Institutional Investor Attention, Agency Conflicts, and the Cost of Debt

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Abstract

Using a new measure of shareholder inattention based on exogenous industry shocks to institutional investor portfolios, we find that firms with distracted shareholders are associated with a higher cost of debt financing. This effect is stronger for firms with more powerful CEOs, firms with higher information asymmetry, and those operating in less competitive product markets. We also find that bond covenants, as a mechanism designed to reduce the agency problems inherent in lending, attenuate the increase in bond yield spreads resulting from shareholder distraction. Further testing suggests that the distraction–cost of debt relation is driven by dual holder and non-dual holders. The results are robust to controlling for inattention at the retail investor level and for other external monitors such as credit rating agencies, financial analysts, and Big 4 auditors. Overall, our evidence suggests that shareholder inattention has an incrementally negative effect on bond pricing.

Key Words: Inattention, Agency conflicts, Bond Covenants, Dual Holders, Cost of debt

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1. Introduction

A large literature shows that shareholder inattention is an important determinant of asset prices.[1] Much of this work examines inattention at the retail investor level using a variety of proxies including extreme returns, trading volume, news and headlines, advertising spending, and price limits. Because the majority of these studies use indirect proxies to measure investor attention, such events are often associated with contemporaneous changes in firm fundamentals. This makes it difficult to separate the effect of heightened investor attention from the effect of changes in firm fundamentals (Madsen and Niessner 2019). Da et al. (2011) propose a more direct measure of investor inattention using aggregate search frequency in Google and re-examine the effect of retail investor attention on asset prices. In addition to endogeneity, the main limitation of this literature is that using retail investors as a proxy for market participants may not accurately capture attention because retail investors do not represent an economically significant group of shareholders: they hold a small percentage of the aggregate value of all traded stocks, they are not required to report their holdings to the Securities and Exchange Commission, and they are relatively uninformed due to their informational disadvantages and psychological biases (Barber and Odean 2008).

More recently, Kempf, Manconi, and Spalt (2017, KMS hereafter) focus on institutional rather than retail investors to address the small-shareholder inattention problem.[2] Institutional investors represent a special class of large shareholder that has unique incentives to monitor firm performance (Shleifer and Vishny 1986). These investors, however, may not have sufficient cognitive ability to process all of the information available in the market. KMS posit that institutional shareholders have only limited attention in the sense that they cannot constantly monitor all of the companies in their portfolios. As a result, they are likely to focus on certain firms while neglecting others. This argument suggests that, at the firm level, monitoring intensity is likely to vary over time. Consistent with such variation in firm-level monitoring intensity, KMS find that, when institutional shareholders are distracted, managers are less likely to be terminated for bad performance and are more likely to pursue privately optimal decisions that are detrimental to minority shareholders including making value-destroying acquisitions, granting timely CEO stock options, and curtailing dividends.

[1] See, for example, Drake et al. (2012), Choi and Varian (2012), Da et al. (2011), Ginsberg et al. (2009), Teoh et al. (1998a,b), and Hirshleifer and Teoh (2003) for evidence on investor inattention.

[2] For the purpose of this research, the terms inattention, investor inattention, shareholder distraction, and investor distraction mean the same thing, namely the loosening of monitoring constraint by shareholders and potential investors.

In this paper, we study the effect of shareholder inattention on bond pricing.[3] From a bondholder perspective, it is theoretically unclear whether distraction should have a positive or negative effect on bond valuation. On the one hand, distraction adversely affects bond pricing by intensifying the agency conflicts associated with loosening monitoring constraints, which influences the likelihood of default. KMS show that inattention can exacerbate managerial agency problems and information asymmetry, which can lead firms to deviate from value maximization. Liu et al. (2020) study voting behavior of institutional investors in annual director elections and document that distracted shareholders weaken board oversight. Abramova et al. (2020) and Basu et al. (2019) find that investor inattention has negative consequences for firms' disclosure decisions. On the other hand, inattention implies that management faces less pressure to act in the interests of shareholders. For instance, KMS find that when institutional shareholders are distracted, managers are more likely to curtail dividends and make diversifying acquisitions, both of which could be beneficial to bondholders. Chu (2018) further shows that mergers between shareholders and creditors of the same firms reduce corporate payouts. Thus, whether shareholder distraction has a positive or negative effect on the cost of debt is an open empirical question.

We begin our analysis by examining the distraction–cost of debt relation in an institutional shareholder setting. To do so, we rely on KMS' firm-level proxy for institutional investor distraction. Their measure assumes that investor attention declines when a firm's institutional investors experience a shock to parts of their portfolio that are unrelated to the focal firm, i.e., when the firm's institutional investors experience large positive or negative returns in industries unrelated to the firm. Importantly, distraction events arising in other industries are, by construction, exogenous to the firm and thus firms within an industry are differentially exposed due to variations in their investor base. KMS argue that their measure captures periods in which shareholders are likely to direct their attention to the parts of their portfolios that are affected by a shock and as a result away from the firm. This relaxation of monitoring constraints allows managers to actively pursue their own private benefits.

Using a sample of publicly traded bonds for 21,403 firm-quarter observations from 1,097 firms over the 1993–2015 period, we find evidence consistent with the distracted shareholder (i.e., variation in monitoring intensity) hypothesis. Specifically, we find a persistent and positive relation between

[3] We focus on the bond market rather than the loan market because the former is less informationally efficient than the latter in terms of corporate defaults and bankruptcies (Altman et al. 2004). Similarly, Dichev and Skinner (2002) find that private lenders use debt covenants as "trip wires" for borrowers, that private debt covenants are set tightly, and that violations are not necessarily associated with financial distress.

institutional shareholder distraction and yield spreads that is incremental to the effect of institutional ownership. This result holds when we re-estimate the distraction measure separately for positive and negative extreme industry returns, and when we split the sample based on investment- and non-investment-grade debt categories. Economically, a one-standard-deviation increase in institutional shareholder distraction across all models is associated with an increase in yield spreads in the range of 11 to 27 basis points annually.

To validate our institutional shareholder setting, we examine the relation between inattention and the cost of debt financing at the retail investor level. Da et al. (2011) argue that the demand for public information via Google searches captures retail investors' attention. Drake et al. (2012), however, suggest that internet searches may also capture the attention of sophisticated traders. We expect retail-level investing in the equity market to be of little consequence for bond valuations because participants in the bond market are mainly institutional investors (Bessembinder and Maxwell 2008). Using hand-collected data for a large sample of search frequencies in Google, we do not find evidence of differences in yield spreads associated with retail investor inattention. For completeness, we re-run the distraction–cost of debt specification at the institutional level while controlling for retail investor inattention and continue to find insignificant results at the retail investor level. Our finding of a positive and significant relation between institutional shareholder distraction and yield spreads suggest that institutional shareholders play a more influential role than retail investors in the bond market.

Next, we investigate possible cross-sectional heterogeneity underlying our main finding. KMS show that CEOs who are more powerful than their boards may find it easier to exploit shareholder distraction to make privately optimal decisions that destroy firm value. Following Abernethy et al. (2015), we use a multidimensional measure of CEO power based on four agency variables known to influence the cost of debt: board co-option (Sandvik 2020), CEO pay slice (Bebchuk et al. 2011, Chen et al. 2013), CEO tenure (Hermalin and Weisbach 1998, Harford and Li 2007, Graham et al. 2020), and CEO duality (Aktas et al. 2019). Using the interaction between CEO power and distraction, we find that the effect of institutional shareholder inattention on yield spreads is more pronounced in firms with more powerful CEOs.

A large theoretical literature examines how information asymmetry affects the cost of capital (e.g., Leland and Pyle 1977, Stiglitz and Weiss 1981, Diamond 1985). Empirically, Cohen and Lou (2012) show that firms with higher levels of information asymmetry are more difficult to monitor and value. Han and Zhou (2014) show that measures of information asymmetry capture adverse selection in

corporate bond trading, are key determinants of yield spreads, and help forecast corporate defaults. More recently, Derrien et al. (2016) use exogenous increases in information asymmetry to show that the cost of debt increases for firms that lose an analyst due to a broker closure or a merger. Accordingly, we also consider the role of several widely used proxies for information asymmetry including asset intangibility (Berger et al. 1996, Almeida and Campello 2007), analyst forecast dispersion (Mansi et al. 2011, Gao et al. 2020), and organizational complexity as captured by the number of business segments in which the firm operates (Mansi and Reeb 2002). Using interactions between the information asymmetry proxies and distraction, we find that the effect of institutional investor inattention on yield spreads is more pronounced in firms with relatively high levels of information asymmetry.

We further investigate whether the extent of product market competition impacts the effect of shareholder distraction on the cost of debt. Prior research suggests that a competitive product market serves as a powerful corporate governance mechanism that incentivizes management not to engage in value-reducing expropriation (Alchian 1950, Stigler 1958, Giroud and Mueller 2010, Chhaochharia et al. 2017). In our context, we predict that managers are more likely to exploit institutional shareholder distraction under weak product market competition. Using interactions between distraction and two commonly used measures of product competition, namely, the Herfindahl–Hirschman index and a measure of market concentration based on the four largest firms' sales, we find that the effect of investor distraction on bond yield spreads is greater in firms operating in product markets with a relatively low degree of competition.[4] Collectively, the cross-sectional results support our finding of a positive and significant relation between distracted institutional shareholders and yield spreads, and show that this effect is stronger in firms with a more powerful CEO, firms with greater information asymmetry, and those operating in less competitive product markets.

The results above suggest that conflicts of interests between management and all external stakeholders can exacerbate the distraction–cost of debt relation. In our next set of tests, we investigate whether bond covenants as a mechanism designed to limit bondholder-shareholder conflicts also help mitigate the increase in bond yield spreads resulting from shareholder distraction. Smith and Warner (1979) argue that when contracting is costly, debt covenants involve a trade-off between a reduction in the agency problems associated with debt and the costs of negotiating and enforcing covenants. This implies that debt with more covenants is associated with a lower probability of default and in

[4] Alternatively, competition can influence the cost of debt through default risk and the loss given default. Because greater competition reduces future income, increases cash flow risk, and increases business risk (Bolton and Scharfstein 1990), it can increase firms' default risk (Valta 2012).

turn lower financing costs. Therefore, we examine whether the use of bond covenants, as a governance mechanism, can attenuate the positive relation between institutional shareholder distraction and the cost of debt.

