

The Impact of Tightly-Contested Governance Proposals on Firms' Narrative Disclosures: Evidence from a Regression-Discontinuity Design¹

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Abstract

Corporate governance and firm disclosure are endogenously determined. We exploit locally exogenous variations in corporate governance created by “close-call” governance-related shareholder proposal votes, using a fuzzy regression discontinuity design (RDD), and the techniques developed in text analytics to examine whether better corporate governance *causally* impacts the narratives in corporate disclosures. We find that although better corporate governance in firms leads to more disclosure in their 10-K filings, as measured by various textual variables, the passage of “close-call” governance proposals also significantly increases the boilerplate nature of such disclosures, as quantified with different textual similarity/distance measures. Such results are robust to several diagnostic placebo tests and alternative RDD specifications. Moreover, such findings provide causal evidence of the predictions from theoretical models that hold the view that governance and informative disclosures are substitutes, and superior corporate governance does not necessarily lead firms to more informative disclosure practices, as is generally perceived by regulators. Our results have meaningful implications for the corporate governance debate that is aimed at improving corporate disclosure.

JEL Classification: G23, G30, G34

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I. Introduction

In this paper, we examine the impact of corporate governance on both the quantity and boilerplate nature of firms' narrative disclosures in their 10-K filings. Despite enormous growth in research on the influence of corporate governance on firm disclosures, the empirical evidence is at best, mixed and non-causal. While the studies that find a positive association between good governance and firm disclosure conform nicely to the predictions from the monitoring role of corporate governance, researchers who document a negative relation between corporate governance and disclosure indicate that good corporate governance is merely a substitute for informative disclosures. Such conflicting results are puzzling, especially when regulators tend to believe that better governance would automatically lead to a higher quality of firm disclosures. For instance, in the recent 2018 SEC enforcement action and settlement with Tesla and its CEO, Elon Musk, two of the most essential demands laid out by the SEC for the settlement included changes in governance, specifically - (1) Elon Musk must step down as chairman of the board and be replaced by an independent chairman, and (2) Tesla must add two independent directors.² The idea behind these two changes was the underlying presumption of the SEC that better governance would effectively oversee the communications from Musk, and would lead to better disclosure practices in Tesla. However, in a survey on the state of research exploring the relation between corporate governance and firm disclosure, Brown, Beekes, and Verhoeven (2011, p. 142) write:

² <https://www.sec.gov/news/press-release/2018-226>

“Despite the presumption from regulators that CG (Corporate Governance) leads to better disclosure practices, studies find opposing results, leaving the debate open as to whether CG is a substitute for, or complementary to, a firm’s disclosure practices.”

We argue in this paper that since the relation between corporate governance and firm disclosure is endogenously determined, identifying the causal impact of governance on disclosure is empirically tricky. Researchers in this area not only face the identification challenge of simultaneity, as it can be argued that both governance and disclosure are determined jointly in equilibrium, but also face a more severe issue of omitted variable bias. It is plausible that the extant literature has not controlled for an observable or an unobservable variable that determines both corporate governance and disclosure practices. Moreover, there is scant evidence on the impact of corporate governance on firms’ narrative disclosures in the SEC filings (Liberti and Petersen, 2019).

To address such issues of endogeneity and to claim credible causal inference, we rely on the econometric technique of Fuzzy Regression Discontinuity Design (Fuzzy RDD) to estimate the impact of the passing of governance enhancing shareholder proposals on the quantity and also the boilerplate nature of firms’ disclosures in the narratives of their 10-K filings. Although RD designs were first introduced by Thistlewaite and Campell (1960), they have not been widely used in the corporate finance and accounting literature until recently, most noticeably by, Cuñat, Gine, and Guadalupe (2012).³ We follow the methodology of Cuñat, Gine, and Guadalupe (2012),

³ Imbens and Lemeiux (2008), and Lee and Lemieux (2010) provide excellent reviews of Regression Discontinuity Designs (RDD). Some other recent papers in finance that have used this quasi-experimental technique of RDD are

where the logic of such RDD approach is that the corporate governance-related shareholder proposals that pass or fail by a small margin of votes around the 50% threshold create a local exogenous variation in corporate governance. One plausible concern of using such an empirical set-up is that these shareholder proposals are nonbinding and are only advisory in nature. However, since the passing of shareholder proposals exerts pressure on the management to enact such proposals in the future, it greatly increases the likelihood of their implementation, satisfying the critical identification assumption in the Fuzzy RDD methodology.

Our identification strategy using Fuzzy RDD suggests a positive causal effect of corporate governance on the quantity of textual disclosure, but more importantly, we also find a negative impact of governance in terms of significantly increasing the boilerplate nature of their disclosures, plausibly reducing the informational content of such disclosures. We have relied on different textual and corpus similarity measures widely used in computational linguistics and recently applied in finance and accounting to quantify the texts used in 10-K disclosures.⁴ Such results are robust to several diagnostic and placebo tests, alternative bandwidths around cutoff, and alternative regression discontinuity specifications.

We begin section II with a discussion of the existing literature in relation to our study and our primary research question. Section III describes the sample and the data used in this study, followed by section IV, which discusses the identification strategy using the Fuzzy RD design and presents the main results. Section V complements the discussion of the main results with a

Black, Kim, Jang, and Park (2015), Malenko and Shen (2016), Almeida, Fos, and Kronlund (2016), and Chemmanur and Tian (2018).

⁴ For comprehensive surveys on the application of textual analysis in finance and accounting, see Das (2014), Kearney and Liu (2014), and Loughran and McDonald (2016).

battery of robustness tests, and finally, section VI concludes with some cautionary policy implications of our findings.

II. Related Literature and the Main Research Question

Both good corporate governance and greater firm disclosure are generally perceived by regulators and investors as desirable. However, both in the finance and the accounting literature, it is an open question - whether better corporate governance indubitably leads to more informative disclosures, which is the primary research question of this study. While on the one hand disclosure can be written as an increasing function of corporate governance, since the monitoring role of corporate governance would ensure more informative firm disclosures, on the other hand, disclosure can also be described as a decreasing function of corporate governance, as it might serve as a substitute for governance deficit. Note that under the assumption of an ideal frictionless world of full disclosure and symmetric information, there is no need for corporate governance, as investors are fully informed and can monitor the management themselves. It is in the real world with the presence of frictional costs such as the adverse selection and the moral hazard that corporate governance begins to matter, and hence, they can behave as substitutes in the cross-section. Moreover, firms may also choose to disclose less information despite good corporate governance for competitive and proprietary reasons (Admati and Pfleiderer, 2000).

There is ample empirical evidence on both sides of this argument in the extant literature, not only in studies based in the U.S. but also studies that look at firms in other geographical regions. For instance, both Eng and Mak (2003) and Abraham and Cox (2007) find evidence of a

negative association between good governance and disclosure. While Abraham and Cox (2007) focus their study on the UK firms and find a negative association between long-term institutional ownership, a proxy for good corporate governance, and the levels of risk disclosure in their annual reports, Eng and Mak (2003) document a negative relation between managerial ownership, another proxy for good corporate governance, and disclosure for firms incorporated in Singapore. Other studies, such as Beekes and Brown (2006) and Bird and Karolyi (2016) document a positive association between corporate governance and disclosure. While Beekes and Brown (2006) find that better governed Australian firms release more informative disclosures, Bird and Karolyi (2016) find that improved governance through increased institutional ownership leads to more voluntary disclosures in the U.S.

In this paper, we argue that the extant literature studying this relation between governance and disclosure is split in both its theoretical predictions and empirical findings, not only because of the different endogeneity issues such as simultaneity, omitted variable bias, and measurement error, but also because the literature has mostly ignored the soft disclosure in the narratives of SEC filings (Liberti and Petersen, 2019). Hence, the focus of our paper is firms' disclosures in narratives of SEC filings by coding text into numbers using well-established natural language processing (NLP) techniques and controlling for hard information by using various accounting and finance variables. We further distinguish between the quantity and information content of disclosures using several accepted statistical measures of text summarization in the literature, since greater disclosure does not always necessarily mean more informative disclosure.

In sum, we believe that the relation between corporate governance and disclosure is ultimately an empirical question warped with numerous identification challenges. Therefore, in asking the question of what the impact of corporate governance on firms' disclosures is, our goal in this study is to find a credible causal inference and not just correlation.

