What Matters During Bad Times? Evidence from the Bond Market

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Abstract

We examine whether corporate characteristics mitigate the adverse effect of policy-induced uncertainty on the cost of debt financing. Using a large sample of publicly traded bonds over the period 1993–2015, we find that firms with more independent and less busy boards moderate the positive relation between policy uncertainty and yield spreads. We also find that greater cultural diversity within the board membership and cultural distance between the board—especially the audit committee—and the CEO attenuates the adverse effect of policy uncertainty. Further testing shows that the presence of other external monitors such as Big 4 auditors, financial analysts, and long-term institutional investors matters during high policy uncertainty periods. Our results suggest that change in bondholders' assessment of firm performance during periods of high policy uncertainty is a function of differences in corporate characteristics.

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1. Introduction

Government actions and policies shape the environment in which firms operate, which in turn affects firms' responses to their environment. Fiscal, regulatory, and monetary policies influence economic activities (Federal Open Market Committee 2009; IMF 2012, 2013), and hence uncertainty around these policies is detrimental to the economy (Friedman 1968; Rodrik 1991; Higgs 1997; Hassett and Metcalf 1999). Uncertainty around healthcare, tax, and environmental policies also influences business activities, as does uncertainty related to noneconomic policy matters such as military actions and national security policies (Baker, Bloom, and Davis 2016). A growing literature documents the adverse economic consequences of uncertainty related to future policy and regulatory shocks. At the macro level, policy uncertainty hinders economic growth (Bloom 2014). At the industry level, local and global political risks affect return volatility (Boutchkova et al. 2012). And at the firm level, policy uncertainty is associated with a higher cost of capital (Waisman, Ye, and Zhu 2015; Drobetz et al. 2018), lower stock prices (Pástor and Veronesi 2012), and a decrease in bank credit growth (Bordo, Duca, and Koch 2016) and liquidity hoarding (Berger et al. 2018).

While a substantial body of research emphasizes the negative effects of economic policy uncertainty (EPU) on business outcomes, little, if any, work examines the factors that can mitigate or exacerbate the effects of EPU. In this paper we extend this literature by examining whether corporate characteristics related to governance and monitoring mitigate the adverse effect of EPU on corporate debt financing. There is ample evidence that corporate credit pricing is the most informative and reliable predictor of future economic activity (Faust, Gilchrist, Wright, and Zakrajšsek 2013; Gilchrist, Sim, and Zakrajšek 2014). Examining debt financing cost would thus point to potential channels through which fluctuations in policy uncertainty influences economic outcomes. Our objective is to study how and why policy uncertainty affects the cost of debt, and then explore firm-level factors that can influence this relation. Focusing on the factors at the firm level allows us to examine the channels that firms can control, which are valuable because the firm can mitigate the risk associated with EPU by managing those factors.

Our research question is motivated by the stream of literature that advocates the role of business cycle fluctuations on influencing bankruptcy risk and agency costs (e.g., Bernanke and Gertler 1989; Qi, Roth, and Wald 2017). In particular, policy uncertainty may affect the value of corporate bonds by significantly reducing investment (Gulen and Ion 2016) and distorting investment decisions (Drobetz, El Ghoul, Guedhami, and Janzen 2018) that can lead to higher cash flow volatility and

therefore a higher risk of default (Pastor and Veronesi, 2013). As default risk increases, the associated fall in the firm's net worth may introduce agency premium (Bernanke, Gertler, and Gilchrist 1994) which suggests a positive relation between policy uncertainty and the *ex-ante* magnitude of agency costs. We posit that EPU can amplify the agency costs that arise from the conflict between management and all external stakeholders as well as between shareholders and bondholders. The increase in both types of agency costs to bondholders during periods of high uncertainty commands a higher cost of debt.

Using a sample of 33,252 firm-quarter observations of publicly traded bonds over the period 1993–2015, we show that the relation between policy-induced uncertainty and yield spreads is strongly positive. Our main proxy for EPU is the widely used economic policy uncertainty index of Baker, Bloom, and Davis (2016) (henceforth BBD) which focuses on the political and regulatory system as a source of aggregate uncertainty that potentially affects all economic actors. Decomposing the overall EPU into its four constituent components, we find that the positive relation is largely supported for across different models. Our results are robust to controlling for other micro- and macro- economic sources of uncertainty and the effect of elections. Our findings also remain significant when we control for the confounding effects of macroeconomic conditions, the level of capital investment, and securities issuance, which suggests that our evidence is not the result of decline in investment or financing activities under high policy uncertainty (Gulen and Ion 2016).

To address potential endogeneity, we conduct a two-stage instrument variable analysis as well as placebo tests. The instrumental variables include the U.S. Senate polarization index of McCarty, Poole, and Rosenthal (1997) and the partisan conflict index of Azzimonti (2018). Prior research suggests that increased polarization can cause political gridlock, which leads to an increased variation in policy (McCarty 2012). In addition, government dysfunction created by partisan conflict can induce economic policy uncertainty (Azzimonti 2018). While policy uncertainty is positively and significantly related to both polarization and partisan conflict indices, the instrumented policy uncertainty variables remain significant and positively associated with cost of debt. Furthermore, we find that the placebo EPU variable estimated from 100 random sampling loads insignificantly when regressed on yield spread. These tests help mitigate the concern that endogeneity problems may drive our results.

In our second set of analyses, we build on our empirical model of EPU and cost of debt by testing how corporate characteristics influence this relation. As policy uncertainty increases, the fluctuations in default risk increase the expected agency costs and bondholders in turn commands higher financing

cost. Therefore, we examine whether the governance mechanisms designed to address the agency problems and information asymmetry can help attenuate the positive relation between EPU and yield spreads. We focus on the role of corporate structures and governance mechanisms that provide monitoring oversight on the firm and ensure that bondholder interests are well-protected. Firms that have effective governance structures may potentially provide more credible information and discipline managerial decisions, which creditors value when uncertainty is high.

To test this conjecture, we explore firm-level factors related board characteristics and information intermediaries including the Big 4 auditors, financial analysts, and institutional investors. Boards of directors, among other tasks, provide monitoring and disciplining of senior management and ensure the validity of accounting statements and thus lending agreements to the firms' creditors (Anderson, Mansi, and Reeb 2003). Consistent with the argument that higher quality boards are likely provide credible financial reports that cater to the creditors' needs, we find that the positive relation between EPU and the cost of debt is significantly attenuated for firms with higher board independence and lower board busyness. We also provide a novel evidence that more culturally diverse boards and greater cultural distance between the manager and the board—especially the audit committee—contribute to lower cost of debt during periods of high policy uncertainty, consistent with the expectation that diverse boards may aid overseeing management's performance on balancing the interests of multiple stakeholders and therefore curtailing agency conflicts. Finally, we identify monitoring by Big 4 auditors, financial analysts, and long-term institutional investors as mitigating factors to the relation between EPU and yield spread. These results add support to our argument that effective oversight by these monitoring mechanisms provides value to the creditors, especially when uncertainty is high.

We supplement our analysis with additional placebo tests to mitigate the concern that potential endogeneity associated with governance mechanism may spuriously drive the results. It is possible, for instance, that the effect we document might simply be driven by a false correlation that reflects the effectiveness of governance policies throughout different time periods that is not necessarily related to the fluctuations of policy uncertainty. We create a placebo EPU variable from 100 random samplings of EPU as previously and rerun our analyses for all the firm characteristics we examine above. We do not find any significance evidence that bond pricing experience systematic change with the fluctuations in the placebo EPU variable. These results thus support our findings that it is the

effectiveness of governance structures upon different episodes of policy uncertainty that drives the influences corporate debt financing.

Our study makes two important contributions. First, we add to the debt financing literature by providing evidence on how corporate characteristics help moderate the adverse impact of policy uncertainty on the cost of debt. We show that corporate governance mechanisms that limit agency problems during periods of high policy uncertainty influence the creditor's assessment of firms' prospects and resource allocation decisions. Because bondholders enjoy only limited upside investment potential, bond yields are determined largely by two factors: the probability that the firm will not be able to meet its debt obligations, and the degree of protection given to lenders (i.e., bond covenants). Prior literature investigating debt cost and credit ratings have identified accounting factors related to firm and debt characteristics that influence the probability of default (e.g. Ohlson 1980; Shumway 2001). However, governance mechanisms that safeguard the assets of the firm and ensure that creditors' interests are well-enforced may be especially pertinent during period of high uncertainty when the agency conflicts are expected to increase significantly. Our findings complement the literature that incorporates governance features designed to control the agency conflicts between bondholders and management and between bondholders and shareholders.

Second, we contribute to the growing literature on the effect of policy uncertainty by presenting an early attempt at examining how corporate characteristics can impact the relation between policy uncertainty and cost of debt. Our study is closely related to that of Loh and Stulz (2018), who provide evidence that analysts have greater stock price impact as uncertainty increases because they work harder and investors rely more on analysts during bad times. While they focus on external governance as measured by analysts' performance, however, we examine the internal governance mechanisms and firm characteristics that the corporation can control and change. Our study also complements the findings in Nagar, Schoenfeld, and Wellman (2019) who show that by improving disclosure, managers can moderate the increase in information asymmetry during periods of high uncertainty. We extend these two studies by evaluating a broader set of governance variables and providing evidence of the relevance of corporate governance from the creditors' perspective.

The rest of the paper is organized as follows. In Section 2, we develop our main hypotheses. In Section 3, we discuss the construction of data and variables, and present summary statistics. Empirical results are presented in Section 4. We conclude in Section 5.

2. Hypothesis Development

2.1 EPU and cost of debt

Recent empirical evidence suggests that policy uncertainty is associated with a significant reduction in investment (Gulen and Ion 2016) and distortion of the investment decisions (Drobetz et al. 2018). The volatility of cashflow associated with an inefficient investment decision can lead to a higher risk of default (Durnev 2010; Pástor and Veronesi 2013). In addition, firms face higher default losses during times of macroeconomic shocks as multiple firms suffer bad performance at the same time and liquidating assets becomes particularly costly. Taken together, as policy uncertainty increases, the fluctuations in default likelihood and default losses may lead to an increase in the present value of expected default losses (Chen 2010). The associated fall in the firm's net worth increases the agency premium on external finance that triggers costly monitoring by the lender (Bernanke, Gertler, and Gilchrist 1994). These arguments suggest a positive relation between policy uncertainty and the *ex-ante* magnitude of agency costs.

We build on this line of research which suggests that EPU can amplify agency conflicts and information asymmetry. Specifically, policy uncertainty is expected to influence bondholders through both the conflicts that arise between management and all external stakeholders (including equity holders and debt holders) and between shareholders and bondholders. The former conflict arises because of the separation between ownership and control (Jensen and Meckling 1976), which allows managers to engage in self-serving behavior such as perquisite consumption, empire building, and shirking of effort. As uncertainty increases, the expected rate of return on investment falls, which may increase managers' incentives to divert corporate resources (Johnson et al. 2000; Friedman, Johnson, and Mitton 2003). In this case, EPU may lead managers to pursue private benefits at the expense of all stakeholders that can cause firms to deviate from value maximization. The increase in this this agency cost may decrease the expected value of cash flows and increase the default risk which accrue to bondholders.

Policy uncertainty may also intensify the latter conflict, which arises from the incentive structure between bondholders and shareholders. In particular, the agency cost of debt associated with underinvestment and asset substitution may increase substantially with higher macroeconomic risk (Chen and Manso 2017). As policy uncertainty increases, firms bear a higher risk of default, which leads to a higher probability that a disproportionate share of investment payoffs will accrue to the bondholders in the event of default. Thus, for a given investment opportunity, the prospect of sharing the future payoffs with the bondholders will incentivize the firms to forgo profitable NPV investment

opportunities. In addition, given that the agency cost of underinvestment rises during periods of high policy uncertainty, EPU may also lead to asset substitution incentives for shareholders. For instance, shareholders may attempt to reduce the transfer to bondholders by making risky investments that minimize the transfer of payoffs to bondholders in high EPU periods.

