The Spillover Effect of SEC Comment Letters on Qualitative Corporate Disclosure: Evidence from the Risk Factor Disclosure

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ABSTRACT

In this study we use the recently mandated risk factor disclosure to examine the spillover effect of the SEC review of qualitative corporate disclosure. We find that firms not receiving any comment letter ("No-letter Firms") modify their subsequent year's disclosures to a larger extent if the SEC has commented on the risk factor disclosure of (1) the industry leader, (2) a close rival, or (3) numerous industry peers. We refer to this effect as "spillover." Further, we find that after SEC comments on the industry leader's disclosure, No-letter Firms also provide more firm-specific disclosures in the subsequent year. The increased disclosure specificity reduces these firms' likelihood of receiving SEC risk disclosure comments on their new filings. Our evidence suggests an indirect effect of the SEC review of qualitative disclosure.

1. Introduction

In this study we examine an indirect effect of the Securities and Exchange Commission's (SEC) review of qualitative disclosure. An important function of the SEC is to enforce existing financial reporting and disclosure regulation. Reviewing and commenting on corporate filings is often the first step of SEC enforcement. Reviewing *qualitative disclosure* can consume a substantial amount of SEC resources because (1) such disclosure accounts for the vast majority of corporate filings and (2) managers have much discretion over what qualitative information to disclose and how to disclose it.[1] The benefits of such time-consuming tasks, however, are highly uncertain.[2] This study documents an indirect benefit of reviewing qualitative corporate disclosure: the effect beyond commented firms, referred to as the "spillover effect."

We focus on a particular type of qualitative disclosure—the risk factor disclosure. By focusing on one type of disclosure we can better measure corresponding disclosure changes after SEC comments and thus conduct finer tests. We expect the findings to generalize to other types of qualitative corporate disclosure because of three common characteristics across qualitative disclosure: (1) managers have much leeway in preparing qualitative disclosure and a convenient approach is to copy and paste past disclosure and make minimum adjustments, (2) reviewing qualitative disclosure consumes much of the SEC's resources, and (3) managers have incentives to avoid SEC comments on their qualitative disclosure.

We choose the risk factor disclosure for four reasons. First, even though one objective of financial reporting and disclosure is to provide investors with information about the timing and

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[1] On average, a 10-K document contains 46,000 words, equivalent to 100 pages, and the risk factor disclosure section has 5,000 words, equivalent to 10 pages (Campbell, Chen, Dhaliwal, Lu, and Steele 2014).

[2] Evaluating qualitative disclosure would require expert judgment and a deep understanding of the firm's business, making it difficult for outsiders to dispute the adequacy of disclosure made by company insiders. There is no clear evidence that investors react negatively to the news that a firm has received SEC comments on its qualitative disclosure (Johnson 2015). See detailed discussion in Section 2.3.

variability of future cash flows, a long-standing criticism is the lack of useful risk disclosure (Schrand and Elliott 1998; Jorgensen and Kirschenheiter 2003; Kravet and Muslu 2013). The critics complain that the risk disclosure requirements are subjective, open-ended, and ambiguous, allowing firms to disclose "almost anything (or nothing) without violating the requirements" (Schrand and Elliott 1998). Copying and pasting the previous year's risk disclosure has been a common practice. Second, in the past decade or so risk disclosure has drawn increasing interest from regulators and investors because of increased uncertainties in business environments related but not limited to the financial crisis, terrorist attacks, environmental disasters, cyber security breaches, and trouble in the Euro Zone. Third, the SEC has made risk disclosure a focus of its corporate filing reviews (Campbell et al. 2014; Shumsky 2016). In 2009, the SEC even envisioned a risk disclosure overhaul project, but had to postpone it in order to allocate its limited resources towards implementing the Dodd-Frank Act (Deloitte 2011). Since SEC Chairwoman Mary Jo White took office, she has made disclosure effectiveness a priority. Her goal is not to reduce disclosure but to "cut the fat out of" it (Monga and Chasan 2015). Last, the risk factor disclosure is a relatively new type of disclosure mandated by the SEC in 2005 in response to investors' demand for more risk disclosure. Item 1A of the 10-K has since been designated for this purpose. Campbell et al. (2014) is the only study so far on the risk factor disclosure. Our study advances the literature by examining whether a firm changes its risk factor disclosure after observing SEC comments on its peers' disclosures.

The direct effect of SEC risk disclosure comments is not our focus. Commented firms must respond to SEC comments until the issues are resolved. Their responses include clarifying the existing disclosure, amending the filing, and most often agreeing to change their disclosure

approaches for future filings. If a firm does not resolve the issues by the time it files the subsequent year's 10-K, it must disclose the matter in Item 1B of the report.

We are interested in the spillover effect because spillover could lead to a deterrence benefit of SEC enforcement. The ultimate goal of regulation enforcement is to deter undesirable behavior as efficiently as possible (Shavell 2004). Receiving SEC comments in general could have negative consequences for a firm, including extensive time and effort from management to resolve the issues and possible negative investor perceptions. Thus, after observing SEC comments on their peers, managers have incentives to change their disclosure approaches to avoid receiving SEC comments themselves. If spillover results in changes to non-commented firms' behavior that better aligns with the intent of regulation, the benefits of SEC enforcement go beyond commented firms and the limited SEC resources can be leveraged. Jennings, Kedia, and Rajgopal (2011) find that firms reduce their discretionary accruals after a peer firm in the same industry is investigated by the SEC for income-increasing earnings manipulations. Our conclusions cannot be derived from Jennings et al. because there is much more leeway in preparing and enforcing qualitative disclosure than in recognizing income.

We examine the spillover effect through four channels: (1) the industry leader, (2) a rival, (3) numerous industry peers, and (4) an industry peer sharing the same auditor. Our sample consists of firms from 2005-2010. We classify a firm into four mutually exclusive types depending on whether its 10-K for the year just filed ("current year") and its risk factor disclosure section of the 10-K have been commented on by the SEC. Risk-letter Firms received comments on the risk factor disclosure. 10K-nonrisk-letter Firms received comments on 10-K issues other than the risk factor disclosure. Other-letter Firms received comments on filings other than the 10-K. No-letter Firms

did not receive any SEC comment letter. We use Risk-letter Firms and 10K-nonrisk-letter Firms to validate our measures of disclosure changes and use No-letter Firms to examine spillover.

In our primary analysis we use textual analysis techniques to compare a firm's risk factor disclosures in the current year and in the next year and construct two measures of year-over-year disclosure modifications. The first measure is the document modification score introduced by Brown and Tucker (2011). The second measure is the *absolute* change in the number of words from the current year to the next year divided by the number of words in the current year. In multivariate analyses we control for changes in modification measures due to changes in firms' risk exposure.

We interpret a higher measure of disclosure modifications as indicating more informative disclosure.[3] Managers typically use existing disclosure as a template, but are supposed to make changes to reflect updates in their operations, risk exposure, and business environment. Informative disclosure would require managers to analyze the changes that have occurred to the company and its environment and to communicate the effects of those changes to investors—this approach requires much effort. A common approach in practice is to copy and paste the existing disclosure and make minimum modifications. The SEC has repeatedly criticized this approach (Johnson 2010). Our measures capture the degree of *modifications* in a firm's risk factor disclosure.

We find that a No-letter Firm modifies next year's risk disclosure to a larger degree if the SEC has commented on the risk factor disclosure of the industry leader, a rival, or numerous

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[3] Hanley and Hoberg (2012) use the same method to measure document similarity and interpret more modifications as more informative disclosure. Investors may respond positively to the information revealed by risk disclosure modifications if the information reduces a previously known risk or makes them revise upward the expected future cash flows. Investors may respond negatively to the information if it makes them aware of an unknown risk or makes them revise downward the expected future cash flows. Thus, while the information is useful to investors, the return reaction for a given firm could be positive or negative.

industry peers, suggesting that the benefits of SEC reviews go beyond correcting the behavior of commented firms. The spillover effect is economically large: the degree of risk disclosure modifications that a No-letter Firm makes after an industry leader or rival received risk comments is a third greater than the modifications that a No-letter Firm would typically make in the risk disclosure section of the 10-K. Our findings are likely to approximate the lower bound of spillover because we have included industry fixed effects in the estimations that likely remove some of the spillover effect that we intend to capture.[4] In a placebo test, we replicate our analyses using 10K-nonrisk-letter Firms ("placebo firms"), which are not expected to change their disclosure approaches after the SEC has just reviewed their 10Ks but did not raise issues about their risk factor disclosures. We find no evidence of spillover for these firms.

To provide more direct evidence of the spillover effect, we code all risk disclosure comments on Risk-letter Firms and separate the comments that could be acted on by peers ("spillable comments") from those that are too firm-specific to be acted on by peers ("nonspillable comments").[5] We expect the spillover effect to exist for No-letter Firms whose leader or rival has received spillable comments and *not* to exist for No-letter Firms whose leader or rival has received only nonspillable comments. Our findings are consistent with these expectations, lending credence to our primary finding.

We hand code the disclosure changes of a randomly selected sample to provide further evidence of spillover. We start with No-letter Firms and placebo firms *whose leaders have received risk comments*. Then we randomly select 30 observations from each group and hand code each firm's changes in the risk factor disclosure from the current year to the next year. On average,

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[4] Without industry fixed effects, we also find evidence of spillover through the channel of a common auditor.
[5] The SEC's risk comments are heterogeneous. Separating them into spillable vs. nonspillable comments is an efficient way of extracting commonality from the observed heterogeneity.

these firms discuss at least 20 risk factors each year. We calculate the percentage of overlapping risk factors existing in both years and the percentage of risk factors that are almost identically disclosed in both years. We find that the percentages of overlapping and identically-disclosed risk factors are significantly lower for No-letter Firms than for placebo firms. Thus, even though both groups of firms have leaders with risk comments, No-letter Firms change their disclosures to a larger degree than do placebo firms. More important, we hand code whether a sample firm's disclosure changes reflect the SEC risk comments on the leader. We are able to trace the leader's SEC risk comments to No-letter Firms' disclosure changes 60% of the time, but only 20% of the time for placebo firms. These analyses provide direct evidence of the spillover effect.

We conduct two supplementary analyses. First, we examine whether a No-letter Firm increases the specificity of its risk disclosure in the presence of peers' risk disclosure comments. While disclosure modifications are in general informative, modifications that are more firm-specific should be more informative. We compare a firm's risk disclosure with that of its industry peers in each year and interpret a higher average measure of similarity of the firm's disclosure with its peers' as a lower level of firm specificity. Our results imply that reviewing and commenting on the industry leader's disclosure not only prompts a No-letter Firm to modify its subsequent disclosure but also induces more firm-specific disclosure. Assuming that the cost of reviewing a firm is constant, this finding suggests that reviewing the industry leader would result in a larger benefit than reviewing other companies.

In the second supplementary analysis we examine whether disclosure modifications and increased disclosure specificity reduce the likelihood of a No-letter Firm receiving SEC risk comments on its subsequent year's 10-K report. We find that if the firm increases disclosure

specificity in the new filing, its likelihood of receiving SEC comments is significantly lower.[6] This result suggests that firms benefit from taking preventive actions after observing the release of SEC comments on their peers.

Our study makes three contributions to the literature. First, this is the first study examining whether SEC comment letters improve the *qualitative* disclosure of firms that did not receive a comment letter. The SEC review of qualitative disclosure consumes substantial resources. The SEC has asked for a budget increase every year since 2009. Part of the budget increase would be used to hire additional staff to review SEC filings. The Congressional Oversight Committee has been reluctant to grant increases until the SEC can provide evidence of its effectiveness (Johnson 2012). We find a spillover effect of the SEC review of qualitative disclosure and release of comment letters. The evidence provides guidance for the SEC's allocation of scarce resources.

Second, our study adds to the public enforcement literature. There has been much research on earnings restatements and the SEC's Accounting and Auditing Enforcement Releases, but limited research on comment letters as an essential form of SEC enforcement. In 2005, the SEC started to release comment letters resulting from its reviews, suggesting that the SEC considers its review process a powerful enforcement tool. With the availability of these letters, a new stream of research has formed to examine the determinants of receiving comment letters and the effects (or lack of effects) of comment letters on *commented* firms (Cassell, Dreher, and Myers 2013; Robinson, Xue and Yu 2011; Johnston and Petacchi 2012). We extend this literature by examining the effects of SEC comment letters on *non-commented* firms.

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[6] Disclosure modifications are a necessary but not sufficient condition for an increase in disclosure specificity. We find that disclosure modifications decrease the likelihood of firms' receiving risk comments in the first place, but among No-letter Firms the degree of disclosure modifications does not affect a firm's likelihood of receiving risk comments in the subsequent year.

Last, our study contributes to the risk disclosure literature. Nelson and Pritchard (2014) find that firms exposed to greater litigation risk provide more cautionary language and update the language to a larger extent from year to year, especially before the 2005 risk factor disclosure regulation. Kravet and Muslu (2013) identify risk-related discussion using keyword search in multiple sections of the 10-K report and find that increases in risk disclosure are associated with increased investor perceptions of unknown risks. Campbell et al. (2014) find that the risk factor disclosure is meaningful. Hope, Hu, and Lu (2016) find that specific risk disclosure enhances users' understanding of risks. We extend this literature by examining managers' *changes* to the risk factor disclosure after their peer firms receive comments from the SEC.

2. Background and Hypotheses

2.1 SEC reviews and comment letters

The SEC regularly reviews corporate filings as an early step in securities enforcement. SEC reviews have traditionally been a main source of uncovering accounting irregularities and disclosure deficiencies. For example, Robert Sack, a former Chief Accountant of the Division of Enforcement at the SEC, acknowledged that 50% of the leads for the Commission's formal investigations came from SEC reviews (Feroz, Park, and Pastena 1991, Footnote 6). SEC reviews are time consuming and require considerable resources. Before the Sarbanes-Oxley Act of 2002 (SOX), the SEC reviewed about 20% of all public firms each year (Johnston and Petacchi 2012). In the aftermath of the Enron accounting scandal, one of the primary complaints against the SEC was that it had not reviewed Enron's financial statements since 1997 (*Reuters News* 2002). Shortly thereafter, Section 408 of SOX began requiring the SEC to conduct some level of review of each publicly listed company at least once every three years.

Currently, the SEC's Division of Corporation Finance is in charge of the SEC review. The division has 11 offices and each office has 25 to 35 professionals, primarily accountants and lawyers. Firms with the same 3-digit SIC code are assigned to the same office, but firms with the same two-digit SIC code may be assigned to different offices.[7] The SEC conducts three levels of reviews: (1) a full review, which is a cover-to-cover analysis of all a firm's filings; (2) a financial statement review that involves the financial statements, notes, and related disclosure such as the Management's Discussion and Analysis (MD&A); or (3) a targeted review examining specific issues in a filing. The staff reviews a firm by evaluating "the disclosure from a potential investor's perspective and asking questions that an investor might ask when reading the document" and then "identifies instances where it believes a company can improve its disclosure or enhance its compliance with the applicable disclosure requirements" (SEC 2012).