III. Data and Summary Statistics

We collect the governance data and the data on shareholder-sponsored proposals' vote information from RiskMetrics and SharkRepellent for the period 1997 to 2015. We start in the year 1997 due to the availability of such data and stop at the year 2015 in order to allow us to collect several years of post-voting outcomes data. We focus only on the governance-related proposals that have the valid voting results data and the requirement of a 50% threshold for approval. The final sample comprises of 4,453 governance-related shareholder proposals during the sample period. Table 1 provides the summary statistics on the shareholder proposals included in this study.

Insert Table 1 Here

Panel A of Table 1 presents the distribution of shareholder proposals by year for all S&P 1,500 firms plus an additional 500 widely held firms. In Panel B, we further classify the governance-related proposals by proposal type following the broad classification used by Cuñat, Gine, and Guadalupe (2012), namely, auditor-related, board-related, executive compensation-related, G-Index-related, voting-related, and others. Table 1 also provides the distribution of the percentage of proposals that passed and the average vote in favor of governance-related

proposals each year. Two specific examples of governance-related proposals with valid voting data close to the 50% threshold, sourced from SharkRepellent, are provided in Table 2.

Insert Table 2 Here

Furthermore, in Figure 1 below, we have plotted the density of governance-related proposals in our sample in a histogram, with the X-axis of the figure depicting the percentage of votes cast for the proposal. This figure also shows that there is no systematic sorting of firms within the proximity of the 50% vote threshold, indicating graphically that there is no evidence of precise manipulation at the cutoff point of 50% by either voters or managers.

Insert Figure 1 Here

(A) Control Variables

Firm-level accounting and return data are from Compustat and CRSP, respectively. Institutional ownership data has been collected from the Thomson Financial 13F institutional holdings database, and analyst coverage data is from IBES. The data on E-Index or the Entrenchment Index is based on Bebchuk, Cohen, and Ferrell (2009) and is obtained from RiskMetrics. Table 3 below presents the summary statistics of the control variables used in this study. The definitions of these covariates have been provided in Appendix A of the paper.

Insert Table 3 Here

(B) Dependent Variables

We use a web crawler to download the 10-Ks from the SEC's EDGAR (Electronic Data Gathering, Analysis, and Retrieval) system.⁵ To clean the filings prior to creating the textual variables for quantity and similarity of narratives in the 10-Ks, we have closely followed the standard methodologies used in finance and accounting papers such as Li (2008), Miller (2010), Loughran and McDonald (2011) and Hwang and Kim (2017). We use the programming language Python to create the textual outcome variables from these cleaned 10-K text files and have broadly classified them as the quantity and similarity of textual disclosure as described below.⁶

(i) The Quantity of Textual Disclosure

We measure the quantity of disclosure in the narratives of 10-Ks using variables such as the word count, the complex word count, the sentence count, and the paragraph count. While the word count is simply the number of words in the filings, the complex word count is the number of words containing three or more syllables in the filings. We define the sentence count as the number of sentences in the filing, where the minimum number of words needed to be considered a sentence is five. We follow the methodology of Gillick (2009) in order to identify sentence boundaries. Finally, we also compute the paragraph count of the filings, where the minimum number of words needed to be considered a paragraph is ten.

⁵ <https://www.sec.gov/edgar.shtml>

⁶ Professor Bill McDonald from the University of Notre Dame has provided very useful programming advice for textual analysis on his website: <https://www3.nd.edu/~mcdonald/>

(ii) The Similarity of Textual Disclosure

We also measure the amount of boilerplate language, i.e., the text that has been simply copied and recycled from the prior filing using four different well-established semantic similarity or distance measures that are used for text document clustering, namely, the cosine similarity, the Jaccard coefficient or similarity, the modified Jaccard coefficient or similarity, and the minimum edit distance. We describe these semantic similarity measures in more detail below:

Cosine Similarity

The first proxy for measuring the boilerplate language in 10-Ks that we have computed is the widely used cosine similarity measure from computational linguistics. We begin by representing each 10-K in our sample that was released at time t and its previous 10-K that was filed at time $t-n$ (where $n = 1, 2, \text{ or } 3$), as term vectors. The similarity between these two 10-Ks (let us denote them as documents D_1 and D_2) of the same firm is then quantified as the cosine of the angle between these two vectors as shown below:

$$\text{Similarity}_{\text{cosine}}(D_1, D_2) = \frac{\vec{D}_1 \cdot \vec{D}_2}{|\vec{D}_1| \times |\vec{D}_2|} \quad \text{----- (1)}$$

where, \vec{D}_1 and \vec{D}_2 are m -dimensional vectors over the term set $T = \{t_1, t_2, \dots, t_m\}$.

The numerator in formula (1) is the dot product or the inner product, and the denominator is the product of their Euclidean norms. Therefore, the cosine similarity measure is non-negative and is bounded between [0,1] (or, between 0% and 100%).

Although the text-based cosine similarity measure is widely used and accepted measure of semantic similarity in computational linguistics, it has only recently been applied in finance research (e.g., Hoberg and Phillips, 2010; Hoberg, Phillips, and Prabhala, 2014; Hoberg and

Phillips, 2016; Box, 2018). The new text-based network industry classification (TNIC) data library developed by Professors Gerard Hoberg and Gordon Phillips relies on cosine similarity measure.⁷

Jaccard Similarity Coefficient

The second similarity measure between 10-Ks of firms in our sample and their prior 10-K filings that we compute is known as the Jaccard coefficient or the Tanimoto coefficient. The basic idea here is to compare the sum of the weights of shared terms to the sum of the weights of the unique terms that are present in either of the two 10-Ks. Mathematically, the Jaccard coefficient is the similarity between two 10-Ks (let us denote them as documents D_1 and D_2), defined as:

$$\text{Similarity}_{\text{Jaccard}}(D_1, D_2) = |T_1 \cap T_2| / |T_1 \cup T_2| \quad \text{----- (2)}$$

where, T_1 and T_2 are the word sets used by D_1 and D_2 , respectively. The value of Jaccard similarity measure ranges between 0 and 1 (or, 0% and 100%). If the value is 0, then it means that the two 10-Ks are completely different, and if the value is 1, then it indicates that the two 10-Ks are same with respect to their texts.

Modified Jaccard Coefficient

One of the shortcomings of the Jaccard similarity measure is that it ignores the term frequency, i.e., how many times the term occurs in a document. Often information retrieval models indicate that rare terms in a collection of words are more informative than frequently used terms. As the name suggests, the modified Jaccard coefficient is an improvement over the

⁷ <http://hobergphillips.tuck.dartmouth.edu/>

Jaccard coefficient, as it takes into consideration the word frequency in the two word sets, T_1 and T_2 . The formal definition is:

$$\text{Similarity}_{\text{Modified Jaccard}}(D_1, D_2) = \sum_{i \in T_1 \cap T_2} (t_{1i} + t_{2i}) / \sum_{i=1}^m (t_{1i} + t_{2i}) \quad \text{----- (3)}$$

The modified Jaccard similarity measure also ranges between 0 and 1 (or, 0% and 100%).

Minimum Edit Distance

Our final similarity measure to pick up the boilerplate language in 10-Ks is minimum edit distance measure, which is mathematically defined as:

$$\text{Similarity}_{\text{Minimum Edit Distance}}(D_1, D_2) = \sum_{i=1}^m |t_{1i} - t_{2i}| / \max\{\sum_{i=1}^m t_{1i}, \sum_{i=1}^m t_{2i}\} \quad \text{----- (4)}$$

Intuitively, we can think of minimum edit distance between two documents as the minimum number of operations (i.e., the number of insertions, deletions or substitutions) it takes to edit document D_1 into document D_2 . Note that the scores for minimum edit distance can be greater than 1 or 100%, and the similarity reduces with higher scores, which is opposite to the previous three measures of similarity.

We test whether the four different textual variables for measuring the quantity of disclosure (i.e., the word count, the complex word count, the sentence count, and the paragraph count) and the four different textual proxies for quantifying the similarity in narratives of the 10-Ks with their prior 10-Ks (i.e., the cosine similarity, the Jaccard coefficient, the modified Jaccard coefficient, and the minimum edit distance) are picking up what they are supposed to measure, by computing the correlations between these textual variables for the sample used in the study. The results are reported in Table 4a. The results show that each of these measures of *quantity* and *similarity* of textual disclosure are highly correlated, providing us confidence in using these

proxies not only for the main tests but also in interpreting each of them as robustness tests, alleviating the concerns of measurement error to some extent.

Insert Table 4a Here

Before we conduct rigorous RD regressions, we also conduct univariate tests to see the difference in different textual variables, i.e., our main dependent variables, for the firms where the governance-related proposals were passed vis-à-vis the firms where the proposals were not passed. The univariate results have been presented in Table 4b.