We hypothesize that the increase in both types of agency costs to bondholders during periods of high uncertainty commands a higher cost of debt. We state our hypothesis in an alternative form as follows:

H1: EPU is positively related to the cost of debt.

2.2 Firm-level factors

Our focus is on whether certain corporate characteristics play an important role in determining changes in bond pricing caused by an increase in policy uncertainty. In this section, we discuss and develop several firm-factors and governance mechanisms that may explain such relations. We examine whether the governance mechanisms designed to address the agency problems and information asymmetry can help attenuate the positive relation between EPU and yield spreads.

2.2.1 The role of board characteristics

Prior works show that effective monitoring through the board lowers firms' cost of debt by increasing the reliability of financial reports and providing oversight on corporate decisions (e.g. Anderson, Mansi, and Reeb 2004). Therefore, governance by board monitoring that oversee managements' performance and ensure validity of the financial statements may reduce firm risk and cash flow variability, suggesting that bondholders will experience less risk and as a result require lower yields. We expect that the monitoring function of the board becomes particularly beneficial during periods of high policy uncertain when information asymmetry increases (Nagar et al. 2019) and agency conflicts become more severe. To the extent that the board of directors can provide effective discipline on agency costs, the value of their monitoring should be greater during periods of high policy uncertainty. Accordingly, we expect that the usefulness of the board as a monitoring devise would mitigate the adverse impact of EPU on bond pricing. We present our hypothesis in a null form:

H2a: The effect of EPU on yield spread is influenced by board monitoring.

2.2.2 The role of board diversity

The literature sees cultural diversity as a "double-edged sword" (Milliken and Martins 1996) with both positive and negative aspects. On one hand, diversity stimulates exchange of diverse perspectives and knowledge, which enables participants to expand and elaborate on existing information (Nederveen Pieterse, van Knippenberg, and van Dierendonck 2013). Resource dependence theory in organizational behavior and social psychology suggests that diversity may have positive implications for financial performance (Carter, D'Souza, and Simkins 2010). In particular, diversity can improve the information provided by the board to managers as different members contributes unique pieces of information. The existence of unique information sets in different cultural backgrounds likely produce useful information that allow management to balance the interest of multiple stakeholders (Harjoto, Laksmana, and Lee 2015) which may be especially valuable during turbulent times when agency conflicts significantly increase.

On the negative side, however, cultural diversity may impose friction on decision-making because intragroup trust level may be compromised (Bjørnskov 2008) and more disagreements and misunderstandings arise (Anderson, Reeb, Upadhyay, and Zhao 2011). These arguments lead to the prediction that diversity may exacerbate the adverse impact of policy uncertainty by imposing greater barriers to communication and compromising the balance of interests of different stakeholders. We express our hypothesis in a null form:

H2b: The effect of EPU on yield spread is influenced by diversity.

2.2.3 The role of CEO-board diversity distance

We augment the argument above by examining how cultural distance between the CEO and the board affects the relation of policy uncertainty to cost of debt. Prior literature suggests that managerial incentives to make suboptimal corporate decisions can be restrained by effective board monitoring (Fama and Jensen 1983), and the board may block the CEO's proposals when they are not in line with value of the firm (Masulis and Mobbs 2014). To the extent that cultural distance between the CEO and the board is large, the board may block the manager's decisions more since trust between the board and the CEO may be jeopardized with large cultural distance (Bjørnskov 2008) and there is more potential for miscommunication and disagreement (Anderson et al. 2011). When uncertainty is high, this argument suggests that suboptimal decisions both in terms of timing and content may be made because of the inability of the CEO and the board to reach consensus. Hence, we would expect a positive and significant interaction coefficient on policy uncertainty and cultural distance.

On the other hand, a large cultural distance suggests more room for elaboration of information (Nederveen Pieterse et al. 2013). During high uncertainty periods, this may lead to more effective oversight of the board in assisting the manager to consider points that he missed and respond more effectively to uncertainty, thus increasing firm performance. Accordingly, we would expect a negative and significant interaction term between the policy uncertainty and cultural distance measures. Which of these two effects wins out in practice is an open empirical question. Accordingly, we present our hypothesis in a null form:

> H2c: The effect of EPU on yield spread is influenced by cultural distance between the CEO and board members.

2.2.4 The role of other information intermediaries

We also consider heterogeneity with respect to other information intermediaries including auditors, financial analysts, and institutional investors. Prior research has argued that financial analysts are important external firm monitors that can constrain managerial opportunism (Mansi, Maxwell, and Miller 2011). In addition, Pittman and Fortin (2004) and Mansi, Maxwell, and Miller (2004) show that the insurance and information roles of auditors benefit bondholders. Bhojraj and Sengupta (2003) show that monitoring by institutional shareholders can reduce financial distress risk by alleviating agency costs and reducing information asymmetry between the firm and creditors. We extend these studies and investigate whether these alternative monitoring devices can mitigate the relation between policy uncertainty and yield spreads. With effective monitoring in place, we expect firm performance to be less likely to be sensitive to agency conflicts and information asymmetry associated with managerial decision-making. More formally, the following is our hypothesis:

> H2d: The effect of EPU on yield spread is influenced by the role of information intermediaries.

3. Data, Variables, and Summary Statistics

3.1 Data sources and sample construction

We collect information on bonds from the LBFI and the TRACE fixed income databases. The LBFI provides month-end security-specific information on bonds for the years 1993 through 2006 based on firm size, liquidity, credit ratings, and trading frequency, and contains information such as bid price, issue date, coupon, yields, maturities, durations, and Moody's and S&P credit ratings. The TRACE database covers the years 2007 and afterward. Because the TRACE database only contains pricing and yield information, we merge it with the FISD database to obtain the debt-specific

information. Data on economic policy uncertainty come from Baker et al. (2016), and institutional ownership data come from the Thomson Financial (13F) database.

We first combine the three bond data sets, and merge with firm accounting data obtained from the Compustat Industrial quarterly and annual databases. To coincide with the firm accounting data, we focus on quarter-end prices and yields. Because various accounting rules and regulations affect bond yields, we exclude heavily regulated and financial firms with SIC codes from 4900 to 4999 and 6000 to 6999. We also omit observations if the data necessary for our baseline empirical model are missing. To reduce the impact of outliers, we winsorize all continuous variables at the 1% level from both tails. Our final sample consists of 33,252 firm-quarter observations representing 1,410 unique firms over the 1993–2015 period.

3.2 Main variables

3.2.1 Measuring the cost of debt financing

Our dependent variable, the log of the yield spread or the bond risk premium, is defined as the difference between the weighted-average yield to maturity on a corporate debt and the yield to maturity on a Treasury security with a corresponding duration. The yield on the corporate debt is the discount rate that equates the present value of all future cash flows to the price. As in Mansi, Maxwell, and Wald (2009), if a firm has multiple debt securities outstanding in a given time period, we give weights to each debt security equal to the amount outstanding for that particular security divided by the total amount outstanding for all available publicly traded bonds. In cases where there is no equivalent Treasury maturity, we calculate the Treasury yield spread using the Svensson (1994) interpolation exponential functional model.

3.2.2 Measuring economic policy uncertainty

We employ the EPU index developed by Baker et al. (2016) to proxy for policy uncertainty, our key explanatory variable. BBD measure the monthly policy uncertainty index as the weighted sum of the four key components: news-based policy uncertainty index, the federal tax code provisions uncertainty index, the Consumer Price Index (CPI) forecast dispersion index, and the federal, state, and local government expenditure forecasts dispersion index. The first component, the news-based EPU, is constructed using a computer-automated search of ten major newspapers in the United States. The authors count the number of articles that contain the terms "uncertain" or "uncertainty," "economic" or "economy," and at least one policy-relevant term such as "Congress," "deficit,"

"Federal Reserve," "legislation," "regulation," or "White House". To account for the differences in the volume of articles, for each of the ten newspapers, the counts are scaled by the total number of articles and standardized to have unit standard deviation. The normalized values are summed over each month to have one representative multi-paper index, then renormalized to have an average of 100 from January 1985 to December 2009.

The other component indices capture uncertainty related to specific policy categories. The tax uncertainty measure is the weighted sum of tax provision revenues expiring in the next ten years. Higher weights are given to dollar amount of tax provisions expiring in the nearer future. The CPI forecast dispersion index and the government expenditure dispersion index are measured as the four-quarter-ahead interquartile ranges of CPI and the federal, state, and local government spending forecasts. BBD normalize each component and construct a composite EPU index (*EPU_overall*) that assigns a weight of 1/2 for the news-based component (*EPU_News*) and weights of 1/6 for the other three components: *EPU_Tax*, *EPU_Cpi*, and *EPU_Fsl*.

BBD show that the composite index captures uncertainty spikes around important policy-relevant events such as the financial crises and wars but does not necessarily correlate with all political events that have few economic ramifications. Given that the main component of the index is based on the news-based component, BBD conduct various validation tests to address the concern that the measure may be biased in terms of accuracy and reliability. The validation exercises include human audits and testing for political slants, as well as comparison to other measures of economic uncertainty. BBD confirm that their index effectively captures the overall policy-related uncertainty without significant biases and is distinct in scope from other measures of macroeconomic uncertainty.

Following Gulen and Ion (2016), we define EPU as the natural logarithm of the arithmetic average of the BBD index over the three months of a given firm's calendar quarter. For robustness, we also consider other specifications of EPU.

3.2.3 Measuring board characteristics

We employ two measures of board structure: board independence and board busyness. Our measure of board independence is computed as the number of independent directors divided by the total number of directors. As in Anderson et al. (2004), we categorize directors as independent if their business relationship with the firm is only through directorship in the board. Our primary measure for board busyness is computed as the percentage of directors on a board who hold three or more

directorships (Ferris, Jagannathan, and Pritchard 2003). We also use an alternative proxy for the effect of busyness, where the variable is calculated for independent directors who hold three or more directorships.

3.2.4 Measuring board diversity

We construct a measure of the board's cultural diversity following Frijns, Dodd, and Cimerova (2016). Although culture is not directly observed, the systematic differences between one group's beliefs and values and others' affect financial decision-making and economic outcome (e.g. Guiso, Sapienza, and Zingales 2006). These differences can be quantified to allow for comparison across different groups. Hofstede' (2001) work was one of the earlier attempts to quantify cultural values into different dimension scores. Following Frijns et al. (2016) and the prior studies based on the original surveys by Hofstede, we focus on the initial four dimensions of Hofstede: individualism-collectivism, masculinity-femininity, power distance, and uncertainty avoidance. The individualism dimension measures the degree to which members of a society value independent construal of self. The masculinity score indicates how much value societies' members place on the traditional masculine values, such as achieving something visible and showing assertiveness. The power distance score reflects the way in which society deals with unequal distribution of power. Lastly, the uncertainty avoidance score captures the extent to which people in a society tolerate uncertainty and ambiguity.

To construct the cultural diversity score of the board, we first follow Kogut and Singh (1988) and compute the cultural distance (CD_{ij}) of the aforementioned dimension scores (k) between all pairs of two directors (i, j) on a board:

$$\mathrm{CD}_{ij} = \sqrt{\sum_{k=1}^{4}\{(I_{ki} - I_{kj})^2 / V_k\}} \qquad \forall\ i \neq j, \tag{1}$$

V_k is the sample variance of each cultural dimension scores. Based on this cultural distance measure, we construct the cultural diversity scores for each firm (l) in year (t), calculated as the average of cultural distances of all director pairs in a given board:

$$\text{Board Diversity}_{lt} = \frac{\sum_{i,j} CD_{ij,lt}}{n(n-1)/2} \qquad \forall\ i < j, \tag{2}$$

To allow for comparison across boards with different numbers of board members (n), as shown in the denominator, we scale by the number of board member pairs. By summing cultural distance across the four dimensions in equation (1), the $\text{Board Diversity}_{lt}$ measure captures the composite

cultural diversity on the board. In our analysis we also consider diversity scores with respect to each cultural dimension. We use as the primary specification board diversity constructed for all board members in a given firm year and employ alternative specifications diversity scores calculated for independent board members as well as audit committee members.