Using a large dataset on bond covenants over the 1993–2015 period, we construct three covenant indices that are appropriate in a bond contract setting: Payment Covenants Index, Asset Sales Covenants Index, and Borrowing Covenants Index (Billett et al. 2007, Mansi et al. 2021). These indices are based on 14 individual covenants that are directly related to the agency costs of debt, namely, asset substitution, dividend payment, underinvestment, and claim dilution (Myers 1977, Smith and Warner 1979, Kalay 1982). When we interact each covenant category with the shareholder distraction measure, we continue to find a positive and significant relation between shareholder distraction and yield spreads. More importantly, we find negative interaction terms for all three covenant indices as well as for the overall covenant index. These results indicate that while bond covenants weaken the positive relation between distraction and the cost of debt, they do not eliminate it.

Our analysis on the relation between distraction and the cost of debt does not distinguish between dual holders and non-dual holders. Recent research, however, suggests that dual holders, who represent a non-trivial part of institutional equity ownership and at the same time are creditors, play an important role in reducing shareholder-debtholder conflicts. By holding both equity and debt claims on a firm, dual holders have stronger incentives—relative to non-dual holders—to monitor managerial actions that would not be beneficial to creditors (e.g., risk-shifting). Moreover, dual holders are well positioned to exert monitoring on behalf of creditors for two main reasons. First, dual holders can obtain more information about the firm at a lower cost relative to pure shareholders or creditors (Peyravan, 2019, Auh and Bai 2020, Bodnaruk and Rossi 2021), which reduces the costs of monitoring. Second, dual holders are effectively creditors with voting rights (Bodnaruk and Rossi 2016), which facilitates engagement with managers. Consistent with dual holders acting as monitors on behalf of creditors, firms with dual holders have better access to bond markets (Bodnaruk and Rossi 2021), higher investment efficiency (Anton and Lin 2020), lower costs of financial distress (Chu et al. 2020), lower CEO compensation sensitivity to risk (Chen et al. 2019), and lower payouts (Chu 2018). Thus, we investigate whether the effect of distraction on the cost of debt is driven by distracted dual and non-dual holders. Because dual holders have greater incentives and ability to protect creditors from managerial expropriation, we expect the distraction of dual holders to have a stronger effect on the cost of debt than the distraction of non-dual holders.

We find a positive and significant relation between shareholder distraction and yield spreads, with this relation driven by both dual holders and non-dual holders. Economically, a one-standard-deviation increase in distraction is associated with an increase in yield spreads of about 22 and 14 basis points annually for distracted dual holders and distracted non-dual holders, respectively. The larger economic effect of distracted dual holders is consistent with the monitoring function of these overlapping investors. These results add further support to the notion that shareholder distraction has an incrementally negative effect on bond pricing, and suggest that the impact of distraction on the cost of debt reflects the inattention of dual holders as well as a spillover effect between non-overlapping equity and bond markets (i.e., the distraction of non-dual holders).

In our final set of analyses, we investigate the channels through which distraction affects the cost of debt. Motivated by prior research, we focus on corporate outcomes that matter to bondholders. Specifically, we examine the effects of distraction on measures capturing firm credit risk (Bhojraj and Sengupta 2003, Ashbaugh-Skaife et al. 2006, Harford et al. 2018). We find that shareholder distraction is associated with lower credit ratings, a higher probability of default, and increased firm-level risk. These results support the view that creditors price the change in management behavior in response to the temporary relaxation of monitoring constraints due to shareholder distraction.

Our research contributes to recent work on limited attention and asset prices. While a large strand of the literature explores the effect of investor inattention on stock prices and corporate outcomes, no paper to date has examined the effects of limited shareholder attention at the retail and institutional levels on bond pricing.[5] The bond market provides an ideal laboratory to study inattention because a relaxation of monitoring constraints by shareholders is easier to infer in this setting. For one, the bond market is dominated by its own institutional investors who possess superior monitoring ability, and thus shareholder inattention in the equity market should be inconsequential to investors in the bond market.[6] In addition, the main sources of information in the bond market are the credit rating agencies that constantly monitor based on their access to insider information when performing independent appraisals. The information contained in credit ratings is, therefore, likely to include and/or subsume the data available in institutional filings. The bond market therefore provides a setting in which the

[5] In a sample of non-M&A bidders, KMS find that institutional distraction is costly to shareholders as it reduces future stock returns.

[6] Another reason shareholder inattention may not affect the cost of debt is the illiquid nature of the bond market. Li (2020) documents that differences in liquidity cannot explain the relation between sophisticated investor attention allocation, as proxied by trading volume, and price underreaction to information in the bond market.

pricing model is well specified and the effects of other important information variables are known. Our finding of a positive and significant relation between shareholder inattention and bond yield spreads suggests that distraction contains information beyond the previously identified determinants of debt pricing. Our results also allow us to better understand the effects of inattention by both dual and non-dual holders on debt pricing. As such, our paper relates to growing research on the consequence of dual holders on corporate outcomes (e.g., Jiang et al. 2010, Bodnaruk and Rossi 2016, 2021, Chu et al. 2020).

Our study also contributes to the literature on the importance of information flow from the stock market to the bond market (Li 2020). Existing studies examine the timing of information efficiency in the stock and bond markets, with the majority of research documenting that stock prices lead bond prices. Kwan (1996), for example, finds that individual stocks tend to lead individual bonds when incorporating firm-specific information. Gebhardt et al. (2005) find no momentum spillover from corporate bonds to stocks, suggesting that past corporate bond return information is not useful for predicting stock returns in the cross-section. Downing et al. (2009) find that stock returns predict returns on non-investment-grade bonds at daily and hourly frequencies, which suggests that information in the stock market is valuable to traders in the bond market. More recently, Kecskés et al. (2013) provide evidence that equity short sellers are skilled information processors who supply predictive information to the bond market. Our research builds on this work by showing that a loosening of monitoring constraints by institutional shareholders provides predictive information to the bond market.

The remainder of this paper is organized as follows. Section 2 briefly discusses our motivation. Section 3 describes the data, variables, and summary statistics. Section 4 presents our main evidence on the relation between inattention and the cost of debt and reports results of cross-sectional heterogeneity tests. Section 4 also examines the use of bond covenants in mitigating agency problems associated with distraction and the role of distracted dual and non-dual holders. Section 5 concludes.

2. Distraction, Agency Conflicts, and the Cost of Debt

Financial institutions such as banks, pension funds, insurance companies, and other entities that trade in large share quantities own close to 70% of all equity shares invested in the US market. Together these institutions provide various stakeholders a valuable monitoring function by focusing

on maximizing long-term value, as opposed to generating short-term profits, and by regularly engaging with management to achieve this objective (e.g., Monks and Minow 1995, Shleifer and Vishny 1997, Bushee 1998, Harford et al. 2018). However, recent research argues that institutional investors do not have the cognitive ability to monitor all firms in their portfolio (KMS). As a result, they are likely to focus on certain firms while neglecting others. Managers that are aware of a relaxation of monitoring constraints can pursue private benefits at the expense of firms' stakeholders. For example, KMS show that when shareholders are distracted, managers are more likely to make value-destroying acquisitions, grant timely CEO stock options, force fewer CEO turnovers for bad performance, and curtail dividends. Distracted shareholders are also less likely to engage with corporations, as evidenced by fewer conference calls and proposals in general meetings. Liu et al. (2020) find that shareholder distraction weakens board oversight. Abramova et al. (2020) and Basu et al. (2019) similarly document that shareholder distraction negatively affects firms' disclosure decisions. This literature suggests that a reduction in monitoring is associated with increased agency costs and information asymmetry to all stakeholders. The increase in this agency cost decreases the expected value of the cash flows and increases the default risk to the bondholders, leading to higher cost of debt.

Alternatively, a lack of shareholder attention implies that management faces less pressure to act in shareholders' interests, which can reduce conflicts between debt and equity claimants. For instance, KMS find that when institutional shareholders are distracted, managers are more likely to curtail dividends (increase future cash flow) and make diversifying acquisitions (co-insurance), both of which could be beneficial to bondholders. Therefore, while the lack of shareholder monitoring allows managers to make more privately optimal decisions that are detrimental to shareholders, these decisions can be advantageous to bondholders and as a result lead to a decrease in the cost of debt. Therefore, from a bondholder perspective, it is theoretically unclear whether distraction has a positive or negative effect on debt valuation.

In addition to the agency conflicts between management and all external stakeholders, the literature suggests that conflicts arise between shareholders and bondholders (Ashbaugh-Skaifea, Collins, and LaFond 2006). Smith and Warner (1979) identify four major sources of these agency costs: dividend payout, claim dilution, asset substitution, and underinvestment. Dividend payout is related to the risk that existing bondholders face when issuing firms pay out unsustainably large dividends to existing shareholders, and those dividends are financed by issuing additional debt or reducing investment, thereby increasing the probability of future default (Kalay 1982). Claim dilution occurs

when the value of the bondholders' claims is reduced by issuing additional debt, especially when the current debt is not priced to reflect this additional debt issuance. An asset substitution problem arises when issuing firms substitute high-risk projects for low-risk ones after selling their bonds to unsuspecting bondholders. Lastly, the underinvestment problem occurs whenever issuing firms forgo profitable NPV investment opportunities because bondholders would capture a disproportionate share of firm value resulting from such investments (Myers 1977).

Accordingly, we test whether bond covenants, as a mechanism known to mitigate the agency cost of debt, attenuate the potential costs of distraction to bondholders. Our empirical analysis on the role of dual holders also sheds new light on this agency cost. Specifically, because dual holders hold both equity and debt claims on the same firm, they internalize the conflicts between shareholders and bondholders. Dual holders' distraction, therefore, has unambiguous adverse effects on shareholders and creditors.

3. Data, Variables, and Summary Statistics

3.1. Data Sources and Sample Construction

The data come from several sources. Our main tests are based on the intersection of the Lehman Brothers (LBFI) and TRACE fixed income databases, the Fixed Income Securities Database (FISD), the Compustat Industrial quarterly and annual databases, and the Thomson Reuters Financial (13F) database. Data for the institutional shareholder distraction measure are provided by Professor Elisabeth Kempf at the University of Chicago.

We use the LBFI database to obtain firms' cost of debt for the period 1993–2006, and the TRACE database to obtain firms' cost of debt in 2007 and thereafter. Both the LBFI and the TRACE databases cover the majority of publicly traded debt in the over-the-counter market and are representative of the sample of traded bonds (see, e.g., Klock et al. 2005, Kecskés et al. 2013, Billet et al. 2007). The final dataset contains month-end security-specific information such as bid price, coupon, yield to maturity, Moody's and S&P credit ratings, issue date, and maturity date on non-convertible bonds contained in the Lehman Brothers bond indices and traded on the Nasdaq exchange. Securities are included in the Lehman Brothers bond indices based on credit rating, liquidity, maturity, size, and trading frequency. Because the TRACE dataset only includes pricing and yield information, we merge

it with the FISD to obtain debt-specific characteristics. All variables are lagged with respect to price and yield information.