The SEC aims to review filings within one month after the filing date and typically sends initial comment letters two months after the filing (Cassell et al. 2013). All comments are reviewed by a second person for consistency before being sent to the targeted firm. A company can respond to SEC comments by (1) providing additional information or explanations to help the SEC better understand the current disclosure, (2) amending its filing, or most often (3) providing additional or different disclosure in future filings (Johnson 2010). The SEC may send additional comment letters following the company's response. Managers have incentives to resolve the issues before the subsequent year's 10-K filing because they would otherwise have to disclose any unresolved issues in Item 1B. A case is closed when all comments are resolved, at which point the SEC sends a final notice of "no further comment."

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[7] See http://www.sec.gov/info/edgar/siccodes.htm.

The SEC began releasing the full correspondence thread containing comment letters and companies' response letters on May 12, 2005. The SEC originally did so no earlier than 45 business days after a case was closed, but beginning in January 2012 the waiting time has been shortened to no earlier than 20 business days, suggesting that the SEC considers these letters valuable to investors and companies.

The availability of comment-letter data has enabled a new stream of academic research. Cassell et al. (2013) find that firms incur high remediation costs after receiving SEC comment letters: the median number of comments in an initial letter is 10, the median round of comment letters before the "no further comment" letter is two, and the median number of days from the initial letter to final resolution is 80—it takes significant corporate resources to resolve the issues. Johnston and Petacchi (2012) find that firms that amend filings after an SEC comment letter experience an improved information environment around subsequent earnings announcements, suggesting that the SEC review eventually benefits the commented firm. Robinson et al. (2011) find that firms improve their executive compensation disclosures after being commented on by the SEC in a focused study conducted by the SEC soon after the disclosure mandate. Bozanic, Dietrich, and Johnson (2013) report that firms provide easier-to-read, less optimistic, and more forward-looking qualitative disclosure after receiving SEC comment letters. Dechow, Lawrence, and Ryans (2016) find that managers exploit the time delay in the SEC comment letter release by selling their shares before the release of revenue recognition related comments. We extend this literature by examining the *spillover* effect of the SEC review of qualitative disclosure.

2.2 Risk factor disclosure

The SEC passed the rule for the risk factor disclosure as Item 503(c) of Regulation S-K, effective for fiscal years ending on or after December 1, 2005 and designated Item 1A of the 10-

K for this disclosure. The disclosure is "intended to provide investors with a clear and concise summary of the material risks to an investment in the issuer's securities," and firms are required to discuss "the most significant factors with respect to the registrant's business, operations, industry, or financial position that may have a negative impact on the registrant's future financial performance" (SEC 2005). The disclosure requirement is basically the same as what has been in place for registration statements for decades, providing cautionary information to potential investors. In Item 1A, firms are supposed to present a concise synopsis of risks, which are explained in more detail in other places of the filing (Robbins and Rothenberg 2005; SEC 2011). For example, in Item 7 (MD&A), a firm is expected to present management's view of key business risks and what the firm is doing to address them. In Item 7A, a firm is expected to quantify its exposure to market risks (e.g., interest rate risk, foreign currency exchange risk, commodity price risk) and explain how it manages those risks.

Qualitative mandatory disclosure practices in general and risk disclosure practices in particular have troubled the SEC and investors. Copying and pasting existing disclosure and making minimum modifications for next year's disclosure is convenient and common. This disclosure approach leads to stale and boilerplate disclosure because they do not reflect changed circumstances. The concern with risk disclosure being boilerplate and unrevealing has been shared by the investment community (Robbins and Rothenberg 2005; Monga and Chasan 2015). The SEC has attempted to draw companies' attention to breaking the habit of "copying and pasting" (Johnson 2010) and has warned companies to "avoid generic risk factor disclosure that could apply to any company" (SEC 2010). Recently the SEC has emphasized the issue of risk disclosure and called for "more thoughtful, analytical disclosures that inform shareholders about potential risks" (Shumsky 2016). Thus, we examine the modifications of the risk factor disclosure.

2.3 Hypotheses

Firms have incentives to avoid risk disclosure comments from the SEC because of three possible negative consequences. First, companies incur significant time and cost to resolve the issues raised in a comment letter (Cassell et al. 2013). Second, before the issues are resolved, the uncertainty may distract management from normal operations. Receiving a comment letter would reflect poorly on a firm's financial reporting and disclosure as a whole (Ryans 2016). A comment letter about one issue, such as the risk factor disclosure, may draw the SEC's attention to other substantive issues (Francis 2011).

Last, investors may have negative perceptions of a firm that receives risk disclosure comments. In an untabulated test we regress the 5-trading-day cumulative market adjusted return around the SEC release of comment letters on an indicator for risk comments and control for other major types of comments. The coefficient for the risk comment indicator is -0.017, significantly negative. There are three challenges, however, in making inferences from return reaction tests. Risk comments are seldom the only type of comments in an SEC letter, so it is difficult to isolate the market reaction to risk comments. Investors may be reacting to a firm's other information releases (Johnson 2015). Investors may react to the release of comment letters with a delay (Dechow et al. 2016) or investor reaction may not be detected at all if the goal of releasing comment letters is to level the playing field (because retail investors generally do not set stock prices). Despite these challenges, it is reasonable to believe that receiving risk comments is an unfavorable event to a firm. For example, Dechow et al. (2016) note, "Our private conversations with Big 4 audit partners suggest that executives are deeply concerned with investor perceptions of comment letters and will change their reporting practices to reduce the probability of receiving a comment letter."

We expect a No-letter Firm to pay attention to the comment letter correspondence between the SEC and its industry peers and take a preventive action by modifying its own risk factor disclosure for the coming year. We provide three examples in Appendix 1, in which SEC risk comments on the industry leader appear to influence No-letter Firms. In the first example, Amazon's disclosure contained the statement "The risks disclosed may not be the only ones we face." The SEC disapproved of this disclosure approach and asked Amazon to disclose all material risks and remove the problematic statement. GSI Commerce Inc., a No-letter Firm, had a similar statement in its own disclosure for the same fiscal year but removed the statement and added two new risk factors in the following year. In the second example, the SEC asked Bank of America to add a new risk factor related to regulatory changes. Sandy Spring Bancorp, a No-letter Firm, also added this new risk factor in its subsequent-year filing. In the third example, the SEC asked Lennox International Inc. to add a new risk factor related to the volatility of commodity prices based on the company's discussion elsewhere in the filing. Lennox presented its proposed discussion in the response letter. Tecumseh Products Co., a No-letter Firm, changed its caption of an existing risk factor to a caption close to Lennox's and added statements similar to Lennox's discussion.

We hypothesize that spillover occurs through four channels. The first three channels use industry peers and require that the sample firm be able to observe its industry peers' comment-letter conversations before its subsequent 10-K filing. First, spillover occurs if the firm's industry leader has received risk disclosure comments. The industry leader is the most prominent entity in the industry and, therefore, its disclosure practice will likely have the most influence. For example, Bratten, Payne, and Thomas (2016) find that firms pay attention to leaders' reported earnings and are less likely to manage earnings upward if their leaders have reported lackluster performance. We state the first component of our first hypothesis in the alternative form as follows:

H1a: Spillover occurs after the release of the industry leader's risk disclosure comments.

Firms closely monitor their rivals in the product markets as well as in the capital markets. A firm may either imitate or distinguish itself from its rival. For example, AT&T restructured its business in a three-way breakup to keep up with the reported performance of its archrival—WorldCom (Schiesel 2002). In another instance, Coca-Cola announced expensing stock options on July 14, 2002, in a likely attempt to polish its image of being a responsible corporate citizen while putting its rival—Pepsi, which would take a much larger hit in its earnings if stock options were expensed—on the spot (Maich 2002). After observing the rival's risk factor disclosure being questioned by the SEC, a firm may substantially modify its risk factor disclosure so that it can distinguish itself from its rival by preempting a comment letter. We predict:

H1b: Spillover occurs after the release of a close industry rival's risk disclosure comments.

When a number of industry peers have received risk disclosure comments, the disclosure issue is likely to be of severe or particular concern to the SEC and will likely draw the attention of managers at other firms. We state the third component of our first hypothesis in the alternative form as follows:

H1c: Spillover occurs to a larger extent after the release of a greater number of industry peers' risk disclosure comments.

Auditors audit Item 8 (the financial statements and notes) of the 10-K and only review the other sections.[8] Dunn and Mayhew (2004) find that firms with industry-specialist auditors provide higher-quality qualitative disclosures than firms without such auditors. Brown and Knechel (2016) find that qualitative disclosures by firms with the same auditor are more similar than qualitative

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[8] Under Statement of Auditing Standards No. 8, "Other Information in Documents Containing Audited Financial Statements," auditors have a responsibility to review the risk factor disclosure and other qualitative disclosures in the 10-K.

disclosures by firms with different auditors. Hanley and Hoberg (2010) find that the risk disclosure section of IPO prospectuses is more similar between firms sharing the same auditor than between other firms.

Major auditors indeed alert their clients to certain important disclosure issues (Grant Thornton 2009 and Deloitte 2011). For example, E&Y reminded its clients, "The SEC staff continues to comment about the specificity and completeness of registrants' risk factor disclosure. Recently, the SEC staff has focused on risks associated with cyber security and uncertainties related to foreign operations."[9] A firm may receive advice from its auditor after the auditor's other clients in the same industry receive SEC risk disclosure comments. Note this spillover channel does not require the conversation between the SEC and the same-auditor peer firm to be directly observable to the sample firm. We state our second hypothesis in the alternative form as follows:

H2: Spillover occurs after an industry peer with the same auditor received risk disclosure comments.

3. Sample Selection, Modification Measures, and Validation

3.1 Sample

We download all 10-K filings from EDGAR with fiscal year ending between December 1, 2005, when the risk disclosure regulation took effect, and December 31, 2010.[10] We match these filings with the unique identifier GVKEY in Compustat, resulting in 37,467 observations. We are able to extract the document headlined "Item 1A" from 36,396 of these filings. We exclude 3,022 observations that refer to another location for the risk discussion, such as the MD&A or a location outside the main body of the 10-K. Our analyses require comparing the current and next years'

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[9] See E&Y publication, "2011 (Oct) Summary of SEC Comment Letters."
[10] We do not use quarterly data because the SEC discourages firms from repeating 10-K risk factors in the 10-Q (SEC 2005).

documents, and we exclude 8,093 observations that do not have both years' documents extracted. These constraints reduce our observations to 25,281.

The risk factor disclosure is not required for "small reporting firms," the definition of which was expanded after February 4, 2008. In general, companies belong to this category if they have less than $75 million in common equity public float. When companies are unable to calculate the public float, a threshold of $50 million in annual revenue is used. To avoid firms entering or exiting our sample due to these exemption thresholds, we exclude 10,857 observations with lagged market value of equity less than $100 million or lagged sales less than $75 million. We drop 1,130 observations that are missing the required control variables in Compustat and CRSP. Finally, we exclude 40 observations of nonprofit firms (SIC >= 9000). Our final sample has 13,254 firm-years, as summarized in Table 1.

We merge the sample with the Audit Analytics Comment Letter database, which records the full conversation thread between the SEC and a company, including the initial comment letter, companies' responses, follow-up comment letters, and the "no further comment" letter. We are interested in the initial SEC comment letter. The database codes the topics of the comments in a letter, including a column for the risk factor disclosure and a separate column for the MD&A. The "risk factor text" column lists the reasons for comments. "Inadequate disclosure" accounts for 45% of the incidences. Some specific issues are coded, including "legal exposures, reliance, claims," "reliance on suppliers, customers, governments," and "going concern," each appearing 6% of the time (with or without the code of "inadequate disclosure"). We classify a firm as receiving a risk disclosure comment when the risk factor column is coded by Audit Analytics.

We group our sample firm-years into four types. Risk-letter Firms account for 5.8% of our sample, 10K-nonrisk-letter Firms 37.2%, Other-letter Firms 5.7%, and No-letter Firms 51.3% (see

Table 1).[11] We do not examine Other-letter Firms because they do not provide additional insight beyond 10K-nonrisk-letter Firms and No-letter Firms.[12] Panel A of Table 2 presents the distribution of firm types by industry sector. The percentage of Risk-letter Firms is similar across industries except for mining and building, where the percentage is the highest at 10.8%. Agriculture, forestry, and fishing and services have the lowest percentages. Panel B of Table 2 shows the distribution by fiscal year. The highest percentage of Risk-letter Firms is in 2008 and the second and third highest are in 2009 and 2007.

3.2 Modification measures

We use two measures to capture the degree of a firm's risk disclosure modifications from the current year (t) to the next year (t+1). The first measure is the document modification score introduced by Brown and Tucker (2011). We use the Vector Space Model (VSM), described by Salton, Wong, and Yang (1975) and historically used in internet search engines, to compare a firm's year t+1 risk disclosure with year t. The VSM represents a document as a vector in an *n*-dimensional Euclidean space, where *n* is the number of unique words in all sample documents (corpus) and an element of the vector is the frequency of a given word in that document. Let vectors v_1 represent document 1 and v_2 represent document 2:

$$v_1 = (w_1, w_2, \ldots, w_{n-1}, w_n) \text{ and } v_2 = (\psi_1, \psi_2, \ldots, \psi_{n-1}, \psi_n)$$

Here, w_i and ψ_i are the counts of each word $i \in [1, n]$. The *similarity score* of the two documents (*Sim*) is measured by the cosine of the angle between the two vectors (θ).

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[11] Our sample includes 79 observations for which the database codes the risk factor disclosure column but without a corresponding 10-K comment code. We traced a random sample of these observations to the actual comment letters and found that the 10-K was mentioned in the letters. Therefore, we treat these 79 observations as Risk-letter Firms.
[12] These firms received comment letters on filings other than the 10-K. If they believe that their 10-Ks have been reviewed, they will behave like 10K-nonrisk-letter Firms. If they do not believe that their 10-Ks have been reviewed, they will behave like No-letter Firms.

$$Sim = \cos(\theta) = \frac{v_1}{\|v_1\|} \cdot \frac{v_2}{\|v_2\|} = \frac{v_1 \cdot v_2}{\|v_1\| \|v_2\|} \qquad (1)$$

where (.) is the dot product operator, $\|v_1\|$ is the vector length of v_1, and $\|v_2\|$ is the vector length of v_2.[13] This score is bounded between 0 and 1 with a higher score indicating more similarity $(\cos 0° = 1)$.[14] The modification score, *Modif*, is 1 minus *Sim*.

The second measure, $|\Delta Length|$, is the absolute change in the number of words in the risk disclosure from year t to year t+1, divided by the number of words in year t. If a firm changes its disclosure, it likely uses a different number of words. We use the *absolute* change because the use of either more or fewer words next year could indicate information. A common mistake of managers is to include every possible risk they can think of regardless of its importance. In this case, more informative disclosure next year would use fewer words.

The two modification measures complement each other. *Modif* is comprehensive and $|\Delta Length|$ is intuitive for interpretation. We consider *Modif* our primary measure.