Insert Table 4b Here

While these univariate results show that the firms where the governance proposals passed significantly reduced the quantity of their textual disclosure in terms of the word count, the complex word count, the sentence count, and the paragraph count as shown by the significant differences in both their mean and median in Table 4b, such significant differences do not exist consistently for the four document similarity measures. Moreover, the direction of the differences in similarity measures is not clear either.

However, note that such naïve univariate tests do not control for the confounders and merely show an association. Therefore, the next section discusses the multivariate specifications and finally, the fuzzy regression discontinuity design (RDD) to establish causality and presents our main results.

IV. Identification Strategy and Main Results

(A) OLS Panel Results

Researchers in finance and accounting have provided us with useful insights into the relation between corporate governance and disclosure, as discussed in the preceding sections. However, the extant literature has also recognized that such relation is endogenously determined, and in the absence of a truly exogenous shock to corporate governance, it is difficult to provide a credible causal inference. Even if we believe that the OLS models used to determine the association between corporate governance and disclosure in the extant literature have been correctly specified, it is plausible that these models are unable to fully account for all the sources of endogeneity such as omitted variables, measurement error, and simultaneity. For example, governance and disclosure could be jointly determined or be caused by some unobservable characteristics that are time-varying. Nevertheless, we estimate the following multivariate model using OLS regressions to test the association between governance and disclosure in narratives:

$$(Disclosure)_{i,t+n} = \alpha_t + \beta_t Eindex_{i,t} + \gamma Z_t + Year_t + Firm_i + u_{i,t}, \quad (i)$$

where the dependent variable (*Disclosure*) is either the four different textual measures of the quantity of disclosure or the four different measures of document similarity, capturing the amount of boilerplate nature of the disclosure narratives. *Z* is a vector of observable firm characteristics that may influence disclosure and have been borrowed from the extant literature. These covariates include market value, ROA, earnings growth, sales growth, loss indicator, big eight auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. The main variable of interest on the right-hand side of equation (i) is the *E-Index* or the Entrenchment Index. We have also included fixed effects

to capture year and firm fixed effects and we cluster standard errors at the firm level. The results of specification (i) are presented in Table 5.

Insert Table 5 Here

Panel A of Table 5 presents the results where the dependent variable is one of the proxies of quantity of disclosure. The results in models (2)-(4) show a significant and positive association between governance and the quantity of disclosure. The coefficient estimate of the E-Index in model (1) is not significant but is in the same direction. Note that this positive association between governance and the quantity of disclosure is opposite to the relation reported in naïve univariate tests in the previous section. Panel B of Table 5 reports the results where the dependent variable is one of the proxies of boilerplate nature in the narratives of disclosures. The coefficient estimates of the E-Index are not significant in models (5)-(8).

Even though we have used a long list of controls, different proxies for measuring textual quantity and similarity and have also used firm and year fixed effects in the specifications shown in Table 5, we are cognizant that in the absence of a shock we cannot claim causality because of the remaining endogeneity concerns that might arise due to omitted variable bias.

(B) Identification

To address such issues of endogeneity, we implement a fuzzy Regression Discontinuity Design (RDD), a la Cuñat, Gine, and Guadalupe (2012), as our identification strategy, where we use the passing of shareholder proposals as a shock to corporate governance. Using the “close-call” proposals enables us to create locally exogenous shocks to governance to establish a causal impact of governance on firms’ narrative disclosures.

Therefore, we estimate the following baseline specification:

$$(Disclosure)_{i,t+n} = \alpha_t + \beta_t Pass_{i,t} + \gamma Z_t + Year_t + Industry_i + u_{i,t}, \quad (ii)$$

where *Pass* is the key variable of interest, which takes the value of 1 if the shareholder proposal passes, and 0 otherwise, and β_t is the coefficient of interest, which captures the impact of the passing of governance proposal on the different attributes of narratives of firms' disclosures. The indices *i* and *t* denote firm and year, respectively, and *n* equals 1, 2, or 3. *Z* is a vector of observable firm characteristics that have been found to be associated with firm disclosure in the extant literature and as used in specification (i). Our results are not subsumed by these standard quantitative measures influencing disclosure. We also control for Industry (*Industry_i*) and year (*Year_t*) fixed effects to mitigate the endogeneity concerns arising from time-invariant and time-varying unobservables. Our dependent variable (*Disclosure*) is either the textual measures of the quantity of disclosure, or the measures capturing the different dimensions of document similarity. Table 6 presents the results of such RDD analyses for the governance-related proposals that pass or fail within the 10% bandwidth.

Insert Table 6 Here

Panel A of Table 6 shows that the estimated coefficients on the PASS variable are positive and significant for all the four models indicating that passing of governance proposals leads to an increase in the quantity of textual disclosure in firm's 10-Ks. More interestingly, the results from Panel B show that the boilerplate nature of the texts used in narratives also significantly increases after the such close call passing of governance proposals, as indicated by models (5)-(8). Following these tests, we repeat the same specification for a narrower bandwidth of 5% to reduce noise and bias. The results are presented in Table 7.

Insert Table 7 Here

Interestingly, the results are not significant anymore for the quantity of disclosure as shown in Panel A of Table 7, however, the results in terms of document similarity are stronger both in terms of magnitude and significance (significant at 1% level in all the four measures of document similarity), as indicated in Panel B of Table 7. This suggests that the causal impact of governance is more on the boilerplate nature of the narratives. The passing of a governance-related proposal by a small margin of 5% significantly increases the amount of boilerplate language, i.e., the text that has been simply copied and recycled from the prior filings, obscuring information in the aggregate. We focus the next section on conducting several robustness tests for our main results.

V. Robustness Tests

(A) Alternative RDD Specifications

Even though the coefficient estimates from narrow bandwidths (i.e., 10% or 5%) are unbiased and less prone to noise, there are limitations in only focusing on “close-call” proposals. Since “close-call” proposals (pass or fail within 5% or 10% bandwidth) only consist of approximately 25% of the overall proposals, focusing only on this subset of proposals reduces the power of our analyses, and raises questions on the external validity of our results (i.e., do our results hold for “non-close-call” proposals?). To address these concerns, we also conduct our analyses using an alternative RDD specification following Cuñat, Gine, and Guadalupe (2012), where we include all proposals regardless whether the proposals pass or fail by a small margin. The specification we use is shown in equation (iii):

$$(Disclosure)_{i,t+n} = \alpha_t + \beta_t Pass_{i,t} + \gamma Z_t + Year_t + Industry_i + P_l(v,c) + P_r(v,c) + u_{i,t}, \quad (iii)$$

Here, *Pass* is still the key variable of interest, which takes the value of 1 if the shareholder proposal passes, and 0 otherwise, and β_t is the coefficient of interest, which captures the impact of the passing of governance proposal on firms' disclosures. The indices *i* and *t* denote firm and year, respectively, and *n* equals 1, 2, or 3. *Z* is the same vector of observable firm characteristics used in specifications (i) and (ii). We also control for Industry (*Industry_i*) and year (*Year_t*) fixed effects. In addition, we also add two polynomial terms to control for the additional noises that come along with including all proposals in our analyses. $P_l(v,c)$ is a polynomial term for proposals on the left side of the threshold (50%), and $P_r(v,c)$ is a polynomial term for proposals on the right side of the threshold (50%). *v* is the actual vote share in favor of the proposal, and *c* is the threshold (50% in our study). The different polynomial terms for proposals on the left and right side of the threshold allow for the different functional forms for those proposals. We use the polynomials of order 2 as suggested in Gelman and Imbens (2018), however, the results are qualitatively similar using higher orders for the polynomial terms. The results with this alternative RDD specification have been provided in Table 8.

Insert Table 8 Here

The results in both panel A and B of Table 8 show consistent results in line with our baseline RDD regressions as presented in Table 6.

(B) Placebo Tests

Furthermore, we also conduct a couple of placebo tests by artificially assuming voting thresholds for approval as 25% and 70%, instead of the actual 50% that is needed for the approval

of governance-related shareholder proposals in our sample. The idea here is to test whether the passage of governance-related proposals around such artificially created thresholds has any impact on firm's narrative disclosures. The results have been presented in Table 9a (assuming 70% threshold) and in Table 9b (assuming 25% threshold).

Insert Tables 9a and 9b Here

None of the coefficient estimates of PASS are significantly different from zero as shown in Table 9a. Moreover, the signs on the coefficients are mixed. The results in Table 9b are also not significant except in model 5, which is significant only at 10% level. Such placebo tests around alternative pseudo-cutoffs confirm that the main RDD results documented in the previous section in the paper are unlikely to be spurious.