Balance sheet and income statement data come from Compustat, and institutional ownership data from the Thomson Reuters Financial (13F) database. We exclude heavily regulated firms (SIC codes from 4900 to 4999) and financial firms (SIC codes from 6000 to 6999) because they are subject to different accounting rules and regulations. Our final sample consists of 21,403 firm-quarter observations from 1,097 firms over the 1993–2015 period.

3.2. Main Variables

3.2.1. Measuring the Cost of Debt Financing

We use the dependent variable, the log of the yield spread or the bond risk premium, to measure the cost of debt. *Yield Spread* is defined as the difference between the yield to maturity on a corporate bond and the yield to maturity on its equivalent duration-matched Treasury security. For firms with multiple observations in the sample, we compute a weighted-average yield spread, where the weight is equal to the amount outstanding for each security, divided by the total amount outstanding for all available publicly traded bonds (e.g., Mansi et al. 2009). In cases in which there is no corresponding Treasury yield available for a given maturity, we calculate the Treasury yield spread by using interpolation based on the Svensson (1994) exponential functional form model.

3.2.2. Measuring Shareholder Inattention

We capture institutional shareholder distraction at the firm level using KMS's aggregate measure of inattention. Although we cannot directly observe distraction, KMS use an identification strategy based on a firm's pool of institutional investors and its stock holdings in firms other than the focal firm. Specifically, to identify time-varying shifts in investor attention, KMS use exogenous shocks to unrelated industries held by a firm's institutional investors. The rationale is that, under the constraint of bounded attention, investors tend to shift their attention away from the focal firm to segments of their portfolio that are subject to industry shocks. In identifying distraction (i.e., attention-grabbing) events, KMS use "extreme" positive and negative industry returns in a given quarter. Because these events typically take time to develop and be understood, they can draw on limited attention capacity

for an extended period, leading to a temporary relaxation of the monitoring constraints faced by the focal firm's managers.[7]

We obtain firm-level proxy for distraction (*Distraction*) by weighing the level of inattention for each institutional investor in a given firm and then aggregating the scores across all the institutional investors of the firm. In addition, we separately compute firm-level proxies for distraction for both positive (*Distraction Positive Shock*) and negative (*Distraction Negative Shock*) events by weighing the level of inattention for each institutional investor in a given firm driven by extreme positive and negative returns in unrelated industries, and then aggregating the scores across the firm's institutional investors. A higher value of these measures indicates that a representative investor experiences greater distraction, and therefore temporarily relaxes monitoring of a given firm.

By construction, these measures of shareholder distraction are affected by whether a shock occurs in an industry unrelated to the firm, whether the industry experiencing the shock is important to an investor's portfolio, and whether an investor that experienced an unrelated industry shock has incentives to monitor the focal firm. These measures thus have two main advantages for our purposes. First, they avoid endogeneity problems as they distinguish between exogenous changes in monitoring and attention-grabbing events that occur in other industries. Second, because these measures are time-varying, we can examine whether the time-variation in firm-level distraction explains the time-variation in bond yield spreads.

Turning to the retail investor inattention, we follow Da et al. (2011) and use Google's search volume index (SVI). The SVI is a relative search popularity score, defined on a scale of 0 to 100, based on the number of searches for a term relative to the total number of searches for a specific geography and for a given time period. We download weekly SVI information for the period 2004–2014 using a stock's ticker symbol and construct monthly SVI by averaging the weekly SVI for each stock. Similar to Da et al. (2011), we exclude ambiguous ticker symbols such as A, AUTO, ALL, B, BABY, BED, DNA, GPS, GAS, and GOLF, as they may not be related to equity. In instances in which weekly SVI data near the end of a calendar month include the first few days of the next month, we prorate the weekly SVI based on the number of days in that month. We then compute a stock's abnormal SVI as the log ratio of SVI to its SVI lagged value (*Retail Inattention*).

[7] KMS provide several examples of attention-grabbing events, such as the recent global financial crisis (2007Q4 industry return: -10.1%), the tech bubble (2000Q1 industry return: +14.8%), and the Gulf of Mexico oil spill (2010Q2 industry return: -11.4%).

3.2.3. Control Variables

The remaining variables are firm- and security-specific controls. Firm-specific controls include size, leverage, profitability, market-to-book, sales growth, and cash flow volatility. Specifically, *Firm Size*, a proxy for economies of scale and a takeover deterrent, is measured as the natural log of total assets. *Leverage*, a proxy for financial health, is measured as the ratio of long-term debt to total capital. *Performance*, a proxy for financial profitability, is measured as the ratio of earnings before interest, taxes, depreciation, and amortization scaled by total assets. *Sales Growth* is the firm's annual growth in revenue. *Market-to-Book*, a proxy for growth opportunities, is computed as the market value of assets (measured as the number of shares outstanding times the share price, plus the book value of debt) scaled by the book value of assets. *Cash Flow Volatility* is the standard deviation of firm performance over the past 10 years. We further control for shareholder monitoring using institutional ownership, which is given as the ratio of common shares owned by institutions divided by the total number of common shares outstanding.

Security-specific control variables include credit rating, maturity, age, liquidity, callability, and a high-yield dummy. Firm credit rating is the average of Moody's and S&P bond ratings and represents the average credit rating at the date of the yield observation. Bond ratings are computed using a conversion process, whereby AAA-rated bonds are assigned a value of 22 and D-rated bonds a value of 1 (see Table A1 in the Online Appendix for the full list of the bond rating numerical conversions). We follow the literature and allow for the fact that the credit rating variable may incorporate part or all of the information from investor inattention (Klock et al. 2005). Specifically, to estimate the effect of credit rating excluding the effect of distracted shareholders, we regress the rating variable on the distraction variable. The error term from this specification, *Credit Rating*, incorporates credit rating information without the influence of distraction. This is our primary measure of credit ratings in our multivariate analysis.

We control for term structure effects using debt maturity, and for liquidity effects using bond age. For an individual security, *Bond Maturity* is the number of years remaining until the bond matures, and *Bond Age* is the length of time (in years) that a bond has been outstanding. For firms with multiple bonds, we compute weighted-average maturity, bond age, and credit rating using the sum of the weighted measures of all bonds for each firm, with the weight being the amount outstanding for each debt issue divided by the total amount outstanding for all publicly traded debt for the firm (Mansi et

al. 2009). We also control for *Callability*, a dummy variable that equals 1 if the issue is callable, and for *High Yield*, a dummy variable that equals 1 when the debt is non-investment grade, to account for the non-linear relation between bond yield spreads and credit ratings. We winsorize all variables at the 1% level to mitigate the influence of outliers. Table 1 provides a description and data sources of the main variables used in the analysis.

3.3. Descriptive Statistics

Panel A of Table 2 presents sample summary statistics. Specifically, we report the mean, median, standard deviation, 25th percentile, and 75th percentile for the main variables used in our analyses. In the cost of debt analysis, the variable of interest is the yield spread, which has a mean, median, and standard deviation of 289, 192, and 304 basis points, respectively. Because the mean and median values differ substantially from each other, the yield spread is highly skewed. We therefore use the log of the yield spread in our multivariate analysis to provide a better fit, and to ensure that any fitted values remain positive. Looking at the firm-specific control variables, sample firms have a mean, median, and standard deviation of total assets of $11 billion, $4.4 billion, and $18 billion, respectively. The median leverage ratio is 30%, with a standard deviation of 16.7%, which implies that a large portion of the sample firms have significant liabilities in their capital structure. Sample firms are profitable with a mean profitability ratio of 3.6%, a market-to-book ratio of 3.12, and cash flow volatility of 4.3%. On average, institutions owned 71.4% of shares outstanding, with a standard deviation of 18.8%.

With respect to the bond-specific controls, the mean and median numerical bond ratings for the sample are equivalent to S&P ratings of BB+ and BBB-, respectively, which implies ratings at or slightly below investment-grade debt. On average, traded debt has a maturity of 9.1 years, with a standard deviation of 5.4 years, and has been outstanding for 3.4 years. The sample is tilted toward investment-grade debt, at 57.8%, with the remaining 42.2% consisting of non-investment-grade debt.

Panel B of Table 2 shows the full-sample distribution across industries using the Fama–French 12-industry classification. The firms in our sample are mainly concentrated in manufacturing (24.6%), wholesale and retail trade (15.1%), consumer non-durables (9.7%), business equipment (9.1%), chemicals and allied products (7.2%), healthcare (7%), energy (6.5%), telecommunications (4.3%), and other industries, which includes mines, construction, building material, transportation, hotels, business services, and entertainment (14.8%). The smallest concentrations of firms are is in utilities, money and

finance, and consumer durables.

Panel C of Table 2 provides the Pearson correlation coefficients between shareholder distraction, cost of debt, and select controls. In general, the yield spread is positively correlated with the distraction measure, leverage, cash flow volatility, and analyst forecast dispersion, while it is negatively correlated with size, performance, market-to-book, credit ratings, bond maturity, and bond age. The correlation coefficients provide initial evidence that firms with distracted shareholders have a higher cost of debt.

4. Empirical Analysis

4.1. Inattention and the Cost of Debt

In our main analyses, we examine the relation between the log of yield spreads and the inattention measures—*Distraction, Distraction (Positive Shock), Distraction (Negative Shock),* and *Retail Inattention*—while controlling for firm- and security-specific factors known to influence the cost of debt. We perform multivariate regressions using various specifications. All models include firm fixed effects to control for unobservable firm-specific time-invariant factors and industry × quarter fixed effects to eliminate the effect of any factors that are invariant within industry-date. Standard errors are clustered at the firm level. Our primary regression model is as follows:

$$Log(Spread_{i,t}) = a + \beta_1\, Inattention_{i,t-1} + \beta_{2\text{-}7}\, Firm\ Controls_{i,t-1} + \beta_{8\text{-}12}\, Debt\ Controls_{i,t} + Firm\ FE + Industry \times Quarter\ FE + \varepsilon_{i,t}, \quad (1)$$

where *Spread* is the bond yield spread and *Inattention* is one of our four measures of distraction. A positive and significant coefficient on inattention, β_1, would support the hypothesis that looser monitoring constraints are value-decreasing for bondholders.