3.3 Validation of the modification measures

We validate our modification measures using firms that have just received comments from the SEC. After receiving comments on its year t's risk disclosure, a Risk-letter Firm is expected to modify its year t+1's risk disclosure to a larger degree than what it did in the past. In contrast, a 10K-nonrisk-letter Firm is not expected to deviate from its past disclosure behavior because it knows that its 10-K has just been reviewed and probably interprets the lack of risk disclosure comments as tacit approval of its existing disclosure approach. If our modification measures are

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[13] The length of a vector is not the same concept as the dimension of the vector or the length of the document. For example, the dimension of v_1 is n, the length of the document represented by v_1 is $(w_1 + w_2 + \ldots + w_n)$, and the length of v_1 is $(w_1^2 + w_2^2 + \ldots + w_n^2)^{\frac{1}{2}}$.
[14] As in Brown and Tucker (2011), we use the TF-IDF weighting scheme, which downweights words that are commonly used in the corpus of sample firms' documents.

valid, we should observe significant modifications by Risk-letter Firms but not so by 10K-nonrisk-letter Firms. Thus, we compare a Risk-letter Firm's measure in year t (just before receiving a comment letter) with its measure in year t+1 (right after receiving the letter) and do the same for a 10K-nonrisk-letter Firm. We include a firm only if the modification measures for both years are available. *Post* is 1 for year t+1 and 0 for year t. We estimate Equation (2) separately for Risk-letter Firms and 10K-nonrisk-letter Firms, where *Y* denotes *Modif or |ΔLength|*.

$$
\begin{aligned}
Y_{t+1} = {} & a_0 + a_1 Post_t + a_2 Size_t + a_3 MTB_t + a_4 PL_{t+1} + a_5 Structure_{t+1} + a_6 \Delta Auditor_{t+1} + a_7 |\Delta Stdret|_{t+1} \\
& + a_8 |\Delta ROA|_{t+1} + a_9 |\Delta Lev|_{t+1} + a_{10} |\Delta Cash|_{t+1} + a_{11} Restate_{t+1} + a_{12} Length_t \\
& + \text{Industry fixed effects} + \text{Year fixed effects} + \varepsilon
\end{aligned} \tag{2}
$$

We control for firm characteristics, *Size* and *MTB*, expecting a large firm to modify its disclosure to a larger degree to reduce litigation costs in bad times and expecting a growth firm to modify its disclosure to a lesser degree to avoid exposing weaknesses to competitors. *Size* is the natural logarithm of total assets and *MTB* is the market-to-book ratio, both measured at the end of year t. We use *PL*, *Structure*, *ΔAuditor*, *|ΔStdret|*, *|ΔROA|*, *|ΔLev|*, *|ΔCash|*, and *Restate* to control for disclosure modifications due to changes in the firm's risk exposure from year t to t+1. *PL* is 1 if the firm switches between profit and loss over the two-year period and 0 otherwise. *Structure* is 1 if the firm's total assets increase or decrease by at least 30% from year t to t+1. A change of this magnitude is likely due to structural changes at the firm, such as mergers and acquisitions. *ΔAuditor* is 1 if the auditors in years t and t+1 are different and 0 otherwise. This variable controls for changes in firm risks due to events associated with an auditor change as well as disclosure modifications resulting from adopting the new auditor's style. *|ΔStdret|* is the absolute change in the firm's market-model residual return volatility from year t to t+1, capturing changes in firm-specific risks. *|ΔROA|*, *|ΔLev|*, and *|ΔCash|* are the absolute changes in accounting return on assets, leverage, and cash holdings from year t to t+1, respectively, representing changes in default and liquidity risks (Landsman, Nelson, and Rountree 2009). *Restate* is 1 if the company files a 10-K/Q

restatement during year t+1 and 0 otherwise, according to Audit Analytics. We expect positive coefficients for these variables because when risk exposure changes, a firm is supposed to modify the risk factor disclosure accordingly.

We control for year t's document length, *Length*. *Modif* decreases with the length of documents (document length is fairly sticky for a given firm) because the longer the two documents, the more likely that the same words appear in both documents and thus the higher the similarity score.[15] *Length* controls for this mechanical relation. When the dependent variable is |Δ*Length*|, we control for *Length* to ensure that our findings are not driven by the scalar in the dependent variable. Finally, we include industry fixed effects to ensure the generalization of results across industries (3-digit SIC) and include year fixed effects to control for shifting attention by the SEC during our sample period. We summarize all our variable definitions in Appendix 2.

Panel C of Table 2 presents descriptive statistics for the variables in the multivariate tests after we winsorize the continuous variables at the 99th percentile. We compare No-letter Firms and 10K-nonrisk-letter Firms separately with Risk-letter Firms and use boldface for the firm characteristics that are significantly different for the groups in comparison. Panel D reports pairwise correlations. Most of the correlations of *Modif* and |Δ*Length*| with the firm-type indicator variables and control variables are consistent with our expectations.

Table 3 reports the tests with standard errors robust to heteroskedasticity and clustered by firm. For Risk-letter Firms, when *Modif* is the dependent variable, the coefficient on *Post* is 0.015; when the dependent variable is |Δ*Length*|, the coefficient on *Post* is 0.080. Both coefficients are significantly positive, indicating that receiving a risk disclosure comment letter is associated with

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[15] Brown and Tucker (2011) regress *Modif* on the first five polynomials of *Length* and use the residual score in their analysis. They find similar results when they use the raw modification score as the dependent variable and control for *Length*. We use the latter approach for simplicity.

a substantial change in next year's risk factor disclosure. Figure 1 illustrates Risk-letter Firms' mean value of the modification measures from two years before to two years after the event year (i.e., year t+1 in Table 3). We use the left y-axis for *Modif* and the right y-axis for *|ΔLength|* and observe a marked increase in both measures for the event year.

In contrast, for 10K-nonrisk-letter Firms the coefficients on *Post* are not significantly different from 0 in either regression, suggesting that these firms do not change their risk disclosure behavior.[16] Our evidence of expected results for both types of firms supports the construct validity of our modification measures.

4. Spillover

4.1 Primary analysis

We predict spillover through four channels and use the four spillover variables in the bracket in Equation (3) to examine these channels. We estimate the equation using No-letter Firms (hereinafter "sample firms"). The dependent variable is either *Modif or |ΔLength|* and is referred to as *Y* for convenience.

$$
Y_{t+1} = b_0 + b_1 \begin{bmatrix} Leader_t \\ Rival_t \\ Freq\_RL_t \\ Com\_auditor_t \end{bmatrix} + b_2\, Size_t + b_3\, MTB_t + b_4\, PL_{t+1} + b_5\, Structure_{t+1}
$$

$$
+ b_6 \Delta Auditor_{t+1} + b_7 |\Delta Stdret|_{t+1} + b_8 |\Delta ROA|_{t+1} + b_9 |\Delta Lev|_{t+1} + b_{10} |\Delta Cash|_{t+1}
$$
$$
+ b_{11} Restate_{t+1} + b_{12} Length_t + b_{13} NyearsNCL_t + b_{14}\, Y_t + b_{15}\, IndY_t + b_{16}\, Return_t
$$
$$
+ \text{Industry fixed effects} + \text{Year fixed effects} + \text{SEC office fixed effects} + \varepsilon \qquad (3)
$$

Our hypotheses H1a, H1b, and H1c require that a sample firm observe the publicly released comment letter correspondence of its leader, rival, or numerous peers before its own year t+1 filing

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[16] If we pool Risk-letter Firms and 10K-nonrisk-letter Firms and use an indicator for Risk-letter Firms, the indicator and *Post* have a significantly positive interaction effect (untabulated), suggesting that Risk-letter Firms increase their risk factor modifications from pre to post period to a larger degree than do 10K-nonrisk-letter Firms.

of the 10-K. The indicator variable *Leader* is 1 if the sample firm's industry leader received a risk disclosure comment letter for year t and the letter was publicly released before the sample firm's year t+1 filing and is 0 otherwise. An industry leader is one in the same 3-digit SIC industry as the sample firm with at least 20% of the market share of sales in year t.[17] Using these criteria, 3,287 sample firms have an industry leader, among which 438 have a leader that received risk disclosure comments for year t and 408 sample firms could observe the leader's publicly released risk comments before their own year t+1 filings. The indicator variable *Rival* is 1 if the sample firm's rival received a risk disclosure comment letter for year t and the letter was publicly released before the sample firm's year t+1 filing and is 0 otherwise. Here, the rival firm is one in the same 3-digit SIC industry as the sample firm with the closest total assets within a 10% range. Using these criteria, 3,627 sample firms have a rival, among which 491 have a rival that received risk disclosure comments and 477 could observe the rival's publicly released risk comments before their own year t+1 filings. The count variable *Freq_RL* is the number of firms (in the same 3-digit SIC industry as the sample firm) that received a risk disclosure comment letter for year t and the letter was publicly released before the sample firm's year t+1 filing. This variable is at least 1 for 3,397 sample firms and has a mean value of 2.420 for all sample firms.

Our hypothesis H2 does not require that a sample firm observe the publicly released comment letter correspondence of its peers before its own year t+1 filing of the 10-K. The indicator variable *Com_auditor* is 1 if the sample firm has at least one peer firm in the 3-digit SIC industry that shares the same auditor and received risk disclosure comments for year t and is 0 otherwise. This variable is 1 for 1,781 sample firms.

---

[17] In six cases more than one industry leader is identified and we select the one with the largest market capitalization. The requirement of 20% is to ensure that the leader is influential enough. Our results are similar if we use 10%.

In addition to the control variables in Equation (2), we control for a firm's comment letter history. *NyearsNC* is the number of years since the firm last received an SEC comment letter by the time of filing the year t+1 report. We do not have a prediction for its coefficient. On the one hand, a firm is more likely to be reviewed if it has not been reviewed for years. Anticipating a review, the firm is expected to modify its disclosure to a large degree. On the other hand, a firm that has not received risk comments for years could be in compliance with the regulation and such a firm is unlikely to change its current disclosure approach. We control for the sample firm's and its industry peers' typical modification levels by including the sample firm's risk disclosure modifications in the most recent year and the mean level of risk disclosure modifications by the firm's industry peers in the most recent year, *IndY*. We include the firm's stock return in the most recent year, *Return*, to control for the possibility that a firm is exposed to more risks and is, therefore, more likely to modify its risk disclosure after experiencing poor stock performance. *Return* is the firm's cumulative monthly stock returns during fiscal year t.

In addition to industry fixed effects and year fixed effects, we include SEC office fixed effects. Each SEC office monitors several industries and a firm is assigned to an SEC office by the 3-digit SIC code. SEC office assignments play two roles. First, sharing the same SEC office—the same enforcer—may facilitate spillover, even though it is not a necessary condition for spillover to occur. Second, SEC office assignments could be a separate spillover channel. That is, some offices might be stricter about risk disclosure than other offices, so a sample firm may modify its risk disclosure to a larger degree after observing risk comments to firms that share the same SEC office, even though those firms belong to different industries.

We identify which SEC office is assigned to a Risk-letter Firm or a No-letter Firm by matching the firm's SIC code with the office assignment information on the SEC website

(https://www.sec.gov/info/edgar/siccodes.htm). We could not find a match for 687 Risk-letter Firms or No-letter Firms, so we collect the office assignment information for the unmatched firms on the SEC website (http://ftp.sec.gov/divisions/corpfin/ad-lookup.shtml). We observe that every year each SEC office issues at least one risk disclosure comment. We include SEC office fixed effects in Equation (3) to gauge the spillover effects within an industry after controlling for modifications common to firms assigned to the same SEC office.

Panel A of Table 4 presents the test results when *Modif* is the dependent variable. The first four models examine one spillover channel at a time; the last model includes all the spillover variables. In Column 1, the coefficient on *Leader* is significantly positive at 0.018, indicating that after the leader received risk disclosure comments, a No-letter Firm modifies its risk disclosure to a larger degree, consistent with H1a. The magnitude of spillover is economically large: it is one third of the modification score of a typical No-letter Firm (the median value is 0.054 in Panel C of Table 2). In Column 2, the coefficient on *Rival* is significantly positive at 0.020, consistent with H1b, and the magnitude of spillover is similar to that through the leader. In Column 3, the coefficient on *Freq_RL* is significantly positive at 0.002, consistent with H1b. In Column 4, the coefficient on *Com_auditor* is insignificantly different from 0, inconsistent with H2.[18] In Column 5, spillover is incrementally observed for the channels of *Leader*, *Rival*, and *Freq-RL*.

Panel B presents the test results when |Δ*Length*| is the dependent variable. In the first three columns, the coefficient is significantly positive for *Leader*, *Rival*, and *Freq_RL* and the magnitude of spillover is large. A No-letter Firm would change its risk disclosure length by an additional

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[18] If we do not include industry fixed effects, the coefficient on *Com_auditor* is weakly significantly positive at 0.008 with a t-statistic of 1.89 in Column 4 of Panel A and is significantly positive at 0.039 with a t-statistic of 2.45 in Column 4 of Panel B. The disappearance of statistical significance after including industry fixed effects suggests that industry is a main factor for audit-client alignment and that our primary model specification takes away some of the spillover effect that we intend to capture.

12.8% (5.8%) if its industry leader (rival) has received SEC risk comments. These magnitudes are 156% (71%) of the document change of a typical No-letter Firm (the median value is 8.2% in Panel C of Table 2). The last column reports evidence of incremental spillover from the first three channels. The incremental spillover via *Leader* is larger than that via *Rival*, whereas the comparison is reversed in Panel A. One related question is whether spillover would occur if *any* industry member received an SEC comment. In untabulated tests, we create a dummy *AnyPeer*, which is 1 if there is a peer in the industry with SEC risk comments released before the sample firm's year t+1 filing and 0 otherwise. We use *AnyPeer* to replace *Leader*, *Rival*, *Freq_RL*, and *Com_auditor* in Equation (3) and find that the coefficient on *AnyPeer* is not significantly different from 0 (coefficient = -0.004, t = -0.82 for the *Modif* regression; coefficient = -0.015, t = -1.15 for the |$\Delta Length$| regression), suggesting that which firm the SEC comments on matters.

To illustrate our primary findings, in Figure 2 we plot the modification measures of No-letter Firms from two years before to two years after the event year (i.e., year t+1 in Table 4). In Panel A we present the mean values of *Modif* and |$\Delta Length$| for the treatment group in solid line, which includes the observations of Table 4 with the value of 1 for *Leader*, vs. the control group in dotted line, which includes the observations of Table 4 with the value of 0 for *Leader*. The treatment group clearly has an increase for the event year; in contrast, the control group does not. We observe similar patterns in Panel B, where treatment means that the sample firm has a rival with SEC risk comments for year t released before the sample firm's year t+1 10-K filing.