(C) Principal Components Analysis (PCA)

As shown in Table 4a, the textual measures of both quantity and similarity of disclosures are highly correlated and hence cannot be used in the same regression due to the issue of multicollinearity. Therefore, in this section, we employ Principal Components Analysis (PCA), one of the most popular methods in factor analysis and dimensionality reduction, to extract the principal eigenvectors of these textual measures. This procedure is similar to constructing an index of textual quantity and similarity measures, by withholding their uncorrelated and normalized components, using vector space transformation. Then, we re-run the different RDD specifications used in this paper, and the results have been presented in Table 10.

Insert Table 10 Here

We find that our main results are consistent even when we use principal components that allow us to focus on the common essence of the proxies of textual quantity and similarity, as shown in the six different models in Table 10.

VI. Conclusion and Policy Implications

In this paper, we study the causal impact of corporate governance on the firms' disclosures in the narratives of 10-Ks. Utilizing locally exogenous variations in corporate governance created by "close-call" governance-related shareholder proposal votes, that renders a quasi-experimental fuzzy regression discontinuity design (RDD), and techniques in analyzing textual data borrowed from computational linguistics, we find that better corporate governance in firms results in more boilerplate and plausibly less informative disclosures in the narratives of subsequent 10-Ks. Although we also document that the passing of "close-call" governance-related shareholder proposals increases the quantity of textual disclosure in the narratives of 10-Ks, such results become insignificant at the 5% bandwidth, around the 50% threshold.

The paper makes two new contributions in improving our collective understanding of the link between corporate governance and disclosure. First, such results provide empirical support to the models of disclosure that treat corporate governance and disclosure as substitutes rather than complements and calls into question the common perception amongst regulators that better corporate governance leads to more informative disclosures. Second, we quantify the impact of governance on firms' soft disclosure using *textual analysis* – an emerging line of research in both finance and accounting.

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Figure 1 Voting Outcome Density of Shareholder Proposals

The figure below presents the histogram plot of the percentage of votes in favor of the proposals in our sample. The x-axis is the actual percentage of votes in favor of the proposals.

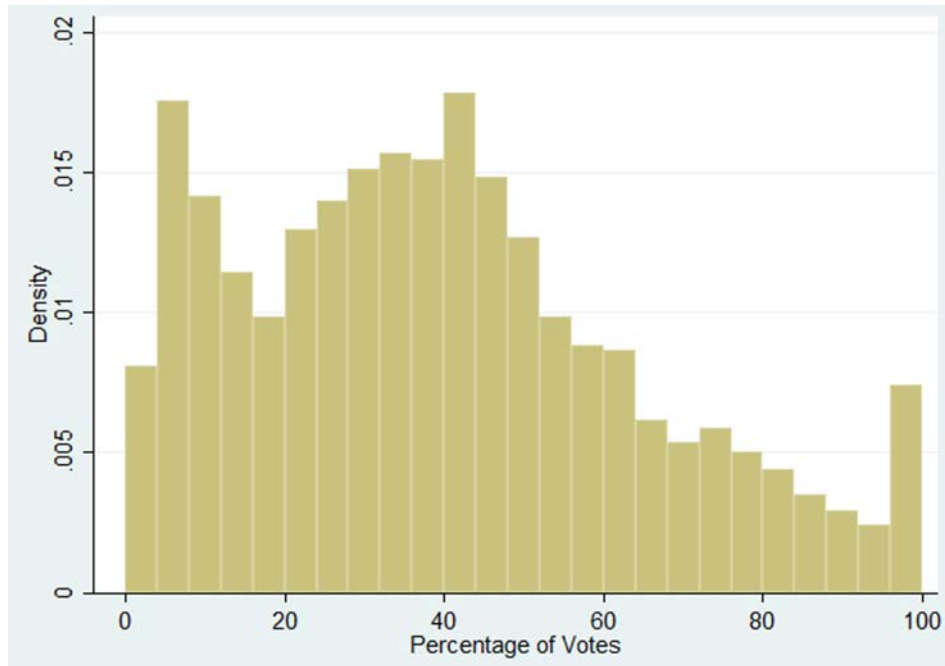


Table 1 Summary Statistics – Shareholder Proposals

The table below presents the summary statistics of shareholder proposals of publicly listed U.S. firms used in this paper from 1997 to 2015. Panel A displays the distribution of shareholder proposals by year. Panel B displays the distribution of shareholder proposals by proposal type. Only the proposals with valid voting outcome and 50% threshold for approval are included.

Panel A: Summary Statistics of Shareholder Proposals					
Year	# of Proposals	# of Proposals Passed	% of Proposals Passed	Average Vote in Favor	Std. Dev. Of Vote in Favor
1997	101	9	8.91%	23.70%	17.50
1998	67	3	4.48%	21.04%	15.89
1999	32	3	9.38%	20.31%	16.70
2000	141	39	27.66%	32.05%	22.56
2001	166	43	25.90%	30.19%	22.95
2002	188	61	32.45%	35.81%	22.72
2003	326	114	34.97%	37.47%	22.69
2004	282	81	28.72%	33.68%	26.06
2005	255	77	30.20%	37.08%	23.97
2006	300	92	30.67%	39.47%	21.86
2007	290	67	23.10%	36.49%	21.78
2008	290	91	31.38%	43.21%	25.32
2009	381	159	41.73%	48.79%	26.29
2010	308	89	28.90%	41.51%	21.87
2011	238	97	40.76%	49.28%	26.18
2012	271	98	36.16%	46.88%	27.04
2013	289	74	25.61%	40.54%	25.64
2014	274	80	29.20%	43.46%	27.82
2015	254	69	27.17%	40.70%	23.73
Total	4,453	1,346	30.23%	39.66%	24.96

Panel B: Summary Statistics of Shareholder Proposals with Classification					
Classification	# of Proposals	# of Proposals Passed	% of Proposals Passed	Average Vote in Favor	Std. Dev. Of Vote in Favor
Auditor	43	3	6.98%	23.75%	17.49
Board	888	229	25.79%	39.46%	30.48
Compensation	1,192	104	8.72%	26.77%	16.71
G-Index					
G-Delay	738	448	60.70%	57.58%	19.43
G-Other	208	144	69.23%	58.82%	16.73
G-Protection	109	53	48.62%	47.73%	18.47
G-Voting	416	136	32.69%	44.73%	20.94
Other	428	39	9.11%	21.97%	19.23
Voting	431	190	44.08%	48.00%	20.81
Total	4,453	1,346	30.23%	39.66%	24.96

Table 2 Examples of Close-Call Governance Proposals

Example 1:

Company Name:	Exxon Mobil Corporation
Meeting Date:	May 27 th , 2015
Proposal:	“CalPERS and NYC Pension Funds filed a notice of exempt solicitation urging support for a non-binding proxy access proposal to create a holding requirement of 3% / 3 years to nominate 25% of Co.'s directors.”
Voting Outcome:	Failed (49.4% vote in favor)

Example 2:

Company Name:	Cisco Systems, Inc.
Meeting Date:	November 12 th , 2009
Proposal:	“Dissident non-binding proposal for the 2009 annual meeting, which requested the board to adopt a policy to allow for a shareholder advisory vote on executive compensation each year”
Voting Outcome:	Passed (51% vote in favor)

Source: SharkRepellent

Table 3 Summary Statistics – Control Variables

The table provides the summary statistics of all the control variables used in this paper. Firm Size is the measured by the natural logarithm of equity market value; Market-to-Book is measured by (total debt + market value of equity)/(total debt + book value of equity); Return on Assets (ROA) is the net income scaled by total assets; Earnings Growth is the change in net income relative to the prior year, scaled by total assets; Sales Growth is the change in sales relative to the prior year; Loss Indicator is a dummy that equals to one if the net income for the year is negative, and zero otherwise; Big 8 Auditor Indicator is a dummy that equals to one if the auditor codes are between 1 and 8, and zero otherwise; Stock Volatility is annualized standard deviation of month stock returns; Institutional Ownership is the total institutional ownership as a percentage of shares outstanding; Stock Return is natural logarithm of annualized stock return adjusted by inflation; Amihud Illiquidity is the direct illiquidity measure based on Amihud (2002); Analyst Following is the natural logarithm of 1 + the number of analyst following the firm; Negative Earnings Surprise is a dummy that equals to one if SUE score is negative, and zero otherwise.