Firm controls include size, leverage, profitability, market-to-book, and sales growth. We expect firm size to be negatively related to the log of the yield spread because larger firms enjoy greater economies of scale and stability. Leverage should be positively related to yield spreads because higher debt capacity is associated with a higher probability of default, while market-to-book should be negatively associated with yield spreads because firms with higher growth opportunities use less debt and hence have a lower probability of default. We further expect sales growth and firm profitability to be negatively related to the cost of debt financing because more profitable firms have a lower probability of default. Security-specific controls include credit ratings, bond maturity, and bond age.

We expect credit ratings to be negatively associated with yield spreads because firms with better ratings have a lower probability of default, and therefore a lower cost of debt. We expect bond age and bond maturity to be positively related to yield spreads because bonds that are less liquid and those with higher maturities require a higher rate of return. Lastly, we also control for firm institutional ownership to account for firm governance structure. We expect this variable to be associated with a lower cost of debt due to the monitoring effects of institutional ownership.

Table 3 reports the results of our regressions on the effect of the inattention measures on the cost of debt. Model 1, our primary specification, employs KMS institutional distraction measure. Models 2 and 3 focus on distraction when industry returns are extreme (positive or negative). Models 4 and 5 are similar to Model 1 but segment the sample into investment-grade debt (greater than or equal to credit ratings of BBB-) and non-investment-grade debt (below credit ratings of BBB-). Model 6 is similar to Model 1 but replaces institutional shareholder distraction with the retail investor inattention based on Google's SVI.

In Models 1–5, we find a positive and significant (at the 1% level) relation between shareholder distraction and bond yield spreads. Across models, the coefficient varies from 0.159 for the extreme positive industry returns sample to 0.284 for the non-investment-grade sample. In terms of economic significance, a one-standard-deviation increase in shareholder distraction is associated with an increase in yield spreads of about 11 to 27 basis points annually. Models 2 and 3 show that the observed effect of distraction on the cost of debt comes from both extreme positive and extreme negative industry returns. Models 4 and 5 report that distraction is positively related to the cost of debt in both the investment and non-investment grade samples, but is slightly larger for the high-yield bond sample. In Model 6, we find an insignificant relation between retail investor inattention and the cost of debt, consistent with the uninformed nature of retail investors and the dominance of institutional investors in the bond market. Collectively, the results suggest that a relaxation of monitoring constraints by institutional investors is detrimental to bondholders.

The control variables take their theoretically predicted signs in all models, and in general are statistically significant. More specifically, at the firm level, our proxies for firm size, performance, and growth opportunities are negatively related to yield spreads, while firm leverage and cash flow volatility are positively related to yield spreads. At the bond level, bond maturity, bond age, and callability, are all positively related to spreads, while credit rating is negatively related to yield spreads. Institutional

ownership is negatively related to yield spreads, evidence consistent with the monitoring effectiveness of institutional shareholders (Bhojraj and Sengupta 2003).

To check the generalizability of our main results, we conduct several robustness tests. Table A2 in the Online Appendix reports the estimation results. Model 1 controls for retail investor attention using *Advertising Intensity*, or the change in log advertising spending. Lou (2014) documents that managers adjust firm advertising to attract investor attention and influence short-term stock returns. The results are similar to those obtained in our primary specification (Model 1 in Table 3). Models 2 and 3 control for analyst following and Big 4 auditor as alternative external firm monitors. Gao et al. (2020) document that analyst following can constrain managerial opportunism. Mansi et al. (2004) show that auditor quality provides both insurance and information roles that can be beneficial to security claimants. We compute *Analyst Following* as the log of the number of analysts following the firm, and *Big 4 Auditor* as an indicator variable that equals 1 if one of the Big 4 accounting firms is the firm's auditor. In both specifications, we continue to find a positive and significant relation between institutional shareholder distraction and yield spreads. However, only the coefficient on analyst following in Model 2 is negative and significant (Mansi et al. 2011).

We next control for two governance factors that are known to influence the cost of debt: Bebchuk et al.'s (2009) entrenchment index (*EIndex*), and CEO compensation pay mix (*CEO Pay Mix*). Prior literature documents that bondholders are interested in governance mechanisms that constrain managerial incentives. Klock et al. (2005), for example, find that takeover defenses that limit shareholders' interests relative to those of managers are beneficial to bondholders. Bebchuk et al. (2009) construct an entrenchment index using a subset of 24 antitakeover provisions, namely, classified boards, golden parachutes, limits to amend charter, limits to amend bylaws, supermajority, and poison pill, and find that these provisions are associated with lower firm value. Accordingly, in Model 4 of Table A2 we control for managerial entrenchment using the *EIndex*. In addition, Ortiz-Molina (2006) finds a positive relation between managerial ownership and the cost of debt, albeit only for smaller ownership. In Model 5 we control for CEO compensation pay mix, *CEO Pay Mix*, which is the pay of the top five managers in the form of stock option grants (SOG), divided by the sum of SOG, salary, and bonus compensation. In both specifications, we continue to find a positive and significant relation between shareholder distraction and yield spreads. In Model 6, we also control for a firm's relatedness to the shock industries using the measure by Hoberg and Phillips's (2010) 10-K text-based 25 industry classifications. Our results continue to hold.

For completeness, we conduct two additional but unreported tests. First, we control for two significant crisis events including the internet technology bubble in 2000 and the global financial crisis in 2009. The rationale is that while KMS distraction measure is based on "extreme" industry return periods, it is not necessary for the distraction event to stretch over a longer term for it to have an impact on monitoring capacity. The results corroborate our main findings and are not sensitive to excluding either of these crisis event periods. Second, we investigate whether the relation between shareholder distraction and the cost of debt differs when we control for the different types of institutional investors. Using Bushee's (1998) classification of institutional investors into transient, quasi-indexers, and dedicated investors, we find that our main evidence continues to hold. We also segment institutional investors based on their horizons (short- and long-term) following Harford et al. (2018) and find similar results. Overall, these results provide additional support for the view that distracted institutional shareholders are costly to bondholders.

4.2. Distraction, Firm Heterogeneity, and the Cost of Debt

The results so far suggest that firm-level temporal variation in monitoring intensity driven by shareholder distraction affects bond pricing. In this section, we investigate how firm heterogeneity affects the association between distraction and the cost of debt. In particular, we are interested in whether certain firm characteristics including CEO power, information asymmetry, and product market competition exacerbate the adverse consequences of distraction. We expect the costs of distraction to be higher under firm characteristics that are more conducive to managerial opportunism. For ease of exposition, we standardize the interaction variables to have a mean of zero and a standard deviation of one in all specifications.

We begin this analysis by examining the effect of managerial opportunism, proxied by *CEO Power*, on the relation between institutional shareholder distraction and the cost of debt. KMS argue that, in the absence of shareholder monitoring, CEOs have an incentive to maximize private benefits at the expense of shareholder value. KMS further show that more powerful CEOs can exploit an increase in shareholder distraction by engaging in privately optimal corporate actions, such as value-destroying acquisitions. Accordingly, we expect distraction to have a stronger effect on firms with more powerful CEOs. We measure *CEO Power* as a function of four firm-related variables: co-optionality of independent directors, CEO pay slice, CEO tenure, and CEO-chairman duality (Coles et al. 2014, KMS). *Board Co-Option,* a proxy for lax monitoring, is computed as the fraction of independent

directors appointed after the CEO assumed office in a given year. *CEO Pay Slice*, a proxy for CEO influence, is computed as the fraction of the aggregate compensation of the top five executives that is captured by the CEO. *CEO Tenure*, a proxy for entrenchment, is computed as the number of years the CEO has been in office. *CEO-Chairman Duality*, a proxy for CEO control power, is an indicator variable that equals 1 if the CEO also assumes the chair of the board in a given year. In the spirit of Abernethy et al. (2015), we aggregate these four factors using principal component analysis to obtain our proxy for *CEO Power*. Data on board co-option come from the website of Coles et al. (2014), CEO pay slice comes from ExecuComp, and CEO tenure, CEO age, and director variables come from Institutional Shareholder Services (ISS).

To test our prediction, we add the proxy for CEO power and its interaction with the shareholder distraction to our main regression. Model 1 of Table 4 reports the results. We find a positive and significant coefficient on distraction, a negative but insignificant coefficient on CEO power, and a positive and significant coefficient on the interaction between distraction and CEO power. Economically, moving CEO power from the first to the third quartile augments the effect of a one-standard-deviation increase in shareholder distraction on yield spreads by about 17 basis points annually. This suggests that more powerful CEOs pursue private benefits when institutional investors are distracted. Recognizing the increased potential for expropriation, bondholders react to the weakening of monitoring by increasing the cost of debt.

We next examine whether the effect of shareholder distraction is heterogeneous with respect to various measures of information asymmetry. Recent research shows that effective governance lowers firms' cost of debt by increasing monitoring of management and reducing information asymmetry (Derrien et al. 2016, Gao et al. 2020). To the extent that institutional ownership can provide effective oversight from a bondholder perspective, the value of monitoring should be greater for firms that are more difficult to monitor and price. Accordingly, we expect the positive relation between institutional investor distraction and yield spreads to be stronger for firms with higher information asymmetry.

To test this prediction, we measure information asymmetry using asset intangibility, analyst forecast dispersion, and organizational complexity (Kang et al. 2018). *Asset Intangibility* is (-1) × [(0.715 × Receivables + 0.547 × Inventory + 0.535 × Capital) + Cash] scaled by total assets. A higher value indicates greater intangibility. *Analyst Forecast Dispersion* is the standard deviation in analysts' quarterly earnings per share forecasts, deflated by stock price (Mansi et al. 2011). *Organizational Complexity* is the number of segments in which the firm operates. In Models 2–4 of Table 4 we re-run our baseline

distraction model after including the respective measure of information asymmetry and its interaction with distraction. The results are in line with our prediction. Across all proxies for information asymmetry, the coefficients on the interaction terms are positive and significant at either the 5% or 10% levels. Economically, moving the information asymmetry proxies from the first to the third quartile augments the effect of a one-standard-deviation increase in shareholder distraction on yield spreads by about 2 to 16 basis points annually. These findings are largely consistent with our prediction that distraction is costlier for firms that suffer greater information asymmetry problems, and hence are more difficult for bondholders to value.

We also consider firm heterogeneity with respect to industry competition. Prior research has argued that a high level of product market competition can induce management to avoid wasting corporate resources (Alchian 1950, Stigler 1958, Hart 1983, Schmidt 1997, Aghion et al. 1999). The idea is that, in a competitive market, if management inefficiently uses firm resources, companies will be unable to compete and will ultimately become insolvent (Chhaochharia et al. 2017).[8] Several empirical studies show that industry competition plays an important role in aligning incentives within firms (Karuna 2007). However, Chhaochharia et al. (2017) also find that corporate governance is more important when firms face weak product market competition. Accordingly, we expect managers to be more likely to exploit shareholder distraction, and investor inattention to have a more pronounced effect on the cost of debt, in firms in less competitive industries.