The estimations of Equation (3) include industry fixed effects. Their inclusion, on the one hand, makes results generalizable to all industries, but on the other hand could remove a portion of the spillover effect that we intend to capture. Some industries are more homogenous and interconnected than others. Information transfer and therefore spillover in such industries would

be more likely than that in other industries. Industry fixed effects take away some disclosure modifications that could be due to spillover. For example, a large number of firms in an industry receive comment letters if the industry experienced large changes but firms did not modify their disclosures adequately to reflect these changes. The sample firms' disclosure changes in the new filing are responses to the comment letters, but this spillover effect is partially removed by industry fixed effects. Therefore, our findings from estimating Equation (3) could be considered the lower bound of spillover. If we exclude industry fixed effects and cluster the observations within 3-digit SIC and year, the coefficients for the four spillover variables are all significantly positive and of larger magnitudes than what we report in Table 4.[19]

4.2 Placebo test

We conduct a placebo test using 10K-nonrisk-letter Firms because these firms have just received tacit approval from the SEC about the risk disclosure and are therefore not expected to exhibit any spillover effect. In Table 5, we re-estimate Equation (3) using 10K-nonrisk-letter Firms instead of No-letter Firms. The coefficients on *Leader* and *Rival* are not significantly different from 0, quite a contrast to our findings in Table 4 for No-letter Firms. The coefficients on *Freq_RL* and *Com_auditor* are also not significantly different from 0 (untabulated). This contrast suggests that our documented spillover effect for No-letter Firms is unlikely to be spurious. Figure 3 illustrates these results; there is no discernable increase in risk disclosure modifications for the 10K-nonrisk-letter Firms that have an industry leader or rival with risk letter comments publicly disclosed before these 10K-nonrisk-letter Firms' subsequent year filings.

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[19] The coefficients would be 0.041, 0.033, 0.003, and 0.008 for *Leader, Rival*, *Freq-RL*, and *Com_auditor* in the last column of Panel A and 0.182, 0.111, 0.008, and 0.039 in the last column of Panel B. Note that clustering changes the t statistics, not the coefficients. From now on, we will report *Modif* only; the results for |Δ*Length*| are similar.

4.3 Spillable vs. nonspillable comments

To provide more direct evidence of spillover, we download the initial comment letters that the SEC sent to all 763 Risk-letter Firms and code the risk disclosure comments into spillable vs. nonspillable comments. Spillable comments are those that can be acted on by peers and include (1) requiring the firm to change its risk disclosure approach (e.g., "You should not present risks that could apply to any issuer or any offering"), (2) requiring the firm to provide more details of a disclosed risk (e.g., "Please supplement this risk factor to discuss the impact of Johnson & Johnson's drug-coated stent products on your market share"), or (3) requiring the firm to discuss an undisclosed risk (e.g., "Please expand the risk factor discussion to discuss the expected effects of the regulatory changes or the significance of the effected activities to your operations"). Nonspillable comments are those that are so specific to the commented firm that they are unlikely to be relevant to its peers.[20] We observe that 67.9% of Risk-letter Firms received one risk disclosure comment, 11.4% received two comments, and 6.7% received three or more comments; 77.2% of Risk-letter Firms received at least one spillable comment and 8.8% received only nonspillable comments. We cannot find any risk disclosure comments for 14.0% of Risk-letter Firms even though the Audit Analytics database indicates otherwise; we treat these firms as having nonspillable comments.[21]

We expect spillover to occur after a firm's leader or rival has received *spillable* risk disclosure comments and do not expect it to occur if the risk comments to the leader or rival are all nonspillable. Of the 408 No-letter Firms that have the value of 1 for *Leader*, 334 have a leader

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[20] For example, in the letter dated 9/18/2006 the SEC commented on Bill Barrett Corp.'s risks relating to oil and gas reserves, "Please reconcile for us the volume of net reserve reductions you report for each of the years 2003, 2004 and 2005 under this heading and on page 36, with the net reserve revisions you report for the same periods in the table of reserve changes on page F-30." This comment is nonspillable.

[21] For a large percentage of these cases we observe SEC comments on the MD&A (Item 7) risk and market risk (Item 7A) disclosure.

with spillable comments and 74 have a leader with only nonspillable comments. In Column 1 of Table 6, we exclude these 74 nonspillable observations and re-estimate Equation (3). We find that the coefficient on *Leader* is similar to that in Panel A of Table 4. In contrast, in Column 2 when we exclude the 334 spillable observations, the coefficient on *Leader* is no longer statistically significant. Similarly, of the 477 No-letter Firms that have the value of 1 for *Rival*, 308 have a rival with spillable comments and 169 have a rival with only nonspillable comments. In Column 3, we exclude nonspillable observations and find that the coefficient on *Rival* is about three times the magnitude of the coefficient in Panel A of Table 4. The coefficient is insignificant in Column 4 when we exclude spillable observations. The sharp contrast of the spillable vs. nonspillable analysis lends support to our primary finding of spillover.

4.4 Hand coding randomly selected small samples

We hand code the risk factor disclosure of randomly selected small samples for three purposes. First, we use human judgment to gauge the extent of changes in a firm's disclosure from year t to t+1 and provide another validation check of our modification measures. Second, we hand compare disclosure changes of No-letter Firms with those of 10K-nonrisk-letter Firms (placebo firms) and provide evidence that complements our primary findings based on the textual analysis of a large sample. Last, we trace SEC risk disclosure comments on a sample firm's industry leader to the sample firm's disclosure changes from year t to t+1—a task that is extremely challenging to perform for the full sample because of the heterogeneity of risk disclosure comments, the length of risk disclosure, and the large sample size of No-letter Firms.

From the 408 No-letter Firms with a leader receiving risk disclosure comments released before the sample firm's year t+1 filing, we randomly select 30 firm-year observations and refer to them as our "test sample." In our primary spillover test we compare the degree of disclosure

modifications of these 408 firms with that of the remaining No-letter Firms. Because the remaining No-letter Firms have no leader with risk disclosure comments for us to trace, instead of selecting a random sample from them as control firms, we randomly select 30 firm-year observations from the 294 10K-nonrisk-letter Firms that have a leader with risk disclosure comments released before the sample firm's year t+1 filing and refer to these 30 firms as our "placebo sample." A research assistant with no knowledge of the selection and differences of these two groups then codes (1) the number of risk factors disclosed in year t's filing, (2) the number of risk factors in year t+1's filing, (3) the number of overlapping risk factors in both years, and (4) the number of risk factors that are almost *identically* disclosed in both years. In Table 7, we present the information of these four categories for our test and placebo samples separately. Note that in the *Overlap* and *Identical* columns we scale the number count by the number of year t+1 risk factors.

We add a column to report the modification score for each sample group. Even though *Modif* is calculated at the word unit and the percentage of identically-disclosed risk factors is obtained at the risk factor unit, the two measures are still highly negatively correlated, with a correlation coefficient of -0.556 for the test sample and -0.494 for the placebo sample (untabulated). The high negative correlations lend support to the construct validity of our modification score. Moreover, the mean of *Modif* is 0.158 for our test sample and 0.092 for our placebo sample. The former has a significantly higher sample mean than the latter (t-statistic = 2.46), consistent with our findings based on the large-sample textual analysis.

On average, a test firm discloses 20.2 risk factors in year t and 23.7 in year t+1; a placebo firm discloses 26.7 risk factors in year t and 27.5 in year t+1.[22] On average, 76.1% of the risk

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[22] The number of risk factors in year t from a placebo firm is slightly higher than that from a test firm perhaps because the former is larger and more complex than the latter.

factors in a test firm's year t+1 filing exist in year t, significantly lower than the percentage of 93.9% for a placebo firm (t-statistic = -4.91). The percentage of identically-disclosed risk factors in years t and t+1 is 56.9% for a test firm, significantly lower than the percentage of 77.3% for a placebo firm (t-statistic = -4.72). These contrasts indicate that after observing that the industry leader received risk disclosure comments, a test firm (for which we predict spillover) modifies its risk disclosure to a larger degree than does a placebo firm.

We trace the leader's risk disclosure comments to the test and placebo samples. All these firms have a leader with *spillable* risk comments, except for Observations 10, 22, and 28 of the test sample and Observations 5 and 18 of the placebo sample. We code the column "*Traced*" as 1 if the sample firm's disclosure changes from year t to t+1 can be linked to at least one of the SEC risk comments on its leader and 0 if the link is unclear or does not exist. For the test sample, 18 firms are coded as 1, accounting for 60% of the sample. For the placebo sample, six firms are coded as 1, accounting for only 20%. The contingency table test comparing the distributions of *Traced* between the two samples yields a χ^2 statistic of 10.00, statistically significant at the 1% level. These results indicate that a No-letter Firm modifies its subsequent risk factor disclosure following the SEC comments on its industry leader, whereas a 10K-nonrisk-letter Firm does not do so. This is direct evidence of spillover, albeit from a small sample of randomly selected firms.

5. Supplementary Analyses

5.1 Disclosure specificity after the release of peer's comment letters

Our primary analysis suggests that a No-letter Firm modifies its subsequent year's risk disclosure to a larger degree if its industry leader, closest rival, or numerous industry peers have received SEC risk disclosure comments. We assume that document modifications in general make disclosure informative. One way of increasing disclosure informativeness is to make it firm

specific and avoid language that could apply to many firms. We test whether spillover is accompanied with an increase in firm specificity of the risk factor disclosure. For each firm-year we calculate the risk disclosure similarity score, *Sim* in Equation (1), between the firm and each of its peers in the same 3-digit SIC industry. Recall, *Sim* is between 0 and 1 with 1 for identical documents. We calculate the mean value of *Sim* obtained from a firm's pairwise comparisons with its industry peers in the same year and define disclosure specificity for the firm-year as 1 minus this mean value. The indicator variable, *More_specific,* is 1 if disclosure specificity increases from year t to t+1 and 0 otherwise. We use No-letter Firms to estimate the logit model in Equation (4) with standard errors robust to heteroskedasticity and clustered by firm.[23]

$$
\begin{aligned}
\textit{More\_specific}_{t+1} = c_0 + c_1 \left[\begin{matrix} \textit{Leader}_t \\ \textit{Rival}_t \end{matrix} \right] + c_2\ \textit{Size}_t + c_3\ \textit{MTB}_t \\
+ c_4\ \textit{PL}_{t+1} + c_5\ \textit{Structure}_{t+1} + c_6 \Delta \textit{Auditor}_{t+1} + c_7 |\Delta \textit{Stdret}|_{t+1} + c_8 |\Delta \textit{ROA}|_{t+1} \\
+ c_9 |\Delta \textit{Lev}|_{t+1} + c_{10} |\Delta \textit{Cash}|_{t+1} + c_{11} \textit{Restate}_{t+1} + c_{12} \textit{NyearsNCL}_t \\
+ \text{Year fixed effects} + \varepsilon \quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad (4)
\end{aligned}
$$

Table 8 reports the test results. In Column 1, the coefficient on *Leader* is significantly positive at 0.141, suggesting that a No-letter Firm's risk disclosure for year t+1 becomes more firm specific than year t's if the SEC has released comments on the leader's year t risk disclosure. In Column 2, the coefficient on *Rival* is insignificant. Column 3 includes both *Leader* and *Rival* and the magnitude of the coefficient on *Leader* is higher than that in Column 1 and the coefficient on *Rival* becomes weakly negative, perhaps because of the positive correlation between *Leader* and *Rival*. Thus, after observing the industry leader's risk comments, a No-letter Firm not only modifies next year's risk disclosure to a larger degree but also increases disclosure specificity.[24]

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[23] For brevity we do not include the spillover variables *Freq_RL* and *Com_auditor* in the equation. We find insignificant coefficients for them. We do not include industry fixed effects because the dependent variable is already measured against industry peers.

[24] We do not find significant results if we use a continuous dependent variable, suggesting that the effect of the leader's comment letters on a sample firm's disclosure specificity is nonlinear.

5.2 Likelihood of receiving risk comments on next year's risk disclosure

Now we examine whether disclosure modifications or increased disclosure specificity reduces a No-letter Firm's likelihood of receiving SEC comments on its risk disclosure in the new filing. We estimate the likelihood of a No-letter Firm's receiving risk comments in year t+1 in a logit model in Equation (5).

$$
\begin{aligned}
Risk\_letter_{t+1} = \ &d_0 + d_1 More\_specific_{t+1} + d_2\ Modif_{t+1} + d_3\ Restate_{t+1} + d_4|\Delta Stdret|_{t+1} \\
&+ d_5 Size_{t+1} + d_6\ P/E_{t+1} + d_7\ Big4_{t+1} + d_8 N\_segments_{t+1} + d_9\ Structure_{t+1} + d_{10} Sales\_growth_{t+1} \\
&+ d_{11} Loss_{t+1} + d_{12} Neg\_CFO_{t+1} + d_{13} NyearsNCL_t + \text{Industry fixed effects} + \text{Year fixed effects} + \varepsilon \quad (5)
\end{aligned}
$$

We control for the determinants of a firm being selected for an SEC review according to the five criteria specified in Section 408 of SOX. *Restate* captures the first criterion of having issued material restatements of financial results. $|\Delta Stdret|$ captures the second criterion of having experienced significant stock volatility. *Size* captures the third criterion of having large market capitalization and the fifth criterion of having an impact on a material sector of the economy. *P/E* captures the fourth criterion of having a high price-to-earnings ratio and is measured as the firm's price to earnings ratio at the end of fiscal year t. Following the findings of Cassell et al. (2013), we additionally control for the reputation of the auditor, operation complexity, major organizational changes, growth, and poor performance by including *Big4*, *N_segments*, *Structure, Sales-growth*, *Loss*, and *Neg_CFO,* respectively. See Appendix 2 for detailed definitions of these variables. Finally, we control for a firm's comment letter history, *NyearsNCL*.

Table 9 reports the test results. The coefficient on *More_specific* is significantly negative at -0.069. A No-letter Firm's likelihood of being commented by the SEC on its risk disclosure is decreased by 1.9% if the firm increases disclosure specificity from year t to t+1 (marginal effects untabulated). The disclosure modification score is unassociated with a No-letter Firm's likelihood of receiving risk comments for year t+1, though. Disclosure modifications are a necessary but not sufficient condition for a disclosure document to be more firm specific. Our findings suggest that

simply modifying the risk disclosure does not prevent a No-letter Firm from receiving SEC risk comments—it needs to modify its disclosure to make it more firm specific.

6. Conclusion

We examine the spillover effect of SEC comment letters on the risk factor disclosure—a recently introduced disclosure requirement that has received a significant amount of attention from regulators and market participants. We find that a firm that did *not* receive any comment letter tends to modify its subsequent year's risk disclosure to a larger degree if the SEC has commented on the risk disclosure of its industry leader, a close rival, or numerous industry peers. We reach this conclusion after conducting large-sample textual analyses and placebo tests, separating leaders' and rivals' spillable comments from nonspillable comments, hand coding disclosure changes of randomly selected small samples, and tracing leaders' risk comments to the disclosure changes of hand-coded samples. In supplementary analyses we find that after the release of the leader's risk comments, a No-letter Firm also makes its subsequent disclosure more firm specific and that increased disclosure specificity reduces the firm's likelihood of receiving risk disclosure comments on its new filing. Our findings suggest a deterrence benefit of the SEC review of risk disclosure and release of comment letters.

Our study has a few limitations. First, we cannot isolate the spillover effects within an industry from the spillover effects within an SEC office. To do so, we would need data where firms in the same industry are assigned to different SEC offices so that we can contrast pairs in the same industry but assigned to different SEC offices with pairs assigned to the same SEC office but in different industries. Such data are unavailable for the 3-digit SIC industry classifications.[25]

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[25] We cannot use the 2-digit-SIC industry classifications to overcome this data problem because firms in the same 2-digit but not 3-digit SIC codes are more heterogeneous than firms in the same 2-digit *and* 3-digit SIC codes.