3.2.5 Measuring CEO-board diversity distance

Building on the cultural distance (CD_{ij}) measure defined above, we compute the average cultural distance between the CEO and the board. Specifically, we modify equation (1) and fix director *i* to always equal to the CEO. Doing so allows us to calculate the cultural distance between the CEO and other board members instead of computing cultural distance between pairs of any two directors. Then, we follow the procedure outlined above in equation (2) and scale the cultural distance by the number of director pairs on the board. As previously, we construct the composite cultural distance measure reflecting all four cultural dimensions as well as four individual cultural distance scores reflecting each dimension. We use as the primary variable the average cultural distance between the CEO and all other board members, and as alternative specifications the distance between the CEO and independent directors, and that between the CEO and audit committee members.

3.2.6 Measuring monitoring by other information intermediaries

In our analysis we consider the role of monitoring by other information intermediaries including the Big 4 auditors, financial analysts, and institutional investors. Our proxy for monitoring by Big 4 auditors (*Big4_Auditor*) is an indicator variable equal to one if the Big 4 accounting firm is the firm's auditor in a given year. We measure governance by financial analysts using *Analyst Following*, defined as the log of the number of analysts following the firm. Lastly, our proxies for monitoring by institutional investors include percentage ownership by institutional investors (*InstOwn*), weighted average churn rate (*WA_Churn rate*), percentages held by long-term (*LTIO*) and short-term (*STIO*) investors, and an indicator variable equal to one if long-term institutional holdings are greater than short-term institutional ownership (*D_LT_ST*). Institutional Ownership is defined as the percentage of shares owned by institutions scaled by the total number of outstanding shares. Following Gaspar, Massa, and Matos (2005) and Attig, Cleary, El Ghoul, and Guedhami (2013), churn rate of institutional investor k in quarter q is computed as follows:

$$\text{Churn Rate}_{k,q} = \frac{\sum_{i=1}^{N_{k,q}} \left| S_{k,i,q-1} P_{k,i,q-1} - S_{k,i,q-1} \Delta P_i \right|}{\sum_{i=1}^{N_{k,q}} \frac{S_{k,i,q} P_{i,q} - S_{k,i,q-1} \Delta P_{i,q-1}}{2}} \quad (3)$$

where $N_{k,q}$ denotes the number of firms in institutional investor k's portfolio in quarter q, and $S_{k,i,q}$ is the number of firm i's shares included in the institutional investor k's portfolio in quarter q. $P_{i,q}$ refers to firm i's share price in quarter q. The churn rate captures the institutional investor k's turnover in firm i's stock. Higher value of the measure indicates a shorter investment horizon. To compute the churn rate at the firm level, we take the weighted sum of institutional investors' average churn rate over the past four quarters where weight is given by each institutional investor's holdings of the firm's stock.

The firm's percentage holdings by long-term (short-term) institutional investors is computed as the sum of ownership by investors that have average churn rates over the prior four quarters in the bottom (top) tercile.

3.2.8 Control variables

To isolate the impact of policy uncertainty on the cost of debt, in our multivariate analysis we control for a comprehensive set of firm- and security-specific variables that are previously documented to affect yield spreads. Firm-specific measures include firm size, leverage, profitability, market-to-book, sales growth, and cash flow volatility. Given evidence that larger firms tend to have a smaller default risk and greater benefits from economies of scale, we include *Firm Size*, measured as the natural log of total assets. *Leverage*, measured as the ratio of long-term debt to total capital, is included as higher leverage corresponds to higher default risk. We also control for *Performance*, computed as the ratio of long-term debt to total capital, and *Sales Growth*, measured as the firm's annual growth in sales revenue. *Market-to-Book* proxies for growth opportunity and is defined as the market value of assets (equal to the sum of book value of debt and number of shares outstanding times share price) divided by the book value of assets. We additionally control for *Cash Flow Volatility*, measured as the standard deviation of performance over the past ten years. Finally, we control for shareholder monitoring using *Institutional Ownership*, computed as the percentage of common shares held by institutions scaled by the total number of common shares outstanding.

Bond-specific variables include credit rating, maturity, liquidity, callability, and a high-yield dummy. Credit ratings are used to control for firms' differences in default risk. We calculate firm credit rating for a given date of the yield observation by averaging the Moody's and S&P bond ratings. Bond ratings are numerically converted to have a value of 22 to 1 for AAA- to D-rated bonds. The conversion process to numerical numbers is shown in the Appendix. Given that credit ratings may

already incorporate the effect of policy uncertainty, our main variable of interest, we orthogonalize credit ratings to EPU and purge the rating information of the impact of policy uncertainty. Specifically, we label the error term from regressing the rating variable on EPU as *Credit Ratings* and use it as our primary measure of credit ratings in our baseline model.

At the individual security level, we control for the effect of term structure using *Maturity*, defined as the number of years remaining until the bond reaches maturity. *Bond Age* reflects liquidity of the bond and is defined as the number of years that a bond has been outstanding. Following the literature (e.g. Mansi et al. 2009), in case the firm has multiple bonds at a given time, we construct the weighted-average maturity, bond age, and credit ratings by assigning weights to each security according to the amount outstanding for each debt divided by the total amount outstanding for publicly traded debt of the firm. We include as additional controls *Callability*, an indicator variable that equals 1 if the issue is callable. Finally, to control for the non-linearity between yield spreads and credit ratings (e.g. Mansi et al. 2004), we employ *High Yield*, an indicator variable that equals 1 when the debt is high yield/non-investment grade. Table 1 provides definitions and data sources for all variables used in our analyses.

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3.3 Descriptive Statistics

Panel A of Table 2 reports descriptive statistics for our key variables of interest. On average, the securities in our sample have a yield spread of 360 basis points, which deviates substantially from the median at 233 basis points. Because these numbers suggest that the yield spread is highly skewed, we take the natural logarithm of the yield spread in our regression results.

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The mean and median firm size in our sample is $8.2 billion, with a standard deviation of $1.4 billion. Firms in our sample have a large portion of liabilities in their capital structure, as indicated by the median leverage ratio of 32% and the standard deviation of 19%. Our sample firms have a mean profitability ratio of 3%, a market-to-book ratio of 2.8, and cash flow volatility of 5%. On average, institutional owners hold 69% of shares outstanding in our sample firms. The average Moody's bond rating is BB and S&P's is BB+, suggesting that, on average, firms in our sample have outstanding debt with high yield ratings. Turning to maturity, traded debt has a mean maturity of 8.7 years with a

standard deviation of 5.2 years. On average, traded debt has a maturity of 8.7 years and a standard deviation of 5.2 years. The sample is balanced between non-investment-grade debt, with 51%, and investment-grade debt with 49%.

In Panel B of Table 2 we provide the industry distribution of the sample using one-digit SIC codes. Most of the firms in the overall sample are in manufacturing (53%). Our sample firms are also distributed across wholesale and retail trade (13%), and services, including business and other (13%), mining and construction (10%), and transportation and communications (10%) sectors. We find the fewest sample companies in the public administration and agriculture and forestry industries.

Panel C of Table 2 provides the Pearson correlation coefficients for the yield spread, policy uncertainty, and control variables in our baseline analysis. We find that yield spread is positively correlated with the policy uncertainty measure, firm leverage, cash flow volatility, and high yield dummy, and negatively correlated with firm size, institutional ownership, profitability, credit ratings, maturity, and bond age. The correlation analyses suggest that higher policy uncertainty is associated with a higher cost of debt financing.

4. Results

4.1 EPU and the cost of debt

In our main tests, we examine the relation between the log of yield spreads and EPU using a multivariate method that controls for other factors known to influence the cost of debt. To account for problems arising from potentially unobservable firm heterogeneity, in all specifications we include firm fixed effects and include a set of calendar- and fiscal-quarter fixed effects to control for seasonality. Following Gulen and Ion (2016), we cluster standard errors at the firm and year-quarter level to correct for potential cross-sectional and serial correlation in the error term (Petersen 2009). Our baseline regression model is as follows:

$$Log(Spread_{i,t}) = a_i + \beta_1 Log(EPU_{i,t}) + \beta_{2\text{-}7} Firm\ Controls + \beta_{8\text{-}12} Debt\ Controls + QRT_t + \varepsilon_{i,t}, \quad (4)$$

where $Log(Spread_{i,t})$ stands for the natural logarithm of difference between the yield to maturity and the treasury bond rate with similar maturity. Index i represents the firm, index t represents the quarter, and $\beta_{2\text{-}7}$ and $\beta_{8\text{-}12}$ represent vectors of control variables. All control variables are lagged with respect to the yield spread. The a_i's are firm fixed effects and QRT_t stands for a set of calendar- and fiscal-quarter dummy variables. For each firm i, $Log(EPU)$ is the natural logarithm of the arithmetic average of the

BBD index over the three months ending in the calendar month at which the yield spread is observed. Note that a positive and significant coefficient on EPU, β_1, supports the hypothesis that an increase in policy uncertainty is value-decreasing for bondholders. We control for both firm- and security-level factors that are known to influence yield spread, including firm size, leverage, profitability, sales growth, credit ratings, bond age, and institutional ownership.

Table 3 reports the results of our regressions on the effect of policy-induced economic uncertainty on the cost of debt. We present results for the overall policy uncertainty index in Model 1 and separately for each of the four sub-components in Models 2 to 5. The table reports the results from using arithmetic average of the policy uncertainty index over three months. To accommodate the possibility that bond pricing may be more sensitive to more recent information, in additional tests (unreported) we also confirm the results from using the weighted-average policy uncertainty index over three months, such that the more recent months get more weight. In Table 4, Panels A and B, we reexamine our main specifications separately for investment-grade debt (greater than or equal to credit ratings of BBB-) and non-investment-grade debt (below credit ratings of BBB-), respectively.

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Insert Tables 3 and 4 here
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The results reported in Table 3 consistently support our hypothesis that an increase in policy uncertainty is associated with higher debt financing costs. The marginal effects associated with the policy uncertainty coefficient in the overall-index specification (Model 1) indicate that a 1% increase in the overall EPU index with respect to the sample mean is associated with a 2.012% annual increase in yield spread. Across models in Table 4, the coefficient varies from 0.502 for the investment-grade debt sample to 0.519 for the non-investment-grade subsample, which translates into an increase in yield spreads of about 2.008% to 2.076% annually as policy uncertainty increases by 1%. The results also indicate that the four elements of the overall policy uncertainty index contribute to the positive relation between policy uncertainty and cost of debt. In terms of economic significance, a 1% increase of the uncertainty stemming from news-based, federal expenditure disagreement, CPI forecast disagreement, and tax-code components is associated with a 2.528%, 0.804%, 1.852%, and 0.196% increase in yield spread per annum. Overall, the results indicate that uncertainty related to economic policy is detrimental to bondholders. This is reflected in higher yield spreads, especially for firms with non-investment-grade bonds.

Consistent with Gulen and Ion (2016), our baseline results suggest that much of the explanatory power of the overall policy uncertainty index is captured by the news-based component. This result is expected because the news index, by design, includes uncertainty of all policy decisions without discriminating by specific policy topics. For this reason, and in the interest of brevity, we use the news-based EPU index as the main variable in the analyses below. Our results remain qualitatively similar if we use the overall EPU index.

4.2 Robustness tests

In Table 5 we report the results of various robustness tests. First, we examine whether our results are sensitive to the inclusion of election years. Although election timing may be a good exogenous indicator of heightened policy uncertainty, analyses based on election indicator implicitly assume that policy uncertainty remains constant during non-election years (Gulen and Ion 2016). In addition, using an indicator variable renders it difficult to quantify how much effect election may have on bond pricing. Model 1 presents the results when we control for election years (*ELECTION*). As shown, the coefficient on the election indicator is positive but statistically indistinguishable from zero, while the coefficient on EPU remains positive and significant. This result suggests that our results are not driven by uncertainty during election years.