Variable	N	Mean	25th Percentile	Median	75th Percentile	Std. Dev.
Market Value (LN)	4,453	9.587	8.420	9.697	10.918	1.817
Market to Book	4,453	2.368	1.290	1.851	2.793	1.886
Return on Assets (ROA)	4,453	0.128	0.067	0.128	0.179	0.101
Earnings Growth	4,453	0.006	-0.006	0.004	0.019	0.075
Sales Growth	4,453	1.046	0.970	1.043	1.111	0.237
Loss Indicator	4,453	0.128	0	0	0	0.335
Big 8 Auditor Indicator	4,453	0.967	1	1	1	0.179
Stock Volatility	4,453	0.085	0.051	0.072	0.101	0.056
Institutional Ownership	4,453	0.728	0.621	0.744	0.841	0.169
Stock Return	4,453	1.124	0.931	1.108	1.278	0.410
Amihud Illiquidity	4,453	0.020	0.005	0.009	0.018	0.043
Analyst Following (LN)	4,453	3.038	2.773	3.178	3.401	0.548
Negative Earnings Surprise	4,453	0.403	0	0	1	0.491

Table 4a Correlation of Textual Disclosure Variables

The table provides the correlations between textual disclosure variables used in this study. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: Quantity of Disclosure			
	Word Count	Complex Word Count	Sentence Count	Paragraph Count
Word Count	1.0000			
Complex Word Count	0.9963***	1.0000		
Sentence Count	0.9827***	0.9844***	1.0000	
Paragraph Count	0.8299***	0.8325***	0.8514***	1.0000
	Panel B: Similarity of Disclosure			
	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
Cosine Similarity	1.0000			
Modified Jaccard Similarity	0.759***	1.0000		
Jaccard Similarity	0.7359***	0.865***	1.0000	
Minimal Distance	-0.7506***	-0.7153***	-0.8744***	1.0000

Table 4b Univariate Comparison of Disclosure Variables

The table reports the univariate comparison of various textual disclosure measures in 10-K filings between firms whose governance related shareholder proposals are passed versus firms whose governance related shareholder proposals are not passed. The last two columns report the p-value for differences in mean and median of these textual disclosure measures between these two groups of firms. The textual disclosure variables studied in this paper include: word count; complex word count; sentence count; paragraph count; and similarity measures (cosine similarity; modified Jaccard similarity; Jaccard similarity; minimal distance).

	Proposal NOT Passed				Proposal Passed				Differences (p-value)	
	N	Mean	Median	Std. Dev.	N	Mean	Median	Std. Dev.	Mean	Median
Quantity of Disclosure										
Word Count (LN)	3,107	10.865	10.826	0.656	1,346	10.781	10.743	0.528	0.0000	0.0000
Complex word count (LN)	3,107	9.505	9.480	0.652	1,346	9.419	9.384	0.527	0.0000	0.0000
Sentence count (LN)	3,107	7.651	7.631	0.604	1,346	7.572	7.530	0.485	0.0000	0.0000
Paragraph Count (LN)	3,107	6.556	6.538	0.666	1,346	6.451	6.435	0.592	0.0000	0.0000
Similarity of Disclosure										
Cosine Similarity	3,107	0.974	0.987	0.040	1,346	0.972	0.987	0.043	0.0963	0.6280
Modified Jaccard Similarity	3,107	0.953	0.973	0.079	1,346	0.952	0.973	0.077	0.7737	0.4750
Jaccard Similarity	3,107	0.653	0.678	0.144	1,346	0.656	0.689	0.148	0.5553	0.0180
Minimal Distance	3,107	0.410	0.369	0.195	1,346	0.416	0.368	0.204	0.4053	0.9780

Table 5 Governance and Disclosure (OLS Panel Regressions)

This table presents the OLS estimation results between governance (proxied by Entrenchment Index) and various disclosure measures. The dependent variables are various textual disclosure measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. Standard errors are clustered at firm level, and t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
E-Index	-0.010 (-1.61)	-0.011* (-1.69)	-0.011** (-2.00)	-0.016** (-2.50)	0.000 (0.33)	0.000 (0.08)	0.001 (0.39)	-0.001 (-0.50)
Market Value (LN)	0.006 (0.40)	0.006 (0.39)	0.005 (0.41)	0.019 (1.37)	0.000 (0.05)	-0.000 (-0.21)	0.002 (0.52)	-0.004 (-0.70)
Market to Book	-0.011*** (-2.81)	-0.011*** (-2.95)	-0.011*** (-2.67)	-0.017*** (-3.28)	-0.000 (-0.37)	0.000 (0.21)	0.001 (0.78)	-0.000 (-0.04)
Return on Assets (ROA)	-0.259*** (-3.92)	-0.250*** (-3.94)	-0.219*** (-3.71)	-0.189*** (-3.02)	0.013** (2.23)	0.022** (1.96)	0.064*** (3.00)	-0.075** (-2.49)
Earnings Growth	0.038 (1.49)	0.036 (1.46)	0.034 (1.51)	0.042 (1.64)	-0.001 (-0.19)	-0.001 (-0.19)	-0.003 (-0.21)	-0.005 (-0.25)
Sales Growth	0.006 (1.35)	0.006 (1.31)	0.006 (1.35)	0.007* (1.72)	-0.000 (-0.23)	-0.001 (-0.70)	-0.000 (-0.06)	-0.001 (-0.76)
Loss Indicator	0.032*** (2.65)	0.031*** (2.65)	0.024** (2.30)	0.030** (2.06)	0.002 (1.21)	0.003 (0.94)	-0.003 (-0.64)	0.002 (0.26)
Big 8 Auditor Indicator	0.052 (0.82)	0.053 (0.87)	0.050 (0.82)	0.099* (1.89)	0.001 (0.25)	0.001 (0.08)	-0.001 (-0.06)	0.002 (0.08)
Stock Volatility	0.357*** (4.46)	0.351*** (4.59)	0.368*** (5.24)	0.303*** (3.77)	-0.002 (-0.18)	-0.027 (-1.50)	-0.086*** (-2.63)	0.095** (2.16)
Institutional Ownership	0.022 (0.42)	0.023 (0.46)	0.036 (0.76)	0.052 (1.01)	-0.001 (-0.13)	0.001 (0.06)	-0.006 (-0.37)	0.000 (0.00)
Stock Return	0.005 (0.67)	0.003 (0.49)	0.006 (0.97)	0.008 (0.86)	0.001 (0.65)	0.002 (1.35)	0.000 (0.12)	0.000 (0.11)
Amihud Illiquidity	0.084 (0.55)	0.052 (0.37)	0.082 (0.64)	0.270* (1.79)	0.007 (0.46)	0.017 (0.50)	0.076 (1.33)	-0.076 (-1.00)
Analyst Following (LN)	0.027 (1.64)	0.027* (1.70)	0.016 (1.14)	0.032** (2.03)	-0.001 (-0.52)	-0.002 (-0.59)	-0.002 (-0.40)	0.003 (0.45)
Negative Earnings Surprise	0.007 (1.09)	0.007 (1.06)	0.006 (0.93)	0.002 (0.34)	-0.001 (-1.64)	-0.003* (-1.74)	-0.005 (-1.61)	0.005 (1.26)
Constant	9.720*** (68.97)	8.343*** (61.91)	6.563*** (52.96)	5.482*** (44.49)	0.959*** (83.44)	0.922*** (39.81)	0.551*** (13.56)	0.553*** (10.10)
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm
N	17,151	17,151	17,151	17,151	17,151	17,151	17,151	17,151
adj. R-sq	0.700	0.728	0.735	0.620	0.092	0.062	0.223	0.238

Table 6 Governance and Disclosure (RDD Analysis – 10% Close Call Proposals)