Second, our modification measures do not capture the content of risk factor disclosure at the risk factor level. Future research may develop other, better ways of quantifying qualitative disclosure and capture different aspects of qualitative disclosure. There are still many unanswered interesting questions about qualitative disclosure such as the relation between different aspects of qualitative disclosure and between the qualitative and quantitative information within qualitative disclosure. Future research may shed light on these questions.

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Appendix 1
Examples of Risk Factor Disclosure Changes after SEC Comments on the Leader

Example 1

Risk-letter Firm: **Amazon.com Inc. Industry leader.**
Excerpt of comment letter dated 3/25/2008 on Amazon's 10-K for the fiscal year ended on 12/31/2007:
> "We note in the introductory paragraph to your risk factors section you state that the risks disclosed may not be the only ones you face. You must disclose all risks that you believe are material at this time. Please delete this language from your introductory paragraph."

Response by Amazon.com Inc.:
> "In its future filings, the Company will delete this language."

No-letter Firm: GSI Commerce Inc.
Excerpt of GSI's 10-K for the fiscal year ended on 12/31/2007:
> "Any investment in our securities involves a high degree of risk...... and you may lose all or part of the money you paid to buy our securities. *Additional risks not necessarily known to us or that we currently deem immaterial may also impair our business operations.*" (Italics added)

Excerpt of GSI's 10-K for the fiscal year ended on 12/31/2008:
> "Any investment in our securities involves a high degree of risk......and you may lose all or part of the money you paid to buy our securities."

Note: the italicized sentence was removed from GSI's 2008 filing likely because of the SEC's comment on Amazon. GSI added two new risk factors in its 2008 filing.

Example 2

Risk-letter Firm: Bank of America Corp. Industry leader.
Excerpt of comment letter dated 6/6/2011 on Bank of America's 10-K for the fiscal year ended on 12/31/2010:
> "Please expand the risk factor discussion to discuss the expected effects of the regulatory changes or the significance of the effected activities to your operations."

Response by Bank of America on 8/19/2011:
> "In future Form 10-K filings......we will include in the Risk Factor disclosure concerning the potential impact of the most significant aspects of the Dodd-Frank Wall Street Reform......"

No-letter Firm: Sandy Spring Bancorp.
Sandy Spring's 10-K for the fiscal year ended on 12/31/2010 does not mention any risk factor related to the Dodd-Frank Act.

Excerpt of Sandy Spring's 10-K for the fiscal year ended on 12/31/2011:
> "The Dodd-Frank Act imposes significant regulatory and compliance changes......Failure to comply with the new requirements may negatively impact the Company's results of operations and financial condition."

Note: the new risk factor relates to the Dodd-Frank Act and is added likely because of the SEC's comment on Bank of America's filing.

Example 3

Risk-letter Firm: Lennox International, Inc. Industry leader.
Excerpt of comment letter dated 5/29/2009 on Lennox International's 10-K for the fiscal year ended on 12/31/2008:

> "Please add a risk factor that describes the risk to your company when commodity prices decline and how it adversely impacts your cash flow. Please refer by example to the significant impact such activity had on your cash flow in 2008 (as disclosed on page 19)."

Response by Lennox International on 6/24/2009:

> "In future filings, we will revise the third risk factor on page 11 of our Annual Report on Form 10-K for the fiscal year ended December 31, 2008 as follows. The sentences in bold are new language or information in this excerpt.

> **"Price Volatility for Commodities We Purchase or Significant Supply Interruptions Could Have an Adverse Effect on Our Cash Flow or Results of Operations.**

> In the manufacture of our products, we depend on raw materials, such as steel, copper and aluminum, and components purchased from third parties. We generally concentrate purchases for a given raw material or component with one or two suppliers. Although we believe there are alternative suppliers for all of our key raw material and component needs, if a supplier is unable or unwilling to meet our supply requirements, we could experience supply interruptions or cost increases, either of which could have an adverse effect on the results of operations. In addition, although we regularly pre-purchase a portion of our raw materials at fixed prices each year to hedge against price increases, an increase in raw materials prices not covered by our fixed price arrangements could significantly increase our cost of goods sold and negatively impact our margins if we are unable to effectively pass such price increases on to our customers. Alternatively, if we increase our prices in response to increases in the prices or quantities of raw materials or components we require or encounter significant supply interruptions, our competitive position could be adversely affected, which may result in depressed sales.
> **In addition, we use derivatives to hedge price risk associated with forecasted purchases of certain raw materials. Our hedged price could result in our paying higher or lower prices for commodities as compared to the market prices for those commodities when purchased. Decreases in spot prices below our hedged prices can also require us to post cash collateral with our cash flow hedge counterparties, which could impact our liquidity and cash flows. At year-end 2008, we were required to post $37.9 million of cash collateral on our cash flow hedges."**

No-letter Firm: Tecumseh Products Co.
Excerpt of Tecumseh Products' 10-K for the fiscal year ended on 12/31/2008:

> "*Material cost inflation could adversely affect our results of operations.*
> The most significant inflationary impacts to the business have been the prices of copper and steel, both major cost components of compressors. Copper increased by over 30% from the beginning of 2007 to July 2008, before declining precipitously. Including the impact of hedging activities, commodity costs in 2008 were unfavorable when compared to 2007 by $23.1 million. As of December 31, 2008, we held approximately 69% of our total projected copper requirements for 2009 in the form of forward purchase contracts and futures, which will provide us with substantial (though not total) protection from price increases during the year but also will detract from our ability to benefit from price decreases. The cost for the types of steel utilized in our products escalated in a manner similar to copper in 2007 and 2008, but as of December 31, 2008 had not yet experienced a similar decline in certain markets, particularly in Brazil. We currently expect that prices for these types of steel will stabilize in 2009, and have the potential to deflate in a manner similar to other commodities. We are striving for greater productivity improvements and implementing increases in selling prices to help mitigate cost increases in copper and steel as well as other base materials including aluminum, as well as other input costs including ocean freight, fuel, health care and insurance. We are also continuing to implement operational initiatives in order to continuously reduce our costs. We cannot assure you, however, that these actions will be successful to manage our costs or increase our productivity. Continued cost inflation or failure of our initiatives to generate cost savings or improve productivity may negatively impact our results of operations."

Excerpt of Tecumseh Products' 10-K for the fiscal year ended on 12/31/2009:

"***Volatility of commodity costs could adversely affect our results of operations.***
One of the most significant cost impacts to the business have been the prices of certain key commodities, including copper and steel, both major cost components of compressors. Copper prices increased by 130% from December 2008 year end levels to December 2009 year end levels due to a significant decline in copper prices in the 4th quarter of 2008. Average cost of copper for the full year 2009 was 34% lower than 2008, primarily due to lower prices in the first three quarters of 2009 versus 2008. Steel prices decreased by 8% from December 31, 2008 to December 31, 2009. Average cost of steel for the full year 2009 was 43% lower than 2008. **Due to competitive markets, we are typically not able to quickly recover products cost increases through price increases or other cost savings. While we have been proactive in addressing volatility of these costs, including executing forward purchases and future contracts to cover approximately 50% of our anticipated copper requirements for 2010, renewed rapid escalation of these costs would nonetheless have an adverse effect on our results of operations both in the near and long term. In addition, our hedges will offset most of the benefits of any price decreases in 2010.** We are striving for greater productivity improvements and implementing increases in selling prices to help mitigate cost increases in copper and steel as well as other base materials including aluminum, as well as other input costs including ocean freight, fuel, health care and insurance. We are also continuing to implement operational initiatives in order to continuously reduce our costs. These actions might not be successful to manage our costs or increase our productivity. Continued volatility of base metals or failure of our initiatives to generate cost savings or improve productivity may negatively impact our results of operations." (boldface added)

Note: Tecumseh Products modified the caption of the risk factor in its 2009 filing. The new caption is more similar to Lennox International's proposed caption than is Tecumseh Products' old caption. The sentences in boldface in Tecumseh Products' 2009 filing do not appear in its 2008 filing. These sentences are about hedges, similar to the proposed new paragraph by Lennox International.

Appendix 2
Variable Definitions

Sim	= the similarity score of two documents, calculated as the cosine of two vectors with each vector representing one document.
Modif $_{t+1}$	= 1 minus the similarity score of comparing the firm's risk factor disclosure for fiscal years t and t+1.
$\|\Delta Length\|$ $_{t+1}$	= the absolute change in the length (number of words) of the firm's risk factor disclosure from fiscal year t to t+1, as a percentage of year t's length.
More_specific $_{t+1}$	= 1 if the firm's risk factor disclosure for fiscal year t+1 is more firm-specific than for t and 0 otherwise. Disclosure specificity for a firm-year is measured as 1 minus the mean similarity score of comparing the firm's disclosure with the disclosure of each of its 3-digit SIC industry peers in that year.
Risk-letter $_{t}$	= 1 if the firm received an SEC comment letter on the risk factor disclosure for fiscal year t and 0 otherwise.
No-letter $_{t}$	= 1 if the firm did not receive any SEC comment letter for fiscal year t and 0 otherwise.
Size $_{t}$	= the natural logarithm of the firm's total assets at the end of fiscal year t.
MTB $_{t}$	= the firm's market-to-book ratio at the end of fiscal year t.
PL $_{t+1}$	= 1 if the firm has a change from profit to loss or vice versa from fiscal year t to t+1.
Structure $_{t+1}$	= 1 if the firm's total assets change by at least 30% in magnitude from fiscal year t to t+1.
$\Delta Auditor$ $_{t+1}$	= 1 if the firm has an auditor change from fiscal year t to t+1.
$\|\Delta Stdret\|$ $_{t+1}$	= the absolute change in the firm's standard deviation of market-model residual returns from fiscal year t to t+1. Monthly returns are used in each year.
$\|\Delta ROA\|$ $_{t+1}$	= the absolute change in the firm's return on assets from fiscal year t to t+1.
$\|\Delta Lev\|$ $_{t+1}$	= the absolute change in the firm's leverage from fiscal year t to t+1.
$\|\Delta Cash\|$ $_{t+1}$	= the absolute change in the firm's cash holdings from fiscal year t to t+1.
Restate $_{t+1}$	= 1 if the company filed a 10-K/Q restatement in year t+1 and 0 otherwise, according to Audit Analytics.
Length $_{t}$	= the number of words in the firm's risk factor disclosure for fiscal year t.
Leader $_{t}$	= 1 if the sample firm's industry leader received a risk disclosure comment letter for fiscal year t and the letter was publicly released before the sample firm's year t+1 10-K filing and 0 otherwise. An industry leader is one in the same 3-digit SIC as the sample firm with at least 20% of the market share of sales in year t. If such a leader is unavailable, the value of the variable is 0. The variable is calculated only for No-letter Firms.
Rival $_{t}$	= 1 if the sample firm's rival firm received a risk disclosure comment letter for fiscal year t and the letter was publicly released before the sample firm's year t+1 10-K filing and 0 otherwise. Here, a rival is one in the same 3-digit SIC industry as the sample firm with the closest total assets (within 10%) at the end of fiscal year t. If such a match is unavailable, the value of the variable is 0. The variable is calculated only for No-letter Firms.

*Freq_RL*_t	= the number of firms in the firm's 3-digit SIC industry that received a risk factor comment letter for fiscal year t and the letter was publicly released before the sample firm's year t+1 10-K filing. The variable is calculated only for No-letter Firms.
*Com_auditor*_t	= 1 if a peer shares the same auditor as the sample firm and has received a risk disclosure comment letter for fiscal year t and 0 otherwise. Here, a peer is one in the same 3-digit SIC industry as the sample firm. The variable is calculated only for No-letter Firms.
*NyearsNCL*_t	= the number of years by the time of filing fiscal year t+1 10-K since the firm has last received a comment letter from the SEC.
*IndY*_t	= the mean modification measure of the sample firm's industry peers' risk factor disclosures for fiscal year t. We use *Y* to refer to *Modif* or *|ΔLength|*, so *IndY* is either *IndModif* or *Ind|ΔLength|*.
*Return*_t	= the sample firm's cumulative monthly stock returns during fiscal year t.
*P/E*_t	= the firm's price to earnings ratio at the end of fiscal year t.
*Big4*_{t+1}	= 1 if the firm's auditor in fiscal year t+1 is a Big 4 audit firm and 0 otherwise, according to Compustat.
*N_Segments*_{t+1}	= the firm's number of business segments in fiscal year t+1, according to Compustat's segment database.
*Sales_growth*_{t+1}	= the firm's percentage of change in sales from fiscal year t to t+1.
*Loss*_{t+1}	= 1 if the firm's earnings before extraordinary items are negative for fiscal year t+1 and 0 otherwise.
*Neg_CFO*_{t+1}	= 1 if the firm's cash flows from operations are negative for fiscal year t+1 and 0 otherwise.

Figure 1
Modifications of the Risk Factor Disclosure by Risk-letter Firms
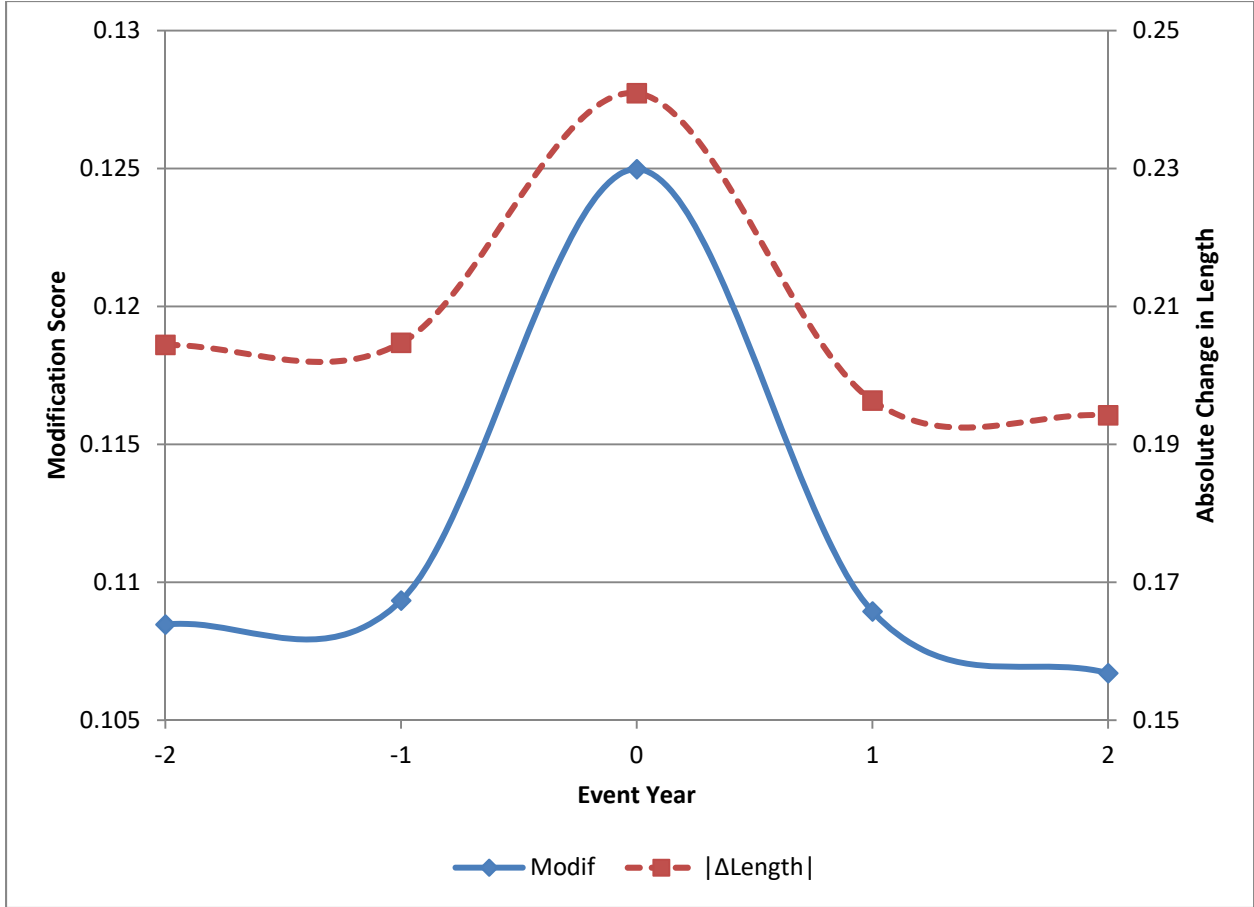
Note: we use the 763 firm-year observations of Risk-letter Firms and plot the modification score (*Modif*) in a solid line and the absolute change in length (|Δ*Length*|) in a dotted line from two years before to two years after the event year (i.e., the year right after the firms receive SEC comments). The left-hand-side y-axis marks the scale of the modification score; the right-hand-side y-axis marks the scale of the absolute change in length. The space between discrete points is filled with smooth curves.

