Accounting Conservatism and Risk Disclosures

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

This thesis adopts a broad view of conservative financial reporting—managers can use two ways to communicate business uncertainties to outsiders, namely, conservative accounting via timely loss recognition and narrative risk disclosures about a firm's downside risk. I posit that managers trade off conservative accounting and risk disclosures because they both can alleviate information asymmetry about downside risk and reduce shareholder litigation, and they both impose significant costs on firms. Using a sample of U.S. industrial firms from 1995 to 2018, I find support for this substitutive (trade-off) relation when narrative risk disclosures were voluntary but not when they were mandatory in annual reports. Moreover, I hypothesize and find evidence that firms have stronger incentives to make such trade-offs in order to reduce overall reporting cost, when they are planning seasoned equity offerings, are closer to debt covenant violations, face higher proprietary costs, or have greater needs for debt financing. Additional tests show that external monitoring, by financial analysts or by shareholders through litigation threats, constrains firms' flexibility in making such trade-offs. For the period after 2005 when the U.S. Securities and Exchange Commission (SEC) has mandated risk factor disclosures in annual reports, I find firms with lower analyst following or lower litigation risk exhibit a significant substitutive relation between these two accounting choices. Stock return tests show that, while investors fully anticipated managers to make such trade-offs when risk disclosures were voluntary, they reacted negatively to firms that appear to have made trade-offs between these two choices in the period after the SEC has mandated risk disclosures. Collectively, my research suggests that firms trade off conservative accounting recognition and risk disclosures, especially in the period when qualitative risk disclosures were voluntary, even though investors appear to prefer consistent information between quantitative accounting numbers and qualitative risk disclosures.

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Chapter 1

Introduction

This thesis examines the relation between accounting conservatism and qualitative risk disclosures. Accounting conservatism communicates business uncertainties quantitatively through timely recognition of bad news in financial statements. Risk disclosures communicate business uncertainties by providing qualitative information about factors that may negatively affect firm performance. Their common link to business uncertainties suggests that managers may coordinate their reporting and disclosure choices when making financial reporting decisions. Specifically, this thesis provides insight into whether and how managers coordinate these two choices, what factors they may consider in such coordination, and what are stock market consequences of different coordinating strategies. To answer these questions, I focus on risk disclosures in annual reports because such comprehensive reporting packages provide the main venue through which firms provide risk information (Kravet and Muslu 2013; Campbell et al. 2014). [1]

This study is motivated by the importance of risk disclosures. According to the FASB's Conceptual Framework, the primary objective of financial reporting is to provide useful information for investors, lenders, and other stakeholders to assess "the amount, timing, and uncertainty of (the prospects for) future net cash inflows to the entity" (FASB 2010, OB3). Risk disclosures are crucial because they provide a special type of information useful for financial statement users to assess the uncertainty surrounding future cash flows of a firm. Recognizing the

[1] I use "annual reports" and "10-K filings" interchangeably. My test is based on texts extracted from 10-K filings. Despite the claim that investors do not appear to rely on 10-K filings as indicated by the small number of downloads recorded on the EDGAR server log (Loughran and McDonald 2017), prior studies show that investors do react to 10-K filings and the reaction varies with the quality of disclosures (Griffin 2003; Hope, Hu, and Lu 2016). Moreover, investors can obtain the same information from the annual reports posted on firms' websites, which are much easier to navigate than the EDGAR platform.

importance of risk disclosures, standard setters and regulators have long encouraged and required firms to disclose risks and uncertainties surrounding their operations and future cash flows.[2] Most recently in August 2020, the SEC approved amendments to modernize certain disclosures under Regulation S-K, which include risk factor disclosures.[3]

This study is also motivated by the paucity of prior studies examining managers' joint decisions on reporting and disclosure choices.[4] Prior theoretical studies (Gigler and Hemmer 2001; Gietzmann and Trombetta 2003) and survey evidence (Graham, Harvey, and Rajgopal 2005) suggest that managers make mandatory reporting and voluntary disclosure decisions jointly. This is consistent with the intuition that firms should have an integrated reporting and disclosure strategy since their common goal is to provide information to outsiders. However, extant empirical research tends to examine these two types of choices as independent decisions (Tucker 2015). Unlike these studies, I take a holistic view towards understanding whether and how managers coordinate their reporting decisions in timely loss recognition (i.e., accounting conservatism) and their disclosure decisions in qualitative risk information (i.e., risk disclosures).

This study is also motivated by the recent call of Guay and Verrecchia (2018) for taking a broad view of conservative financial reporting. These authors propose that conservative financial reporting should include not only timely recognition of probable expenses and liabilities in financial statements but also timely disclosure of potential bad realizations of economic outcomes. They call for studies that "consider conservative financial reporting within the broader context of overall corporate disclosure policy, as opposed to the more narrow emphasis on income statement

[2] Chapter 2 provides a detailed discussion of the related regulations.
[3] More details about the amendments can be found at https://www.sec.gov/news/press-release/2020-192.
[4] By reporting choices, I mean managers' choices over the reporting of recognized accounting numbers on the face of financial statements. By disclosure choices, I mean managers' decisions over supplying additional information, financial or non-financial, other than such accounting numbers.

and balance sheet presentation" (Guay and Verrecchia 2018, 88). Embracing this broad view of conservative financial reporting, I examine the relation between accounting conservatism in the form of timely loss recognition and qualitative disclosures about a firm's downside risk.

Prior studies find that accounting conservatism alleviates information asymmetry between insiders and debtholders, and lowers the cost of debt (Ahmed et al. 2002; Zhang 2008; Sunder, Sunder, and Zhang 2018). Prior research also finds risk disclosures provide useful information for debtholders because they are naturally concerned about downside risk (Chiu, Guan, and Kim 2018). Since both accounting conservatism and risk disclosures can mitigate information asymmetry about downside risk, the supply of accounting conservatism may affect managers' incentives to provide risk disclosures, and vice versa. This is because both accounting conservatism and risk disclosures impose significant costs on the firm, and managers likely consider the relative costs of these two choices so that they can achieve their reporting and disclosure objectives at the lowest overall cost possible by choosing the appropriate level for each choice. For example, if timely loss recognition becomes more cost-effective, then managers would rely more on accounting conservatism and less on risk disclosures to maintain information transparency on business uncertainties.

Prior research finds that both accounting conservatism and risk disclosures can reduce litigation risk. Several studies show that conservative reporting can protect firms (Qiang 2007; Ettredge, Huang, and Zhang 2016) and managers (Chung and Wynn 2008; Levy, Shalev, and Zur 2018) from shareholder litigation. Studies also document that disclosures (Field, Lowry, and Shu 2005; Billings and Cedergren 2015) generally deter shareholder litigation, and firms facing greater litigation risk provide more risk disclosures (Nelson and Pritchard 2016). With two accounting choices that can achieve the same purpose, managers would weigh the relative costs of these two

choices, assuming that they, as rational decision-makers, are motivated to minimize the overall cost in maintaining litigation risk at the desired level. Since both accounting conservatism and risk disclosures can benefit the firm by mitigating information asymmetry and reducing litigation risk, I conjecture that accounting conservatism and risk disclosures likely serve as substitutes.

Although Hui, Matsunaga, and Morse (2009) suggest that accounting conservatism reduces managers' incentives to provide management earnings forecasts because conservative reporting can reduce the net benefit of such voluntary disclosure, empirically it is not clear whether managers would trade off accounting conservatism and risk disclosures. Unlike quantitative management forecasts, risk disclosures in annual reports are largely qualitative and they have become mandatory after 2005. Moreover, accounting numbers and risk disclosures are provided in the same financial reporting package. Investors can detect disagreements between hard (quantitative) and soft (qualitative) information from the same source and react negatively to conflicting signals (Henry 2008; Baginski et al. 2016; D'Augusta and DeAngelis 2020). This suggests that conservative accounting and risk disclosures can be in a complementary relation because managers face pressure to provide consistent signals from quantitative and qualitative information. If managers report aggressively and at the same time provide a high level of risk disclosures, investors may question why those risks and uncertainties are not reflected in the reported accounting numbers.

As mentioned above, my main hypothesis posits that managers trade off accounting conservatism and risk disclosures according to their relative costliness. When there is a larger difference in cost between accounting conservatism and risk disclosures, firms have greater incentives to make such trade-offs because doing so would have a greater effect in reducing the overall cost for revealing information about firms' business uncertainties. Therefore, I predict a

stronger negative relation between accounting conservatism and risk disclosures when the difference in cost between these two choices becomes larger; for example, when firms are planning for additional equity financing, or when they are close to debt covenant violations. Conservative reporting becomes significantly more costly for such firms because timely loss recognition can affect the market valuation of the firm or trigger earlier debt covenant violations. On the other hand, risk disclosures have a much smaller effect on firm valuation or covenant violations. The different effects of conservative accounting and risk disclosures increase the incentives for trade-offs in these two scenarios. Following the same logic, I expect to observe a similar effect for firms facing greater proprietary costs, because concerns over divulging proprietary information significantly increase the cost of risk disclosures but do not significantly change the cost of conservative accounting. On the benefit side, conservative reporting can lower the cost of debt. I expect that firms with greater needs for debt financing have stronger incentives to make such trade-offs due to the greater anticipated benefit from conservative reporting relative to risk disclosures.

I further examine factors that may mitigate the predicted trade-off. The first factor is litigation risk. When firms face high litigation risk, they need to provide both conservative reporting and risk disclosures at high levels to create a powerful litigation shield. Such firms have less room for trade-offs between accounting conservatism and risk disclosures. Therefore, the substitutive relation is likely to be weaker when firms face higher litigation risk. The second factor I consider is external monitoring by sophisticated information users. As described earlier, investors are sensitive to disagreements between different signals from the same information source. Sophisticated information users such as financial analysts have superior information processing ability (Price 1998; Bonner, Walther, and Young 2003; Callen, Gavious, and Segal 2010) and are better able to detect such disagreements. Therefore, a high level of analyst following may constrain

managers' ability to trade off accounting conservatism and risk disclosures. Additionally, I examine whether disclosure committees, as a corporate governance mechanism, may mitigate such trade-offs. If the mitigating effects of these factors are strong enough, I may not observe a substitutive relation or may even observe a complementary relation for certain groups of firms.

To test my hypotheses, I use a sample of 53,779 firm-year observations that have accounting data, stock returns, and 10-K filings for fiscal years from 1995 to 2018. I measure accounting conservatism by using three firm-level measures, namely, earnings skewness relative to cash flow skewness (Givoly and Hayn 2000), C-Score (Khan and Watts 2009), and conservatism ratio (Callen, Segal, and Hope 2010). I measure risk disclosures in 10-K filings based on the proportion of sentences that contain risk-related keywords identified by Kravet and Muslu (2013).