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Insert Table 5 here
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Next, to account for the possibility that different types of uncertainty may influence bond pricing, we include additional controls for firm-, industry-, and macroeconomic-level uncertainty in Models 2 to 5. To capture firm-level uncertainty, we use earnings volatility (*Earnvol*) and return volatility (*Return Volatility*) following Kim, Pandit, and Wasley (2016). As in Harford (2005), we measure industry-level uncertainty using the first principal component from the industry-year medians of seven industry-level economic shock variables (*Industry Shock*). Lastly, we follow Bonaime, Gulen, and Ion (2018) and measure the general macroeconomic uncertainty using the cross-sectional standard deviation of sales growth (*CS sale*) and the cross-sectional standard deviation of cumulative returns (*CS Return*) in the concurrent fiscal year. We use additional macroeconomic uncertainty measures, namely Jurado, Ludvigson, and Ng's (2015) overall macroeconomic uncertainty (*JLN*) and implied volatility of equity options (*VIX*). The results in Models 2 to 7 indicate that even after controlling for different types of uncertainty, whether individually or altogether, the effect of policy uncertainty on yield spread remains distinct and singular.

Lastly, to the extent that uncertainty is countercyclical (Bloom et al. 2018), the relation between yield spread and policy uncertainty could be confounded by the effects of macroeconomic conditions. It may be the case, for instance, that the positive effect of policy uncertainty on yield spread may spuriously reflect the decrease in investment opportunities and investors' reluctance to provide financing when economic prospects are poor. To address this concern, in Model 8 we control for several proxies for macroeconomic conditions that capture market participants' expectations on economic outlooks: GDP growth rate (*GDP growth*), the consumer confidence index (*CCI*), composite leading indicators (*CLI*), and forecasted real GDP growth rate (*RealGDP forecast*). Additionally, to further mitigate the concern that the change in bond pricing may simply reflect lower investment, we include capital investment (*Capinv*) and research and development intensity (*R&D*), as well as an indicator for missing R&D (*R&D Dummy*) as additional controls. The results confirm that the effect of policy uncertainty on yield spread is distinct from the confounding effects of macroeconomic conditions and decreasing investment opportunities.

4.3 Endogeneity

Although we test the sensitivity of our results to an extensive list of control variables and robustness tests, potential endogeneity could still drive our results. First, bias from reverse causality may arise where a significant increase in the cost of debt could create uncertainty among policymakers and regulators. Similarly, other sources of economic uncertainty unrelated to policy may drive both EPU and yield spread, creating potential bias problems arising from omitted explanatory variables. In addition, although Baker et al. (2016) take extensive precautions to mitigate the measurement concerns of EPU, the index is still measured and could still be prone to unknown measurement errors. To address potential endogeneity problems remaining in our analysis, we conduct an instrumental variable analysis approach as well as placebo tests.

We first employ an instrumental variables approach. The variables include the U.S. Senate polarization index of McCarty et al. (1997) and the partisan conflict index of Azzimonti (2018). Prior research suggests that increased polarization can cause the politicians to enter a gridlock state, which leads to increased variation in policy (McCarty 2012). In addition, government dysfunction created by partisan conflict can induce EPU (Azzimonti 2018). These lines of research indicate that our instruments are strongly correlated with the policy uncertainty measure from both a theoretical and a statistical perspective (relevance restriction). However, it is unlikely that U.S. Senate polarization or

the partisan conflict would have a direct relation to any of the firm-level or security-level variables (exclusion restriction) other than through its impact on policy uncertainty.

One concern in our analysis is that both the policy uncertainty variable and the instruments are constant for all firms within each time period. In this case, using the usual two-stage least squares methodology is problematic because the correlation between policy uncertainty and its instruments would be automatically inflated. As a remedy for this problem, we follow Gulen and Ion (2016) and run a time-series regression in the first stage and a panel regression in the second stage. The *t*-statistics are based on bootstrapped standard errors to mitigate the biases from using estimated regressors. In the first-stage regression model, we regress the monthly news-based EPU on the corresponding instrumental variables along with the collapsed mean of the control variables (**z**) by each time period. We also control for quarter fixed effects. Then, in the second-stage model, we regress the yield spread on the fitted value of the news-based EPU ($\widehat{EPU\ News}$) from the first stage. We include the same control variables as well as quarter fixed effects. Our first- and second-stage models are as follows:

$$\text{(First) } epu_t = \alpha + \gamma_1 instrument_t + \vartheta z + QRT_t + \varepsilon_t \tag{5}$$

$$\text{(Second) } Log(Spread)_{i,t} = \alpha_i + \pi_1 \widehat{EPU\ News}_t + \theta z + QRT_t + \delta_i + \varepsilon_t$$

The results are reported in Models 1–4 of Table 6. Consistent with expectations, the first-stage regressions in Models 1 and 2 show positive coefficients on Senate polarization (*Polarization*) and partisan conflict (*PCI*) indices, suggesting that the relevance condition of our instruments are satisfied. In the second-stage regressions, we use the fitted value from the first-stage regression to replace the original value of EPU and report the results in Models 3 and 4. We find that the coefficient estimates on $\widehat{EPU\ News}$ are positive and significant at the 1% level, which confirms the positive effect of policy uncertainty on yield spreads. These results help alleviate endogeneity concerns.

We attempt to further rule out the possibility of spurious correlation between the EPU index and yield spread by performing placebo tests in Model 5 of Table 6. We first create 100 different random samples of the news-based EPU index that follows the sample distribution and denote the randomly sampled variable placebo EPU ($\widetilde{Placebo\ EPU}$). Then, we estimate the regression coefficients from replacing the true EPU values with $\widetilde{Placebo\ EPU}$ and report the average coefficient estimates in Model 5. If policy uncertainty is what causes yield spread to increase, then we should find that a

random variable that simply mimics the sample distribution of EPU would have no impact on the cost of debt. Consistent with expectation, we find that $\widetilde{Placebo\ EPU}$ loads statistically insignificantly. Overall, our results are robust to controlling for potential endogeneity through the instrumental variables and placebo test approaches.

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Insert Table 6 here
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4.4 Mitigating factors

The results described above indicate that elevated policy uncertainty poses an additional risk to debtholders as reflected in higher bond yield spreads. In this section, we aim to determine whether certain firm-level characteristics, specifically governance and control mechanisms, can attenuate the adverse impact of policy uncertainty. The cost of policy uncertainty may be mitigated, although not completely eliminated, when the firm has effective monitoring resources and governance mechanisms that limits the agency costs that accrue to bondholders.

4.4.1 The role of board characteristics

We begin by examining whether the effect of policy uncertainty is heterogenous to various board characteristics. We expect that the usefulness of the board as a monitoring device would mitigate the adverse impact of EPU on bond pricing. To test this prediction, we examine the implications of board structure as a governance control using board business and independence. Following Ferris et al. (2003), *Board Business* is computed as the percentage of directors on a board who hold three or more directorships. A higher busyness of the board, on one hand, may indicate dissipation of board members' time and attention to the focal firm and therefore can proxy for inability to adequately monitor the managers. On the other hand, a busier board may be interpreted as a more able board on average, since invitation to serve on multiple boards possibly indicates board members' expertise on firm matters and capacity to hold more responsibilities. *Board Independence*, a proxy for monitoring effectiveness of the board, is defined as the percentage of independent directors divided by the total number of directors in a given year. As in the previous set of analyses, we augment our baseline model with the board structure measures and their interaction with EPU.

Table 7 presents the findings. In Model 1 we report the results from using board busyness, and in Model 2 we use board independence as the variable of interest. Consistent with the prediction that having busier boards leads to less effective monitoring, we find a positive and significant coefficient

on the interaction term between board busyness and EPU. This result indicates that serving on multiple boards overcommits an individual and the consequences during periods of policy uncertainty are detrimental to bondholders. In terms of magnitude, the estimated coefficients imply that moving board busyness from the first to the third quarter, the effect of a 1% increase in EPU increases the yield spread by 0.904% per annum with respect to the sample mean. Interestingly, the direct effect of busyness on yield spread is negative, which suggests that during normal times greater board busyness translates to directors using their expertise from serving on multiple boards to reduce the cost of debt. Turning to board independence in Model 2, we find a negative and significant interaction coefficient with EPU. The results imply that effective monitoring by the board can mitigate the adverse impact of policy uncertainty. Specifically, as policy uncertainty increases by 1%, moving board independence from the first to the third quarter results in a decrease in yield spread of 0.493% per annum. Overall, these findings suggest that effective monitoring oversight during periods of heightened EPU can be valuable to the creditors.

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4.4.2 The role of board diversity

The preceding analysis highlights the disciplinary benefit of board monitoring on yield spread during uncertain times. In this section, we go a step further, from comparing board characteristics *across* firms to investigating whether cultural diversity *within* the board can alleviate the taxing effect of policy uncertainty. To construct our proxy for cultural diversity, we follow Frijns et al. (2016) and calculate the average of cultural distances for all pairs of board members. The computation of cultural distance follows Kogut and Singh (1988) and is defined as the square root of the sum of squared differences of the Hofstede's cultural scores for all pairs of board members, divided by the sample variance. As in Frijns et al. (2016) we focus on the initial four dimensions introduced by Hofstede (2001) and construct the composite cultural distance measure incorporating the four: Individualism-collectivism, Masculinity-femininity, Power distance, and Uncertainty avoidance. To make the measure comparable across different-size boards, we scale the cultural diversity measure by the number of pairs of board members in any given firm year.

The results are presented in Table 8. In Models 1–5 we first report the results from using diversity measure constructed for all board members. In Models 6 and 7 we focus on independent directors and audit committee members to calculate the diversity scores. For brevity, we report both the

composite and individual dimension diversity scores when we consider all board members, but present only the composite diversity measure for independent directors and audit committee members.

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Insert Table 8 here
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The negative and significant coefficient on interaction term between policy uncertainty and composite diversity score in Model 1 is consistent with the prediction that the benefit of having diverse boards is greater when firms face higher policy uncertainty. Turning to the individual dimension scores, the results in Models 2–5 indicate that individualism and power distance dimensions are responsible for the benefits of having a diverse board. We also find that diversity among independent board members is beneficial to bondholders as uncertainty increases, as shown by the negative and significant interaction in Model 6. We do not find evidence, however, on the benefits of diversity among audit committee members. Economically, moving cultural diversity from the first to the third quartile reduces the effect of a 1% increase in yield spreads by about 0.467% annually with respect to the sample mean for all board members and 0.352% annually for independent board members. Overall, this evidence suggests that diversity can significantly insulate the effects of policy uncertainty, which creditors value.

4.4.3 The role of CEO-board diversity distance

We augment the analyses above by examining how cultural distance between the CEO and the board affects the policy uncertainty–cost of debt relation. We construct the cultural distance measure following Kogut and Singh (1988) and calculate the sum of squared difference of Hofstede dimensions between the CEO and all other directors on board. Then, we divide by the sample variance and take the square root to create the culture distance measure. As previously, we create the composite cultural distance measure using the four dimensions introduced by Hofstede (2001) as well as culture distance for the individual dimensions. We scale the variable by the number of pairs, to make the measure comparable across boards of various sizes. As in the previous section, we construct the variable for all board members as well as for independent directors and audit committee members separately. In the interest of brevity, we introduce the cultural distance for individual dimensions only when we consider all board members.

The results reported in Model 1 of Table 9 are consistent with the prediction that cultural distance between the CEO and the board mitigate the adverse effect of policy uncertainty on yield spread. The

negative and significant coefficient on the interaction between EPU and culture distance measures supports the argument that during periods of high uncertainty, larger cultural distance aids decision-making that is beneficial to the firm. Economically, the effect of moving cultural distance from the first to the third quartile reduces the adverse effect of a 1% increase in EPU by 0.325% annually with respect to the sample mean. Models 2–5 indicate that most of the benefit of cultural distance is concentrated in the individualism dimension. In Models 6 and 7 we find that the cultural distance between the CEO and independent board members has no effect, while that between CEO and audit committee members is beneficial to creditors when uncertainty is high. Overall, the results show that high cultural distance between the CEO and the board can mitigate the adverse consequences of EPU.