Figure 2
Modifications of the Risk Factor Disclosure by No-letter Firms

Panel A: Firms with Leader Influence (Leader) vs. Firms without Leader Influence (Control)

Modification score (*Modif*)

Absolute change in length (|Δ*Length*|)

Panel B: Firms with Rival Influence (Rival) vs. Firms without Rival Influence (Control)

Modification score (*Modif*)

Absolute change in length (|Δ*Length*|)
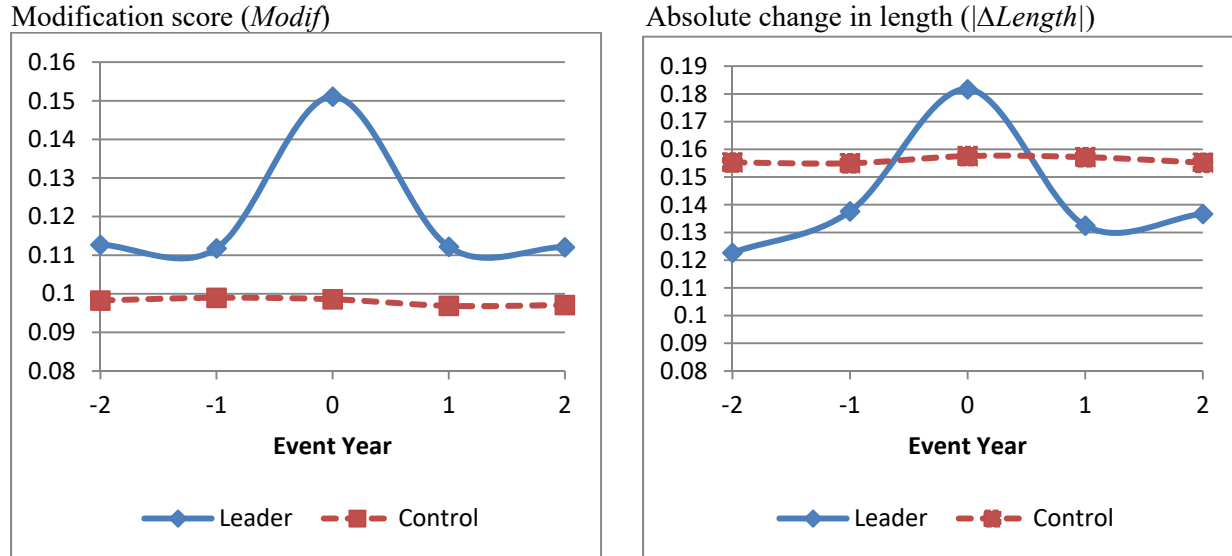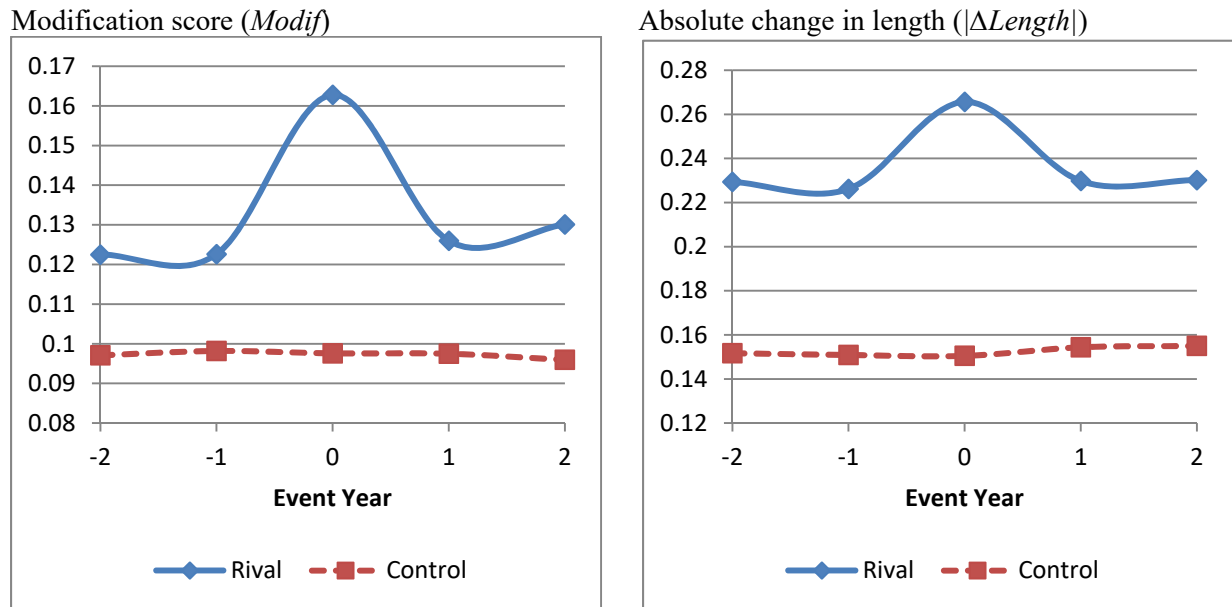
Note: we use No-letter Firms and plot the modification measures of the treated group in a solid line and the control group in a dotted line from two years before to two years after the event year (i.e., year t+1 in Table 4). In Panel A, the treated group is the firms with the value of *Leader* being 1 (i.e., firms with leader influence) and the control group is those with the value of *Leader* being 0 (i.e., firms without leader influence). Panel B is the same except for replacing *Leader* with *Rival*. See the definitions of *Leader* and *Rival* in Appendix 2. The space between discrete points is filled with smooth curves.

Figure 3
Modifications of the Risk Factor Disclosure by 10K-nonrisk-letter Firms (Placebo Firms)

Panel A: Firms with Leader Influence (Leader) vs. Firms without Leader Influence (Control)

Modification score (*Modif*)

Absolute change in length (|$\Delta Length$|)

Panel B: Firms with Rival Influence (Rival) vs. Firms without Rival Influence (Control)

Modification score (*Modif*)

Absolute change in length (|$\Delta Length$|)
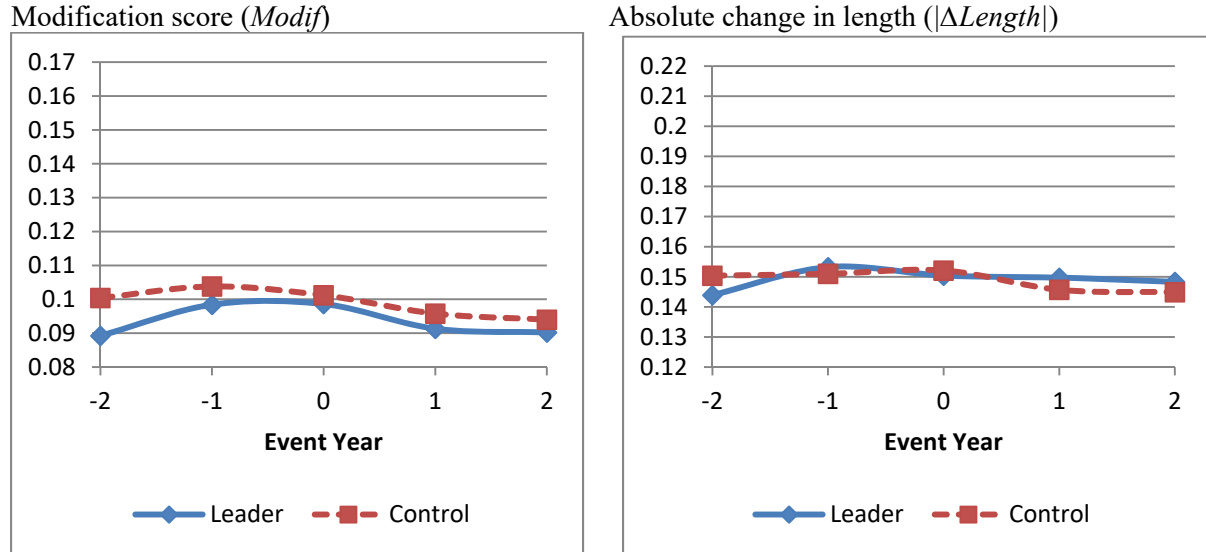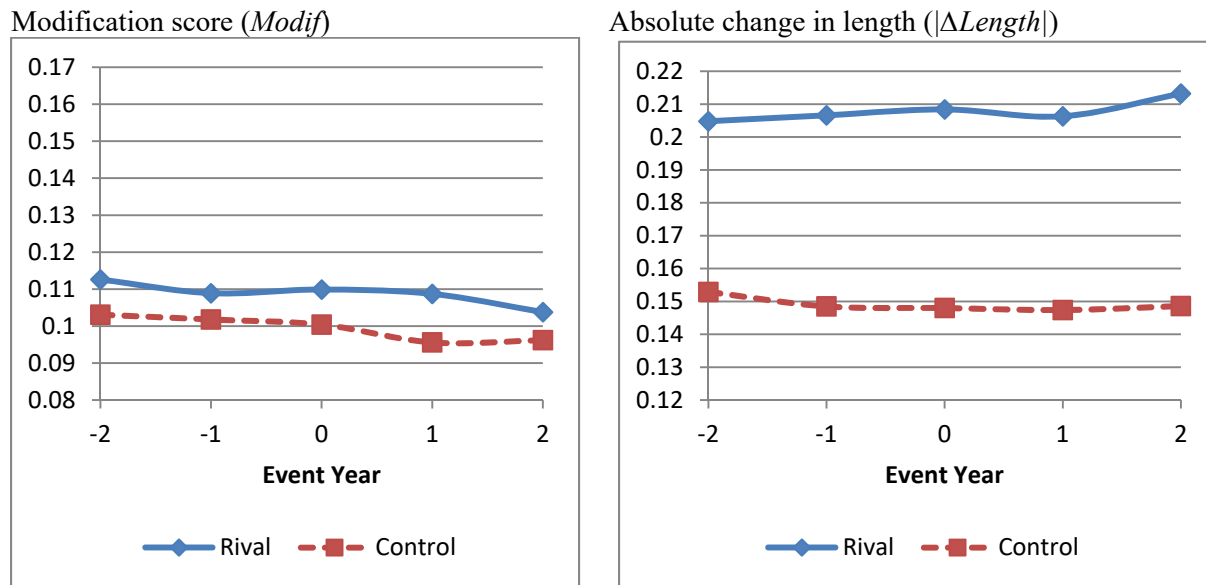
Note: we use 10K-nonrisk-letter Firms and plot the modification measure of the treated group in a solid line and the control group in a dotted line from two years before to two years after the event year (i.e., year t+1 in Table 5). In Panel A, the treated group is the firms with the value of *Leader* being 1 (i.e., firms with a leader influence) and the control group is those with the value of *Leader* being 0 (i.e., firms without a leader influence). Panel B is the same except for replacing *Leader* with *Rival*. See the definitions of *Leader* and *Rival* in Appendix 2. The space between discrete points is filled with smooth curves.

Table 1
Sample Selection

Firm-years ending between 12/1/2005 and 12/31/2010 with Compustat ID and 10-K		37,467
Exclude:		
Observations without "Item 1A" headline extracted		(1,071)
Observations with Item 1A discussion referencing to another location		(3,022)
Observations without consecutive-year risk factor disclosures		(8,093)
Observations with lagged market float less than $100 million or lagged sales less than $75 million		(10,857)
Observations without control variable data in Compustat		(369)
Observations without control variable data in CRSP		(761)
Observations with SIC industry code greater than or equal to 9000		(40)
Firm-year observations		13,254
Observation breakdown		
• Risk-letter Firms: received SEC comments on the risk factor disclosure	763	5.8%
• 10K-nonrisk-letter Firms: received SEC comments on the 10-K but not about the risk factor disclosure	4,929	37.2%
• Other-letter Firms: received SEC comments on filings other than the 10-K	753	5.7%
• No-letter Firms: did not receive any comment letter	6,809	51.3%
	13,254	100%

Note: We exclude Other-letter Firms from all analyses. The number of firm-year observations after excluding Other-letter Firms is 12,501.