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and textual disclosure using Regression Discontinuity Design (RDD), as in equation (ii). The sample only includes proposals that pass or fail within 10 percentage point margin around the 50% threshold. The dependent variables are various textural disclosure measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
PASS	0.059** (1.97)	0.056* (1.93)	0.061** (2.34)	0.065** (2.38)	0.004* (1.66)	0.015*** (2.81)	0.026*** (3.03)	-0.030** (-2.52)
Market Value (LN)	0.134*** (7.25)	0.133*** (7.44)	0.118*** (7.34)	0.120*** (7.07)	0.001 (0.81)	0.004 (1.33)	0.002 (0.42)	-0.007 (-0.93)
Market to Book	-0.029*** (-2.92)	-0.030*** (-3.19)	-0.029*** (-3.43)	-0.026*** (-2.85)	-0.000 (-0.13)	-0.001 (-0.38)	0.003 (0.97)	-0.000 (-0.07)
Return on Assets (ROA)	-1.066*** (-5.03)	-1.089*** (-5.32)	-0.993*** (-5.37)	-1.190*** (-6.08)	-0.009 (-0.52)	-0.009 (-1.24)	-0.013 (-0.22)	0.023 (0.27)
Earnings Growth	-0.091 (-0.53)	-0.093 (-0.56)	-0.041 (-0.27)	-0.068 (-0.43)	-0.013 (-0.90)	-0.025 (-0.83)	-0.012 (-0.25)	0.011 (0.16)
Sales Growth	0.046 (0.57)	0.060 (0.78)	0.010 (0.14)	-0.045 (-0.61)	0.005 (0.81)	0.003 (0.19)	-0.005 (-0.19)	-0.011 (-0.33)
Loss Indicator	-0.045 (-0.77)	-0.047 (-0.83)	-0.025 (-0.48)	-0.063 (-1.16)	-0.008 (-1.62)	-0.031*** (-3.07)	-0.043** (-2.48)	0.022 (0.94)
Big 8 Auditor Indicator	0.200** (2.35)	0.187** (2.27)	0.177** (2.38)	0.103 (1.31)	-0.004 (-0.60)	-0.001 (-0.09)	-0.010 (-0.39)	0.025 (0.74)
Stock Volatility	2.288*** (5.64)	2.152*** (5.49)	1.865*** (5.27)	2.111*** (5.64)	0.008 (0.25)	0.062 (0.88)	-0.008 (-0.07)	0.046 (0.28)
Institutional Ownership	-0.092 (-0.70)	-0.072 (-0.56)	-0.131 (-1.14)	-0.092 (-0.75)	0.002 (0.21)	0.010 (0.42)	0.012 (0.31)	0.023 (0.44)
Stock Return	-0.028 (-0.55)	-0.024 (-0.47)	-0.017 (-0.38)	-0.004 (-0.08)	0.003 (0.75)	0.001 (0.16)	0.011 (0.74)	-0.026 (-1.26)
Amihud Illiquidity	0.402 (0.62)	0.497 (0.80)	0.049 (0.09)	-0.490 (-0.83)	0.014 (0.26)	0.048 (0.43)	-0.181 (-0.97)	0.258 (1.00)
Analyst Following (LN)	0.010 (0.21)	0.019 (0.40)	0.015 (0.35)	0.032 (0.74)	0.000 (0.02)	0.000 (0.03)	-0.009 (-0.68)	0.012 (0.62)
Negative Earnings Surprise	0.021 (0.71)	0.017 (0.58)	0.020 (0.77)	0.001 (0.02)	-0.007*** (-3.03)	-0.008 (-1.60)	-0.013 (-1.45)	0.013 (1.09)
Constant	8.705*** (16.31)	7.323*** (14.21)	5.849*** (12.58)	4.847*** (9.85)	0.955*** (21.66)	0.884*** (9.58)	0.553*** (3.56)	0.465** (2.17)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,158	1,158	1,158	1,158	1,158	1,158	1,158	1,158
adj. R-sq	0.429	0.466	0.476	0.465	0.063	0.096	0.192	0.139

Table 7 Governance and Disclosure (RDD Analysis – 5% Close Call Proposals)

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and textual disclosure using Regression Discontinuity Design (RDD), as in equation (ii). The sample only includes proposals that pass or fail within 5 percentage point margin around the 50% threshold. The dependent variables are various textural disclosure measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
PASS	0.026 (0.65)	0.019 (0.50)	0.028 (0.79)	0.032 (0.93)	0.008*** (2.79)	0.024*** (3.87)	0.043*** (3.99)	-0.050*** (-3.25)
Market Value (LN)	0.107*** (4.23)	0.109*** (4.46)	0.100*** (4.57)	0.118*** (5.35)	0.000 (0.20)	-0.001 (-0.13)	-0.006 (-0.94)	0.004 (0.43)
Market to Book	-0.055*** (-2.95)	-0.057*** (-3.19)	-0.053*** (-3.24)	-0.047*** (-2.92)	0.001 (0.58)	0.002 (0.82)	0.009* (1.87)	-0.004 (-0.56)
Return on Assets (ROA)	-0.957*** (-3.19)	-0.973*** (-3.34)	-0.968*** (-3.70)	-1.276*** (-4.88)	-0.001 (-0.04)	-0.015 (-0.33)	0.037 (0.46)	-0.043 (-0.37)
Earnings Growth	-0.222 (-1.08)	-0.234 (-1.17)	-0.196 (-1.09)	-0.347* (-1.93)	-0.006 (-0.40)	-0.023 (-0.74)	0.028 (0.52)	-0.004 (-0.05)
Sales Growth	0.027 (0.24)	0.048 (0.45)	0.008 (0.08)	0.013 (0.13)	0.003 (0.40)	-0.002 (-0.13)	-0.012 (-0.40)	-0.001 (-0.02)
Loss Indicator	-0.136* (-1.71)	-0.149* (-1.93)	-0.132* (-1.90)	-0.161** (-2.32)	-0.007 (-1.17)	-0.034*** (-2.79)	-0.033 (-1.56)	0.026 (0.83)
Big 8 Auditor Indicator	0.171 (1.49)	0.167 (1.50)	0.169* (1.69)	0.130 (1.30)	-0.001 (-0.13)	-0.007 (-0.40)	-0.018 (-0.58)	0.017 (0.38)
Stock Volatility	2.230*** (3.95)	2.158*** (3.94)	1.790*** (3.64)	1.754*** (3.56)	0.067 (1.57)	0.157* (1.80)	0.209 (1.38)	-0.328 (-1.50)
Institutional Ownership	-0.242 (-1.27)	-0.217 (-1.17)	-0.222 (-1.33)	-0.111 (-0.67)	-0.007 (-0.49)	-0.010 (-0.34)	-0.047 (-0.92)	0.077 (1.04)
Stock Return	0.038 (0.51)	0.036 (0.50)	0.036 (0.55)	0.053 (0.82)	-0.008 (-1.34)	-0.022* (-1.88)	-0.034* (-1.71)	0.019 (0.65)
Amihud Illiquidity	0.560 (0.62)	0.669 (0.76)	0.323 (0.41)	0.696 (0.88)	-0.003 (-0.04)	0.106 (0.76)	-0.215 (-0.89)	0.212 (0.60)
Analyst Following (LN)	0.082 (1.29)	0.084 (1.37)	0.063 (1.15)	0.053 (0.97)	-0.000 (-0.01)	0.006 (0.63)	-0.008 (-0.46)	-0.004 (-0.16)
Negative Earnings Surprise	0.037 (0.87)	0.030 (0.74)	0.035 (0.94)	-0.010 (-0.27)	-0.010*** (-3.18)	-0.015** (-2.25)	-0.025** (-2.23)	0.034** (2.07)
Constant	9.122*** (15.91)	7.716*** (13.87)	6.183*** (12.36)	5.014*** (10.03)	0.967*** (22.13)	0.912*** (10.33)	0.605*** (3.95)	0.437* (1.96)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	575	575	575	575	575	575	575	575
adj. R-sq	0.419	0.454	0.469	0.483	0.145	0.260	0.331	0.229

Table 8 Governance and Disclosure (Alternative RDD Analysis – All Proposals with Polynomial Terms)