Consistent with my prediction, I find that accounting conservatism is negatively associated with risk disclosures in the period before 2005 when the SEC mandated narrative risk disclosures, suggesting that managers treat these two choices as substitutes. The negative relation also holds in the period after 2005 for firms facing lower litigation risks and lower analyst following. This suggests that the regulation constrains managers' ability to trade off these two accounting choices for firms subject to stronger external monitoring. Supplemental analysis shows that the negative relation is robust to a change model. This alleviates the concern of correlated omitted variables and also addresses the stickiness of corporate disclosures (Brown and Tucker 2011; Dyer, Lang, and Stice-Lawrence 2017). To explore whether the substitutive effect extends beyond the current year, I include lag variables and find that the effect is mostly contemporaneous. Using the SEC's mandate on risk factor disclosures as an external shock that increases the level of risk disclosures, I find that firms decrease their levels of accounting conservatism in response to this change. This

additional evidence corroborates my main finding that firms trade off accounting conservatism and risk disclosures.

Conditional analyses suggest that the negative relation is more pronounced for firms that are planning for equity offerings, closer to debt covenant violations, facing higher proprietary costs, or having greater needs for debt financing. I also find that the negative relation is mitigated when firms face high litigation risk or have more analyst following. However, firms with low litigation risk or analyst following exhibit a negative relation between the two choices in both voluntary and mandatory periods, suggesting that the SEC's mandate does not fully mitigate the trade-off for firms facing lower monitoring by other parties. Further, I do not find that disclosure committees play a significant role in constraining trade-offs between accounting conservatism and risk disclosures.

Additional analyses show that executive overconfidence, an executive trait that prior research finds to have significant effects on many reporting and disclosure outcomes, has a limited impact on the coordination between accounting conservatism and risk disclosures. Among various components of executive compensation, I find the sensitivity of a CFO's equity portfolio to stock return volatility (i.e., Vega) is positively associated with the level of risk disclosures. This suggests that CFOs, usually heavily involved in the preparation of annual reports, likely understand the implication of risk disclosures. A higher level of risk disclosures may lead to greater stock return volatility (Kravet and Muslu 2013)[5], which increases the value of CFOs' equity portfolios.

To understand the implications of different trade-off strategies, I conduct stock return tests and find that there is no significant difference in abnormal returns between firms that provide

[5] This finding seems to be counter intuitive. The intuition behind this finding is that risk disclosures may increase information uncertainty if the disclosures reveal unknown risk factors which market participants interpret differently.

accounting conservatism and risk disclosures in a more substitutive or complementary manner for the period before 2005. This suggests that the stock market fully anticipated such firm behaviors when risk disclosures were voluntary. For the period after 2005 when risk disclosures have become mandatory, I find that firms having engaged more in such trade-offs underperformed in stock returns. This suggests that investors expect firms to provide more complementary information in conservative accounting numbers and risk disclosures, and punish firms that deviate from this expected behavior after the SEC mandated risk disclosures.

This study makes several contributions to the extant literature. First, it adds to the conservatism literature by shedding light on how the large literature on accounting conservatism integrates with the even larger literature on corporate disclosures, particularly qualitative disclosures. The extant literature on accounting conservatism tests the various determinants of conservative accounting choices and examines its costs and benefits for various stakeholders.[6] By documenting a negative relation between accounting conservatism and risk disclosures, this study broadens our understanding of managers' conservative financial reporting systems that produce both quantitative and qualitative information. A recent study by D'Augusta and DeAngelis (2020) also examines the relation between accounting conservatism and qualitative disclosures. They find that accounting conservatism can constrain upward tone management. My study differs from their study in that I do not assume a governance role of accounting conservatism and I focus on the amount of qualitative risk disclosures, rather than the sentiment of qualitative disclosures in general.

Second, this study adds to the literature on the relation between managerial choices for recognition and qualitative disclosures. Prior empirical studies on this relation focus on overall

[6] I review related literature on accounting conservatism in Chapter 2.

disclosure quality (Francis, Nanda, and Olsson 2008), management forecasts (Hui, Matsunaga, and Morse 2009), and detailed disclosures of specific balance sheet accounts (Cassell, Myers, and Seidel 2015). In contrast, my study focuses on a special form of qualitative disclosure—textual risk disclosures. Two recent studies document that firms likely having managed their earnings appear to have also managed the tone of earnings press releases (Huang, Teoh, and Zhang 2014) and readability of annual reports (Lo, Ramos, and Rogo 2017). My research extends this line of literature by providing insight into how managers make joint decisions on timely loss recognition and qualitative risk disclosures to fulfill a broader conservative reporting purpose.

Finally, this study contributes to the risk disclosures literature. Prior studies focus on the determinants of risk disclosures (Abraham and Cox 2007) and the informativeness of various forms of risk disclosures, such as market risk disclosures (e.g. Roulstone 1999; Rajgopal 1999; Akhigbe and Martin 2008) and risk factor disclosures (e.g. Campbell et al. 2014; Beatty, Cheng, and Zhang 2019). My research views risk disclosures as an integral part of a firm's information package and investigates its interplay with managers' reporting choices in financial statements. My study provides evidence on how managers' decisions about conservative accounting affect their incentives in supplying risk disclosures.

The rest of this thesis proceeds as follows: Chapter 2 provides the background of accounting conservatism and risk disclosures. Chapter 3 reviews the related literature. Chapter 4 examines the overall relation between accounting conservatism and risk disclosures. Chapter 5 investigates how the relative costs and benefits of accounting conservatism and risk disclosures moderate the relation between these two choices. Chapter 6 examines how internal and external monitoring affects the relation between these two choices. Chapter 7 examines the effects of executive characteristics and executive compensation on the relation between these two choices.

Chapter 8 tests the stock market implications of managers' coordination of conservative reporting and risk disclosure decisions. Chapter 9 concludes.

Chapter 2

Theoretical and Regulatory Background

2.1 Introduction

In this chapter, I provide theoretical and regulatory background about accounting conservatism and risk disclosures. In Section 2.1, I discuss the definition of accounting conservatism and the difference between conditional and unconditional conservatism. I also explain why my thesis focuses on conditional conservatism. In Section 2.3, I describe the evolution of risk disclosures in annual reports, including the most recent regulation regarding risk factor disclosures. My thesis focuses on risk disclosures in annual reports because these comprehensive reporting packages are the main venue through which firms provide risk information. At the end of this chapter, I provide in Appendix A1 and Appendix A2 some sample risk disclosures from annual reports.

2.2 Accounting Conservatism

Accounting conservatism refers to the application of accounting policies or choices that lead to a downward bias in reported earnings and net assets values relative to their economic values. Under the current accounting standards, the reporting system is inherently conservative in that the measurement basis is historical costs for many types of assets and liabilities. The downward bias is reinforced by other commonly accepted accounting principles such as the expensing of R&D expenditures, inventory valuation at the lower of cost or market, and goodwill impairment. However, when managers apply accounting standards, they have considerable discretion. This gives rise to variation in accounting conservatism across firms and across reporting periods for the same firm even though they follow the same standards.

Fundamentally, accounting conservatism is a mechanism for addressing measurement uncertainty in the accounting for operating results and financial position of a firm. The Financial Accounting Standard Board (FASB) once made this point clearly in Statement of Financial Accounting Concepts (SFAC) No. 2., with the following definition: [7]

> Conservatism is a prudent reaction to uncertainty to try to ensure that uncertainties and risks inherent in business situations are adequately considered. Thus, if two estimates of amounts to be received or paid in the future are about equally likely, conservatism dictates using the less optimistic estimate; however, if two amounts are not equally likely, conservatism does not necessarily dictate using the more pessimistic amount rather than the more likely one. (SFAC2 FASB 1980, para. 95)

Researchers define accounting conservatism in line with the spirit of the standard setter's definition. Watts and Zimmerman (1986) define accounting conservatism from the balance sheet perspective as choosing the lowest value among all possible values of an asset but the highest value among all possible values of a liability. This definition highlights the importance of accounting conservatism as a mechanism to counteract managerial optimism that tends to overstate assets and understate liabilities. As researchers further investigate the property of conservative accounting numbers, a few academicians propose other definitions of accounting conservatism from the perspective of income recognition. These definitions have the advantage of being easier to operationalize for empirical analysis. For example, Basu (1997, 4) interprets accounting conservatism as the "tendency to require a higher degree of verification for recognizing good news than bad news in financial statements." Watts (2003, 207) defines conservatism as the "differential verifiability required for recognition of profits versus losses."

[7] The Financial Accounting Standards Board (FASB) has removed conservatism or prudence as a desired quality of accounting information from the 2010 conceptual framework on the grounds of its inconsistency with neutrality (FASB 2010). Despite the FASB's de-emphasis of conservatism, prior studies find that conservative reporting offers many benefits, as described in greater detail in Chapter 3. Recognizing these benefits and in response to comments from academics, practitioners and other stakeholders (e.g. Bauer, O'Brien, and Saeed 2014), the International Accounting Standards Board (IASB) has partly reintroduced prudence into its 2018 conceptual framework as a sub-characteristic of neutrality.

The more recent definitions of accounting conservatism (Basu 1997; Watts 2003) suggest that accounting earnings and net asset values may be understated relative to their economic values due to timelier recognition of losses relative to gains. Negative economic news on anticipated future losses requires a lower degree of verification and is thus recognized in earnings in a timelier manner than positive economic news on anticipated future gains. This form of accounting conservatism is known as conditional conservatism because the recognition decision is conditional on economic news of unrealized future losses or gains. Its dependence on economic news is contrary to the other form of accounting conservatism, commonly known as unconditional conservatism, which exists largely as a result of prudent accounting standards such as immediate expensing of R&D expenditures and accelerated depreciation of capital assets. Firms are required to make these accounting choices consistently with little regard to macro, industry-level, or firm-level economic news. Managers, therefore, often have less discretion over unconditional conservatism. For this reason, most studies on conservative accounting focus on conditional conservatism. My thesis also focuses on conditional conservatism. Other than involving a greater degree of managerial discretion, conditional conservatism has a clearer theoretical link to risk disclosures, the other key variable of my thesis. Prior studies show that conditional conservatism is driven mostly by contracting demand and litigation demand. Risk disclosures provide information that serves contracting and litigation purposes. I elaborate on this linkage in Chapter 3 and Chapter 4.