We capture market structure by using the Herfindahl–Hirschman Index (HHI), computed as the sum of squared market shares within a 3-digit SIC industry (Giroud and Mueller 2010). A higher index indicates that an industry is more concentrated or less competitive. Similar results are obtained when we use HHI based on assets (unreported). We also compute a measure of market concentration (C4) by summing the market shares of the largest four firms in a given 3-digit SIC industry (Hou and Robinson 2006). In Models 5 and 6 of Table 4 we re-run our main regression after controlling for industry competition and its interaction with our investor distraction measure using two proxies for industry competition. Consistent with the disciplinary role of product market competition, we find that the positive relation between distraction and the cost of debt is more pronounced for firms operating in a weaker product market environment. Economically, moving the product competition

[8] Prior theoretical studies do not uniformly agree that product market competition increases efficiency. For example, Scharfstein (1988) argues that managers' incentives to exert effort will be lower because profits are lower in competitive industries. Raith (2003) helps reconcile the conflicting results by endogenizing entry into the product market. He finds that, once entry is endogenized, stronger competition implies a better alignment of incentives.

proxies from the first to the third quartile augments the effect of a one-standard-deviation increase in shareholder distraction on yield spreads by about 7 to 20 basis points annually. Overall, the results suggest that weaker monitoring by institutional shareholders is costly for bondholders when firms have more powerful CEOs, lower information asymmetry, and weaker product market competition.

4.3. Do Bond Covenants Mitigate the Effect of Inattention?

The results above demonstrate that firms with distracted shareholders have a higher cost of debt. It also shows that the findings remain robust when we control for the agency conflicts associated with the manager-stakeholder conflicts. In our next set of tests, we examine whether mechanisms designed to reduce the bondholder-shareholder conflicts, in particular, bond covenants, attenuate the relation between distraction and the cost of debt. As a governance mechanism designed to address the agency problem inherent in lending, bond covenants can help reduce the effect of agency conflicts of debt on yield spreads. Therefore, we examine whether covenants can help mitigate the relation between distraction and yield spreads. Our primary data source for information on covenants is the FISD. For each bond issue, the FISD reports over 50 variables on bondholder protection, issuer restriction, and subsidiary restriction–related covenants. Because multiple covenants often restrict the same activity, we group the covenant variables into 22 dummies that indicate whether a specific type of activity is restricted. The construction of these covenant dummies is similar to that in Mansi et al. (2021).

We focus our attention on the covenant indicators that limit the agency costs of debt, in particular those related to asset sales and investment, borrowing, and payment. Asset sales and investment restrictions include dummies for covenants that limit asset sales, restrict the issuer in certain business dealings with its subsidiaries, and restrict subsidiaries' investments. Borrowing restrictions include dummies for different types of covenants that restrict the firm from additional debt activities. Payment restrictions include covenant dummies for dividend-related payments and other restricted payments. We create indices for each category by summing the covenant dummy variables within each category. A higher index score indicates stronger creditor protection with respect to the given type of activity. In addition to the three covenant categories, we create an overall covenant index of bondholder protection by summing the 14 covenant indicators for each bond. Table A3 in the Online Appendix provides definitions for all bond covenants and lists the categories to which they are assigned.

Table 5 presents the results for the overall covenant index and the different covenant categories. Again, for ease of exposition we standardize all interaction variables to have a mean of zero and a standard deviation of one. All models include firm fixed effects and industry × quarter fixed effects. Model 1 examines the relation between shareholder distraction and the cost of debt while controlling for the overall covenant index. Models 2–4 are similar to Model 1, but control for each of the three broad covenant sub-indices separately. Focusing on Model 1, we find that the effect of overall covenant use on yield spreads is positive and significant when evaluated at the sample mean of distracted shareholders. This is consistent with the presence of bond covenants signaling a response to agency conflicts (Bradley and Roberts 2015). The negative interaction between distraction and total covenants indicates that the effect of distraction on yield spreads is decreasing in the number of covenants. The direct effect of distraction on yield spreads is positive, which suggests that, with zero covenants, greater distraction can intensify agency problems, and is thus associated with higher yield spreads. Setting the overall index to zero, a one-standard-deviation increase in shareholder distraction is associated with an increase in yield spreads of about 24 basis points annually. However, the incremental effect of distraction is reduced by covenants, as indicated by the negative interaction term. Setting the overall index to 1, a one-standard-deviation increase in shareholder distraction is associated with an increase in bond yield spreads of about 10 basis points annually. Thus, for the average firm, moving the overall index by just one covenant lowers the effect of a one-standard-deviation increase in shareholder distraction on yield spreads by about 14 basis points annually.

In general, the results for the sub-indices are similar to those in Model 1. Specifically, we find that the covenant sub-indices related to payment (Model 2), borrowing (Model 3), and asset transfer (Model 4) all have negative and significant interaction terms with distracted shareholders. The economic significance varies from 7 to 17 basis points annually. Overall, our evidence implies that covenants designed to reduce the bondholder-shareholder conflicts help mitigate the effect of intensified agency conflicts associated with increasing distraction on yield spreads but do not completely eliminate it.

4.4. Distraction, Dual Holders, and the Cost of Debt

Our findings suggest that distracted shareholders have an adverse effect on the cost of debt. Prior literature documents that institutional dual (equity *and* debt) ownership is a widespread phenomenon (Bodnaruk and Rossi, 2016). These dual holders play an important role in mitigating shareholder-

creditor conflicts. Jiang et al. (2010), for example, examine the effect of dual holder participation on the cost of syndicated loans for commercial and non-commercial financial institutions and find that syndicated loans with dual holder participation have lower yield spreads. Chu (2018) finds that mergers between shareholders and creditors of the same firms reduces corporate payout. More recently, Bodnaruk and Rossi (2021) show that dual holders have higher demand for firms' initial bond IPOs. Accordingly, we investigate whether distraction by dual versus non-dual holders has a differential effect on the cost of debt. To the extent that dual holders have greater incentives and better ability to monitor managers and protect creditors' interests, we expect distracted dual holders to matter more for the cost of debt compared to distracted non-dual holders.

To empirically test this conjecture, we separately examine the inattention-cost of debt relation for distracted dual and non-dual holders. Following Jiang et al. (2010) and Chu (2018), we identify firms with dual holders using data from the Thomson Reuters Financial Institutional Ownership (13F) database and the DealScan database from 1989 to 2015. Similar to Jiang et al. (2010) we further classify dual holders as either commercial banking institutions or non-commercial financial institutions. We identify a commercial banking institution dual holder if the financial institution type in the Thomson Reuters data set is classified as a bank (type code=1), or the primary SIC code in DealScan is 6712 or 6011 to 6082. In either case, the dual holder is classified as a commercial bank or as a non-commercial financial institution. To measure distraction for dual and non-dual holders, we compute dual holder ownership as the fraction of firm total shares outstanding held by dual holders, commercial bank dual holder ownership as the fraction of firm total shares outstanding held by commercial dual holders, and non-commercial bank dual holder ownership as the fraction of firm total shares outstanding held by non-commercial dual holders.

Table 6 reports the results. Model 1 examines the relation between distracted dual holders and the cost of debt. Models 2 and 3 are similar to Model 1 but considers commercial and non-commercial dual holders, respectively. Model 4 tests the inattention-cost of debt relation for distracted non-dual holders only. All models include firm fixed effects and industry × quarter fixed effects. We find that the effect of distracted dual holders, and especially that of distracted commercial dual holders, is associated with an increase in the cost of debt. The effect is similar albeit weaker when we consider distracted non-dual holders. A one-standard-deviation increase in distracted dual holders (non-dual holders) increases the yield spreads by about 22 (14) basis points annually. Overall, we find that firms facing institutional shareholder distraction are associated with higher cost of debt regardless of

whether the institution is a dual holder or not. Moreover, consistent with our expectation, we find that the effect of distracted dual holders is stronger than that for non-dual holders, reflecting the role that dual holders play in reducing shareholder-creditor conflicts.

4.5. Distraction and the Cost of Debt: Channels

Our findings suggest that bondholders price shareholder distraction. To ensure that our results reflect the loosening of monitoring constraints caused by inattention, instead of bad management behavior unrelated to distraction, we provide evidence on the channels through which shareholder distraction leads to a higher cost of debt.[9] Building on the debt pricing literature (see e.g., Bhojraj and Sengupta 2003, Mansi et al. 2004, Ashbaugh-Skaife et al. 2006, El Ghoul et al. 2016, Harford et al. 2018), we examine the effect of distraction on corporate outcome variables relevant to bondholders. Prior literature suggests that shareholders can expropriate creditors by increasing firm risk (Myers 1977, Smith and Warner 1979). Accordingly, we consider the effects of distraction on three relevant proxies related to firm risk, namely credit ratings, firm default risk, and firm-specific risk.

Table 7 reports the results. All models include firm fixed effects and industry × quarter fixed effects. Panel A tests the effect of distraction on credit ratings. The rating agencies play a pivotal role in assessing firm credit risk and in providing information to investors, and are also used to regulate institutional investors (Opp et al. 2013). These firms must update, in a timely manner, their forecasts using a myriad of financial information related to firm performance and management behavior. Thus, we expect the rating agencies to update their prior predictions about a firm's credit ratings for those with distracted institutional shareholders. We find a negative and significant coefficient on distraction, indicating that higher shareholder inattention is associated with lower credit ratings.

Panel B captures default risk using Bharath and Shumway's (2008) commonly used measure of distance to default. This measure provides better out-of-sample performance at forecasting bankruptcies. We find an inverse relation between distraction and the distance to default measure, suggesting that higher inattention is associated with a higher probability of financial distress. The results are also robust to using alternative measures of default risk derived from the competing models of Hillegeist et al. (2004) and Vassalou and Xing (2004). Panel C examines the effect of distraction on firm-level risk (Mansi et al. 2011), computed using the standard deviation of residuals from the Carhart

[9] We thank anonymous reviewers for suggesting this analysis.

(1997) four-factor model estimated over the quarter.[10] We find that distracted shareholders are associated with higher firm-level idiosyncratic risk. Collectively, these findings indicate that firms increase risk when shareholders are distracted, which reduces firms' credit creditworthiness. It also lends support to the idea that bondholders price the consequences of adverse managerial decisions in response to a temporary relaxation of the monitoring constraints due to shareholder distraction.

