership (the dependent variable) is bounded by 0 and 1. To map it to the real line, we perform a logit transformation, $$Logit(INST) = Log\left(\frac{INST}{1-INST}\right)$$ where values of INST below 0.0001 and above 0.9999 are replaced with 0.0001 and 0.9999, respectively. We then regress Logit(INST) on Log(SIZE) and use the residuals of this regression (residual institutional ownership value) in the analyses conducted in Tables 4 and 5.
ANALYST	Number of analysts following a firm, computed as the average number of analysts making annual estimates for a firm in a given year.
HIGH COVENANTS	Indicator variable taking a value of 1 if a bond contains more than the median number of covenants as described in Section 5.2.
TOTAL COVENANTS	Total number of covenants in a bond issue as described in Section 5.2.
FRAUD FLAG	Indicator variable taking the value of 1 if a Securities and Exchange Commission enforcement action includes a violation of a securities fraud statue under either the Securities Act of 1933 or the Securities Exchange Act of 1934, as described in Section 5.3. [We assign FRAUD FLAG a value of 1 for all years during which the fraud took place as indicated by the SEC investigation.]
FAILURE	Dichotomous variable taking the value of 1 if a firm is predicted to be downgraded to CCC+ or below by Standard & Poor's in twelve months, as described in Section 5.4.
MERTONDD	Merton (1974) "distance-to-default" measure computed as the difference between the asset value of the firm and the face value of its debt scaled by the standard deviation of the firm's asset value. We follow CHS (2008) and Hillegeist, Keating, Cram, and Lunstedt (2004) to calculate Merton's distance-to-default measure.

[12] Stocks that are on CRSP, but without any reported institutional holdings, are assumed to have zero institutional ownership.

Appendix II
Covenant Index Construction

Covenant Indicator	FISD covenants	FISD definition of covenants
Dividend payment	Dividends related payments	Flag indicating that payments made to shareholders or other entities may be limited to a certain percentage of net income or some other ratio
	Subsidiary dividends related payments	Limits the subsidiaries' payment of dividends to a certain percentage of net income or some other ratio. For captive finance subsidiaries, this provision limits the amount of dividends which can be paid to the parent. This provision protects the bondholder against a parent from draining assets from its subsidiaries.
Other payment	Restricted payments	Restricts issuer's freedom to make payment (other than dividend related payments) to shareholders and others
Funded debt	Subsidiary funded debt	Restricts issuer's subsidiaries from issuing additional funded debt (debt with an initial maturity of longer than one year)
	Funded debt	Restricts issuer from issuing additional funded debt. Funded debt is an debt with an initial maturity of one year or longer
Subordinated debt	Subordinated debt issuance	Restricts issuance of junior or subordinated debt
Senior debt	Senior debt issuance	Restricts issuer to the amount of senior debt is may issuer in the future
Secured debt	Negative pledge covenant	The issuer cannot issue secured debt unless it secures the current issue on a pari passu basis
Indebtedness	Indebtedness	Restricts user from incurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital
	Subsidiary indebtedness	Restricts the total indebtedness of the subsidiaries
	Leverage test	Restricts total-indebtedness of the issuer
	Subsidiary leverage test	Limits subsidiaries' leverage
Leaseback	Sales leaseback	Restricts issuer to the type or amount of property used in a sale leaseback transaction and may restrict its use of the proceeds of the sale. A sale leaseback transaction is a method of raising capital in which an organization sells some specific assets to an entity that simultaneously leases the asset back to the organization for a fixed term and agreed upon rate.
	Subsidiary sales leaseback	Restricts subsidiaries from selling then leasing back assets that provide security for the debtholder. This provision usually requires that assets or cash equal to the property sold and leased back be applied to the retirement of the debt in question or used to acquire another property to increase the debtholders' security
Liens	Liens	In the case of default, the bondholders have the legal right to sell mortgaged property to satisfy their unpaid obligations
	Subsidiary liens	Restricts subsidiaries from acquiring liens on their property
Guarantee	Subsidiary guarantee	Subsidiary is restricted from issuing guarantees for the payment of interest and/or principal of certain debt obligations
Transaction	Transaction affiliates	Issuer is restricted in certain business dealings with its subsidiaries
Investment	Investments	Restricts issuer's investment policy to prevent risky investments
	Subsidiary investments	Restricts subsidiaries' investment

	unrestricted	
Asset sales	Asset sale clause	Covenant requiring the issuer to use net proceeds from the sale of certain assets to redeem the bonds at par of at a premium. This covenant does not limit the issuers right to sell assets
	Sale assets	Restriction on the ability of an issuer to sell assets or restrictions on the issuer's use of the proceeds from the sale of assets. Such restrictions may require the issuer to apply some or all of the sales proceeds to the repurchase of debt through a tender offer or call.
	Subsidiary sale assets unrestricted	issuer must use proceeds from sale of subsidiaries' assets (either certain asset sales or all asset sales over some threshold) to reduce debt.
Common stock	Stock issuance	Restricts issuer from issuing additional common stock
	Subsidiary stock issuance	Restricts issuer from issuing additional common stock in restricted subsidiaries. Restricted subsidiaries are those which are considered to be consolidated for financial test purposes.
Preferred stock	Subsidiary preferred stock issuance	Restricts subsidiaries' ability to issue preferred stock
Other stock	Stock transfer sale	Restricts the issuer from transferring, selling, or disposing of its own common or the common stock of a subsidiary
Default	Cross acceleration	A bondholder protective covenant that allows the holder to accelerate their debt, if any other debt of the organization has be accelerated due to an event of default
	Cross default	A bondholder protective covenant that will activate an event of default in their issue, if an event of default has occurred under any other debt of the company
Poison put	Change control put provisions	Upon a change of control in the issuer, bondholders have the option of selling the issue back to the issuer(poison put). Other conditions may limit the bondholder's ability to exercise the put option. Poison puts are often used when a company fears an unwanted takeover by ensuring that a successful hostile takeover bid will trigger an event that substantially reduce the value of the company
Merger	Consolidation merger	Indicates that a consolidation or merger of the issuer with another entity is restricted
Earnings	Fixed charge coverage	Issuer is required to have a ratio of earnings available for fixed charges, of at least a minimum specified level.
	Subsidiary fixed charge coverage	Subsidiaries are required to maintain a minimum ratio of net income to fixed charges
	Net earnings test issuance	To issue additional debt the issuer must have achieved or maintained certain profitability levels. This test is a variations of the (more common) fixed coverage tests
Net worth	Maintenance net worth	Issuer must maintain a minimum specified net worth
	Declining net worth	If issuer's net worth (as defined) falls below minimum level, certain bond provisions are triggered
Rating decline	Rating decline trigger put	A decline in the credit rating of the issuer (or issue) triggers a bond holder put provision