Table 2
Descriptive Statistics

Panel A: Sample Distribution by Industry Sector

SIC	Industries	Risk-letter Firms	10K-nonrisk-letter Firms	No-letter Firms	Total
1-999	Agriculture, Forestry, Fishing	1 (3.2%)	13 (41.9%)	17 (54.8%)	31 (100%)
1000-1999	Mining, Building	82 (10.8%)	305 (40.3%)	369 (48.8%)	756 (100%)
2000-2999	Construction	102 (6.7%)	622 (40.6%)	809 (52.8%)	1,533 (100%)
3000-3999	Manufacturing	151 (5.0%)	1,171 (39.0%)	1,683 (56.0%)	3,005 (100%)
4000-4999	Transportation, Communication, Electric Gas	77 (6.0%)	503 (39.1%)	705 (54.9%)	1,285 (100%)
5000-5999	Wholesale, Retail	74 (5.5%)	500 (37.4%)	762 (57.0%)	1,336 (100%)
6000-6999	Financial Services	175 (6.5%)	1,062 (39.4%)	1,458 (54.1%)	2,695 (100%)
7000-7999	Hotels, Services	92 (6.6%)	570 (40.8%)	734 (52.6%)	1,396 (100%)
8000-8999	Services	9 (1.9%)	183 (39.4%)	272 (58.6%)	464 (100%)
	Total	763 (6.1%)	4,929 (39.4%)	6,809 (54.5%)	12,501 (100%)

Panel B: Sample Distribution by Fiscal Year

Fiscal year	Risk-letter Firms	10K-nonrisk-letter Firms	No-letter Firms	Total
2005	49 (2.8%)	634 (36.5%)	1,053 (60.7%)	1,736 (100%)
2006	85 (4.1%)	750 (36.5%)	1,220 (59.4%)	2,055 (100%)
2007	156 (6.7%)	889 (38.3%)	1,275 (55.0%)	2,320 (100%)
2008	225 (9.8%)	955 (41.4%)	1,125 (48.8%)	2,305 (100%)
2009	150 (7.4%)	919 (45.3%)	961 (47.3%)	2,030 (100%)
2010	98 (4.8%)	782 (38.1%)	1,175 (57.2%)	2,055 (100%)
Total	763 (6.1%)	4,929 (39.4%)	6,809 (54.5%)	12,501 (100%)

Panel C: Means (Medians) of Main Variables

	10K-nonrisk-letter Firms	Risk-letter Firms	No-letter Firms
Modif	**0.101**	0.125	**0.102**
	(0.056)	(0.070)	**(0.054)**
$|\Delta Length|$	**15.2%**	24.1%	**15.9%**
	(8.4%)	(11.0%)	**(8.2%)**
Length	5,450	5,538	**5,075**
	(4,814)	(4,736)	**(4,377)**
Size	7.669	7.755	**7.140**
	(7.589)	(7.640)	**(7.050)**
MTB	**2.827**	2.561	**2.728**
	(1.977)	(1.751)	**(1.919)**
PL	**0.181**	0.208	**0.176**
	(0)	(0)	(0)
Structure	**0.117**	0.142	0.127
	(0)	(0)	(0)
$\Delta Auditor$	**0.039**	0.054	**0.043**
	(0)	(0)	(0)
$|\Delta Stdret|$	**0.009**	0.012	**0.009**
	(0.006)	(0.008)	**(0.005)**
$|\Delta ROA|$	0.049	0.053	0.048
	(0.019)	(0.020)	(0.020)
$|\Delta Lev|$	0.041	0.044	0.041
	(0.020)	(0.021)	(0.019)
$|\Delta Cash|$	0.037	0.040	0.039
	(0.018)	(0.020)	(0.019)
Restate	0.073	0.075	0.077
	(0)	(0)	(0)
Leader			0.060
			(0)
Rival			0.070
			(0)
Freq_RL			2.420
			(1)
Com_auditor			0.262
			(0)

Panel D: Pairwise Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.*Modif*		**0.41**	**0.04**	0.02	**-0.08**	0.01	**-0.04**	**0.06**	**0.11**	**0.03**	**0.04**	**0.07**	**0.07**	**0.06**	0.01
2.|ΔLength|	**0.40**		**0.07**	0.01	**-0.12**	**0.06**	**-0.03**	**0.05**	**0.06**	**0.03**	**0.03**	0.02	**0.07**	-0.00	0.02
3.*Risk-letter*	**0.04**	**0.06**		**-0.23**	0.02	**0.06**	-0.02	0.02	0.01	0.01	**0.07**	0.01	0.01	0.01	-0.00
4. No-letter	0.03	0.02	**-0.23**		0.03	**-0.16**	-0.02	-0.01	-0.00	0.01	**-0.05**	-0.02	-0.01	0.01	**-0.03**
5.*Length*	**-0.05**	**-0.15**	**0.02**	0.03		-0.01	0.02	**0.07**	**0.13**	0.00	**0.18**	**0.13**	**0.05**	**0.13**	**0.02**
6.*Size*	0.00	**0.10**	**0.05**	**-0.15**	-0.03		**-0.08**	**-0.05**	**-0.12**	**-0.06**	**-0.04**	**-0.23**	**-0.05**	**-0.31**	**-0.05**
7.*MTB*	**-0.04**	**-0.04**	**-0.04**	-0.01	**-0.07**	**-0.08**		**-0.10**	**0.10**	**-0.03**	**-0.15**	**0.03**	**0.07**	**0.11**	-0.00
8.*PL*	**0.08**	**0.06**	**0.02**	-0.01	**0.09**	**-0.05**	**-0.20**		0.01	0.02	**0.15**	**0.41**	**0.07**	**0.03**	0.01
9.*Structure*	**0.10**	**0.06**	0.01	-0.00	**0.13**	**-0.12**	**0.10**	0.01		**0.03**	-0.01	**0.22**	**0.29**	**0.18**	0.00
10. ΔAuditor	**0.03**	0.01	0.01	0.01	0.01	**-0.06**	**-0.05**	0.02	**0.03**		**0.03**	**0.02**	0.00	-0.00	**0.04**
11.|ΔStdret|	**0.05**	0.02	**0.06**	**-0.05**	**0.18**	**-0.08**	**-0.29**	**0.14**	-0.01	**0.03**		**0.16**	**0.05**	0.00	-0.02
12.|ΔROA|	**0.09**	0.02	0.01	-0.01	**0.17**	**-0.31**	-0.00	**0.43**	**0.15**	-0.00	**0.16**		**0.18**	**0.21**	**0.03**
13.|ΔLev|	**0.03**	**0.08**	**0.02**	**-0.03**	0.01	**0.14**	-0.00	**0.05**	**0.17**	-0.00	0.02	0.05		**0.04**	0.02
14.|ΔCash|	**0.07**	-0.02	0.01	0.01	**0.14**	**-0.31**	**0.16**	0.03	**0.14**	-0.01	**0.05**	**0.28**	**-0.11**		0.01
15. *Restate*	0.01	-0.00	-0.00	**-0.03**	0.02	**-0.05**	0.01	0.01	0.00	**0.04**	-0.03	**0.04**	0.00	0.01	

Note: All the panels use Risk-letter Firms, 10K-nonrisk-letter Firms, and No-letter Firms. Risk-letter Firms received an SEC comment letter on the risk factor disclosure in the 10-K for fiscal year t. 10K-nonrisk-letter Firms received an SEC comment letter on the 10-K for fiscal year t about issues other than the risk factor disclosure. No-letter Firms did not receive any comment letter from the SEC for fiscal year t filings. In Panel C, we use boldface for the mean and median values of 10K-nonrisk-letter Firms and No-letter firms that are significantly different at the 5% level from those of Risk-letter Firms. In Panel D, we present Pearson (Spearman) correlations in the top (bottom) triangle and use boldface for the correlations that are statistically significant at the 5% level. See variable definitions in Appendix 2.

Table 3
Validating the Modification Measures by Comparing Firms before vs. after Receiving Comment Letters

$$Y_{t+1} = a_0 + a_1 Post_t + a_2 Size_t + a_3 MTB_t + a_4 PL_{t+1} + a_5 Structure_{t+1} + a_6 \Delta Auditor_{t+1}$$
$$+ a_7 |\Delta Stdret|_{t+1} + a_8 |\Delta ROA|_{t+1} + a_9 |\Delta Lev|_{t+1} + a_{10} |\Delta Cash|_{t+1} + a_{11} Restate_{t+1}$$
$$+ a_{12} Length_t + \text{Industry fixed effects} + \text{Year fixed effects} + \varepsilon$$

	Risk-letter Firms		10K-nonrisk-letter Firms	
	$Y = Modif$	$Y = |\Delta Length|$	$Y = Modif$	$Y = |\Delta Length|$
Post	0.015**	0.080***	0.002	-0.009
	(2.06)	(2.96)	(0.60)	(-1.18)
Size	0.011***	0.002	0.004**	0.009***
	(2.87)	(0.30)	(2.51)	(3.04)
MTB	-0.001	-0.000	-0.001	-0.001
	(-0.77)	(-0.04)	(-1.40)	(-0.50)
PL	0.020	0.068**	0.014***	0.024**
	(1.53)	(2.02)	(2.78)	(2.51)
Structure	0.053***	0.029	0.034***	0.036***
	(3.38)	(0.85)	(4.72)	(3.64)
ΔAuditor	0.020	0.004	0.012	0.020
	(0.85)	(0.07)	(1.22)	(0.74)
|ΔStdret|	1.268**	0.723	0.294	0.373
	(2.46)	(0.61)	(1.24)	(0.92)
|ΔROA|	-0.036	-0.319**	0.005	0.014
	(-0.59)	(-2.30)	(0.16)	(0.31)
|ΔLev|	0.222**	0.729***	0.153***	0.282***
	(2.21)	(3.01)	(3.71)	(3.82)
|ΔCash|	-0.123	0.147	0.062	0.023
	(-1.35)	(0.62)	(1.36)	(0.38)
Restate	0.009	-0.004	0.006	-0.013
	(0.54)	(-0.09)	(0.79)	(-1.03)
Length	-0.000***	-0.000***	-0.000***	-0.000***
	(-4.94)	(-5.53)	(-3.19)	(-10.33)
Intercept	0.045	0.179*	0.052***	0.124***
	(1.19)	(1.93)	(3.35)	(4.54)
Industry fixed effects	yes	yes	yes	yes
Year fixed effects	yes	yes	yes	yes
R^2	28.5%	24.7%	13.1%	15.2%
N	1,066	1,066	4,980	4,980

Note: Risk-letter Firms received SEC comments on the risk factor disclosure in the 10-K for fiscal year t. 10K-nonrisk-letter Firms received SEC comments on the 10-K for fiscal year t about issues other than the risk factor disclosure. We include a firm in the test only if it has data for the fiscal year subsequent to receiving the comment letter, where *Post*=1, and the fiscal year for which the letter is sent, where *Post*=0. See variable definitions in Appendix 2. The coefficients are reported with t-statistics in parentheses, robust to heteroskedasticity with errors clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level in a two-tailed test, respectively.

Table 4
Spillover Effects

Panel A: Regression estimations when the dependent variable $Y = Modif_{t+1}$

	Sign	(1)	(2)	(3)	(4)	(5)
Leader	+	0.018**				0.011**
		(2.32)				(1.97)
Rival	+		0.020***			0.017**
			(2.71)			(2.23)
Freq_RL	+			0.002***		0.002**
				(2.90)		(2.45)
Com_auditor	+				-0.001	-0.004
					(-0.32)	(-0.99)
Size	+	0.005***	0.005***	0.005***	0.005***	0.005***
		(3.48)	(3.55)	(3.56)	(3.49)	(3.67)
MTB	-	-0.001	-0.001	-0.001	-0.001	-0.001
		(-1.30)	(-1.33)	(-1.25)	(-1.29)	(-1.26)
PL	+	0.008*	0.008*	0.008*	0.008*	0.008*
		(1.81)	(1.75)	(1.80)	(1.80)	(1.76)
Structure	+	0.026***	0.026***	0.026***	0.026***	0.026***
		(4.61)	(4.62)	(4.62)	(4.61)	(4.61)
ΔAuditor	+	0.003	0.003	0.003	0.003	0.003
		(0.38)	(0.32)	(0.40)	(0.38)	(0.34)
|ΔStdret|	+	0.577***	0.574***	0.583***	0.577***	0.580***
		(2.64)	(2.63)	(2.67)	(2.64)	(2.65)
|ΔROA|	+	0.056**	0.057**	0.057**	0.056**	0.058**
		(1.99)	(2.03)	(2.02)	(1.99)	(2.06)
|ΔLev|	+	0.132***	0.130***	0.133***	0.132***	0.132***
		(4.11)	(4.07)	(4.13)	(4.10)	(4.12)
|ΔCash|	+	0.203***	0.203***	0.203***	0.203***	0.203***
		(4.83)	(4.83)	(4.83)	(4.83)	(4.85)
Restate	+	0.006	0.006	0.005	0.006	0.005
		(0.95)	(0.94)	(0.89)	(0.95)	(0.88)
Length	-	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(-5.53)	(-5.66)	(-5.56)	(-5.54)	(-5.65)
NyearsNCL	?	-0.002	-0.002	-0.002	-0.002	-0.002
		(-1.35)	(-1.42)	(-1.36)	(-1.35)	(-1.42)
Lag_Modif	?	0.162***	0.162***	0.162***	0.162***	0.162***
		(8.62)	(8.62)	(8.61)	(8.62)	(8.61)
IndModif	?	-0.123***	-0.122***	-0.127***	-0.123***	-0.124***
		(-3.03)	(-2.99)	(-3.11)	(-3.02)	(-3.04)
Return	-	-0.006*	-0.006*	-0.006*	-0.006*	-0.006*
		(-1.73)	(-1.72)	(-1.73)	(-1.72)	(-1.69)
Intercept		0.064***	0.063***	0.062***	0.064***	0.061***
		(5.56)	(5.47)	(5.40)	(5.56)	(5.32)
R^2		12.9%	16.0%	15.9%	15.8%	16.1%

Panel B: Regression estimations when the dependent variable $Y = |\Delta Length|_{t+1}$

	Sign	(1)	(2)	(3)	(4)	(5)
Leader	+	0.128***				0.112***
		(3.65)				(3.62)
Rival	+		0.058***			0.048**
			(3.76)			(2.34)
Freq_RL	+			0.006***		0.005***
				(3.53)		(3.00)
Com_auditor	+				0.009	0.000
					(0.95)	(0.02)
Size	+	0.003	0.003	0.003	0.003	0.004
		(1.19)	(1.32)	(1.33)	(1.12)	(1.39)
MTB	-	-0.000	-0.001	-0.000	-0.001	-0.000
		(-0.49)	(-0.54)	(-0.39)	(-0.51)	(-0.46)
PL	+	0.043***	0.043***	0.043***	0.044***	0.043***
		(4.27)	(4.18)	(4.25)	(4.26)	(4.20)
Structure	+	0.040***	0.040***	0.041***	0.040***	0.041***
		(4.19)	(4.18)	(4.21)	(4.19)	(4.21)
$\Delta Auditor$	+	0.012	0.010	0.012	0.012	0.011
		(0.60)	(0.51)	(0.61)	(0.59)	(0.55)
$|\Delta Stdret|$	+	1.255***	1.245***	1.266***	1.255***	1.257***
		(3.05)	(3.03)	(3.07)	(3.05)	(3.06)
$|\Delta ROA|$	+	-0.081*	-0.077*	-0.077*	-0.081*	-0.075*
		(-1.86)	(-1.77)	(-1.76)	(-1.86)	(-1.72)
$|\Delta Lev|$	+	0.282***	0.280***	0.286***	0.282***	0.281***
		(3.98)	(3.88)	(3.97)	(3.94)	(3.98)
$|\Delta Cash|$	+	0.135**	0.135**	0.134**	0.133**	0.135**
		(2.50)	(2.47)	(2.44)	(2.43)	(2.48)
Restate	+	0.009	0.009	0.008	0.009	0.008
		(0.56)	(0.55)	(0.50)	(0.57)	(0.50)
Length	-	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
		(-12.83)	(-12.74)	(-12.80)	(-12.76)	(-12.67)
NyearsNCL	?	0.003	0.002	0.003	0.003	0.002
		(0.95)	(0.85)	(0.90)	(0.94)	(0.84)
Lag_$|\Delta Length|$	?	0.063**	0.061**	0.065**	0.063**	0.064**
		(2.09)	(2.04)	(2.20)	(2.10)	(2.14)
Ind$|\Delta Length|$	?	-0.152**	-0.146**	-0.147**	-0.153**	-0.143**
		(-2.12)	(-2.03)	(-2.05)	(-2.14)	(-1.99)
Return	-	-0.012**	-0.012**	-0.013**	-0.013**	-0.012**
		(-2.40)	(-2.37)	(-2.42)	(-2.45)	(-2.41)
Intercept		0.161***	0.157***	0.154***	0.161***	0.152***
		(7.43)	(7.37)	(7.21)	(7.44)	(7.14)
R^2		15.5%	15.8%	15.8%	15.5%	16.0%

Note: The tests use the 6,809 firm-year observations of No-letter Firms—firms that did not receive any comment letter from the SEC for their fiscal year t filings. Industry, year, and SEC-office fixed effects are included. See variable definitions in Appendix 2. The coefficients are reported with t-statistics in parentheses, robust to heteroskedasticity with errors clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level in a two-tailed test, respectively.