2.3 Risk Disclosures

Regulators usually responded to market-wide fluctuations by urging firms to provide more risk disclosures (Jorgensen and Kirschenheiter 2003). Standard setters and regulators have long required and encouraged firms to disclose uncertainties surrounding their operations. In 1995, the

Private Securities Litigation Reform Act (PSLRA) introduced a safe harbour provision, which provides legal protection for public firms to disclose meaningful risk information as part of firms' forward-looking disclosures. In 1997, the SEC issued Financial Reporting Release (FRR) No. 48, requiring firms to disclose their market risk exposure related to derivatives and other financial instruments (SEC 1997). One year later, the FASB issued SFAS 133 and SFAS 155, requiring firms to disclose their market risk exposure associated with derivatives and hedging positions (FASB 1998a; 1998b). In 2005, the SEC imposed requirements on all public firms, except for smaller reporting companies[8], to disclose risk factors that make their securities risky or speculative in section Item 1A of 10-Ks filed on or after December 1, 2005. [9] Prior to the SEC's mandate on risk factor disclosures, qualitative risk disclosures in 10-K filings were largely voluntary. After that, it becomes mandatory for firms to make comprehensive risk factor disclosures in their 10-K filings and regularly update them for material changes. Studies find that the mandate on risk factor disclosures significantly increased the length of 10-K filings (e.g. Dyer, Lang, and Stice-Lawrence 2017).

My thesis looks at risk disclosures throughout annual reports and for periods both before and after the SEC's mandate. Since I have not formally introduced how I measure the level of risk disclosures, I provide, in this section, the length of risk factor disclosures that firms are required to provide in Item 1A of annual reports since November 2005, to demonstrate the significance of such disclosures. In Chapter 4, I provide detailed statistics about risk disclosures based on my measure.

[8] Smaller reporting companies are firms whose public float is less than $75 million or whose revenues were less than $50 million in the previous year when public float is not available.

[9] Due to this regulation, I extract the entire Item 1A section in 10-Ks in addition to risk disclosures in other sections in the post-2005 period and construct an alternative measure based on these, as elaborated later in the research design section in Chapter 4. I also conduct my tests separately for periods before and after 2005.

Table 2-1 presents the length of risk factor disclosures in annual reports. The risk factor disclosures section (i.e., Item 1A) accounts for approximately 13% of the length (in word count) of an average annual report in 2006, the first full calendar year this section was mandated. The percentage was on the rise ever since and exceeded 24% in 2019, the last calendar year of my sample period. The increase in the length of this section is probably due to the increasing complexity of the operating environment as well as firms' general tendency to add new disclosures without removing outdated ones.

Table 2-1: Length of Risk Factor Disclosure Section in Annual Reports

Year	WordCount_10K	WordCount_Item1A	Percentage
2006	33,208	4,266	12.85%
2007	35,513	4,680	13.18%
2008	37,101	5,271	14.21%
2009	39,426	5,833	14.79%
2010	40,244	6,187	15.37%
2011	40,819	6,622	16.22%
2012	41,998	7,131	16.98%
2013	43,020	7,670	17.83%
2014	44,328	8,442	19.04%
2015	45,695	9,285	20.32%
2016	46,857	9,936	21.21%
2017	47,683	10,436	21.89%
2018	48,980	11,148	22.76%
2019	49,651	12,025	24.22%

Note: This table provides the lengths of annual reports (10-K) and risk factor disclosures section (Item 1A) from 2006 to 2019. The *Year* column presents the calendar year in which annual reports were filed. The *WordCount_10K* column presents the average word count of all annual reports filed each year. The *WordCount_Item1A* column presents the average word count of the risk factor disclosures section (Item 1A) in annual reports filed each year. The *Percentage* column provides the relative length of the risk factor disclosures section as a percentage of the length of the annual report, i.e., *WordCount_Item1A / WordCount_10K × 100*.

In August 2019, the SEC proposed amendments to modernize disclosures of risk factors as well as business descriptions and legal proceedings in 10-K filings. After one year of deliberation,

the SEC adopted the amendments on August 26, 2020.[10] Regarding risk disclosures under Item 105 of Regulation S-K[11], the amendments made several important changes intended to improve the informativeness of such disclosures. For example, if the risk factors section (Item 1A) in a 10-K is longer than 15 pages, firms must provide a summary of no more than two pages at the beginning of the section so that readers can have a quick overview of all the risk factors. Firms are required to organize risk factors under relevant headings and place generic risk factors at the end of the section under a separate heading. The amendments also require firms to disclose only material risk factors that are relevant for investors' decisions.

Appendix A1 presents several sample risk disclosures for periods before and after the SEC mandated risk factor disclosures. These disclosures provide information about factors that can negatively affect firms' operations. Appendix A2 presents a sample risk factor summary, which some firms start to provide in their annual reports on and after November 11, 2020 in accordance with the recent SEC amendments. The sample of risk factor summary offers a glimpse into the breadth of risk information that firms provide in annual reports.

2.4 Conclusion

In this chapter, I discuss the definitions of accounting conservatism and explain why I focus on conditional conservatism for my thesis. I also describe the history of risk disclosures and provide several sample disclosures in Appendices 1A and 1B. Accounting conservatism remains a controversial topic and further research in this area can provide evidence that may inform the

[10] https://www.sec.gov/news/press-release/2020-192.

[11] Regulation S-K prescribes reporting requirements for various SEC filings for public firms. These requirements are organized into numerous items. For example, Item 105 governs risk factor disclosures and Item 303 governs MD&As. An annual report filed on the 10-K Form consists of a large number of sections numbered from Item 1 through Item 16 with subsections for some items, e.g., Item 1A, Item 7A. To comply with the requirements set forth in Item 105 of Regulation S-K, firms provide risk factor disclosures in the section numbered as Item 1A in the 10-K.

debate over its role in financial reporting. Risk disclosures constitute a significant part of the annual report, and the SEC continues to work on improving the informativeness of this important type of disclosure.

Chapter 3

Literature Review

3.1 Introduction

In this chapter, I review prior studies related to my thesis. Section 3.2 covers the related literature on accounting conservatism. There is a large literature on accounting conservatism. A few survey papers provide a synthesis of the conservatism literature from various angles. For example, Ruch and Taylor (2015) review this stream of literature focusing on the impacts of conservative reporting on various financial statement users. Mora and Walker (2015) review and comment on the conservatism literature from the perspective of its implications for accounting standard-setting. Zhong and Li (2017) focus on the definition, measurement, and determinants of accounting conservatism as well as the impact of conservative accounting on investment efficiency and capital costs. Bloom (2018) reviews both professional and academic literature to track how the concept of accounting conservatism has evolved. Most recently, Penalva and Wagenhofer (2019) survey the literature related to the contracting role of conservative accounting, covering both theoretical and archival studies.

Section 3.3 reviews the related risk disclosure literature. Elshandidy et al. (2018) provide a comprehensive review of recent archival studies on risk disclosures. They synthesize the literature around two themes, namely, the incentives and the informativeness of risk disclosures. Many of the studies covered in their survey use international data. Few studies use the US settings, and even fewer studies use US data before the SEC mandated risk factor disclosures in 2005. The SEC's mandate in 2005 attracts considerable academic attention and generates many studies investigating risk factor disclosures. Isiaka (2018) provides a comprehensive survey of the related

literature. There is continued interest and research activity in risk disclosures. In particular, the SEC's recent amendments intended to improve the informativeness of risk factor disclosures among others generates new research opportunities.

Section 3.4 surveys the literature on the relation between recognition and disclosure decisions. This is the intersection of literature that my thesis is most closely related to. Traditionally, most studies treat recognition and disclosure decisions as independent of each other (Tucker 2015). There is a growing awareness of the importance to examine these two decisions together.

This chapter reviews the literature related to my main research question. In later chapters, I discuss additional research in hypothesis developments, research designs, and result interpretations for specific research questions and supplemental tests.

3.2 Literature on Accounting Conservatism

The extant literature on accounting conservatism focuses on the determinants, costs, and benefits of conservative reporting. Conservatism exists and persists due to four demands that favour downward biased accounting numbers, namely, contracting, litigation, taxation, and regulatory (Watts 2003). Prior studies have provided empirical evidence supporting these four demands as drivers of conservative reporting. For example, Qiang (2007) finds that conditional conservatism is driven by contracting and litigation demands, and unconditional conservatism is driven by litigation, taxation and regulatory demands.

Contracting demand is a major driver of conservative accounting because debtholders naturally prefer conservative accounting numbers, especially in the form of timely loss recognition, due to their asymmetric payoffs (Basu 1997; Watts 2003). Studies focusing on the debt contracting

role of conservatism largely find that conservatism is an efficient contracting mechanism[12] that benefits both borrowers and lenders (e.g. Ahmed et al. 2002; Zhang 2008; Wittenberg-Moerman 2008). For example, Ahmed et al. (2002) find that firms facing greater conflicts over dividend policies report more conservatively, and in turn, they enjoy a lower cost of debt. Zhang (2008) finds that conservative accounting provides timely signalling of default risk, and lenders offer lower interest rates to encourage borrowers to report more conservatively. Callen, Chen, Dou, and Xin (2016) find that firms committed to more conservative accounting and tighter performance covenants enjoy lower interest rates when information asymmetry is high.

Litigation demand is another key driver of accounting conservatism. Several studies find that litigation risks lead to conservative accounting choices, for both firm-level litigation risk (Qiang 2007; Ettredge, Huang, and Zhang 2016) and executive-level litigation risk (Chung and Wynn 2008; Levy, Shalev, and Zur 2018; Basu and Liang 2019). For example, Ettredge, Huang, and Zhang (2016) document that firms reporting more conservatively enjoy more favourable litigation outcomes for class-action lawsuits. Chung and Wynn (2008) find that when managers face lower personal legal liability, they reduce the level of conservative reporting.

Many studies examine the costs and benefits of conservative reporting. Such costs and benefits often depend on what stakeholders or financial statement users are being considered. From the valuation perspective, conservatism tends to bias accounting numbers and make them less useful for predicting future firm performance. This reduced usefulness can affect financial statement users who use accounting numbers to predict the future operating results of the firm. Prior studies find that conservatism reduces earnings persistence (Dichev and Tang 2008; Chen et

[12] A few theoretic studies challenge the role of accounting conservatism as an efficient contracting mechanism. In some conditions, conservative accounting could lead to inefficient debt contracting. For example, it can trigger false alarms of covenant violations (Gigler et al. 2009; Li 2013).

al. 2013) and predictability (Kim and Kross 2005; Bandyopadhyay et al. 2010). Prior studies also find that conservative accounting makes earnings less useful for financial analysts (Heflin, Hsu, and Jin 2015; Kim et al. 2019). From the debt contracting perspective, conservative accounting numbers can trigger earlier debt covenant violations (Zhang 2008). Covenant violations affect shareholders, managers, and many other stakeholders such as suppliers and customers. These costs associated with conservatism affect firms' incentives in reporting conservatively. I elaborate on some of these costs in later chapters in the context of how they can indirectly affect managers' decisions in risk disclosures.