5. Conclusion

In this paper, we explore how investor inattention in the equity market affects security prices in the bond market. Drawing on a newly constructed measure of institutional shareholder distraction, we examine the effect of exogenous changes in monitoring intensity on the cost of debt. Using a large sample of publicly traded bonds, we find a strong positive and significant relation between institutional shareholder distraction and yield spreads. The effect of inattention on yield spreads continues to hold when we measure distraction using extreme positive and extreme negative industry returns, and is pronounced in both the non-investment-grade and the investment-grade bond samples. The inattention-cost of debt relation is also robust to controlling for retail investor inattention, advertising intensity, analyst coverage, and Big 4 auditors. Our results extend the prior findings that managers are more likely to engage in value-destroying activities when institutional shareholders are distracted. More importantly, we show that the effect of distraction is not limited to equity valuation—it also has a significant negative effect on bond pricing.

In additional analyses, we examine how firm-level heterogeneity affects the relation between distraction and the cost of debt. We find that the effect of distraction on bond yield spreads is stronger when the firm has a more powerful CEO, firms with greater information asymmetry, or those facing weak product market competition. We also find that bond covenants mitigate, but do not eliminate, the effect of distraction. In further tests we show that while the relation between distraction and the cost of debt is driven by distraction of institutional dual holders and non-dual holders, distracted dual holders have a greater economic impact when compared to distracted non-dual holders. In our final set of tests, we find that shareholder distraction is associated with an increase in firm-credit risk, consistent with creditors pricing the consequences of value-reducing corporate actions resulting from

[10] KMS find that firms with distracted shareholders are more likely to announce diversifying acquisitions. To mitigate the concern that diversifying acquisitions may benefit the bondholders, in unreported tests we exclude firm-quarter observations with acquisitions. We continue to find that shareholder distraction increases idiosyncratic risks.

shareholder distraction. Collectively, our findings suggest that a temporary weakening of monitoring constraints by institutional investors has a distinct negative incremental effect on bondholders.

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Table 1. Variable Definitions

Variable	Description	Data Source(s)
Yield Spread	The difference between the weighted-average yield to maturity of the firm's outstanding publicly traded debt and the yield to maturity on a duration-matched Treasury security. Weight is defined as the amount outstanding for each issue as a fraction of all outstanding traded debt for the firm.	LBFI, TRACE
Distraction	A measure of institutional shareholder distraction, as in Kempf, Manconi, and Spalt (2017).	Kempf et al. (2017)
Distraction (Positive Shock)	A measure of institutional shareholder distraction using positive extreme industry returns.	13-F, Compustat, CRSP
Distraction (Negative Shock)	A measure of institutional shareholder distraction using negative extreme industry returns.	As above
Retail Inattention	Measure of retail investor inattention, as in Da, Engelberg, and Gao (2011).	Hand Collection
	Firm-Specific Variables	
Firm Size	Natural logarithm of total assets.	Compustat
Leverage	Long-term debt plus debt in current liabilities, deflated by total assets.	As above
Performance	Operating income before depreciation, deflated by total assets.	As above
Sales Growth	Sales growth rate, defined as the ratio of the change in sales to lagged sales.	As above
Cash Flow Volatility	Standard deviation of performance over the past 10 years (*t*-1 to *t*-10).	As above
Market-to-Book	Market value of equity, computed as the number of common stocks outstanding multiplied by price divided by balance sheet book equity.	As above
Asset Intangibility	Building on Berger, Ofek, and Swary (1996) and Almeida and Campello (2007), –(1)×[(0.715× Receivables + 0.547×Inventory + 0.535×Capital) + Cash]/Assets, where Receivables is Compustat item 2, Inventory is item 3, Capital is item 8, Cash is the value of cash holdings (item 1), and Assets is the book value of total assets (item 6).	As above
Organizational Complexity	Number of segments within a firm.	As above
	Bond-Specific Variables	
Credit Rating	Average of Moody's and S&P bond ratings, computed using a conversion process whereby AAA-rated bonds are assigned a value of 22, and D-rated bonds a value of 1.	LBFI, TRACE
Bond Maturity	Bond issue maturity remaining in years.	As above
Bond Age	Number of years a bond has been outstanding.	As above
High Yield	Indicator variable that equals 1 when the weighted-average rating is below BBB.	As above
Callability	Indicator variable that equals 1 when the bond is callable.	As above
Overall Covenant Index	Summation of Payment, Asset, and Borrowing covenant indices for 14 covenants.	FISD
Asset Covenant Index	Summation of four covenants related to Transaction, Investment, Asset Sales, and Asset Transfer.	As above
Borrowing Covenant Index	Summation of eight covenants related to Funded Debt, Subordinated Debt, Senior Debt, Secured Debt, Indebtedness, Leaseback, Liens, and Guarantee.	As above

Payment Covenant Index	Summation of two covenants related to Dividends and Other Payments.	As above
	Governance Variables	
Institutional Ownership	Ratio of shares owned by institutions divided by the total number of shares outstanding.	13-F
Dual Holder Distraction	A measure of institutional dual holder distraction.	13-F, CRSP, Compustat, 13F-DealScan
Commercial DH Distraction	A measure of institutional commercial dual holder distraction.	As above
Non-Com. DH Distraction	A measure of institutional non-commercial dual holder distraction.	As above
Non-DH Distraction	A measure of institutional non-dual holder distraction.	As above
Board Co-Option	Fraction of independent directors appointed after the CEO assumed office.	Coles et al. (2014)
CEO Duality	Dummy variable that equals 1 if the CEO is also the chairperson of the board in a given year.	ISS
CEO Pay Slice	Fraction of the aggregate compensation of the top five executives captured by the CEO.	ExecuComp
CEO Tenure	Number of years the CEO has been employed by the firm.	ISS
CEO Power	Principal component of CEO pay slice, CEO tenure, CEO duality, and board co-option.	Computed
CEO Age	Natural logarithm of CEO age.	ISS
CEO Pay Mix	Top management pay mix, or the fraction of pay for the top five managers received in the form of stock option grants (SOG), divided by the sum of SOG, salary, and bonus compensation.	ExecuComp
EIndex	Bebchuk, Cohen, and Ferrell (2009) entrenchment index. It varies from 1 to 6 and is constructed by subtracting 1 point from each anti-takeover provision in place (classified boards, golden parachutes, limits to amend charter, limits to amend bylaws, supermajority, and poison pill).	ISS
	Other Variables	
Analyst Following	Number of analysts following the firm in a given year.	I/B/E/S
Analyst Forecast Dispersion	Dispersion in analysts' quarterly earnings per share forecasts, deflated by stock price.	As above
HHI Sale	Herfindahl–Hirschman index of market competition, computed by squaring each firm's share of sales revenue and summing the resulting numbers in a given competitive market as defined by 3-digit SIC industry code. A higher index indicates a more concentrated (less competitive) market.	Compustat
C4 Sale	Measure of market concentration computed by summing the share of sales revenue captured by the largest four firms in a given 3-digit SIC industry.	As above
Advertising Intensity	Change in log advertising spending, as in Lou (2014).	Compustat
Big 4 Auditor	Indicator variable that equals 1 if the firm is audited by a Big 4 auditor, 0 otherwise.	As above
Distance to Default	Measure of market-based default risk estimated using Bharath and Shumway (2008) model. Higher value indicates lower probability of default.	CRSP, Compustat
Idiosyncratic Risk	Standard deviation of the residuals for a given quarter using Carhart's (1997) four-factor model.	CRSP

Notes: This table gives definitions for the variables used in the analysis, along with their data sources. LBFI is the Lehman Brothers Fixed Income database, TRACE is the Trade Reporting and Compliance Engine database provided by the National Association of Securities Dealers, Kempf et al. (2017) is the distraction data based on Kempf, Manconi, and Spalt (2017) and provided by Elisabeth Kempf, 13-F is the Thomson Reuters Institutional Shareholder database, CRSP is the Center for Research

in Security Prices database, Compustat is the financial information database, FISD is the Mergent Fixed Income Securities Database, 13F-DealScan is the 13F-DealScan correspondence table provided by Yongqiang Chu, Coles et al. (2014) is the co-option data based on Coles, Daniel, and Naveen (2014) and provided by Lalitha Naveen, ISS is the Institutional Shareholder Services database, ExecuComp is the executive compensation database, and I/B/E/S is the Institutional Brokers Estimate System database.

Table 2. Descriptive Statistics

Panel A: Summary Statistics

	Mean	Median	Standard Deviation	25th Percentile	75th Percentile
Yield Spread (in basis points)	289	192	304	107	359
Distraction	0.156	0.141	0.080	0.095	0.215
Retail Inattention	3.653	3.827	0.638	3.321	4.116
Distraction (Positive Shock)	0.085	0.065	0.060	0.035	0.139
Distraction (Negative Shock)	0.076	0.060	0.057	0.032	0.105
			Firm-Specific Variables		
Total Assets ($Million)	11,006	4,410	18,067	1,970	11,352
Leverage	0.331	0.300	0.167	0.214	0.411
Performance	0.036	0.035	0.021	0.024	0.047
Sales Growth	0.028	0.017	0.161	-0.040	0.082
Cash Flow Volatility	0.043	0.031	0.039	0.020	0.051
Market-to-Book	3.124	2.304	4.929	1.468	3.644
Asset Intangibility	-0.421	-0.434	0.121	-0.508	-0.344
Organizational Complexity	2.463	2.000	1.481	1.000	3.000
			Bond-Specific Variables		
Credit Rating	BB+	BBB-	A/B-	B+	A–
Bond Maturity	9.142	7.750	5.436	5.417	11.600
Bond Age	3.396	2.888	2.455	1.583	4.564
High Yield	0.422	0.000	0.494	0.000	1.000
Callability	0.726	1.000	0.446	0.000	1.000
Overall Covenant Index	3.505	3.000	2.058	2.400	4.068
Asset Covenant Index	1.153	1.000	0.584	1.000	1.333
Borrowing Covenant Index	1.894	2.000	0.988	1.496	2.285
Payment Covenant Index	0.459	0.000	0.793	0.000	0.863
			Other Variables		
Institutional Ownership	0.714	0.733	0.188	0.608	0.839
Analyst Forecast Dispersion	0.005	0.002	0.016	0.001	0.005
Board Co-Option	0.432	0.400	0.318	0.143	0.700
CEO Pay Slice	0.407	0.412	0.108	0.342	0.470
CEO Tenure (years)	7.179	5.000	7.332	1.000	10.000
CEO Duality	0.724	1.000	0.447	0.000	1.000
CEO Power	0.000	-0.031	1.249	-0.912	0.969
CEO Age	57.543	58.000	6.382	53.000	61.000
HHI Sale	0.243	0.193	0.195	0.106	0.301
C4 Sale	0.716	0.736	0.184	0.570	0.852
Distance to Default	5.516	5.274	3.249	3.205	7.685
Idiosyncratic Risk	0.018	0.015	0.011	0.011	0.022

Notes. Variable definitions are provided in Table 1. Panel A provides descriptive statistics for the key variables used in our analyses. The overall sample contains 21,403 firm-quarter observations from 1,097 firms over the 1993–2015 period.