Table 5
Spillover Effects—Placebo Tests

Dependent variable = *Modif*	(1)	(2)
Leader	-0.002	
	(-0.20)	
Rival		0.005
		(0.67)
Size	0.004***	0.004***
	(3.20)	(3.23)
MTB	-0.001**	-0.001**
	(-2.07)	(-2.08)
PL	0.022***	0.022***
	(4.09)	(4.10)
Structure	0.047***	0.047***
	(5.95)	(5.95)
Δ*Auditor*	0.008	0.008
	(0.95)	(0.94)
$|\Delta Stdret|$	0.746***	0.747***
	(2.95)	(2.95)
$|\Delta ROA|$	0.019	0.019
	(0.64)	(0.63)
$|\Delta Lev|$	0.053	0.053
	(1.46)	(1.46)
$|\Delta Cash|$	0.097**	0.097**
	(2.09)	(2.10)
Restate	-0.001	-0.000
	(-0.08)	(-0.07)
Length	-0.000***	-0.000***
	(-4.67)	(-4.69)
NyearsNCL	0.002	0.002
	(1.16)	(1.16)
Lag_|ΔLength|	0.167***	0.167***
	(8.14)	(8.13)
Ind|ΔLength|	-0.198***	-0.197***
	(-3.91)	(-3.90)
Return	-0.000	-0.000
	(-0.11)	(-0.11)
Intercept	0.074***	0.074***
	(6.10)	(6.08)
R^2	16.8%	16.8%

Note: We replicate Columns 1 and 2 of Table 4 using the 4,929 firm-year observations of 10K-nonrisk-letter Firms —firms that received an SEC comment letter on the 10-K for fiscal year t about issues other than the risk factor disclosure. We do not expect to find spillover effects for these firms. See other notes to Table 4.

Table 6
Spillover Effects—Spillable vs. Nonspillable Comments

Dependent variable = *Modif*	Spillable	Nonspillable	Spillable	Nonspillable
Leader	0.019***	-0.016		
	(2.84)	(-0.63)		
Rival			0.059***	-0.002
			(3.97)	(-0.26)
Size	0.004***	0.007***	0.005***	0.004***
	(2.77)	(4.49)	(3.60)	(3.27)
MTB	-0.000	-0.001	-0.001	-0.001
	(-0.54)	(-0.76)	(-1.31)	(-1.02)
PL	0.006	0.009	0.007	0.008
	(1.21)	(1.43)	(1.49)	(1.59)
Structure	0.024***	0.027***	0.024***	0.027***
	(4.01)	(3.80)	(4.29)	(4.85)
ΔAuditor	0.001	0.015	0.002	0.003
	(0.13)	(1.31)	(0.22)	(0.34)
|ΔStdret|	0.434*	0.726**	0.598***	0.550**
	(1.91)	(2.43)	(2.59)	(2.50)
|ΔROA|	0.047*	0.093**	0.064**	0.060**
	(1.67)	(2.43)	(2.21)	(2.16)
|ΔLev|	0.145***	0.135***	0.132***	0.119***
	(4.28)	(3.43)	(4.02)	(3.72)
|ΔCash|	0.191***	0.241***	0.205***	0.197***
	(4.27)	(4.78)	(4.77)	(4.71)
Restate	0.005	0.003	0.004	0.006
	(0.79)	(0.37)	(0.65)	(1.03)
Length	-0.000***	-0.000***	-0.000***	-0.000***
	(-5.24)	(-4.58)	(-5.63)	(-5.33)
NyearsNCL	0.000	0.001	0.000	0.001
	(0.06)	(0.17)	(0.17)	(0.31)
Lag_|ΔLength|	0.162***	0.179***	0.164***	0.166***
	(7.99)	(7.30)	(8.44)	(8.76)
Ind|ΔLength|	-0.145***	-0.128***	-0.133***	-0.109***
	(-3.42)	(-2.60)	(-3.23)	(-2.66)
Return	-0.006*	-0.005	-0.006	-0.005
	(-1.76)	(-1.18)	(-1.60)	(-1.53)
Intercept	0.078***	0.045***	0.065***	0.066***
	(6.47)	(3.28)	(5.59)	(5.80)
R^2	16.9%	18.2%	16.8%	16.1%
N	6,735	6,475	6,640	6,501

Note: We code the risk disclosure comments on leader firms and classify a leader as having spillable comments if at least one of the comments have potential to be acted on by peers and as having nonspillable comments otherwise. In Column 1, we *exclude* sample firms whose leader has all nonspillable risk comments. In Column 2, we *exclude* sample firms whose leader has at least one spillable risk comment. We follow similar procedures for *Rival* in Columns 3 and 4. See Table 4 for other notes.

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Table 7
Spillover Effects—Hand Comparing Randomly Selected Small Samples

| | No-letter Firms | | | | | | | 10K-nonrisk-letter Firms | | | | | |
Obs.	*Modif*	N_t	N_{t+1}	*Overlap*	*Identical*	*Traced*	Obs.	*Modif*	N_t	N_{t+1}	*Overlap*	*Identical*	*Traced*
1	0.176	47	48	0.917	0.688	1	1	0.204	31	31	0.968	0.935	0
2	0.296	17	22	0.455	0.182	1	2	0.006	10	10	1.000	0.800	0
3	0.114	16	21	0.714	0.381	1	3	0.052	16	17	0.941	0.706	0
4	0.475	11	10	1.000	0.700	1	4	0.022	13	13	1.000	0.846	1
5	0.039	10	11	0.909	0.818	0	5	0.000	21	21	0.952	0.905	0
6	0.022	9	12	0.750	0.667	1	6	0.203	51	54	0.815	0.500	1
7	0.023	17	18	0.944	0.722	0	7	0.073	12	13	0.923	0.769	0
8	0.177	37	38	0.763	0.500	1	8	0.221	25	24	1.000	0.625	0
9	0.413	8	7	0.714	0.286	1	9	0.056	10	10	1.000	0.600	0
10	0.147	51	53	0.925	0.830	0	10	0.004	33	33	1.000	1.000	0
11	0.115	31	28	0.964	0.821	0	11	0.309	33	33	0.970	0.636	0
12	0.149	6	14	0.429	0.357	1	12	0.285	21	23	0.870	0.565	0
13	0.271	8	13	0.538	0.385	1	13	0.110	14	16	0.875	0.875	1
14	0.161	8	14	0.571	0.500	1	14	0.017	19	17	0.941	0.882	0
15	0.290	15	22	0.636	0.409	1	15	0.143	14	14	0.929	0.857	0
16	0.068	9	11	0.818	0.818	0	16	0.033	32	33	0.939	0.788	0
17	0.148	8	8	1.000	0.500	0	17	0.022	29	26	1.000	0.808	1
18	0.152	17	28	0.607	0.357	1	18	0.085	36	43	0.814	0.628	0
19	0.064	16	16	0.938	0.750	0	19	0.075	39	40	0.950	0.775	0
20	0.096	13	14	0.929	0.786	0	20	0.074	26	24	1.000	0.792	1
21	0.220	10	14	0.714	0.357	1	21	0.015	29	29	1.000	0.897	0
22	0.148	26	32	0.781	0.531	0	22	0.003	26	28	0.929	0.857	0
23	0.239	17	28	0.536	0.286	1	23	0.146	18	17	1.000	0.941	0
24	0.079	34	37	0.919	0.838	0	24	0.038	29	30	0.967	0.800	0
25	0.005	24	31	0.903	0.645	1	25	0.029	33	32	0.938	0.844	0
26	0.309	13	18	0.444	0.444	1	26	0.024	47	48	0.958	0.625	0
27	0.145	11	20	0.400	0.350	1	27	0.026	45	51	0.824	0.745	0
28	0.090	27	29	0.793	0.690	0	28	0.257	21	26	0.808	0.654	1
29	0.044	30	34	0.824	0.706	0	29	0.093	49	50	0.920	0.840	0
30	0.056	60	60	0.983	0.767	1	30	0.133	18	19	0.947	0.684	0
Mean	0.158	20.2	23.7	0.761	0.569			0.092	26.7	27.5	0.939	0.773	
Test stat	**2.46**			**-4.91**	**-4.72**	**10.00**							

Note: We randomly select 30 firms from No-letter Firms and 30 firms from 10K-nonrisk-letter Firms that have a leader with risk disclosure comments released before the sample firm's year t+1 filing. Our research assistant, unaware of the distinction of these two groups, coded the number of risk factors in year t+1 filing (N_{t+1}), the number of risk factors in year t (N_t), the ratio of overlapping factors between the two years over N_{t+1}, the ratio of almost identically-disclosed factors over N_{t+1}, and whether the changes in the sample firm's risk disclosure can be traced to its leader firm's risk comments (1 for YES and 0 for NO). See the definition of *Modif* in Appendix 2. The last row presents t-statistics of testing the mean values of *Modif, Overlap*, and *Identical* between No-letter Firms and 10K-nonrisk-letter Firms and the Pearson χ^2 statistic of testing *Traced*. Statistics significant at 5% level or better in a two-tailed test is in bold.

Table 8
Likelihood of No-letter Firms' Subsequent-year Risk Disclosures Being More Specific

$More\_specific_{t+1} = c_0 + c_1 Spillover\ Variable_t + c_2 Size_t + c_3 MTB_t + c_4 PL_{t+1} + c_5 Structure_{t+1}$
$+ c_6 \Delta Auditor_{t+1} + c_7 |\Delta Stdret|_{t+1} + c_8 |\Delta ROA|_{t+1} + c_9 |\Delta Lev|_{t+1} + c_{10} |\Delta Cash|_{t+1}$
$+ c_{11} Restate_{t+1} + c_{12} NyearsNCL_t + Year\ fixed\ effects + \varepsilon$

	Model (1)	Model (2)	Model (3)
Leader	0.141**		0.171**
	(2.20)		(2.54)
Rival		-0.068	-0.109*
		(-1.15)	(-1.75)
Size	0.028**	0.030***	0.029**
	(2.45)	(2.61)	(2.55)
MTB	-0.018***	-0.019***	-0.018***
	(-2.97)	(-3.05)	(-2.96)
PL	0.059	0.063	0.061
	(1.29)	(1.39)	(1.34)
Structure	0.057	0.061	0.059
	(1.12)	(1.20)	(1.17)
ΔAuditor	0.099	0.106	0.106
	(1.34)	(1.43)	(1.44)
|ΔStdret|	3.208	3.412*	3.396*
	(1.59)	(1.69)	(1.68)
|ΔROA|	0.348	0.315	0.332
	(1.43)	(1.29)	(1.37)
|ΔLev|	-0.051	-0.093	-0.056
	(-0.18)	(-0.34)	(-0.20)
|ΔCash|	0.095	0.073	0.075
	(0.30)	(0.23)	(0.23)
Restate	-0.062	-0.062	-0.062
	(-1.08)	(-1.08)	(-1.08)
NyearsNCL	-0.039	-0.037	-0.038
	(-1.63)	(-1.55)	(-1.58)
Intercept	-0.431***	-0.426***	-0.438***
	(-4.06)	(-4.02)	(-4.12)
Industry fixed effects	no	no	No
Year fixed effects	yes	yes	Yes
Pseudo R^2	10.1%	8.2%	10.2%
N	6,809	6,809	6,809

Note: The logit estimation uses No-letter Firms—firms that did not receive any comment letter from the SEC for fiscal year t filings. See variable definitions in Appendix 2. The coefficients are reported with z-statistics in parentheses, robust to heteroskedasticity with errors clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level in a two-tailed test, respectively.

Table 9
Likelihood of No-letter Firms' Receiving Risk Disclosure Comments Next Year

$Risk\_letter_{t+1} = d_0 + d_1 More\_specific_{t+1} + d_2 Modif_{t+1} + d_3 Restate_{t+1} + d_4|\Delta Stdret|_{t+1} + d_5 Size_{t+1}$
$+ d_6 P/E_{t+1} + d_7 Big4_{t+1} + d_8 N\_segments_{t+1} + d_9 Structure_{t+1} + d_{10} Sales\_growth_{t+1} + d_{11} Loss_{t+1}$
$+ d_{12} Neg\_CFO_{t+1} + d_{13} NyearsNCL_t + Industry fixed effects + Year fixed effects + \varepsilon$

	(1)	(2)	(3)
More_specific	-0.069**		-0.069**
	(-2.23)		(-2.22)
Modif		0.068	0.063
		(0.32)	(0.30)
Restate	0.112	0.108	0.112
	(0.99)	(0.96)	(0.99)
|ΔStdret|	7.795***	7.667***	7.774***
	(3.16)	(3.11)	(3.15)
Size	0.058***	0.057***	0.057***
	(2.95)	(2.92)	(2.93)
P/E	-0.012	-0.013	-0.012
	(-0.66)	(-0.72)	(-0.67)
Big4	0.066	0.062	0.067
	(0.80)	(0.75)	(0.81)
N_segments	-0.011	-0.011	-0.011
	(-1.36)	(-1.36)	(-1.37)
Structure	0.045	0.044	0.043
	(0.54)	(0.52)	(0.51)
Sales_growth	0.006	0.006	0.006
	(1.34)	(1.30)	(1.33)
Loss	-0.113*	-0.116*	-0.114*
	(-1.66)	(-1.70)	(-1.67)
Neg_CFO	0.023	0.025	0.022
	(0.23)	(0.25)	(0.22)
NyearsNCL	-0.033	-0.031	-0.033
	(-0.61)	(-0.57)	(-0.61)
Intercept	-2.925***	-2.950***	-2.928***
	(-13.88)	(-13.97)	(-13.84)
Industry fixed effects	yes	yes	yes
Year fixed effects	yes	yes	yes
Pseudo R^2	10.1%	9.3%	10.3%
N	6,809	6,809	6,809

Note: The logit estimation uses No-letter Firms—firms that did not receive any comment letter from the SEC for fiscal year t filings. See variable definitions in Appendix 2. The coefficients are reported with z-statistics in parentheses, robust to heteroskedasticity with errors clustered by firm. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level in a two-tailed test, respectively.