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4.4.4 The role of other information intermediaries

In our final set of tests, we consider heterogeneity with respect to other information intermediaries including auditors, financial analysts, and institutional investors. In Model 1 of Table 10, we include the presence of a Big 4 auditor and its interaction term with policy uncertainty. Big 4 Auditor is an indicator variable that equals 1 if one of the Big 4 accounting firms is the firm's auditor. In Model 2, we replace auditor dummy with the number of analysts following, computed as the log of the number of analysts following the firm. In Model 3, we use institutional ownership and its interaction term with EPU. Throughout Models 1–3, the results confirm our expectation that having effective external monitors mitigates the adverse impact of policy uncertainty. Moving *Auditor* from 0 to 1, the effect of a 1% increase of EPU on yield spread is associated with the annual reductions in spreads of 1.051% with respect to the sample mean. Moving from the first to the third quarter of *Analysts* and *Institutional Ownership*, the effect of a 1% increase of EPU on yield spreads is associated with the annual reductions in spreads of 0.283% and 0.376% with respect to the sample mean, respectively.

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Insert Table 10 here
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In Models 4–8 we augment the analysis in Model 3 by considering the monitoring and information quality effects associated with different investment horizons of institutional investors. Model 4 presents results from employing churn rate in association with EPU. Models 5 and 6 each use long-term and short-term institutional ownership, and Model 7 reports the results from including both in

the same regression. Finally, in Model 8 we present the result using an indicator variable that equals 1 if the long-term institutional ownership stake is greater than that of the short-term, and 0 otherwise. The results in Models 4–8 show that most of the benefit during periods of high uncertainty comes from monitoring by long-term institutional investors. Although we find little evidence that short-term institutional investors affect the relation between EPU and yield spread, in Model 3 we find a positive and significant interaction coefficient between churn rate and policy uncertainty, suggesting that high turnover and shorter commitment by institutional investors exacerbates the impact of EPU. These results are largely consistent with the findings in prior literature that the stability and diversification of the long-term investors' shareholdings make monitoring and governance commitments increasingly desirable (Hirschman 1970; Gaspar et al. 2005).

5. Endogeneity of Governance

Board structure, cultural diversity and distance of the board, and monitoring controls through information intermediaries, like most observed outcomes in corporate finance, are endogenously determined over time. Although we include firm and time fixed effects to control for unobservable heterogeneity across firm and time, a major endogeneity concern still remains because the results may spuriously be driven by the effectiveness of corporate governance in reducing yield spreads that is unrelated to the difference in policy uncertainty episodes.

To alleviate the concern that our design fails to capture the effect of governance controls and merely reflects a false correlation over time of implementing effective governance policies unrelated to the policy uncertainty, we conduct a placebo (falsification) test. We randomly assign a placebo EPU index ($\widetilde{Placebo\ EPU}$) that follows the sample distribution of the true EPU. Then we re-estimate all models in Tables 7–11 by replacing the policy uncertainty variable with ($\widetilde{Placebo\ EPU}$). We repeat this process 100 times and report the average coefficient estimates. The results, presented in Table 11, show that the coefficients on the interaction term between $\widetilde{Placebo\ EPU}$ and the governance terms are neither statistically nor economically insignificant. These results suggest that our findings are not driven by the spurious correlations.

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6. Conclusion

Economic policy uncertainty is largely outside firms' control and can adversely affect their financing and investment policies (poses additional costs to the firm). In this paper, we investigate the role of corporate characteristics in mitigating the adverse effects of policy uncertainty. Using the context of debt pricing, we find higher bond yield spreads during periods of elevated policy uncertainty, consistent with the prediction that policy uncertainty leads to higher agency costs associated with default risk. We examine corporate factors that may mitigate this relation through affecting monitoring that help mitigate these costs. We find that firms with greater board independence and less busy boards experience a smaller reduction in their bond price. In addition, greater cultural diversity within the board as well as cultural distance between the CEO and board contribute to the extent to which bond pricing is affected by policy uncertainty. Finally, we find evidence that financial intermediaries including Big 4 auditors, financial analysts, and institutional investors, specifically long-term institutional investors, alleviate the adverse impact of EPU on yield spreads. Our study enriches knowledge about how firm-level characteristics can aid in preventing and/or responding to turbulent times.

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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
EPU	A measure of economic policy uncertainty.	Baker, Bloom, and Davis (2016)
	Firm-Specific Variables	
Firm Size	Natural logarithm of total assets.	Compustat
Firm Leverage	Long-term debt plus debt in current liabilities, deflated by total assets.	Compustat
Firm Performance	Operating income before depreciation, deflated by total assets.	Compustat
Sales Growth	Sales growth rate, defined as the ratio of the change in sales to lagged sales.	Compustat
Cash Flow Volatility	Standard deviation of performance over the past ten years (t-1 to t-10).	Compustat
Market-to-Book	Market value of equity, computed as the number of common stocks outstanding multiplied by price divided by balance sheet book equity.	Compustat
	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.	LBFI, TRACE
Bond Age	Number of years a bond has been outstanding.	LBFI, TRACE
High Yield	Indicator variable that equals 1 when the weighted-average rating is below BBB.	LBFI, TRACE
Callability	Indicator variable that equals 1 when the bond is callable.	LBFI, TRACE
	Governance and Firm Variables	
Managerial Ability	Managers' efficiency in transforming corporate resources to revenues as compared to their industry peers.	Demerjian et al. (2012)
Board Independence	Fraction of independent directors divided by the total number of directors in a given year.	ISS
Board Busyness	Percentage of directors on a board who hold three or more directorships.	
Board Diversity	Average of cultural distance scores of all director pairs in a given firm-year.	ISS, Ancestry of Names, Hofstede (2001)
CEO-Board Distance	Average of cultural distance scores of all director-CEO pairs in a given firm-year.	
Big 4 Auditor	Indicator variable that equals 1 if the firm is audited by a Big 4 auditor, and 0 otherwise.	Compustat
Analysts	Number of analysts following the firm in a given year	I/B/E/S

InstOwn	Ratio of shares owned by institutions divided by the total number of shares outstanding.	Thomson 13-F
Churn Rate	Weighted sum of institutional investors' turnover in firm i's stock, where the weight is given by each institutional investors' ownership of the firm's stock.	
LT InstOwn	Sum of ownership by investors that have average churn rates over the prior four quarters in the bottom tercile.	
ST InstOwn	Sum of ownership by investors that have average churn rates over the prior four quarters in the top tercile.	
Dummy (LT>ST)	Indicator variable that equals 1 if the ratio of shares owned by long-term institutional owners exceeds that of short-term institutional owners, and 0 otherwise.	
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

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, FISD is the Mergent Fixed Income Securities Database, CRSP is the Center for Research in Security Prices database, SDC is the Securities Data Company's financial transaction database (primarily for mergers and acquisitions), Compustat is the financial information database, Execucomp is the executive compensation database, Thomson 13-F is the Thomson Financial 13F database, and RiskMetrics is the IRRC/ISS database.

Table 2. Descriptive Statistics

Panel A: Summary Statistics

	Mean	Median	Standard Deviation	25th Percentile	75th Percentile
Yield Spread (in basis points)	360	232	415	117	433
EPU Overall	95	84	38	65	120
EPU News	113	104	39	83	144
EPU FSL	85	82	31	58	105
EPU CPI	93	84	25	75	109
EPU Tax	409	224	499	19	621
			Firm-Specific Variables		
Total Assets ($Million)	8,223	8,152	1,390	7,231	9,161
Firm Leverage	0.36	0.32	0.19	0.23	0.46
Firm Performance	0.03	0.03	0.02	0.02	0.05
Sales Growth	0.03	0.02	0.17	-0.04	0.08
Cash Flow Volatility	0.05	0.03	0.05	0.02	0.05
Market-to-Book	2.83	2.13	4.96	1.29	3.46
			Bond-Specific Variables		
Credit Rating	BB	BB+	A-/CCC+	B	BBB+
Bond Maturity	8.69	7.42	5.21	5.17	10.60
Bond Age	3.23	2.74	2.38	1.46	4.38
High Yield	0.51	1.00	0.50	0.00	1.00
Callability	0.76	1.00	0.43	1.00	1.00
			Governance and Other Variables		
Big 4 Auditor	0.97	1.00	0.17	1.00	1.00
Analyst Following	0.69	0.73	0.23	0.57	0.85
CEO Ability	12	11	8	6.00	17.00
Board Independence	0.00	-0.04	0.15	-0.09	0.05
Board Busyness	0.75	0.80	0.17	0.67	0.88
Board Diversity	0.03	0.00	0.05	0.00	0.08
Independent Diversity	7.40	7.30	2.21	5.84	8.84
AuditCom Diversity	7.45	7.29	2.67	5.71	9.19
Board-CEO Distance	8.43	8.32	3.97	5.71	11.05
Independent Distance	0.47	0.41	0.25	0.30	0.58
AuditCom Distance	0.83	0.65	0.63	0.45	0.99
Institutional Ownership	1.85	1.44	1.43	0.94	2.28
LT InstOwn	0.17	0.16	0.10	0.10	0.24
ST InstOwn	0.29	0.28	0.14	0.19	0.38
Churn Rate	0.06	0.06	0.01	0.05	0.07

Notes: Panel A provides descriptive statistics for the key variables used in our analyses. The overall sample contains 33,252 firm-quarter observations from 1,410 firms over the 1993–2015 period. Variable definitions and sources are in Table 1.

Panel B: By Industry

SIC Codes	Description	Observations	Percentage (%)	Cumulative (%)
0	Agriculture and Forestry	136	0.41	0.41
1	Mining and Construction	3,462	10.42	10.83
2	Light Manufacturing	8,108	24.4	35.23
3	Heavy Manufacturing	9,591	28.87	64.10
4	Communications and Electronics	3,290	9.90	74.00
5	Wholesale and Retail Trade	4,350	13.09	87.09
7	Business Service	3,074	9.25	96.35
8	Other Service	1,138	3.43	99.77
9	Public Administration	76	0.23	100
Total		33,225	100	

Notes: Panel B reports descriptive statistics using one-digit SIC industry classification codes. The overall sample contains 33,252 firm-quarter observations from 1,410 firms over the 1993–2015 period. Variable definitions and sources are in Table 1.

Panel C. Pearson Correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1. Spread															
2. Rating	-0.51[a]														
3. EPU Overall	0.19[a]	-0.05[a]													
4. EPU News	0.20[a]	-0.08[a]	0.92[a]												
5. EPU FSL	0.06[a]	-0.04[a]	0.46[a]	0.37[a]											
6. EPU CPI	0.15[a]	-0.11[a]	0.31[a]	0.26[a]	0.43[a]										
7. EPU Tax	0.08[a]	-0.13[a]	0.47[a]	0.53[a]	0.56[a]	0.46[a]									
8. InstOwn	-0.12[a]	-0.04[a]	0.04[a]	0.12[a]	0.05[a]	0.09[a]	0.20[a]								
9. Size	-0.33[a]	0.61[a]	0.03[a]	0.08[a]	0.05[a]	0.03[a]	0.12[a]	0.15[a]							
10. Leverage	0.32[a]	-0.41[a]	-0.04[a]	-0.04[a]	-0.08[a]	-0.06[a]	-0.12[a]	-0.28[a]	-0.41[a]						
11. Performance	-0.29[a]	0.37[a]	-0.04[a]	-0.05[a]	-0.03[a]	-0.03[a]	-0.03[a]	0.02[b]	0.13[a]	-0.12[a]					
12. Sales Growth	-0.03[a]	-0.03[a]	-0.07[a]	-0.06[a]	-0.04[a]	-0.03[a]	-0.03[a]	0.00	-0.03[a]	0.03[a]	0.22[a]				
13. CF Vol	0.21[a]	-0.38[a]	0.03[a]	0.04[a]	0.02[b]	0.05[a]	0.07[a]	-0.03[a]	-0.25[a]	0.16[a]	-0.13[a]	0.04[a]			
14. MTB	-0.12[a]	0.12[a]	-0.05[a]	-0.02[a]	-0.04[a]	-0.03[a]	-0.01	0.03[a]	0.09[a]	-0.08[a]	0.14[a]	0.02[a]	0.02[a]		
15. Maturity	-0.20[a]	0.26[a]	-0.02[a]	-0.06[a]	-0.03[a]	-0.02[a]	-0.11[a]	-0.02[b]	0.26[a]	-0.15[a]	0.06[a]	0.00	-0.12[a]	0.02[b]	
16. Age	-0.04[a]	0.21[a]	0.04[a]	0.05[a]	0.06[a]	0.08[a]	0.10[a]	0.06[a]	0.29[a]	-0.18[a]	0.03[a]	-0.05[a]	-0.13[a]	0.03[a]	0.11[a]

Notes: Panel C provides pearson correlation for the key variables used in our analyses. The overall sample contains 33,252 firm-quarter observations from 1,410 firms over the 1993–2015 period. Variable definitions and sources are in Table 1.