Panel B: Industry Classifications

SIC Codes	Description	Observations	Percentage (%)	Cumulative (%)
1	Consumer Non-Durables	2,066	9.65	9.65
2	Consumer Durables	332	1.55	11.20
3	Manufacturing	5,263	24.59	35.79
4	Energy	1,381	6.45	42.25
5	Chemicals and Allied Products	1,532	7.16	49.40
6	Business Equipment	1,957	9.14	58.55
7	Telecommunications	922	4.31	62.86
8	Utilities	6	0.03	62.88
9	Wholesale, retail and Services	3,232	15.10	77.98
10	Healthcare	1,495	6.99	84.97
11	Money and Finance	52	0.24	85.21
12	Other	3,165	14.79	100.00
Total		21,403	100	

Notes. Panel B reports descriptive statistics using Fama–French 12 industry classification codes. The overall sample contains 21,403 firm-quarter observations from 1,097 firms over the 1993–2015 period. Other industries include Mines, Construction, Building Material, Transportation, Hotels, Business Services, and Entertainment.

Panel C: Selected Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1. Yield Spread	**1.000**																
2. Distraction	**0.052**	**1.000**															
3. Firm Size	**-0.280**	**-0.041**	**1.000**														
4. Leverage	**0.293**	**0.050**	**-0.164**	**1.000**													
5. Performance	**-0.284**	-0.002	**0.021**	**-0.046**	**1.000**												
6. Cash Flow Volatility	**0.204**	**-0.025**	**-0.115**	**0.133**	-0.011	**1.000**											
7. Market-to-Book	**-0.134**	-0.006	**0.036**	-0.015	**0.150**	**0.065**	**1.000**										
8. Credit Rating	**-0.595**	**0.045**	**0.377**	**-0.346**	**0.325**	**-0.349**	**0.074**	**1.000**									
9. Bond Maturity	**-0.165**	**0.057**	**0.179**	**-0.106**	**0.035**	**-0.111**	-0.015	**0.241**	**1.000**								
10. Bond Age	**-0.051**	-0.010	**0.188**	**-0.155**	0.011	**-0.130**	**0.028**	**0.192**	**0.124**	**1.000**							
11. Inst Ownership	**0.119**	**-0.037**	**-0.117**	**-0.134**	**-0.059**	**0.058**	**-0.031**	**-0.225**	**-0.070**	**0.023**	**1.000**						
12. CEO Power	**0.039**	**0.048**	-0.015	**-0.057**	-0.004	0.011	**-0.046**	-0.021	-0.022	**-0.048**	0.016	**1.000**					
13. Asset Intangibility	**-0.029**	0.011	**0.108**	**0.100**	**-0.043**	**-0.224**	**-0.037**	**0.074**	**-0.040**	**-0.041**	**0.026**	-0.010	**1.000**				
14. Accruals Quality	**-0.028**	**-0.050**	**0.037**	**-0.052**	**0.059**	**0.090**	**0.024**	-0.001	-0.018	0.006	**0.061**	0.019	-0.007	**1.000**			
15. Org Complexity	**-0.130**	**0.021**	**0.227**	**-0.162**	**-0.067**	**-0.190**	-0.017	**0.242**	**0.064**	**0.177**	**0.027**	-0.006	**0.212**	0.019	**1.000**		
16. Analyst Forecast Disp.	**0.157**	0.000	**-0.042**	**0.112**	**-0.121**	**0.101**	**-0.061**	**-0.156**	**-0.031**	-0.012	**-0.028**	-0.017	**-0.078**	-0.015	**-0.046**	**1.000**	
17. HHI Sale	**-0.050**	-0.002	**0.063**	**-0.078**	**0.026**	**-0.114**	0.002	**0.110**	**0.055**	**0.143**	**0.068**	-0.019	**0.033**	**-0.024**	**0.285**	**-0.029**	**1.000**
18. C4 Sale	**-0.067**	0.005	**0.070**	**-0.081**	**0.054**	**-0.173**	-0.014	**0.189**	**0.066**	**0.159**	**0.041**	**-0.047**	**0.111**	-0.018	**0.313**	**-0.049**	**0.734**

Notes. Variable definitions are provided in Table 1. Panel C provides data on the correlations between select variables. The dataset consists of 21,403 quarter-year observations from 1,097 firms over the 1993–2015 period. Correlation coefficients in bold indicate significance at the 1% level.

Table 3. Inattention and the Cost of Debt

	Primary Specification	Extreme Positive Returns	Extreme Negative Returns	Investment Grade	Non-Investment Grade	Retail Investor Inattention
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	0.257***			0.274***	0.284**	
	(4.843)			(6.612)	(2.369)	
Distraction (Positive Shock)		0.159**				
		(2.318)				
Distraction (Negative Shock)			0.249***			
			(2.593)			
Retail Inattention						-0.001
						(-0.607)
Firm Size	-0.054**	-0.053**	-0.051*	-0.114***	0.078*	0.068
	(-2.072)	(-2.022)	(-1.956)	(-3.230)	(1.847)	(0.935)
Leverage	0.523***	0.519***	0.519***	0.247***	0.474***	0.666***
	(5.319)	(5.272)	(5.308)	(2.895)	(2.958)	(2.672)
Performance	-3.185***	-3.229***	-3.198***	-3.006***	-2.914***	-1.268
	(-7.329)	(-7.396)	(-7.248)	(-6.137)	(-4.344)	(-0.897)
Sales Growth	0.042*	0.041*	0.049**	0.039	0.022	-0.056
	(1.852)	(1.784)	(2.108)	(1.566)	(0.563)	(-0.606)
Cash Flow Volatility	0.306	0.284	0.375	-0.219	1.316	4.944**
	(0.551)	(0.508)	(0.668)	(-0.368)	(1.466)	(2.499)
Market-to-Book	-0.003***	-0.003***	-0.003***	-0.002**	-0.004*	-0.001
	(-2.614)	(-2.651)	(-2.797)	(-2.208)	(-1.796)	(-0.496)
Credit Rating	-0.034***	-0.033***	-0.034***	-0.101***	-0.016	-0.006
	(-3.458)	(-3.416)	(-3.463)	(-10.741)	(-1.360)	(-0.214)
Bond Maturity	0.009***	0.009***	0.009***	0.017***	-0.015	0.016**
	(3.260)	(3.259)	(3.335)	(8.503)	(-1.639)	(2.500)
Bond Age	0.031***	0.031***	0.030***	0.027***	0.030***	0.053***
	(6.895)	(6.943)	(6.847)	(5.796)	(2.840)	(3.771)
High Yield	0.373***	0.377***	0.373***			0.382***
	(9.329)	(9.430)	(9.285)			(5.045)
Callability	0.135***	0.135***	0.134***	0.143***	0.216***	0.171
	(4.436)	(4.391)	(4.399)	(3.619)	(2.985)	(1.592)
Institutional Ownership	-0.376***	-0.376***	-0.382***	-0.141	-0.549***	-0.220
	(-4.975)	(-4.941)	(-5.087)	(-1.591)	(-5.018)	(-0.907)
Industry × Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes

Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21,403	21,036	20,959	12,329	8,944	3,103
Adjusted R-squared	0.743	0.742	0.745	0.783	0.487	0.740

Notes. Variable definitions are provided in Table 1. This table provides coefficient estimates from regressing the log of corporate yield spreads on inattention—distraction, distraction (positive shock), distraction (negative shock), and retail inattention—and various firm- and debt-specific controls. The data cover the 1993–2015 period. t-statistics based on standard errors adjusted for clustering by firm are in parentheses. All specifications include firm and industry × quarter fixed effects. Industry dummies are based on Fama–French 12-industry classification codes.

$^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.10$.

Table 4. Distraction, Firm Heterogeneity, and the Cost of Debt

	CEO Power	Information Asymmetry			Product Market Competition	
	Principal Component	Asset Intangibility	Analyst Forecast Dispersion	Organizational Complexity	Herfindahl Hirschman Index Sale	Market Concentration Four Largest Firms
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	0.015***	0.022***	0.021***	0.018***	0.024***	0.024***
	(2.703)	(4.975)	(4.934)	(3.749)	(8.117)	(7.743)
CEO Power	-0.004	0.013				
	(-0.399)					
Distraction × CEO Power	0.010**					
	(2.426)					
Asset Intangibility		0.013				
		(0.799)				
Distraction × Asset Intangibility		0.010***				
		(2.596)				
Analyst Forecast Dispersion			0.024			
			(1.517)			
Distraction × Forecast Disp.			0.007**			
			(2.560)			
Organizational Complexity				0.026*		
				(1.752)		
Distraction × Org. Complexity				0.007**		
				(2.045)		
HHI Sale					0.009	
					(0.433)	
Distraction × HHI Sale					0.006*	
					(1.961)	
C4 Sale						0.043**
						(2.219)
Distraction × C4 Sale						0.011***
						(3.205)
Firm Size	-0.021	-0.062**	-0.052**	-0.052*	-0.038	-0.034
	(-0.522)	(-2.335)	(-1.963)	(-1.721)	(-1.526)	(-1.370)
Leverage	0.575***	0.511***	0.510***	0.524***	0.556***	0.556***
	(4.077)	(5.086)	(5.062)	(4.824)	(5.707)	(5.607)