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and textual disclosure using Regression Discontinuity Design (RDD), as in equation (iii). The sample includes all proposals. The dependent variables are various textual disclosure similarity measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
PASS	0.068** (2.49)	0.062** (2.36)	0.066*** (2.70)	0.050* (1.70)	0.002 (0.84)	0.011** (2.42)	0.019** (2.37)	-0.022** (-2.01)
Polynomial of order 1	-0.001 (-1.45)	-0.001 (-1.23)	-0.001 (-1.50)	-0.001 (-0.93)	-0.000* (-1.83)	-0.000** (-2.41)	-0.000*** (-2.94)	0.001*** (2.82)
Polynomial of order 2	0.000 (0.86)	0.000 (0.79)	0.000 (1.33)	0.000 (1.62)	-0.000 (-0.33)	-0.000 (-0.90)	-0.000 (-0.64)	0.000 (0.51)
Market Value (LN)	0.123*** (14.13)	0.120*** (14.41)	0.113*** (14.65)	0.113*** (12.14)	0.001 (1.43)	0.003* (1.95)	0.003 (1.41)	-0.009*** (-2.68)
Market to Book	-0.038*** (-8.10)	-0.039*** (-8.48)	-0.038*** (-8.94)	-0.036*** (-7.04)	-0.000 (-0.07)	-0.001 (-0.88)	0.003* (1.91)	-0.001 (-0.61)
Return on Assets (ROA)	-0.827*** (-8.33)	-0.826*** (-8.64)	-0.741*** (-8.39)	-0.790*** (-7.41)	-0.001 (-0.17)	-0.026 (-1.57)	-0.007 (-0.26)	0.001 (0.03)
Earnings Growth	0.104 (1.04)	0.098 (1.01)	0.138 (1.55)	0.124 (1.15)	-0.006 (-0.66)	-0.015 (-0.90)	-0.008 (-0.29)	-0.008 (-0.20)
Sales Growth	0.060* (1.87)	0.066** (2.14)	0.032 (1.12)	0.005 (0.16)	0.002 (0.58)	-0.000 (-0.08)	-0.003 (-0.37)	-0.010 (-0.79)
Loss Indicator	0.061** (2.23)	0.059** (2.22)	0.073*** (2.95)	0.083*** (2.80)	-0.004* (-1.80)	-0.014*** (-3.17)	-0.020*** (-2.58)	0.016 (1.49)
Big 8 Auditor Indicator	0.184*** (4.15)	0.179*** (4.18)	0.185*** (4.68)	0.191*** (4.01)	-0.006 (-1.54)	-0.013* (-1.76)	-0.036*** (-2.81)	0.045** (2.57)
Stock Volatility	1.628*** (8.81)	1.531*** (8.60)	1.371*** (8.33)	1.387*** (6.98)	0.002 (0.10)	0.035 (1.13)	-0.029 (-0.54)	0.015 (0.20)
Institutional Ownership	-0.224*** (-4.06)	-0.217*** (-4.08)	-0.215*** (-4.39)	-0.189*** (-3.19)	-0.002 (-0.32)	-0.000 (-0.00)	0.006 (0.35)	0.014 (0.65)
Stock Return	-0.042** (-2.04)	-0.039* (-1.93)	-0.024 (-1.29)	-0.039* (-1.73)	0.000 (0.13)	-0.001 (-0.16)	0.004 (0.61)	-0.000 (-0.03)
Amihud Illiquidity	-0.166 (-0.71)	-0.154 (-0.69)	-0.206 (-1.00)	-0.294 (-1.18)	0.018 (0.91)	0.000 (0.01)	0.009 (0.14)	0.009 (0.10)
Analyst Following (LN)	-0.007 (-0.32)	0.001 (0.04)	-0.004 (-0.22)	0.037 (1.54)	-0.002 (-1.29)	-0.004 (-1.12)	-0.018*** (-2.86)	0.029*** (3.38)
Negative Earnings Surprise	0.008 (0.53)	0.005 (0.37)	0.018 (1.38)	0.019 (1.21)	-0.006*** (-4.49)	-0.007*** (-2.89)	-0.013*** (-3.06)	0.012** (2.13)
Constant	9.042*** (43.38)	7.660*** (38.14)	5.996*** (32.32)	4.829*** (21.57)	0.983*** (54.53)	0.956*** (27.83)	0.657*** (11.05)	0.360*** (4.36)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	4,453	4,453	4,453	4,453	4,453	4,453	4,453	4,453
adj. R-sq	0.456	0.490	0.491	0.420	0.068	0.070	0.189	0.161

Table 9a Placebo Test Assuming 70% Threshold for Passing (RDD Analysis – 10% Close Call Proposals)

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and textual disclosure using Regression Discontinuity Design (RDD), as in equation (ii). However, here we are assuming the threshold for approval is 70% instead of 50%. The sample only includes proposals that pass or fail within 10 percentage point margin around the 70% threshold. The dependent variables are various textual disclosure measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
PASS	0.007 (0.18)	0.007 (0.19)	-0.002 (-0.05)	-0.019 (-0.35)	-0.003 (-0.60)	-0.007 (-0.95)	-0.008 (-0.59)	0.011 (0.58)
Market Value (LN)	0.064** (2.43)	0.062** (2.42)	0.051** (2.13)	0.031 (0.86)	-0.001 (-0.24)	0.001 (0.20)	-0.004 (-0.50)	0.010 (0.78)
Market to Book	-0.017* (-1.66)	-0.018* (-1.78)	-0.018* (-1.86)	-0.010 (-0.69)	-0.001 (-0.66)	-0.002 (-0.96)	-0.001 (-0.41)	0.004 (0.79)
Return on Assets (ROA)	-0.671** (-2.44)	-0.689*** (-2.59)	-0.586** (-2.36)	-0.448 (-1.19)	0.032 (0.99)	-0.024 (-0.45)	0.017 (0.19)	-0.107 (-0.83)
Earnings Growth	0.029 (0.11)	-0.039 (-0.15)	0.066 (0.28)	0.177 (0.50)	-0.007 (-0.24)	0.001 (0.03)	0.123 (1.41)	-0.194 (-1.59)
Sales Growth	0.009 (0.21)	0.012 (0.28)	0.000 (0.01)	0.031 (0.50)	0.001 (0.21)	0.005 (0.59)	0.001 (0.09)	-0.005 (-0.26)
Loss Indicator	0.043 (0.65)	0.032 (0.51)	0.070 (1.19)	0.070 (0.78)	0.006 (0.74)	-0.009 (-0.70)	-0.008 (-0.37)	0.002 (0.08)
Big 8 Auditor Indicator	-0.022 (-0.19)	-0.014 (-0.12)	-0.002 (-0.02)	-0.005 (-0.03)	-0.005 (-0.39)	-0.033 (-1.47)	-0.082** (-2.12)	0.049 (0.89)
Stock Volatility	0.711 (1.26)	0.620 (1.14)	0.497 (0.98)	0.445 (0.58)	-0.111 (-1.65)	-0.101 (-0.92)	-0.329* (-1.75)	0.616** (2.34)
Institutional Ownership	-0.332** (-2.40)	-0.334** (-2.51)	-0.329*** (-2.64)	-0.445** (-2.35)	-0.001 (-0.07)	-0.007 (-0.28)	0.026 (0.57)	-0.026 (-0.41)
Stock Return	0.040 (0.58)	0.053 (0.79)	0.056 (0.91)	-0.130 (-1.38)	0.006 (0.75)	0.001 (0.05)	0.007 (0.32)	-0.011 (-0.35)
Amihud Illiquidity	-0.270 (-0.37)	-0.297 (-0.42)	-0.345 (-0.52)	-1.220 (-1.22)	0.055 (0.63)	-0.003 (-0.02)	-0.100 (-0.41)	0.021 (0.06)
Analyst Following (LN)	0.172*** (2.97)	0.170*** (3.06)	0.174*** (3.35)	0.326*** (4.12)	0.001 (0.19)	-0.003 (-0.31)	-0.027 (-1.39)	0.002 (0.09)
Negative Earnings Surprise	-0.073* (-1.78)	-0.072* (-1.81)	-0.051 (-1.38)	0.021 (0.36)	-0.007 (-1.35)	-0.009 (-1.09)	-0.008 (-0.59)	0.000 (0.02)
Constant	9.623*** (17.14)	8.182*** (15.12)	6.431*** (12.72)	5.394*** (7.02)	0.991*** (14.79)	0.992*** (9.13)	0.717*** (3.82)	0.346 (1.31)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	560	560	560	560	560	560	560	560
adj. R-sq	0.423	0.460	0.445	0.326	0.055	0.038	0.217	0.202

Table 9b Placebo Test Assuming 25% Threshold for Passing (RDD Analysis – 10% Close Call Proposals)