Table 3. Economic Policy Uncertainty and the Cost of Debt

	Dependent Variable = Log (Spread)				
	(1)	(2)	(3)	(4)	(5)
Log (EPU_Overall)	0.503[a]				
	(6.289)				
Log (EPU_News)		0.632[a]			
		(7.025)			
Log (EPU_Fsl)			0.201[b]		
			(2.366)		
Log (EPU_Cpi)				0.463[a]	
				(3.500)	
Log (EPU_Tax)					0.049[a]
					(2.682)
Institutional Ownership	-0.233[a]	-0.271[a]	-0.271[a]	-0.296[a]	-0.370[a]
	(-3.063)	(-3.680)	(-3.232)	(-3.577)	(-4.516)
Firm Size	0.047[c]	-0.015	0.060[b]	0.058[b]	0.022
	(1.737)	(-0.562)	(2.021)	(2.100)	(0.648)
Firm Leverage	0.947[a]	0.812[a]	0.940[a]	1.030[a]	0.979[a]
	(8.986)	(8.098)	(8.502)	(9.527)	(9.227)
Firm Performance	-4.288[a]	-4.284[a]	-4.663[a]	-4.796[a]	-4.783[a]
	(-9.223)	(-9.575)	(-9.574)	(-9.745)	(-9.482)
Sales Growth	-0.006	0.002	-0.043	-0.039	-0.042
	(-0.167)	(0.044)	(-0.805)	(-0.778)	(-0.730)
Cash Flow Volatility	0.987[c]	1.095[b]	1.270[b]	0.946[c]	1.013[b]
	(1.953)	(2.146)	(2.559)	(1.964)	(2.130)
Market-to-Book	-0.005[a]	-0.006[a]	-0.007[a]	-0.006[a]	-0.007[a]
	(-4.033)	(-4.579)	(-4.523)	(-4.447)	(-4.533)
Credit Rating	-0.040[a]	-0.039[a]	-0.036[a]	-0.031[a]	-0.029[a]
	(-4.166)	(-4.156)	(-3.801)	(-3.084)	(-2.967)
Bond Maturity	0.006	0.006	0.006	0.005	0.007[c]
	(1.523)	(1.624)	(1.396)	(1.290)	(1.732)
Bond Age	0.051[a]	0.045[a]	0.052[a]	0.053[a]	0.051[a]
	(9.300)	(8.130)	(9.027)	(9.614)	(8.793)
High Yield	0.359[a]	0.361[a]	0.403[a]	0.410[a]	0.414[a]
	(8.146)	(8.366)	(8.695)	(9.130)	(9.099)
Callability	0.108[b]	0.126[b]	0.073	0.053	0.049
	(2.115)	(2.485)	(1.257)	(0.916)	(0.795)
Firm FE	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes
Observations	33,225	33,225	33,225	33,225	33,225
Pseudo/Adj. R^2	0.684	0.688	0.651	0.660	0.650

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty and various control variables. The data cover the 1993–2015 period. Variable definitions are in Table 1. Quarter and firm fixed effects are included in all regressions. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm and calendar quarters are in parentheses. Models 1 employs overall EPU as main variable. All models include firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 4. Economic Policy Uncertainty and the Cost of Debt

	Dependent Variable = Log (Spread)									
	Panel A. Investment grade Bonds					*Panel B. Speculative grade Bonds*				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log (EPU_Overall)	0.502***					0.519***				
	(5.317)					(6.902)				
Log (EPU_News)		0.640***					0.620***			
		(5.883)					(7.631)			
Log (EPU_Fsl)			0.125					0.290***		
			(1.290)					(3.384)		
Log (EPU_Cpi)				0.517***					0.416***	
				(3.398)					(3.350)	
Log (EPU_Tax)					0.049**					0.036*
					(2.239)					(1.950)
Institutional Ownership	0.077	-0.041	0.046	0.115	-0.051	-0.397***	-0.410***	-0.422***	-0.498***	-0.534***
	(0.638)	(-0.369)	(0.374)	(0.878)	(-0.439)	(-4.532)	(-4.628)	(-4.191)	(-5.128)	(-5.180)
Firm Size	0.005	-0.072**	0.023	0.016	-0.032	0.091***	0.054*	0.090***	0.096***	0.084**
	(0.136)	(-2.023)	(0.604)	(0.420)	(-0.702)	(2.892)	(1.785)	(2.809)	(3.064)	(2.496)
Firm Leverage	0.663***	0.470***	0.682***	0.813***	0.793***	0.931***	0.863***	0.926***	0.975***	0.933***
	(4.021)	(2.789)	(3.572)	(4.588)	(4.250)	(7.749)	(7.528)	(7.907)	(8.331)	(8.133)
Firm Performance	-3.250***	-3.473***	-3.805***	-4.125***	-4.114***	-4.280***	-4.211***	-4.619***	-4.624***	-4.639***
	(-4.377)	(-4.727)	(-4.929)	(-5.357)	(-5.011)	(-7.559)	(-7.889)	(-7.875)	(-7.862)	(-7.823)
Sales Growth	-0.039	-0.017	-0.081	-0.067	-0.073	-0.012	-0.011	-0.042	-0.047	-0.047
	(-0.587)	(-0.254)	(-0.897)	(-0.830)	(-0.804)	(-0.361)	(-0.291)	(-0.969)	(-1.071)	(-0.993)
Cash Flow Volatility	1.458*	1.738**	2.103**	1.568**	1.684**	1.215**	1.270**	1.463***	1.128**	1.232**
	(1.963)	(2.412)	(2.541)	(2.078)	(2.190)	(2.120)	(2.179)	(2.679)	(2.067)	(2.252)
Market-to-Book	-0.003	-0.005**	-0.006***	-0.004**	-0.006***	-0.006***	-0.007***	-0.007***	-0.007***	-0.008***
	(-1.578)	(-2.314)	(-2.679)	(-2.239)	(-2.717)	(-4.370)	(-4.606)	(-4.418)	(-4.538)	(-4.466)
Credit Rating	-0.116***	-0.112***	-0.105***	-0.097***	-0.091***	-0.027***	-0.028***	-0.022**	-0.019**	-0.019**
	(-9.733)	(-10.024)	(-8.070)	(-7.427)	(-6.912)	(-3.121)	(-3.236)	(-2.485)	(-2.123)	(-2.187)
Bond Maturity	0.019***	0.019***	0.019***	0.019***	0.020***	-0.024**	-0.022**	-0.023**	-0.026***	-0.023**
	(6.702)	(6.719)	(6.100)	(6.234)	(6.393)	(-2.426)	(-2.252)	(-2.357)	(-2.632)	(-2.449)
Bond Age	0.046***	0.039***	0.047***	0.047***	0.046***	0.035***	0.032***	0.036***	0.039***	0.040***
	(7.767)	(6.469)	(7.448)	(7.980)	(7.336)	(2.970)	(2.776)	(3.086)	(3.285)	(3.260)
High Yield										

Callability	0.063	0.099	0.042	0.003	0.019	0.156**	0.174**	0.114	0.086	0.095
	(1.048)	(1.623)	(0.591)	(0.037)	(0.245)	(2.270)	(2.582)	(1.493)	(1.122)	(1.215)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16,247	16,247	16,247	16,247	16,247	16,960	16,960	16,960	16,960	16,960
Pseudo/Adj. R^2	0.544	0.555	0.468	0.501	0.472	0.473	0.474	0.433	0.435	0.422

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty and various control variables. Panel A examines the investment grade bonds, and Panel B examines the non-investment grade bonds. The data cover the 1993–2015 period. Variable definitions are in Table 1. Quarter and firm fixed effects are included in all regressions. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm and calendar quarters are in parentheses. Models 1 and 6 employ overall EPU as main variable. [a], [b], and [c] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 5. Robustness Checks: Political Elections, Other Sources of Uncertainty, and Change in Investment & Financing

	Dependent Variable = Log (Yield Spread)							
	Election	Firm-level	Industry-level	Macro-level	Altogether	JLN	VIX	Other controls
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (EPU_News)	0.615[a]	0.562[a]	0.626[a]	0.650[a]	0.573[a]	0.476[a]	0.357[a]	0.459[a]
	(7.543)	(6.447)	(7.976)	(7.417)	(7.691)	(8.958)	(6.030)	(5.609)
Election dummy	0.072							
	(0.909)							
Earnvol		0.000[b]			0.000			
		(2.156)			(0.845)			
Return volatility		2.026[a]			1.728[a]			
		(5.756)			(5.860)			
Industry Shock			0.110[a]		0.092[a]			
			(7.927)		(7.066)			
CS sale				0.000	0.000			
				(0.887)	(0.891)			
CS Return				0.022	-0.079			
				(0.261)	(-1.013)			
JLN						2.329[a]		
						(10.217)		
VIX							0.024[a]	
							(8.187)	
GDP growth								-0.149[a]
								(-2.673)
CCI								0.058[b]
								(2.260)
CLI								-0.014
								(-0.506)
RealGDP forecast								0.014
								(0.248)
Capital Investment								-0.035
								(-1.191)
R&D								-0.159
								(-0.543)
R&D Dummy								0.019
								(0.805)

Institutional Ownership	-0.272[a]	-0.172[b]	-0.243[a]	-0.275[a]	-0.190[a]	-0.394[a]	-0.284[a]	-0.384[a]
	(-3.812)	(-2.443)	(-3.577)	(-3.921)	(-2.981)	(-6.228)	(-4.246)	(-5.716)
Firm Size	-0.010	-0.007	-0.008	-0.017	-0.002	-0.017	0.011	-0.039
	(-0.366)	(-0.270)	(-0.299)	(-0.648)	(-0.085)	(-0.769)	(0.449)	(-1.446)
Firm Leverage	0.818[a]	0.711[a]	0.769[a]	0.804[a]	0.689[a]	0.856[a]	0.800[a]	0.755[a]
	(8.104)	(7.421)	(7.509)	(8.146)	(7.124)	(9.360)	(8.495)	(8.174)
Firm Performance	-4.255[a]	-3.939[a]	-3.254[a]	-4.284[a]	-3.132[a]	-3.613[a]	-4.169[a]	-3.841[a]
	(-9.699)	(-9.397)	(-7.174)	(-9.562)	(-7.077)	(-9.082)	(-9.965)	(-10.034)
Sales Growth	0.008	-0.003	-0.001	0.001	0.003	0.053[a]	0.024	0.057[a]
	(0.206)	(-0.068)	(-0.037)	(0.034)	(0.106)	(2.718)	(1.092)	(2.704)
Cash Flow Volatility	1.099[b]	0.746	1.018[b]	1.066[b]	0.786	0.430	0.671	0.761
	(2.160)	(1.494)	(2.002)	(2.115)	(1.585)	(0.876)	(1.364)	(1.526)
Market-to-Book	-0.005[a]	-0.005[a]	-0.006[a]	-0.006[a]	-0.005[a]	-0.003[a]	-0.005[a]	-0.005[a]
	(-4.581)	(-4.598)	(-4.516)	(-4.538)	(-4.589)	(-3.283)	(-4.829)	(-4.361)
Credit Rating	-0.039[a]	-0.030[a]	-0.041[a]	-0.039[a]	-0.033[a]	-0.023[b]	-0.037[a]	-0.030[a]
	(-4.138)	(-3.346)	(-4.006)	(-4.212)	(-3.320)	(-2.376)	(-3.637)	(-2.852)
Bond Maturity	0.006	0.008[b]	0.006	0.006	0.007[c]	0.006	0.004	0.005
	(1.605)	(2.061)	(1.505)	(1.594)	(1.860)	(1.500)	(0.887)	(1.296)
Bond Age	0.045[a]	0.043[a]	0.046[a]	0.044[a]	0.044[a]	0.041[a]	0.043[a]	0.039[a]
	(8.236)	(8.157)	(8.261)	(8.054)	(8.131)	(8.519)	(8.694)	(7.470)
High Yield	0.363[a]	0.351[a]	0.375[a]	0.361[a]	0.364[a]	0.388[a]	0.366[a]	0.375[a]
	(8.333)	(8.429)	(8.333)	(8.464)	(8.382)	(9.660)	(9.074)	(9.260)
Callability	0.121[b]	0.143[a]	0.138[a]	0.131[a]	0.133[a]	0.093[b]	0.173[a]	0.096[a]
	(2.415)	(2.998)	(2.911)	(3.119)	(3.229)	(2.324)	(4.256)	(2.747)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	33,225	32,934	32,265	33,121	32,081	33,225	33,225	32,920
Pseudo/Adj. R^2	0.689	0.697	0.699	0.688	0.705	0.729	0.719	0.719