On the benefit side, accounting conservatism mitigates information asymmetry, lowers the cost of capital, and increases firms' investment efficiency. The benefits that accrue to firms and managers are closely linked to the contracting and litigation demands as described earlier in this section. By meeting these demands, firms and managers receive certain benefits in return. A few studies find that conservatism alleviates information asymmetry between insiders and outside investors and increases firm values (LaFond and Watts 2008; Francis, Hasan, and Wu 2013). As described earlier, conservative accounting lowers the cost of debt by mitigating agency conflicts between bondholders and shareholders (Ahmed et al. 2002; Zhang 2008).[13] As another benefit, García Lara, García Osma, and Penalva (2016) show that conservative reporting reduces under-investment by giving firms better access to debt financing.

3.3 Literature on Risk Disclosures

The extant risk disclosures literature focuses on the information content of risk disclosures. Early studies examine the informativeness of market risk disclosures for certain industries, such

[13]Sunder, Sunder, and Zhang (2018) find that balance sheet conservatism measured as the residual Book-to-Market ratio is also associated with lower borrowing costs. Their balance sheet conservatism measure captures mostly unconditional conservatism.

as energy and financial services, using small samples (e.g. Roulstone 1999; Rajgopal 1999; Jorion 2002). More recent studies largely utilize the setting of the SEC's 2005 mandate on risk factor disclosures. These studies focus on the informativeness of narrative risk factor disclosures that firms provide under this new regulation. Despite the criticism that qualitative risk disclosures are likely to be boilerplate, these studies generally find that risk factor disclosures are informative and useful for both equity and debt holders. For example, Campbell et al. (2014) document that firms disclose risks specific to their operations. They also find that risk factor disclosures reflect firms' systematic risks and idiosyncratic risks, and such disclosures help reduce information asymmetry. Nelson and Pritchard (2016) find that firms facing greater litigation risks provide more risk disclosures. Other studies find that firms' subsequent updates of risk factor disclosures in 10-Q filings are also informative in that they predict future firm performance (Filzen 2015; Gaulin 2017). Hope, Hu, and Lu (2016) find that risk factor disclosures containing more firm-specific information are more useful for financial statement users. For the debt market, Chiu, Guan, and Kim (2018) show that risk factor disclosures help debt holders better assess the credit risk of firms.

In contrast to the studies that focus on mandatory risk disclosures after 2005, Kravet and Muslu (2013) examine risk disclosures throughout 10-K filings for a sample period from 1994 to 2007, which largely belongs to the voluntary regime. They find that an increase in textual risk disclosures is associated with higher stock return volatility and trading volume. They interpret the finding as evidence that risk disclosures can increase investors' risk perceptions. This result points to a potential cost of risk disclosures since higher risk perceptions may increase the cost of equity. A recent study finds that the SEC's 2005 mandate on risk factor disclosures has a spillover effect in that it changes firms' incentives to provide forward-looking statements in annual reports. Huang, Shen, and Zang (2020) find that relative to those firms that voluntarily provided risk factor

disclosures before 2005, the adopting firms provided more forward-looking statements in the post period.

An emerging line of literature uses machine learning to generate new measures of risk disclosures. Bao and Datta (2014) classify risk factor disclosures into 30 risks using an unsupervised topical modelling algorithm, called Latent Dirichlet Allocation (LDA). They then test how each type of disclosed risk affects investors' risk perceptions. Following the same approach, Israelsen (2014) and Lopez-Lira (2019) find that the risk topics classified by the LDA algorithm have incremental power in explaining cross-sectional stock returns. These studies demonstrate the potential of using machine learning to construct refined risk disclosure measures for more granular analysis.

My thesis extends the risk disclosures literature by examining the relation between accounting conservatism and risk disclosures, both of which can communicate business uncertainties. Broadly, this research question falls into the relation between recognition and disclosure decisions. In the next section, I review studies on this intersection of literature.

3.4 Literature on the Relation between Recognition and Disclosure Decisions

Prior research examines the relation between recognition and disclosure using both analytical and empirical methods. A few theoretic studies model the optimal timing or level of disclosure conditional on earnings news or recognition choices. From a principal-agent contracting perspective, Gigler and Hemmer (2001) show that it is optimal for managers to disclose financial performance earlier than the mandatory reporting date if the reporting system lacks conservatism. Gietzmann and Trombetta (2003) model how accounting policy choices and voluntary disclosure choices can work together to reduce firms' cost of capital. They show that optimal disclosure decisions depend on whether conservative or aggressive accounting policies have been chosen.

Bagnoli and Watts (2007) show that financial reporting affects a firm's voluntary disclosure decisions. Specifically, one of their theoretic predictions is applicable to risk disclosures. Their result shows that if the earnings report contains good (bad) news, it is optimal for managers to voluntarily disclose the variance of earnings only when the variance is small (large).[14] These theoretical studies suggest that managers should have an overall strategy for recognition and disclosure decisions.

A few empirical studies examine the relation between recognition and voluntary disclosure. Francis, Nanda, and Olsson (2008) document that firms with higher earnings quality provide more voluntary disclosures in annual reports. However, they find a negative relation when disclosure quality is proxied by management earnings forecasts (whether any forecast is provided and whether a point or a range forecast is provided) or proxied by the number of conference calls. Hui, Matsunaga, and Morse (2009) find that firms reporting more conservatively are less likely to provide earnings forecasts, suggesting that conservative reporting may substitute for voluntary disclosure.[15] Cassell, Myers, and Seidel (2015) find that firms providing more transparent disclosure in allowance and reserve accounts engage less in accruals-based earnings management.

A few recent studies provide evidence on the relation between managers' recognition choices and their choices in qualitative disclosures. Huang, Teoh, and Zhang (2014) find that firms just meeting or beating earnings thresholds exhibit a more positive abnormal tone in their earnings press releases. This suggests that firms likely to have managed their earnings upward also strategically inflate the tone of their qualitative disclosures, presumably to maintain consistency

[14] This finding is closely related to risk disclosures, which provide information about the dispersion of future performance. Theoretical studies typically model risk disclosures as providing a signal about the variance of future earnings or cash flows, for example, Heinle and Smith (2017).

[15] These authors do not explicitly make a distinction between conditional and unconditional conservatism. The measures used in their empirical tests capture mostly unconditional conservatism.

between quantitative and qualitative information. Lo, Ramos, and Rogo (2017) examine the relation between earnings management and the readability of annual reports. They find that firms just meeting or beating prior years' earnings produce less readable MD&As in annual reports. This finding is consistent with the notion that firms most likely having managed their earnings try to obfuscate their questionable accounting choices by providing complex disclosures. D'Augusta and DeAngelis (2020) examine the impact of accounting conservatism on qualitative disclosures. They find that accounting conservatism is negatively associated with upward tone management in MD&As of 10-K filings. They interpret this finding as evidence that accounting conservatism can discipline qualitative disclosures in that it constrains upward tone management.

In summary, prior studies provide evidence suggesting that recognition and disclosure decisions are closely related to each other. These studies examine the relation between recognition and disclosure decisions in various contexts. My thesis extends this stream of research by examining whether and how managers coordinate their decisions in accounting conservatism and narrative risk disclosures.

3.5 Conclusion

In this section, I review the literature related to the main research question of my thesis. Prior studies on accounting conservatism focus on its determinants, costs, and benefits. Prior research on risk disclosures focuses on the informativeness of various forms of risk disclosures. My thesis connects these two streams of literature to provide new insights into how managers use multiple reporting and disclosure tools at their disposal to achieve their overall reporting objectives.

Chapter 4

Relation between Accounting Conservatism and Risk Disclosures

4.1 Introduction

This chapter examines the overall relation between accounting conservatism and risk disclosures. My baseline prediction is that managers coordinate their decisions in accounting conservatism and risk disclosures. Specifically, I hypothesize that they trade off conservative reporting and risk disclosures. In Section 4.2, I develop this main hypothesis by drawing on the related literature reviewed in Chapter 3 and other related economic theories. Section 4.3 describes the sample selection and research design. Section 4.4 provides the empirical results of testing the main hypothesis. Section 4.5 and Section 4.6 provide additional analyses. Section 4.7 concludes this chapter with a short summary.

4.2 Hypothesis Development (Hypothesis 1)

Conservative accounting and risk disclosures offer two tools that managers can use to mitigate information asymmetry, particularly that about downside risk. Debtholders are especially concerned about downside risk due to their asymmetric pay-offs. They do not benefit from upside potential. When a major downside risk factor materializes, they could lose their entire investment. Accounting conservatism protects the interests of debtholders through timelier recognition of bad news, which can trigger earlier debt covenant violations and transfer of control rights to debtholders. In return, firms are compensated with lower borrowing costs (e.g. Ahmed et al. 2002; Zhang 2008). On the other hand, risk disclosures provide information about factors that may negatively affect firm operations. Such information is especially useful for debtholders to assess the likelihood of bad news and its potential impact on credit risk (Duffie and Lando 2001).

Empirically, Chiu et al. (2018) find that debtholders demand a smaller risk premium after the SEC's 2005 mandate that increases firms' risk disclosures in 10-K filings. Overall, prior research suggests that both conservative reporting and risk disclosures help reduce information asymmetry about downside risk for debtholders, and firms benefit from a lower cost of debt accordingly.

Prior studies also find that both conservative reporting and risk disclosures can protect firms and managers from shareholder litigation. Litigation concerns induce conservative accounting because overstated earnings are more likely to trigger shareholder litigation (Watts 2003). Aggressive financial reporting increases firms' litigation costs (Gong, Louis, and Sun 2008; Jones and Wu 2010). Multiple studies suggest that conservative reporting can reduce both firm-level litigation risk (Qiang 2007; Ettredge, Huang, and Zhang 2016) and executive-level litigation risk (Chung and Wynn 2008; Levy, Shalev, and Zur 2018). On the other hand, disclosing risks and uncertainties surrounding firms' operation can protect firms from shareholder litigation, in case that a major risk factor materializes and causes substantial shareholder losses. Prior studies show that increased disclosure generally reduces shareholder litigation (Field, Lowry, and Shu 2005; Billings and Cedergren 2015), and managers adjust their level of voluntary disclosure in response to changes in litigation risk (Houston et al. 2019). In particular, prior research finds that firms provide more risk disclosures when they are exposed to greater litigation risk (Nelson and Pritchard 2016).