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and textual disclosure using Regression Discontinuity Design (RDD), as in equation (ii). However, here we are assuming the threshold for approval is 25% instead of 50%. The sample only includes proposals that pass or fail within 10 percentage point margin around the 25% threshold. The dependent variables are various textual disclosure measures of firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Panel A: DV = Quantity of Disclosure				Panel B: DV = Similarity of Disclosure			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	LN (Word Count)	LN (Complex Word Count)	LN (Sentence Count)	LN (Paragraph Count)	Cosine Similarity	Modified Jaccard Similarity	Jaccard Similarity	Minimal Distance
PASS	-0.007 (-0.24)	-0.003 (-0.11)	-0.008 (-0.33)	-0.029 (-0.93)	0.005* (1.79)	0.005 (1.06)	0.008 (1.03)	-0.017 (-1.55)
Market Value (LN)	0.138*** (8.08)	0.134*** (8.16)	0.131*** (8.43)	0.131*** (6.90)	0.000 (0.20)	0.003 (1.08)	0.002 (0.39)	-0.009 (-1.34)
Market to Book	-0.054*** (-4.75)	-0.054*** (-4.87)	-0.052*** (-4.95)	-0.051*** (-3.98)	-0.000 (-0.19)	0.000 (0.21)	0.004 (1.12)	-0.003 (-0.55)
Return on Assets (ROA)	-0.536** (-2.40)	-0.530** (-2.46)	-0.485** (-2.38)	-0.414* (-1.66)	0.036* (1.68)	0.041 (1.10)	0.092 (1.39)	-0.164* (-1.82)
Earnings Growth	0.490* (1.90)	0.430* (1.73)	0.383 (1.63)	0.259 (0.90)	0.002 (0.10)	-0.058 (-1.35)	-0.051 (-0.67)	0.065 (0.63)
Sales Growth	0.025 (0.28)	0.042 (0.50)	0.012 (0.14)	-0.080 (-0.82)	-0.011 (-1.24)	-0.026* (-1.75)	-0.044* (-1.69)	0.027 (0.75)
Loss Indicator	0.134** (2.33)	0.128** (2.30)	0.124** (2.34)	0.177*** (2.76)	-0.006 (-1.14)	-0.022** (-2.28)	-0.022 (-1.30)	0.023 (0.99)
Big 8 Auditor Indicator	0.325*** (3.03)	0.294*** (2.84)	0.296*** (3.01)	0.221* (1.85)	-0.012 (-1.15)	-0.026 (-1.43)	-0.042 (-1.34)	0.111** (2.58)
Stock Volatility	1.950*** (4.98)	1.850*** (4.91)	1.759*** (4.92)	1.735*** (3.98)	0.064* (1.69)	0.233*** (3.56)	0.174 (1.51)	-0.312** (-1.98)
Institutional Ownership	-0.306*** (-2.73)	-0.312*** (-2.90)	-0.263** (-2.57)	-0.316** (-2.53)	-0.012 (-1.10)	-0.008 (-0.42)	-0.026 (-0.79)	0.040 (0.89)
Stock Return	-0.074 (-1.61)	-0.073* (-1.65)	-0.056 (-1.33)	-0.071 (-1.37)	-0.006 (-1.34)	-0.016** (-2.06)	-0.015 (-1.14)	0.036* (1.95)
Amihud Illiquidity	-0.010 (-0.03)	-0.037 (-0.12)	0.013 (0.05)	0.004 (0.01)	0.020 (0.64)	0.031 (0.58)	0.106 (1.11)	-0.093 (-0.72)
Analyst Following (LN)	-0.024 (-0.52)	-0.014 (-0.31)	-0.030 (-0.71)	0.033 (0.64)	0.001 (0.16)	0.000 (0.06)	0.002 (0.12)	0.007 (0.36)
Negative Earnings Surprise	-0.001 (-0.02)	-0.000 (-0.01)	0.009 (0.34)	0.021 (0.67)	-0.010*** (-3.63)	-0.012** (-2.50)	-0.023*** (-2.72)	0.028** (2.38)
Constant	8.835*** (25.73)	7.492*** (22.67)	5.746*** (18.33)	4.709*** (12.32)	0.995*** (30.14)	0.941*** (16.42)	0.641*** (6.33)	0.352** (2.55)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,191	1,191	1,191	1,191	1,191	1,191	1,191	1,191
adj. R-sq	0.506	0.539	0.529	0.460	0.070	0.097	0.192	0.166

Table 10 Principal Component Analysis (PCA) on Governance and Disclosure

This table presents the results on the relation between governance (proxied by the passing of governance related proposals) and the principal components of textual disclosure using Regression Discontinuity Design (RDD). The dependent variables are the principal components of quantity of disclosure and similarity of disclosure in firms' 10-K filings. The control variables include market value, ROA, earnings growth, sales growth, loss indicator, big 8 auditor indicator, stock volatility, institutional ownership, stock return, Amihud illiquidity, analyst following, and negative earnings surprise. t-statistics are reported in bracket. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	10% Threshold Sample		5% Threshold Sample		Full Sample	
	(1) Disclosure	(2) Similarity	(3) Disclosure	(4) Similarity	(5) Disclosure	(6) Similarity
PASS	0.196** (2.22)	0.271*** (2.71)	0.085 (0.73)	0.465*** (3.85)	0.203** (2.46)	0.184** (2.03)
Polynomial of order 1					-0.002 (-1.36)	-0.005** (-2.57)
Polynomial of order 2					0.000 (1.21)	-0.000 (-0.68)
Market Value (LN)	0.412*** (7.54)	0.058 (0.94)	0.352*** (4.76)	-0.024 (-0.32)	0.383*** (14.65)	0.050* (1.73)
Market to Book	-0.093*** (-3.22)	0.005 (0.15)	-0.173*** (-3.18)	0.066 (1.17)	-0.123*** (-8.62)	0.005 (0.31)
Return on Assets (ROA)	-3.522*** (-5.61)	-0.520 (-0.73)	-3.376*** (-3.83)	0.022 (0.02)	-2.593*** (-8.67)	-0.244 (-0.74)
Earnings Growth	-0.238 (-0.47)	-0.412 (-0.71)	-0.801 (-1.32)	-0.148 (-0.24)	0.380 (1.26)	-0.223 (-0.67)
Sales Growth	0.064 (0.27)	0.074 (0.28)	0.078 (0.24)	-0.018 (-0.05)	0.135 (1.41)	0.005 (0.05)
Loss Indicator	-0.144 (-0.82)	-0.514*** (-2.61)	-0.469** (-2.01)	-0.487** (-2.02)	0.224*** (2.69)	-0.249*** (-2.72)
Big 8 Auditor Indicator	0.552** (2.19)	-0.106 (-0.37)	0.523 (1.55)	-0.141 (-0.40)	0.602*** (4.50)	-0.320** (-2.18)
Stock Volatility	6.845*** (5.70)	0.545 (0.40)	6.479*** (3.91)	2.935* (1.71)	4.827*** (8.67)	0.167 (0.27)
Institutional Ownership	-0.319 (-0.81)	0.153 (0.34)	-0.656 (-1.17)	-0.362 (-0.63)	-0.692*** (-4.16)	0.001 (0.01)
Stock Return	-0.061 (-0.40)	0.099 (0.57)	0.132 (0.60)	-0.404* (-1.79)	-0.116* (-1.85)	0.013 (0.20)
Amihud Illiquidity	0.430 (0.23)	-0.181 (-0.08)	1.803 (0.68)	-0.101 (-0.04)	-0.660 (-0.94)	0.288 (0.38)
Analyst Following (LN)	0.060 (0.43)	-0.034 (-0.22)	0.231 (1.25)	0.014 (0.07)	0.018 (0.26)	-0.137* (-1.87)
Negative Earnings Surprise	0.049 (0.56)	-0.213** (-2.15)	0.079 (0.64)	-0.351*** (-2.73)	0.041 (0.92)	-0.182*** (-3.74)
Constant	-6.332*** (-4.01)	-1.170 (-0.65)	-5.246*** (-3.11)	-0.587 (-0.34)	-5.659*** (-9.01)	0.163 (0.24)
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
N	1,158	1,158	575	575	4,453	4,453
adj. R-sq	0.474	0.119	0.467	0.267	0.491	0.106

Appendix A: Definition of Control Variables

Variable Name	Definition
Firm Size	Natural logarithm of equity market value
Market-to-Book Ratio	$(\text{Total Long-Term Debt} + \text{Market Value of Equity}) / (\text{Total Long-Term Debt} + \text{Book Value of Equity})$
Return on Assets (ROA)	EBITDA scaled by total assets
Earnings Growth	Change in net income relative to the previous year, scaled by total assets
Sales Growth	Percentage growth in sales relative to the previous year
Loss Indicator	Dummy variable that equals to one if net income for the year is negative, and zero otherwise
Auditor Quality	Dummy variable equals to one if the auditor codes are between 1 and 8, and zero otherwise
Stock Volatility	Annualized standard deviation of month stock returns
Institutional Ownership	Total institutional ownership as a percentage of shares outstanding
Stock Return	Natural logarithm of annualized stock return adjusted by inflation
Amihud Illiquidity	The direct illiquidity measure based on Amihud (2002)
Analyst Following	Natural logarithm of 1 + the number of analysts following the firm
Negative Earnings Surprise	Dummy variable that equals to one if SUE score is negative, and zero otherwise. SUE (Standardized Unanticipated Earnings) Score = $(\text{Actual EPS} - \text{Surprise Mean}) / \text{Standard Deviation}$.