Performance	-3.155***	-3.134***	-3.046***	-3.017***	-3.253***	-3.143***
	(-5.397)	(-7.063)	(-6.959)	(-6.029)	(-7.308)	(-6.913)
Sales Growth	0.060*	0.047**	0.037	0.036	-0.017	-0.012
	(1.879)	(2.046)	(1.601)	(1.421)	(-0.713)	(-0.494)
Cash Flow Volatility	0.353	0.396	0.331	0.552	0.227	0.211
	(0.410)	(0.692)	(0.590)	(0.884)	(0.428)	(0.388)
Market-to-Book	-0.002	-0.003**	-0.003***	-0.003***	-0.004***	-0.004***
	(-1.323)	(-2.425)	(-2.820)	(-2.640)	(-3.301)	(-3.258)
Credit Rating	-0.022*	-0.035***	-0.035***	-0.028***	-0.033***	-0.031***
	(-1.667)	(-3.549)	(-3.547)	(-2.684)	(-3.336)	(-2.993)
Bond Maturity	0.012***	0.009***	0.009***	0.009***	0.009***	0.009***
	(3.602)	(3.377)	(3.366)	(3.130)	(3.223)	(3.230)
Bond Age	0.031***	0.030***	0.031***	0.031***	0.032***	0.033***
	(4.617)	(6.752)	(6.972)	(6.458)	(7.379)	(7.322)
High Yield	0.396***	0.367***	0.371***	0.379***	0.378***	0.385***
	(7.344)	(9.140)	(9.189)	(8.464)	(9.432)	(9.203)
Callability	0.087*	0.131***	0.135***	0.134***	0.143***	0.137***
	(1.767)	(4.264)	(4.331)	(4.069)	(4.895)	(4.520)
Institutional Ownership	-0.043	-0.406***	-0.362***	-0.433***	-0.368***	-0.375***
	(-0.365)	(-5.376)	(-4.708)	(-5.233)	(-4.975)	(-4.951)
CEO Age	-0.043*					
	(-1.789)					
Industry × Quarter FE	Yes	Yes	Yes	Yes	No	No
Quarter FE	No	No	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	11,071	20,804	20,928	18,596	21,403	20,426
Adjusted R-Squared	0.716	0.746	0.742	0.737	0.718	0.713

Notes. Variable definitions are provided in Table 1. This table provides coefficient estimates from regressing the log of corporate yield spreads on shareholder distraction based on firm heterogeneity—CEO power, information asymmetry, and product market competition—and various control variables. Interaction terms are standardized to have a mean of zero and a standard deviation of one. The data cover the 1993–2015 period. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. Models 1–4 include firm and industry × quarter fixed effects. Models 5 and 6 include firm and quarter fixed effects. Industry dummies are based on Fama–French 12-industry classification codes.

***p<0.01, **p<0.05, *p<0.10.

Table 5. Bond Covenants

	Overall Covenant Index	Payment Covenant Index	Borrowing Covenant Index	Asset Covenant Index
	(1)	(2)	(3)	(4)
Distraction	0.021***	0.021***	0.022***	0.021***
	(5.261)	(5.067)	(5.301)	(5.224)
Covenant Index	0.026*	0.055***	0.004	0.025*
	(1.650)	(3.103)	(0.292)	(1.669)
Distraction × Overall Index	-0.012***			
	(-3.884)			
Distraction × Payment Index		-0.013***		
		(-4.839)		
Distraction × Borrowing Index			-0.006	
			(-1.631)	
Distraction × Asset Index				-0.015***
				(-4.974)
Firm Size	-0.052**	-0.049**	-0.056**	-0.052**
	(-2.096)	(-1.971)	(-2.246)	(-2.081)
Leverage	0.459***	0.462***	0.468***	0.460***
	(4.756)	(4.818)	(4.808)	(4.790)
Performance	-3.248***	-3.270***	-3.228***	-3.237***
	(-7.636)	(-7.656)	(-7.609)	(-7.601)
Sales Growth	0.046**	0.047**	0.045**	0.045**
	(2.085)	(2.126)	(2.046)	(2.036)
Cash Flow Volatility	0.577	0.647	0.536	0.568
	(1.067)	(1.201)	(0.990)	(1.051)
Market-to-Book	-0.003**	-0.003**	-0.003**	-0.003**
	(-2.458)	(-2.446)	(-2.457)	(-2.505)
Credit Rating	-0.044***	-0.044***	-0.044***	-0.044***
	(-5.210)	(-5.216)	(-5.080)	(-5.098)
Maturity	0.011***	0.011***	0.011***	0.011***
	(4.828)	(4.953)	(4.740)	(4.595)
Bond Age	0.029***	0.029***	0.029***	0.029***
	(6.961)	(7.082)	(6.850)	(6.860)
High Yield	0.337***	0.318***	0.348***	0.336***
	(9.330)	(8.952)	(9.418)	(9.274)
Callability	0.134***	0.123***	0.139***	0.138***
	(4.444)	(3.980)	(4.657)	(4.611)
Institutional Ownership	-0.363***	-0.362***	-0.364***	-0.364***
	(-5.210)	(-5.202)	(-5.177)	(-5.211)
Industry × Quarter FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	20,640	20,640	20,640	20,640
Adjusted R-Squared	0.763	0.764	0.763	0.763

Notes. Variable definitions are provided in Table 1. This table provides coefficient estimates from regressing the log of yield spreads on institutional shareholder distraction based on interactions with bond covenant indexes—overall, payment, borrowing, and asset. Interaction terms are standardized to have a mean of zero and a standard deviation of one. The data cover the 1993–2015 period. Definitions for covenant indices are provided in Online Appendix A2. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications include firm and industry × quarter fixed effects. Industry dummies are based on Fama–French 12-industry classification codes.

***p<0.01, **p<0.05, *p<0.10.

Table 6. Distracted Dual Holders, Distracted Non-Dual Holders, and the Cost of Debt

	Dual Holders	Commercial Dual Holders	Non-Commercial Dual Holders	Non-Dual Holders
	(1)	(2)	(3)	(4)
Distracted Dual Holders	2.573***			
	(2.751)			
Distracted Comm. Dual Holders		2.949**		
		(2.358)		
Distracted Non-Comm. Dual Holders			2.785	
			(1.274)	
Distracted Non-Dual Holders				0.160***
				(2.790)
Firm Size	-0.059**	-0.062**	-0.038	-0.053**
	(-2.177)	(-2.311)	(-1.254)	(-2.070)
Leverage	0.618***	0.616***	0.700***	0.524***
	(6.610)	(6.476)	(6.568)	(5.333)
Performance	-3.378***	-3.387***	-3.287***	-3.186***
	(-8.431)	(-8.375)	(-6.682)	(-7.331)
Sales Growth	0.058***	0.060***	0.056**	0.043*
	(2.679)	(2.726)	(2.117)	(1.889)
Cash Flow Volatility	-0.055	0.125	0.108	0.308
	(-0.114)	(0.262)	(0.195)	(0.556)
Market-to-Book	-0.002*	-0.002*	-0.001	-0.003***
	(-1.765)	(-1.765)	(-0.596)	(-2.611)
Credit Rating	-0.038***	-0.038***	-0.046***	-0.034***
	(-3.762)	(-3.686)	(-4.442)	(-3.471)
Maturity	0.009***	0.010***	0.011***	0.009***
	(3.301)	(3.527)	(4.190)	(3.259)
Bond Age	0.029***	0.029***	0.030***	0.031***
	(6.683)	(6.717)	(6.602)	(6.890)
High Yield	0.344***	0.345***	0.324***	0.373***
	(8.210)	(8.123)	(7.178)	(9.335)
Callability	0.113***	0.120***	0.086***	0.135***
	(4.084)	(4.394)	(2.829)	(4.438)
Institutional Ownership	-0.409***	-0.360***	-0.394***	-0.376***
	(-5.248)	(-5.578)	(-4.713)	(-4.964)
Industry × Quarter FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Observations	19,126	18,849	14,340	21,401
Adjusted R-Squared	0.764	0.763	0.786	0.743

Notes. Variable definitions are provided in Table 1. This table provides coefficient estimates from regressing the log of yield spreads on institutional shareholder distraction for dual holders, commercial dual holders, non-commercial dual holders, and non-dual holders. The data cover the 1993–2015 period. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications include firm and industry × quarter fixed effects. Industry dummies are based on Fama–French 12-industry classification codes.

***p<0.01, **p<0.05, *p<0.10.

Table 7. Distraction and the Cost of Debt: Channels

Panel A: Credit Ratings		Panel B: Distance to Default		Panel C: Idiosyncratic Volatility	
Distraction	-0.335**	Distraction	-1.017***	Distraction	0.007***
	(-2.236)		(-5.153)		(8.583)
Firm Size	1.452***	Firm Size	-0.475***	Firm Size	-0.001**
	(8.529)		(-4.621)		(-2.515)
Leverage	-4.492***	Leverage	-4.243***	Leverage	0.008***
	(-8.026)		(-11.575)		(7.789)
Performance	15.544***	Performance	9.824***	Performance	-0.003***
	(6.628)		(4.011)		(-4.539)
Sales Growth	-0.713***	Market-to-Book	0.008	ROE Volatility	0.001**
	(-6.817)		(1.284)		(2.389)
CF Volatility	-5.926*	Operating Margin	0.242	Market-to-Book	<0.000
	(-1.838)		(0.592)		(-0.299)
Market-to-Book	-0.001	Coverage Ratio	0.027***	Dividend Dummy	-0.002***
	(-0.165)		(6.523)		(-4.310)
Inst. Ownership	-0.386	Loss Dummy	0.436**	Firm Age	-0.002**
	(-0.733)		(2.520)		(-2.458)
		Beta	-0.480***	Diversification	-0.000
			(-10.048)		(-0.205)
		Idiosyncratic Risk	-53.126***	Tangibility	-0.001
			(-14.541)		(-0.630)
Ind. × Qrt. FE	Yes	Ind. × Qrt. FE	Yes	Ind. × Qrt. FE	Yes
Firm FE	Yes	Firm FE	Yes	Firm FE	Yes
Observations	21,403	Observations	20,932	Observations	21,403
Adj. R-squared	0.910	Adj. R-squared	0.787	Adj. R-squared	0.696

Notes. This table provides coefficient estimates from regressing credit ratings, distance-to-default (higher values indicate lower probability of default), and idiosyncratic risk on institutional shareholder distraction and several controls. For each model, we include a set of control variables drawn from the literature. Operating Margin is the ratio of operating income to sales, Coverage Ratio is operating income before depreciation divided by interest expense, Loss Dummy is an indicator equal to one if a firm reports a loss in a given quarter. Beta is the equity return beta, and Idiosyncratic Risk is the standard deviation of the residuals for a given quarter using the Capital Asset Pricing Model. ROE volatility is the variance of quarterly return-on-equity over 3 years, Dividend Dummy is an indicator variable equal to one if the firm pays dividend in a given quarter, Firm Age is the number of years since the stock inclusion in the CRSP database, and Diversification is an indicator variable equal to one if a firm operates in multiple segments in a given quarter. The data cover the 1993–2015 period. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications include firm and industry × quarter fixed effects. Industry dummies are based on Fama–French 12-industry classification codes.

***p<0.01, **p<0.05, *p<0.10.