In summary, prior research suggests that both conservative accounting and risk disclosures can benefit firms by reducing information asymmetry about potential future bad outcomes and by decreasing litigation risk. These two common benefits make it possible for managers to use conservative reporting and risk disclosures as substitutes or complements. It could also be the case that managers make these two decisions independently without considering the other. In the

following, I discuss why managers likely consider them jointly and why managers are more likely to consider them as substitutes than as complements.

Broadly speaking, the relation between accounting conservatism and risk disclosures falls under the umbrella of the relation between recognition decisions and disclosure decisions. As elaborated in the literature review in Chapter 3, prior theoretical and empirical evidence suggests that managers should and do coordinate these two decisions to achieve their overall reporting objectives. Specifically, several theoretical studies model the optimal disclosure decisions conditional on the level of a firm's reporting aggressiveness. For example, Gigler and Hemmer (2001) demonstrate that the optimal timing of financial disclosures depends on whether the accounting system is conservative or aggressive. Gietzmann and Trombetta (2003) show that optimal non-financial disclosure decisions vary with the level of accounting conservatism. Bagnoli and Watts (2007) model the optimal voluntary disclosure strategy when managers have private information useful for investors to interpret mandatory financial information. One of their theoretical predictions implies that firms reporting more conservatively should provide risk disclosures when the realization of earnings is highly uncertain. These theoretical studies suggest that the level of accounting conservatism matters for a firm to make an optimal disclosure decision.

Prior empirical studies find that the properties of earnings are associated with firms' voluntary disclosure decisions (e.g. Francis, Nanda, and Olsson 2008; Hui and Matsunaga 2014). In particular, a few recent studies provide evidence suggesting that managers coordinate recognition decisions and qualitative disclosure decisions, e.g., Huang, Teoh, and Zhang (2014) on earnings management and linguistic tones of earnings press releases, and Lo, Ramos, and Rogo (2017) on earnings management and the readability of MD&A sections in annual reports. These studies

suggest that when managers make disclosure decisions, they consider recognition decisions that have been made.[16]

Closely related to my study, Hui, Matsunaga, and Morse (2009) examine the relation between accounting conservatism and voluntary disclosure in the form of management earnings forecasts. They find that firms reporting more conservatively provide fewer and less specific earnings forecasts in future periods, suggesting that conservative reporting can substitute for voluntary disclosure.[17] The underlying rationale is that conservative accounting decreases information asymmetry and litigation risk, and so do management earnings forecasts. Therefore, a higher level of conservatism can reduce the net benefit of voluntary management forecasts. This reasoning likely also applies to risk disclosures, over which managers have considerable discretion due to the qualitative nature of such disclosures, even after risk disclosures became mandatory. For example, when managers report conservatively by recognizing an asset impairment in response to the great uncertainty over the asset's ability to generate future cash flows, they may not need to disclose the related risks and uncertainties in narrative discussions in the annual report. On the other hand, when managers decide to defer recognition of asset impairment, they may need to warn debtholders and investors of potential future bad outcomes through narrative disclosures. In this way, they can maintain the desired level of transparency over bad news, without incurring the full costs of conservative accounting and risk disclosures. By trading off accounting conservatism and risk disclosures according to their costs relative to each other, firms can reduce the overall cost from these two accounting choices.

[16] Prior literature largely treats financial statement numbers or recognition decisions as primary and disclosures, quantitative or qualitative, as secondary.

[17] Even though Hui, Matsunaga, and Morse (2009) use mostly unconditional conservatism measures for their empirical tests, their arguments on information asymmetry and litigation risk apply also to conditional conservatism. There is a stronger link between conditional conservatism and voluntary disclosure, especially when debt contracting is involved, according to the study by Qiang (2007).

Based on the above discussion, I predict that conservative accounting and risk disclosures serve as substitutes. In other words, managers trade off conservative reporting and risk disclosures. Accordingly, we may observe a negative association between them empirically. I state my first hypothesis in the alternative form as follows:

H1: *The level of accounting conservatism is negatively associated with the level of risk disclosures.*

There are also reasons to believe that managers may not trade off accounting conservatism and risk disclosures. Since accounting numbers and risk disclosures are provided in the same reporting package, managers face pressure to maintain consistency between quantitative and qualitative information. If managers report aggressively and at the same time provide lengthy discussions about risks and uncertainties facing firms' operations, investors may question why reported accounting numbers did not reflect these risks and uncertainties. Prior studies suggest that investors can detect inconsistency among different signals from the same information package and question the credibility of the information (Henry 2008; Baginski et al. 2016). Managers seem to make an effort to maintain consistency, for example, by providing earnings press releases sounding more optimistic than justified when they have managed earnings upward (Huang, Teoh, and Zhang 2014). If managers feel a strong pressure to maintain consistency, I would not find a negative relation between accounting conservatism and risk disclosures.[18]

[18] Overall, the economic incentives for reducing the reporting cost likely outweigh the cost from potential reporting inconsistency which may be detected by external and/or internal parties. The large empirical literature on earnings management, corporate disclosure, and tax avoidance suggests that internal and external monitoring, on average, would constrain but not eliminate managers' flexibility in making accounting choices in these aspects. That is why I have formulated Hypothesis 1 as a directional hypothesis. However, this does not rule out that, for certain groups of firms, strong internal or external monitoring would prevail over economic incentives so that no trade-off would be empirically observable.

My first hypothesis assumes that managers coordinate the levels of conservative reporting and risk disclosures to minimize the overall cost related to the two choices. Conceptually, it is possible that the costs of accounting conservatism and/or risk disclosures might be so trivial relative to their benefits that managers choose to provide conservative reporting and/or risk disclosures at the highest level possible. An alternative possibility is that the costs may be so high relative to the benefits that managers choose accounting conservatism and/or risk disclosures at the lowest level possible. When one of the two accounting choices is maintained at its maximum or minimum level due to a ceiling or flooring effect, the level of one choice would not vary with the level of the other. According to prior studies, these scenarios, on average, do not hold. Prior studies find that there is a great cross-sectional and temporal variation in accounting conservatism due to the difference in the demands for conservative accounting numbers (Watts 2003; Khan and Watts 2009). Prior research also finds that the level of risk disclosures in 10-K filings varies with their perceived benefits (Nelson and Pritchard 2016). One possible example of such extreme cases is that when firms face extremely high litigation risk, they likely provide accounting conservatism and risk disclosures both at high levels for maximum protection from shareholder lawsuits. Another possible example is when managers are extremely risk-averse, they may not only report at the highest level of conservatism and but also provide a maximum level of risk disclosures. I consider these possibilities in later chapters when I explore factors affecting managers' coordination of these two choices.

4.3 Sample Selection and Research Design

4.3.1 Sample Selection

My sample selection process starts with 144,106 firm-year observations in COMPUSTAT for fiscal years from 1995 to 2018. I start with 1995 because many firms did not adopt electronic

filing of annual reports before 1995. I exclude 41,901 firm-year observations in financial and utilities sectors because firms in these sectors are subject to different regulations, which change their conservative reporting incentives relative to industrial firms. After merging with CRSP, I lose 22,238 observations due to missing stock returns. I exclude 1,215 observations for which no 10-K filings are matched due to missing history CIKs. I lose 22,325 observations, which do not have all three conservatism measures or all control variables. To avoid the confounding effect of the regulation on risk disclosures, I exclude 2,340 observations with 10-Ks filed in the first year after the regulation, which took effect for 10-Ks filed on or after December 1, 2005. The majority of these observations belong to fiscal year 2005. To have a more balanced panel of data, I also exclude the remaining 308 observations for fiscal year 2005.[19] The sample selection process results in 53,779 firm-year observations from 7,175 unique firms for testing my first hypothesis. Table 4-1 summarizes the sample selection process.

Table 4-1: Sample Selection Process

	Firm Years
All firm-year observations in Compustat (1995-2018)	144,106
Less: financial and utilities firms	(41,901)
Less: missing stock returns	(22,238)
Less: missing history CIKs (for matching 10-Ks)	(1,215)
Less: missing test and control variables	(22,325)
Less: 10-Ks filed in the first year after the SEC mandate in 2005	(2,340)
Less: remaining observations for fiscal year 2005	(308)
Sample size	**53,779**

Note: This table describes the sample selection process. I construct the initial sample starting with the intersection between Compustat and CRSP. Next, I match the resulting firms with 10-K filings based on history CIKs using the SEC Analytics linking table. Then, I exclude firm-year observations missing test variables and control variables. Finally, I drop observations with 10-Ks filed in the first year after the 2005 regulation as well as the remaining observations for fiscal year 2005.

[19] Later analyses for all my hypotheses are robust to the inclusion of these 2,648 (2340+308) observations that are excluded. However, a test on these observations alone does not show a negative relation between accounting conservatism and risk disclosures.

Table 4-2 presents the sample distribution by fiscal year. There are more observations for fiscal years before 2005 than after 2005. The number of public firms has been decreasing since 2000 due to a few reasons. One reason is that increasing compliance costs reduce the benefit of being a public firm.[20] For example, Engel, Hayes, and Wang (2007) find that the passage of the Sarbanes-Oxley Act of 2002 (SOX) has led some firms to go private. For another reason, the rise of private equity and venture capital provides an alternative source of funds for private firms. This allows private firms to stay in the private status longer. In addition, there is a growing trend for venture capital-backed firms to exit via mergers or acquisitions by other listed firms, as opposed to via traditional IPOs.[21] The number of observations is smaller for 1995 than the following several years because not all firms had adopted electronic filing of 10-Ks by then.

Table 4-2: Sample Distribution by Fiscal Year

Year	Frequency	Percent
1995	2,153	4.00
1996	3,111	5.78
1997	3,207	5.96
1998	3,260	6.06
1999	3,225	6.00
2000	2,888	5.37
2001	2,742	5.10
2002	2,751	5.12
2003	2,740	5.09
2004	2,676	4.98
2006	2,075	3.86
2007	2,214	4.12
2008	2,049	3.81
2009	2,053	3.82
2010	2,011	3.74

[20] For a discussion of this aspect and related reasons, see https://www.bloomberg.com/opinion/articles/2018-04-09/where-have-all-the-u-s-public-companies-gone.
[21] For a discussion of the role played by private equity and venture capital in the shrinkage of the number of public firms, see https://www.marketwatch.com/story/the-number-of-companies-publicly-traded-in-the-us-is-shrinkingor-is-it-2020-10-30.