Notes: This table provides coefficient estimates from regressing the log of bond yield spreads on economic policy uncertainty and various alternative specifications. The data cover the 1993–2015 period. Variable definitions are in Table 1. Year and two-digit SIC code dummies are included in all regressions. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 6. Instrumental Variable Analysis and Placebo tests

	Instrumental Variable Analysis				Placebo Test
	First stage		Second stage		
	Polarization	PCI	Polarization	PCI	
	(1)	(2)	(3)	(4)	(5)
Instrument	1.020[b]	0.307[a]			
	(2.08)	(3.00)			
$Log(\widetilde{EPU\ News})$			0.647[a]	0.433[a]	
			(4.51)	(3.02)	
$\widetilde{Placebo\ EPU}$					-0.009
					(-0.087)
Institutional Ownership	-0.956	-0.304[a]	-0.348	-0.306[a]	-0.317[a]
	(-1.60)	(-4.98)	(-0.60)	(-5.07)	(-43.649)
Firm Size	0.377[a]	-0.017	0.348[a]	0.016	0.067[a]
	(3.49)	(-0.76)	(3.14)	(0.74)	(22.90)
Firm Leverage	-2.014[c]	0.858[a]	-1.392	0.895[a]	0.931[a]
	(-1.88)	(17.88)	(-1.33)	(16.71)	(112.34)
Firm Performance	-13.069[b]	-4.738[a]	-12.474[b]	-4.792[a]	-4.785[a]
	(-2.09)	(-13.40)	(-2.03)	(-13.06)	(-131.385)
Sales Growth	-0.117	-0.028	-0.191	-0.041	-0.047[a]
	(-0.24)	(-0.55)	(-0.39)	(-0.77)	(-12.35)
Cash Flow Volatility	11.486[a]	1.155[a]	11.480[a]	1.124[a]	1.202[a]
	(3.33)	(4.80)	(3.37)	(4.65)	(55.62)
Market-to-Book	-0.060[c]	-0.007[a]	-0.050	-0.007[a]	-0.007[a]
	(-1.81)	(-7.19)	(-1.53)	(-7.32)	(-59.71)
Credit Rating	0.243[a]	-0.035[a]	0.241[a]	-0.035[a]	-0.033[a]
	(3.14)	(-6.89)	(3.22)	(-6.75)	(-62.62)
Bond Maturity	-0.037	0.007[a]	-0.039	0.007[a]	0.005[a]
	(-1.55)	(2.89)	(-1.60)	(2.67)	(39.84)
Bond Age	-0.028	0.047[a]	-0.005	0.050[a]	0.055[a]
	(-0.54)	(14.48)	(-0.11)	(15.30)	(159.89)
High Yield	0.210	0.411[a]	0.033	0.413[a]	0.424[a]
	(0.61)	(19.60)	(0.10)	(19.31)	(186.162)
Callability	-0.293[c]	0.085[c]	-0.274[b]	0.090[c]	0.095[a]
	(-1.85)	(1.81)	(-2.00)	(1.82)	(18.43)
Firm FE	-	-	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes
F-statistic	4.87		5.70		-

Notes: This table reports results of regressions addressing endogeneity of policy uncertainty using instrumental variable analysis. In columns 1 and 2, we report results of the first-stage regression using *Polarization* and *Partisan Conflict* indices as instruments. specifically, we regress monthly news-based *EPU* on each instrumental variables with the collapsed means of all control variables by each time period, controlling for quarter fixed effects. Columns 3 and 4 report results of the second-stage regression, which uses the predicted estimates from the first-stage regressions. Column 5 shows the results from placebo test where we replace the true *EPU* values with *Placebo EPU* and report the average coefficient estimates. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 7. EPU, Board Characteristics, and Cost of Debt

	Dependent Variable = Log (Yield Spread)	
	(1)	(2)
Log (EPU_News)	0.522[a]	0.892[a]
	(5.520)	(6.223)
Board Busyness	-8.142[a]	
	(-3.179)	
Log (EPU_News) × Board Busyness	1.474[a]	
	(2.814)	
Board Independence		1.749[c]
		(1.897)
Log (EPU_News) × Board Independence		-0.376[c]
		(-1.910)
Institutional Ownership	-0.146	-0.120
	(-1.406)	(-1.206)
Firm Size	-0.112[a]	-0.058
	(-3.186)	(-1.635)
Firm Leverage	0.869[a]	0.878[a]
	(6.598)	(6.506)
Firm Performance	-4.310[a]	-4.154[a]
	(-7.253)	(-7.410)
Sales Growth	-0.002	-0.004
	(-0.037)	(-0.064)
Cash Flow Volatility	1.286[c]	1.306[c]
	(1.935)	(1.849)
Market-to-Book	-0.020	-0.027[b]
	(-1.565)	(-2.277)
Credit Rating	-0.005[a]	-0.004[a]
	(-2.717)	(-2.802)
Bond Maturity	0.009[c]	0.010[b]
	(1.842)	(2.254)
Bond Age	0.036[a]	0.043[a]
	(5.841)	(7.404)
High Yield	0.373[a]	0.381[a]
	(7.677)	(7.873)
Callability	0.101[c]	0.110[b]
	(1.728)	(1.998)
Firm FE	Yes	Yes
Seasonal FE	Yes	Yes
Observations	19,258	22,158
Adj. R^2	0.646	0.644

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty. Column 1 examines the interaction of economic policy uncertainty with board busyness. Column 2 presents the results from interacting economic policy uncertainty and board independence. The data cover the 1993–2015 period. Variable definitions are in Table 1. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 8. EPU, Board Cultural Diversity, and Cost of Debt

	Dependent Variable = Log (Yield Spread)						
	All Board Members					Independent Board	Audit Committee
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (EPU_News)	0.788[a]	0.802[a]	0.733[a]	0.767[a]	0.676[a]	0.724[a]	0.527[a]
	(6.411)	(5.536)	(4.797)	(6.134)	(5.207)	(6.539)	(3.365)
Composite Diversity	0.110[b]					0.070[b]	0.026
	(2.526)					(2.078)	(0.595)
Log (EPU_News) × Composite Diversity	-0.025[a]					-0.016[b]	-0.006
	(-2.697)					(-2.213)	(-0.708)
Individualism Diversity		5.864[b]					
		(2.395)					
Log (EPU_News) × Individualism Diversity		-1.245[b]					
		(-2.386)					
UAI Diversity			3.456				
			(1.387)				
Log (EPU_News) × UAI Diversity			-0.779				
			(-1.450)				
PDI Diversity				4.964[b]			
				(2.289)			
Log (EPU_News) × PDI Diversity				-1.093[b]			
				(-2.401)			
MAS Diversity					2.212		
					(1.155)		
Log (EPU_News) × MAS Diversity					-0.493		
					(-1.204)		
Institutional Ownership	-0.108	-0.108	-0.104	-0.108	-0.106	-0.101	0.119
	(-1.053)	(-1.052)	(-1.017)	(-1.057)	(-1.038)	(-0.976)	(1.011)
Firm Size	-0.065[c]	-0.068[c]	-0.068[c]	-0.067[c]	-0.067[c]	-0.067[c]	-0.402[a]
	(-1.750)	(-1.765)	(-1.771)	(-1.768)	(-1.767)	(-1.794)	(-4.503)
Firm Leverage	0.906[a]	0.896[a]	0.896[a]	0.899[a]	0.898[a]	0.907[a]	0.738[a]
	(6.671)	(6.597)	(6.586)	(6.630)	(6.586)	(6.595)	(2.890)
Firm Performance	-4.218[a]	-4.240[a]	-4.247[a]	-4.242[a]	-4.233[a]	-4.235[a]	-3.181[a]
	(-7.461)	(-7.509)	(-7.493)	(-7.496)	(-7.466)	(-7.344)	(-3.648)

Sales Growth	0.003	0.002	0.003	0.002	0.002	0.004	-0.039
	(0.046)	(0.041)	(0.050)	(0.039)	(0.031)	(0.063)	(-0.432)
Cash Flow Volatility	1.290[c]	1.318[c]	1.331[c]	1.317[c]	1.321[c]	1.318[c]	1.576
	(1.926)	(1.960)	(1.984)	(1.970)	(1.971)	(1.963)	(1.646)
Market-to-Book	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.006[b]
	(-2.928)	(-2.872)	(-2.868)	(-2.901)	(-2.876)	(-2.905)	(-2.152)
Credit Rating	-0.026[b]	-0.026[b]	-0.026[b]	-0.026[b]	-0.026[b]	-0.026[b]	0.022
	(-2.119)	(-2.090)	(-2.111)	(-2.117)	(-2.119)	(-2.107)	(1.413)
Bond Maturity	0.010[b]	0.010[b]	0.010[b]	0.010[b]	0.010[b]	0.010[b]	0.002
	(2.128)	(2.164)	(2.155)	(2.170)	(2.149)	(2.147)	(0.261)
Bond Age	0.042[a]	0.042[a]	0.042[a]	0.042[a]	0.043[a]	0.043[a]	0.040[a]
	(7.113)	(7.065)	(7.090)	(7.070)	(7.101)	(7.220)	(3.876)
High Yield	0.381[a]	0.384[a]	0.382[a]	0.381[a]	0.381[a]	0.379[a]	0.375[a]
	(7.921)	(7.966)	(7.952)	(7.984)	(7.944)	(7.842)	(5.486)
Callability	0.103[c]	0.102[c]	0.102[c]	0.103[c]	0.102[c]	0.101[c]	-0.071
	(1.850)	(1.821)	(1.819)	(1.832)	(1.820)	(1.805)	(-0.514)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21,483	21,483	21,483	21,483	21,483	21,285	11,439
Adj. R^2	0.644	0.644	0.644	0.644	0.644	0.642	0.593

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty. Column 1 examines the interaction of economic policy uncertainty with composite cultural diversity within the board. Columns 2-5 presents the results from interacting economic policy uncertainty with board diversity regarding each of the cultural dimensions. Columns 6 and 7 reports the results from using the interaction of diversity within the independent board members and audit committee members. The data cover the 1993–2015 period. Variable definitions are in Table 1. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 9. EPU, Cultural Distance between CEO and the Board, and Cost of Debt