2011	1,999	3.72
2012	1,936	3.60
2013	1,889	3.51
2014	1,870	3.48
2015	1,797	3.34
2016	1,756	3.27
2017	1,716	3.19
2018	1,661	3.09
Total	**53,779**	**100.00**

Note: This table provides the sample distribution by fiscal year. The observations for 2005 are removed to avoid the confounding effect of the SEC's mandate in 2005 and to have a more balanced sample.

4.3.2 Measurement of Accounting Conservatism

For my empirical tests, I focus on conditional conservatism because prior studies show that conditional conservatism is driven mostly by contracting and litigation demands (Qiang 2007). Contracting and litigation demands are the two channels that link conditional conservatism to risk disclosures. Prior research has used multiple firm-level measures of conditional conservatism. Because the literature has no consensus over which of these measures best captures conditional conservatism, I construct a composite measure from three commonly used firm-level conservatism measures.[22] The three individual measures are described as follows.

The first conservatism measure is Khan and Watts' (2009) C-Score, which is a firm-year variant of Basu's (1997) cross-sectional asymmetric timeliness coefficient. Khan and Watts (2009) start with Basu's (1997) model (Equation 4-1) and replace the coefficients for timeliness of good news (β_{3t}) and bad news (β_{4t}) with linear functions of three firm characteristics. These characteristics are size (MV), market-to-book (MTB) ratio, and leverage (LEV), which proxy for

[22] Each of these three measures could capture one aspect of conditional conservatism with error. The construction of a composite measure can mitigate the impact of measurement errors and increase the power of test. One disadvantage of using a composite measure is that it makes it harder to interpret the results.

the four demands of conservatism, i.e., contracting, litigation, regulatory, and tax, as summarized in Watts (2003).

$$NI_{it} = \beta_{1t} + \beta_{2t}DRET_{it} + \beta_{3it}\,RET_{it} + \beta_{4it}DRET_{it} \times RET_{it} + \varepsilon_{it} \quad (4\text{-}1)$$

$$G\_Score = \beta_{3it} = \mu_{1t} + \mu_{2t}MV_{it} + \mu_{3t}MTB_{it} + \mu_{4t}LEV_{it} \quad (4\text{-}2)$$

$$C\_Score = \beta_{4it} = \lambda_{1t} + \lambda_{2t}MV_{it} + \lambda_{3t}MTB_{it} + \lambda_{4t}LEV_{it} \quad (4\text{-}3)$$

NI is net income before extraordinary items scaled by total assets. *DRET* is an indicator variable, set to one when the stock return over the fiscal year is negative and to zero otherwise. *RET* is the stock return over the fiscal year.

Following their procedure, I substitute Equation 4-2 and Equation 4-3 into Equation 4-1 and estimate the coefficients using annual cross-sectional regressions. With estimated coefficients for λ_{1t} through λ_{4t}, I calculate the C-Score for each firm-year observation using Equation 4-3. A higher value of C-Score indicates a higher level of conservatism.

The second measure is the skewness of earnings relative to the skewness of cash flows (Givoly and Hayn 2000), calculated over a rolling window of 20 quarters, with a minimum of nine quarters' data, from year *t-4* to *t*. Timelier recognition of bad news than good news leads to a negatively skewed distribution of earnings (Zhang 2008). The distribution of cash flows is not significantly affected by conservative accounting choices. Therefore, a greater level of earnings skewness relative to cash flow skewness indicates a higher level of conservatism.

The third measure is the conservatism ratio developed by Callen, Segal, and Hope (2010), using the return decomposition model of Vuolteenaho (2002). The conservatism ratio captures the extent that earnings shocks are recognized in current earnings. The numerator is the current earnings shock estimated as the residual from a parsimonious model containing previous stock returns, previous book returns, and previous book to market ratio as explanatory variables. The denominator is the earnings news, which is the sum of the current earnings surprise and discounted

future earnings surprises. I construct this measure using the program provided by Callen and Segal (2010).

To aggregate these three measures, I first standardize each raw measure by fiscal year through a linear transformation in the form of [(raw value – annual minimum value)/(annual maximum value – annual minimum value)]. This procedure results in a standardized value bounded between 0 and 1. For each firm-year, I then construct a composite measure based on the average of the three annually standardized values, following prior studies (Beatty, Petacchi, and Zhang 2012; Kim et al. 2013; D'Augusta and DeAngelis 2020).

4.3.3 Measurement of Risk Disclosures

My risk disclosure measures are based on textual risk disclosures in 10-K filings. To construct these measures, I download 10-K filings from the SEC's online database, EDGAR. I parse 10-K filings following procedures similar to Loughran and McDonald (2011), but with additional steps to facilitate subsequent identification and extraction of specific sections, for example, tagging section headings. Following prior literature, I require 10-K filings to have at least 3,000 words because short 10-Ks typically have their key components incorporated by reference. For the period after the SEC's 2005 mandate, I further require that 10-Ks contain a risk factor disclosure section (Item 1A) and the section has at least 100 words. The screening criterion based on the existence and length of an Item 1A section rules out smaller reporting companies, which are exempted from risk factor disclosures. This screening also rules out firms, which incorporate risk factor disclosures into 10-Ks by reference. Appendix B1 provides greater details about the steps for downloading, parsing, and cleaning 10-K filings and for constructing textual risk measures.

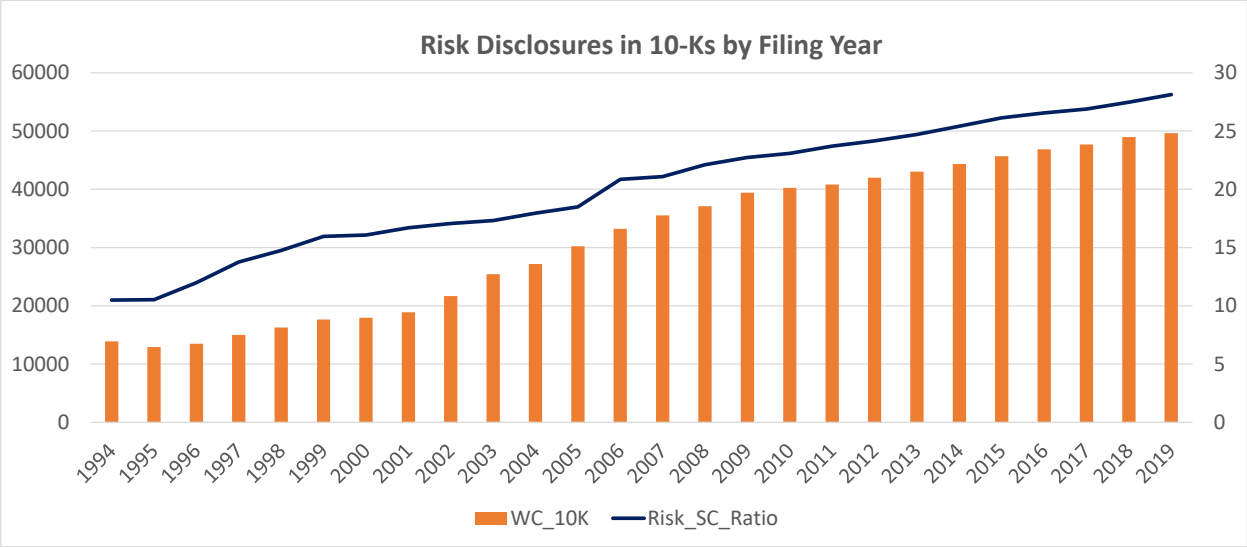
I identify risk disclosures by extracting all sentences that contain any of the risk-related keywords in Kravet and Muslu (2013). These words include can/cannot, could, may, might, risk*,

uncertain*, likely to, subject to, potential*, vary*/varies, depend*, expos*, fluctuat*, possibl*, susceptible, affect, influenc*, and hedg* (where * denotes suffixes). I calculate the main risk disclosure measure as the number of risk-related sentences divided by the number of all sentences in the 10-K, multiplied by 100. A major benefit of the sentence-level measure is that it avoids double counting of keywords.

For the period after the 2005 regulation, I create an alternative measure by identifying textual risk disclosures as the entire risk factor disclosure section (Item1A), plus risk-related sentences in other sections in 10-K filings. I find this alternative measure is almost perfectly correlated with the main measure with a coefficient of 0.96, and all inferences remain the same. This suggests that the keywords developed by Kravet and Muslu (2013) accurately capture risk disclosures in 10-Ks and work well for fiscal years after the regulation change.

Figure 1 shows the trend of risk disclosures based on the main risk disclosure measure as well as the trend of the length of 10-K filings. Both the length of 10-K filings and the level of risk disclosures have increased significantly over time. This is partly because the operating environment becomes increasingly more complex. Another reason is that disclosures in 10-Ks tend to be sticky as firms often add new disclosures without removing outdated ones (Brown and Tucker 2011). Regulations, such as the mandate on risk factor disclosures, also contribute to the increase (Dyer, Lang, and Stice-Lawrence 2017). The trend line of risk disclosures, represented by the blue curve, experiences an apparent jump in 2006. This is due to the SEC's mandate, which requires firms to provide comprehensive risk disclosures in 10-Ks for filings on and after November 30, 2005.

Figure 1: Trend of Risk Disclosures in 10-Ks



Note: This figure shows the trends of risk disclosures in 10-K filings and the length of 10-K filings. The horizontal axis shows the calendar years in which 10-Ks were filed. The left vertical axis shows the average length (i.e., word count) of 10-Ks filed in each year, represented by the vertical yellow bars. The right vertical axis shows the level of risk disclosures, as a percentage of risk-related sentences in the 10-K, represented by the blue curve.

I follow prior studies and measure the level of risk disclosures based on the relative length of risk disclosure texts in 10-Ks. For textual disclosures in general and textual risk disclosures in particular, prior studies use measures such as readability (Li 2008), similarity (Brown and Tucker 2011), and specificity (Hope, Hu, and Lu 2016) to capture additional attributes of qualitative disclosures. My first hypothesis does not directly speak to the relation between accounting conservatism and these disclosure attributes. However, I explore the effects of these disclosure attributes on the relation between accounting conservatism and risk disclosures in my later empirical tests.

4.3.4 Regression Model for Testing Hypothesis 1

My first hypothesis predicts that accounting conservatism and risk disclosures are negatively associated with each other due to the substitutive relation between them. Prior studies investigating the relation between recognition and qualitative disclosure decisions generally use the recognition

variable as the explanatory variable (e.g. Brown and Tucker 2011; Huang, Teoh, and Zhang 2014; D'Augusta and DeAngelis 2020).[23] Following this tradition, I test my main hypothesis using the model in Equation 4-4, where accounting conservatism is included as the explanatory variable. This model assumes that managers make the recognition decision before the disclosure decision.[24] This assumption is reasonable for the following reasons. First, most firms announce their earnings days and even weeks before they file their 10-Ks. Second, managers have more discretion over risk disclosures than over recognition choices, because financial statements are audited, whereas qualitative disclosures are not.

$$RiskDisclosures_{it} = \alpha_0 + \boldsymbol{\beta_1} Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (4\text{-}4)$$

As described earlier, I measure risk disclosures as the percentage of risk-related sentences in 10-Ks. I measure conservatism as the annual average of three commonly used firm-level conservatism measures. My first hypothesis predicts that the coefficient on conservatism (β_1) is negative, reflecting a substitutive relation.

In Equation 4-4, I control for determinants of risk disclosures following Campbell et al. (2014).[25] They classify risk into systematic, idiosyncratic, financial, legal, regulatory, and tax risks.

[23] In Section 4.5, I conduct an exploratory analysis using accounting conservatism as the dependent variable and risk disclosures as the independent variable.

[24] Although managers can make the two accounting choices sequentially in the sense that textual risk disclosure narratives can be finalized after auditors have finished their auditing of numeric financial statements, it is also possible that managers make these two choices simultaneously. In the latter case, a model using simultaneous equations would be more appropriate. To consider this possibility, I test the first hypothesis using simultaneous equations through 2SLS in my robustness check. However, I encounter some empirical challenges. I use instrument variables from prior studies, e.g., R&D expenditures and dividends used in Hui, Matsunaga, and Morse (2009), and investment cycle and firm age used in DeFond, Lim, and Zang (2015). I find that these instrument variables are not valid instruments to address my research question. A valid instrument variable should be related to accounting conservatism, but not related to risk disclosures. A simultaneous regression model using these instrument variables fails to pass the Hansen overidentification test (Hansen 1982).

[25] These variables, in some way, can also control for firms' risk disclosures in other channels (e.g., earnings conference calls), since the annual report is the major, but not the only venue through which firms provide risk disclosures. A public firm usually holds an earning conference call before it files its annual report on

I use stock beta (*BETA*) as the proxy for systematic risk, earnings volatility (*EARNVOL*) and stock return volatility (*RETVOL*) as proxies for idiosyncratic risk, and financial leverage (*LEV*) as the proxy for financial risk. In addition, I use the litigation risk measure (*LITRISK*) developed by Kim and Skinner (2012) as a proxy for legal or litigation risk, size (*SIZE*) as the proxy for regulatory risk according to the political cost hypothesis (Watts and Zimmerman 1986), and cash Effective Tax Rate (*ETR*) as the proxy for taxation risk (Campbell et al. 2014). I also control for firm performance by including *ROA* and stock return (*RET*), and control for the growth opportunities by including the market-to-book (*MTB*) ratio. I control for the governance and information environment by including Big N auditor (*BIGN*) and analyst following (*FOLLOW*). I also control for stock return skewness (*RETSKEW*) and stock turnover (*TURNOVER*), which are associated with the level of risk disclosures (Campbell et al. 2014). Detailed definitions of these variables are included in Appendix B2.

Due to the regulation change in 2005, I test my first hypothesis separately for fiscal years before and after 2005. The SEC's mandate on risk disclosures and its subsequent reinforcement through regular reviewing of annual reports and issuing of comment letters set a lower bound in risk disclosure that firms must provide. This likely limits firms' flexibility in trading off accounting conservatism and risk disclosures. Therefore, I expect that the predicted negative relation is weaker for the period after 2005.

Form 10-K. Frankel, Johnson, and Skinner (1999) find that firms relatively larger, more profitable, followed by more financial analysts, and having higher market-to-book-ratios are more likely to hold conference calls. My control variables such as *SIZE*, *ROA*, *FOLLOW* for analyst following, and *MTB* can proxy for information asymmetries and information demands, and they can control for risk disclosures through channels other than annual reports.

4.4 Empirical Analysis

4.4.1 Descriptive Statistics

Table 4-3 presents descriptive statistics of the variables used for testing my first hypothesis. The mean of risk disclosures (*RISKDISC*) is 18.34 over the entire sample period, indicating that 18.34% of sentences in 10-Ks contain some risk information. The standard deviation is 6.98, suggesting that risk disclosures vary greatly across firm years. The level of risk disclosures has been increasing over time. The mean values of risk disclosures are 14.29 and 22.99 respectively for the years before and after the SEC's mandate in 2005. The mean level of risk disclosures jumps from 17.91 in the year immediately before the mandate to 20.05 in the year immediately after the mandate. This is consistent with the spike shown in Figure 1.

The composite conservatism measure (*CONS*) is the average of the three individual measures, namely, *CSCORE*, *EARNSKEW*, and *CRATIO*, standardized to the range of 0 to 1 by fiscal year. The mean (median) of *CONS* is 0.547 (0.548), suggesting that the distribution of this variable is approximately symmetric. The litigation risk (*LITRISK*) is the predicted probability of being sued by shareholders in a fiscal year. The mean (median) of this variable is 0.043 (0.026), indicating that the distribution of litigation risk is positively skewed.

Table 4-3: Descriptive Statistics of Key Variables

Variable	N	Mean	S.D.	Q1	Median	Q3
RISKDISC	53,779	18.344	6.982	12.790	18.410	23.360
CONS	53,779	0.547	0.115	0.468	0.548	0.627
CSCORE	53,779	0.502	0.227	0.344	0.502	0.668
EARNSKEW	53,779	0.544	0.196	0.430	0.536	0.668
CRATIO	53,779	0.595	0.160	0.491	0.594	0.713
SIZE	53,779	6.037	2.085	4.505	6.012	7.453
LEV	53,779	0.205	0.186	0.019	0.179	0.332
MTB	53,779	3.052	3.865	1.253	2.041	3.450
ROA	53,779	0.015	0.138	-0.011	0.040	0.083

EARNVOL	53,779	0.076	0.089	0.022	0.045	0.093
ETR	53,779	0.271	0.202	0.077	0.320	0.380
BIGN	53,779	0.832	0.374	1.000	1.000	1.000
BETA	53,779	0.924	0.592	0.488	0.900	1.292
RET	53,779	0.168	0.711	-0.223	0.058	0.373
RETVOL	53,779	0.034	0.018	0.021	0.030	0.042
RETSKEW	53,779	0.405	1.266	-0.106	0.323	0.811
TURNOVER	53,779	7.649	7.363	2.678	5.463	10.040
LITRISK	53,779	0.043	0.057	0.013	0.026	0.049
FOLLOW	53,779	1.537	1.016	0.693	1.609	2.303

Note: This table provides the descriptive statistics of variables used in the regressions for testing hypothesis 1. All variables are defined in Appendix B2. All continuous variables are winsorized at 1% and 99% percentiles, except for those log transformed, e.g., analyst following (*FOLLOW*).[26]

Table 4-4 provides the correlation matrix for the key variables with Pearson (Spearman) correlations below (above) the diagonal. The correlations show that conservatism (*CONS*) is lower for larger firms and higher for more leveraged firms, consistent with prior research. The three individual conservatism measures are positively correlated with each other (*CSCORE*, *EARNSKEW*, and *CRATIO*), except that the correlation is rather weak given the large sample size. As expected, risk disclosures are greater for larger firms, firms with greater systematic risk (*BETA*), firms with greater earnings volatility (*EARNVOL*), and greater litigation risk (*LITRISK*). Overall, accounting conservatism (*CONS*) and risk disclosures (*RISKDISC*) are negatively correlated with each other, albeit weakly.

[26] Winsorization is a commonly used approach for handling outliers. It reduces the excessive impact of outliers on estimates. I acknowledge that this procedure modifies the tail distribution and can affect the randomness of the sample.

Table 4-4: Correlation Matrix of Key Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	RISKDISC		-0.03	-0.05	-0.05	-0.02	0.24	-0.14	0.14	-0.09	0.13	-0.23	-0.05	0.38	-0.02	-0.08	-0.09	0.37	0.19	0.23
2	CONS	-0.03		0.55	0.57	0.30	-0.49	0.23	-0.34	-0.43	0.15	-0.12	-0.16	-0.19	-0.25	0.39	0.13	-0.18	-0.29	-0.39
3	CSCORE	-0.03	0.48		0.04	0.16	-0.62	0.29	-0.41	-0.35	0.14	-0.09	-0.26	-0.25	-0.16	0.30	0.14	-0.30	-0.39	-0.54
4	EARNSKEW	-0.05	0.59	0.04		0.08	-0.06	0.05	-0.06	-0.22	0.12	-0.07	0.04	0.02	-0.04	0.11	0.03	0.00	0.01	-0.01
5	CRATIO	0.00	0.30	0.07	0.04		-0.20	0.04	-0.10	-0.51	0.11	-0.13	-0.04	0.02	-0.16	0.22	0.05	-0.01	-0.07	-0.14
6	SIZE	0.24	-0.50	-0.52	-0.06	-0.10		0.11	0.48	0.35	-0.31	0.11	0.34	0.44	0.18	-0.58	-0.27	0.48	0.71	0.82
7	LEV	-0.11	0.26	0.32	0.05	0.01	0.08		-0.07	-0.15	-0.23	0.08	0.10	-0.08	-0.04	-0.10	-0.04	-0.05	0.20	0.10
8	MTB	0.10	-0.19	-0.25	-0.02	-0.01	0.29	0.05		0.33	0.03	-0.05	0.12	0.23	0.29	-0.23	-0.05	0.27	0.19	0.37
9	ROA	-0.13	-0.36	-0.22	-0.19	-0.27	0.31	-0.04	0.03		-0.23	0.28	0.06	0.01	0.24	-0.36	-0.12	0.09	0.11	0.24
10	EARNVOL	0.13	0.08	0.07	0.04	0.06	-0.23	-0.18	0.08	-0.28		-0.29	-0.12	0.09	-0.05	0.42	0.15	0.09	-0.17	-0.22
11	ETR	-0.18	-0.11	-0.08	-0.05	-0.07	0.13	0.05	-0.06	0.34	-0.26		0.07	-0.10	0.08	-0.19	-0.07	-0.07	0.04	0.09
12	BIGN	-0.05	-0.17	-0.23	0.04	-0.03	0.33	0.09	0.07	0.05	-0.09	0.06		0.15	0.04	-0.13	-0.09	0.18	0.31	0.33
13	BETA	0.35	-0.17	-0.17	0.02	0.03	0.39	-0.07	0.13	-0.03	0.11	-0.07	0.15		0.02	0.04	-0.12	0.60	0.45	0.42
14	RET	-0.01	-0.14	-0.08	-0.01	0.04	0.08	-0.06	0.18	0.13	0.03	0.01	0.02	0.05		-0.23	0.25	0.02	0.00	0.05
15	RETVOL	-0.08	0.38	0.23	0.10	0.10	-0.56	-0.04	-0.07	-0.39	0.31	-0.22	-0.12	0.04	0.00		0.26	0.07	-0.21	-0.38
16	RETSKEW	-0.05	0.10	0.09	0.01	0.05	-0.20	-0.02	0.00	-0.10	0.10	-0.06	-0.08	-0.09	0.24	0.27		-0.13	-0.21	-0.26
17	TURNOVER	0.30	-0.11	-0.15	0.00	0.01	0.31	-0.04	0.13	0.02	0.11	-0.05	0.12	0.50	0.08	0.15	-0.04		0.51	0.56
18	LITRISK	0.09	-0.21	-0.25	0.01	-0.03	0.49	0.09	0.10	0.08	-0.04	0.03	0.17	0.28	-0.03	-0.06	-0.09	0.29		0.67
19	FOLLOW	0.23	-0.38	-0.44	-0.01	-0.08	0.82	0.08	0.21	0.20	-0.16	0.10	0.34	0.40	-0.02	-0.38	-0.22	0.42	0.43	

Note: Pearson (Spearman) correlations are displayed below (above) the diagonal. In general, coefficients greater than 0.02 are significant at 1% level. Variable definitions are provided in Appendix B2 at the end of this chapter.