	Dependent Variable = Log (Yield Spread)						
	All Board Members					Independent Board	Audit Committee
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log (EPU_News)	0.697[a]	0.705[a]	0.678[a]	0.664[a]	0.628[a]	0.630[a]	0.599[a]
	(6.051)	(6.216)	(5.960)	(6.592)	(6.022)	(5.487)	(3.691)
Composite CD	0.843[c]					0.095	0.285[a]
	(1.900)					(0.524)	(3.008)
Log (EPU_News) × Composite CD	-0.186[b]					-0.024	-0.063[a]
	(-1.991)					(-0.610)	(-3.187)
Individualism CD		2.123[b]					
		(2.259)					
Log (EPU_News) × Individualism CD		-0.462[b]					
		(-2.318)					
UAI CD			1.239				
			(1.356)				
Log (EPU_News) × UAI CD			-0.301				
			(-1.563)				
PDI CD				1.210			
				(1.611)			
Log (EPU_News) × PDI CD				-0.276[c]			
				(-1.741)			
MAS CD					0.448		
					(0.812)		
Log (EPU_News) × MAS CD					-0.098		
					(-0.834)		
Institutional Ownership	-0.107	-0.106	-0.103	-0.106	-0.107	-0.113	0.137
	(-1.019)	(-1.002)	(-0.979)	(-1.007)	(-1.011)	(-1.049)	(1.096)
Firm Size	-0.064	-0.065[c]	-0.065[c]	-0.063	-0.063	-0.066[c]	-0.427[a]
	(-1.655)	(-1.673)	(-1.676)	(-1.624)	(-1.625)	(-1.711)	(-4.604)
Firm Leverage	0.912[a]	0.914[a]	0.909[a]	0.913[a]	0.911[a]	0.913[a]	0.622[b]
	(6.589)	(6.618)	(6.588)	(6.625)	(6.575)	(6.509)	(2.341)
Firm Performance	-4.056[a]	-4.066[a]	-4.052[a]	-4.053[a]	-4.064[a]	-4.054[a]	-3.180[a]
	(-7.013)	(-7.019)	(-7.015)	(-7.001)	(-7.011)	(-6.913)	(-3.620)

Sales Growth	-0.009	-0.009	-0.009	-0.010	-0.010	-0.007	-0.034
	(-0.162)	(-0.152)	(-0.151)	(-0.163)	(-0.167)	(-0.123)	(-0.384)
Cash Flow Volatility	1.515[b]	1.526[b]	1.536[b]	1.531[b]	1.514[b]	1.559[b]	1.850[c]
	(2.114)	(2.105)	(2.133)	(2.121)	(2.100)	(2.143)	(1.752)
Market-to-Book	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.005[a]	-0.006[c]
	(-2.978)	(-2.997)	(-3.008)	(-2.968)	(-2.946)	(-2.935)	(-1.978)
Credit Rating	-0.031[b]	-0.031[b]	-0.031[b]	-0.031[b]	-0.031[b]	-0.030[b]	0.017
	(-2.584)	(-2.586)	(-2.589)	(-2.588)	(-2.595)	(-2.537)	(1.124)
Bond Maturity	0.011[b]	0.011[b]	0.011[b]	0.011[b]	0.011[b]	0.011[b]	0.005
	(2.481)	(2.486)	(2.462)	(2.459)	(2.478)	(2.455)	(0.647)
Bond Age	0.041[a]	0.041[a]	0.040[a]	0.040[a]	0.041[a]	0.042[a]	0.040[a]
	(6.396)	(6.421)	(6.399)	(6.386)	(6.433)	(6.516)	(3.356)
High Yield	0.376[a]	0.377[a]	0.374[a]	0.376[a]	0.376[a]	0.379[a]	0.378[a]
	(7.714)	(7.721)	(7.681)	(7.727)	(7.688)	(7.705)	(5.202)
Callability	0.108[c]	0.109[c]	0.109[c]	0.109[c]	0.108[c]	0.105[c]	0.012
	(1.900)	(1.908)	(1.913)	(1.905)	(1.890)	(1.845)	(0.075)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,647	19,647	19,647	19,647	19,647	19,461	10,256
Adj. R^2	0.650	0.651	0.650	0.650	0.650	0.649	0.598

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty. Column 1 examines the interaction of economic policy uncertainty with composite cultural distance between the CEO and the board members. Columns 2-5 presents the results from interacting economic policy uncertainty with CEO-board distance regarding each of the cultural dimensions. Columns 6 and 7 reports the results from using the interaction of distance between the CEO and independent board members, and CEO and audit committee members. The data cover the 1993–2015 period. Variable definitions are in Table 1. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 10. EPU, the Role of Other Information Intermediaries, and Cost of Debt

	Dependent Variable = Log (Yield Spread)							
	Auditor	Analysts	Institutional Ownership	Churn Rate	LT IO	ST IO	LT & ST IO	Dummy (LT > ST)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Log (EPU_News)	0.849[a]	0.904[a]	0.791[a]	-0.046	0.893[a]	0.582[a]	0.840[a]	0.685[a]
	(6.549)	(8.414)	(7.485)	(-0.280)	(9.359)	(5.057)	(7.779)	(7.959)
Auditor	1.123[b]							
	(2.097)							
Log (EPU_News) × Auditor	-0.223[c]							
	(-1.921)							
Analysts		0.470[a]						
		(2.805)						
Log (EPU_News) × Analysts		-0.126[a]						
		(-3.454)						
Institutional Ownership			0.778					
			(1.325)					
Log (EPU_News) × InstOwn			-0.224[c]					
			(-1.777)					
Churn Rate				-40.224[a]				
				(-3.533)				
Log (EPU_News) × Churn Rate				10.146[a]				
				(3.984)				
LT IO					6.099[a]		5.964[a]	
					(3.268)		(3.200)	
Log (EPU_News) × LT IO					-1.394[a]		-1.373[a]	
					(-3.465)		(-3.415)	
ST IO						-1.048	-1.013	
						(-1.213)	(-1.203)	
Log (EPU_News) × ST IO						0.175	0.163	
						(0.954)	(0.917)	
Dummy (LT > ST)								0.865[b]
								(2.607)
Log (EPU_News) × Dummy(LT > ST)								-0.194[a]
								(-2.692)
Institutional Ownership	-0.269[a]	-0.235[a]					-0.316[a]	

	(-3.655)	(-2.784)					(-4.325)	
Firm Size	-0.014	0.039	-0.017	-0.017	-0.037	-0.018	0.031	-0.032
	(-0.546)	(1.388)	(-0.631)	(-0.713)	(-1.499)	(-0.739)	(1.263)	(-1.313)
Firm Leverage	0.813[a]	0.891[a]	0.810[a]	0.851[a]	0.828[a]	0.820[a]	0.855[a]	0.868[a]
	(8.109)	(8.017)	(8.082)	(8.496)	(8.430)	(8.362)	(8.517)	(8.774)
Firm Performance	-4.291[a]	-4.311[a]	-4.272[a]	-4.321[a]	-4.293[a]	-4.231[a]	-4.378[a]	-4.376[a]
	(-9.609)	(-9.270)	(-9.561)	(-9.564)	(-9.704)	(-9.538)	(-10.216)	(-9.825)
Sales Growth	0.001	0.001	0.001	-0.001	0.007	0.000	0.004	0.005
	(0.019)	(0.032)	(0.034)	(-0.026)	(0.165)	(0.009)	(0.135)	(0.122)
Cash Flow Volatility	1.091[b]	0.848	1.080[b]	1.017[b]	1.135[b]	1.000[b]	0.786	1.098[b]
	(2.138)	(1.586)	(2.144)	(2.046)	(2.236)	(1.996)	(1.529)	(2.182)
Market-to-Book	-0.006[a]	-0.005[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.006[a]	-0.005[a]	-0.006[a]
	(-4.604)	(-3.981)	(-4.569)	(-4.621)	(-4.762)	(-4.559)	(-4.373)	(-4.794)
Credit Rating	-0.039[a]	-0.037[a]	-0.039[a]	-0.038[a]	-0.038[a]	-0.038[a]	-0.035[a]	-0.038[a]
	(-4.148)	(-3.786)	(-4.146)	(-4.009)	(-4.089)	(-4.038)	(-3.585)	(-4.077)
Bond Maturity	0.007	0.009[b]	0.007	0.007	0.007[c]	0.007[c]	0.006	0.007[c]
	(1.637)	(2.273)	(1.644)	(1.637)	(1.731)	(1.662)	(1.452)	(1.712)
Bond Age	0.045[a]	0.048[a]	0.045[a]	0.045[a]	0.044[a]	0.045[a]	0.047[a]	0.044[a]
	(8.144)	(7.977)	(8.134)	(8.246)	(7.892)	(8.248)	(8.954)	(8.033)
High Yield	0.363[a]	0.345[a]	0.363[a]	0.363[a]	0.360[a]	0.363[a]	0.364[a]	0.358[a]
	(8.380)	(7.727)	(8.444)	(8.435)	(8.367)	(8.454)	(8.509)	(8.293)
Callability	0.127[b]	0.130[b]	0.126[b]	0.129[b]	0.119[b]	0.132[b]	0.130[a]	0.121[b]
	(2.493)	(2.534)	(2.477)	(2.516)	(2.301)	(2.579)	(2.811)	(2.337)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	33,192	28,185	33,225	33,226	33,226	33,226	33,225	33,252
Adj. R^2	0.688	0.698	0.688	0.690	0.687	0.690	0.698	0.688

Notes: This table provides coefficient estimates from regressing the log of corporate yield spreads on economic policy uncertainty. Columns 1-8 examine the interaction of economic policy uncertainty with alternative information intermediaries. The data cover the 1993–2015 period. Variable definitions are in Table 1. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. [*], [**], and [***] denote significance at the 10%, 5%, and 1% levels, respectively.

Table 11. Placebo Tests

Dependent Variable = Log (Yield Spread)

Governance =	Board Busyness	Board Independence	Diversity Composite	Diversity Independent	Diversity AuditCom	CD Composite	CD Independent
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$\widetilde{Placebo\ EPU}$	-0.006	-0.018	-0.015	-0.013	-0.007	-0.012	-0.013
	(-0.06)	(-0.08)	(-0.12)	(-0.11)	(-0.04)	(-0.09)	(-0.10)
Governance	-0.889	0.241	0.000	-0.000	-0.004	-0.004	-0.023
	(-0.28)	(0.18)	(0.02)	(-0.00)	(-0.11)	(-0.01)	(-0.13)
$\widetilde{Placebo\ EPU}$ × Governance	-0.078	0.005	0.000	0.000	0.000	0.003	0.001
	(-0.11)	(0.02)	(0.07)	(0.07)	(0.01)	(0.05)	(0.02)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	19,281	22,179	21,511	21,313	11,458	19,679	19,493

Governance =	CD AuditCom	Auditor	Analysts	Institutional Ownership	LT IO	ST IO	Churn Rate	Dummy (LT > ST)
	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
$\widetilde{Placebo\ EPU}$	-0.005	-0.007	-0.013	-0.020	-0.014	-0.011	0.005	-0.013
	(-0.03)	(-0.05)	(-0.09)	(-0.16)	(-0.12)	(-0.09)	(0.02)	(-0.12)
Governance	-0.028	0.076	-0.144	-0.370	0.162	-0.098	9.566	-0.031
	(-0.37)	(0.13)	(-0.85)	(-0.52)	(0.08)	(-0.11)	(0.56)	(-0.10)
$\widetilde{Placebo\ EPU}$ × Governance	0.000	-0.004	0.000	0.012	0.020	0.003	-0.265	0.004
	(0.02)	(-0.04)	(0.00)	(0.08)	(0.04)	(0.01)	(-0.07)	(0.07)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Seasonal FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,275	33,220	28,218	33,225	33,226	33,226	33,225	33,252

Notes: This table provides coefficient estimates from implementing placebo tests for all the governance variables used in Tables 6-10. Average coefficients from a hundred estimations of coefficients from replacing *EPU* with *Placebo EPU* are reported. The data cover the 1993–2015 period. Variable definitions are in Table 1. *t*-statistics from White heteroskedasticity-consistent standard errors adjusted for clustering by firm are in parentheses. All specifications are run using firm and seasonal fixed effects. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.