4.4.2 Results of Testing Hypothesis 1

In Table 4-5, I report the results for testing Hypothesis 1, which predicts a negative association between accounting conservatism and risk disclosures. I present the results in three separate columns for fiscal years before 2005 (Column 1), after 2005 (Column 2), and all fiscal years (Column 3).[27] In Column (1), the coefficient on the composite conservatism measure[28], *CONS*, is negative and significant at less than 1% level (coefficient = −1.9165, t-stat = −3.81), consistent with the prediction of H1, for the period before 2005. In contrast, the coefficient is not significant for the period after 2005, as shown in Column (2). The coefficient is significant for the entire sample period, apparently driven by the strong results of the period before 2005 when narrative risk disclosures were voluntary. In terms of economic significance, one standard deviation increase in conservatism is associated with a decrease of risk disclosures by 3.8% of its sample standard deviation (0.114×1.9165/5.77, where 0.114 is the standard deviation of accounting conservatism and 5.77 is the standard deviation of risk disclosures for years before 2005). The result is not significant after 2005, consistent with my expectation that the SEC

[27] Because the SEC regulation in 2005 significantly changed the incentives for risk disclosures, I test all my hypotheses separately for the periods before and after 2005. During my sample period, other significant events may have changed managers' incentives for accounting conservatism and/or risk disclosures. For example, Lobo and Zhou (2006) document that firms increased their levels of reporting conservatism after SOX Act was passed in 2002. The passage of SOX Act occurred during my pre-2005 sample period. To investigate the impact of SOX Act, I conduct additional tests for the pre-SOX and post-SOX periods before 2005. Untablulated results show that firms exhibit a trade-off between accounting conservatism and risk disclosures in the pre-SOX period (1995-July 2002), but not in the post-SOX period (August 2002-2004). The coefficient on accounting conservatism is still negative, but not significant, in the post-SOX period (August 2002-2004). Other than the impact of SOX Act, the insignificant result for this relatively shorter period could also be due to the smaller sample size, which can reduce the power of test. While my tests do not control for other potential events, the year fixed effects in my regressions may partly address the impacts of these events.

[28] While my tests are based on the composite measure in order to reduce measurement errors and increase the power of test, I repeat the tests using each of the three individual conservatism measures. These tests, untabulated, show that both *CSCORE* and *EARNSKEW* point to a negative relation between accounting conservatism and risk disclosures for the period before 2005. For the period after 2005, *EARNSKEW* also indicates a negative relation, whereas *CRATIO* points to a positive relation between these two accounting choices.

regulation constrains firms' flexibility in trading off accounting conservatism and risk disclosures because firms must provide an acceptable level of risk disclosures under the regulation.[29] Firms failing to meet the acceptable level of risk disclosures are at risk of receiving comment letters from the SEC demanding an explanation and/or rectification.

Based on the forgoing evidence, it is unclear whether it is desirable or not that the SEC regulation appears to constrain firms' flexibility in making such trade-offs. On the one hand, such trade-offs may reduce the overall reporting cost related to the two accounting choices. On the other hand, such trade-offs may lower information transparency. Investors and other financial statement users should benefit from more consistent and coherent information between accounting numbers and risk disclosures. Such consistency may allow them to better assess the risk and uncertainties faced by a firm. In Chapter 8, I revisit this issue by testing how investors react to firms' trade-off strategies. Market reaction tests can provide evidence that sheds light on certain costs or benefits of the SEC's mandate on risk factor disclosures.

For control variables, the coefficients on earnings volatility (*EARNVOL*) and stock beta (*BETA*) are positive and significant, suggesting that firms with greater idiosyncratic risk and systematic risk provide more risk disclosures. The negative and significant coefficients on size, leverage (*LEV*), and profitability (*ROA*) show that larger, more leveraged, and more profitable

[29] The cross-sectional variation of risk disclosures decreases significantly in the period after 2005 when they became mandatory. The mean level of risk disclosures increases from 14.30 (pre-2005) to 22.99 (post-2005); whereas, the standard deviation decreases from 5.77 to 5.10. Accordingly, the coefficient of variation (CV), which measures the dispersion of distribution, decreases from 0.40 to 0.22. This change in distribution is consistent with the notion that the SEC's regulation constrains firms' flexibility in trading off accounting conservatism and risk disclosures. Another possible reason for the different result in the post-2005 period could be the change in the sample composition. As shown in Table 4-2, the number of firms is decreasing over time. Some firms drop out of the sample in the post-period. New firms can enter the sample. To rule out this possibility, I repeat the tests using a constant sample. I find that the coefficient on accounting conservatism (*CONS*) is still not significant for the post-2005 period. For the pre-2005 period, the coefficient becomes more negative relative to the results of the full sample, even though the significance level decreases to 6.5% (2-tailed) probably due to the much smaller sample size.

firms provide a lower level of risk disclosures. Highly leveraged firms provide a lower level of risk disclosures possibly because their operations are relatively more stable, which allows them to carry a high level of debt. Firms audited by BIGN auditors provide more risk disclosures, consistent with prior research showing that Big N auditors are more concerned about litigation risk (Lennox 1999). Even though qualitative disclosures are not audited, auditors often review such disclosures and can influence their contents. Firms followed by more financial analysts also provide more risk disclosures, probably suggesting that such sophisticated information users demand risk information for their forecasts.

Table 4-5: Relation between Accounting Conservatism and Risk Disclosures[30]

DV=RISKDISC	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	9.0345***	18.0022***	9.0047***
	(10.85)	(13.64)	(11.14)
CONS	**-1.9165*** **	**-0.5921**	**-1.1181*** **
	(-3.81)	**(-1.09)**	**(-2.96)**
SIZE	-0.3283***	-0.3850***	-0.3437***
	(-6.09)	(-4.76)	(-6.81)
LEV	-1.8587***	-1.1154***	-1.8695***
	(-6.00)	(-2.74)	(-6.96)
MTB	0.0186	0.0303**	0.0332***
	(1.31)	(2.12)	(3.10)
ROA	-4.3105***	-2.6859***	-3.6825***
	(-12.34)	(-6.58)	(-13.38)
EARNVOL	4.4350***	2.6476***	3.8817***
	(8.03)	(4.11)	(8.90)
ETR	-1.3950***	-1.1733***	-1.3485***
	(-6.47)	(-6.45)	(-9.36)

[30] The adjusted R-squared increases significantly for the combined sample period in column (3) relative to columns (1) and (2). My further investigation suggests that the R-squared change is related to the apparent time-series trend in the dependent variable, *RISKDISC*, as shown in Figure 1. A robustness test by detrending *RISKDISC* (i.e., regressing it on the time variable and using the residual as the dependent variable) produces comparable results, with a much smaller adjusted R-squared value, 0.2645 for the combined sample period. R-squared values for the pre-2005 and post-2005 periods also decrease to 0.3087 and 0.2329 respectively.

BIGN	1.4688***	0.7025***	0.9262***
	(9.33)	(3.76)	(7.02)
BETA	1.0153***	0.3656***	0.8092***
	(11.13)	(2.83)	(10.09)
RET	0.1527***	0.1950***	0.1939***
	(3.86)	(3.63)	(5.87)
RETVOL	4.0142	9.9424*	6.1197**
	(1.20)	(1.81)	(2.03)
RETSKEW	-0.0510*	-0.0262	-0.0372**
	(-1.85)	(-1.22)	(-2.15)
TURNOVER	0.1098***	0.0202**	0.0560***
	(11.49)	(2.20)	(7.72)
LITRISK	-0.1441	-1.1081	0.1579
	(-0.19)	(-0.53)	(0.19)
FOLLOW	0.6396***	0.9687***	0.8047***
	(7.94)	(7.63)	(10.21)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3914	0.3100	0.5984
N	28,753	25,026	53,779

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism (*CONS*), using the model in Equation 4-4. All variables are defined in Appendix B2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

4.4.3 Additional Tests of Hypothesis 1

In this section, I present and discuss the results of several additional tests. The first test explores whether there is a relation between accounting conservatism and two attributes of risk disclosures, namely, readability and specificity. More readable and more specific disclosures are generally believed to provide greater information transparency (Li 2008; Hope, Hu, and Lu 2016). My tests do not find a relation between accounting conservatism and readability or specificity, and the results are not tabulated for brevity. This suggests that managers do not give much

consideration to these two qualities of risk disclosures when they determine the level of risk disclosures conditional on the level of accounting conservatism.

For the second test, I run a change model using the first differences of all variables to see whether the negative relation between accounting conservatism and risk disclosures still holds. Corporate disclosures tend to be sticky. Managers often repeat disclosures of prior years with little year-over-year update (Brown and Tucker 2011; Dyer, Lang, and Stice-Lawrence 2017). Disclosures are more informative when they vary over time to reflect the changing firm fundamentals and operating environments. The change specification addresses the concern that the raw textual measure does not capture the most relevant part of risk disclosures. The change specification also alleviates the concern that the result is driven by omitted firm characteristics. As shown in Table 4-6, the coefficient on the main conservatism variable is still negative and significant for the period before 2005. Similar to the main results in Table 4-5, the coefficient is not significant for the period after 2005, and the coefficient is significant for the entire sample period, as shown in Column (2) and Column (3) respectively.

Table 4-6: Relation between Accounting Conservatism and Risk Disclosures (Change Model)

DV=ΔRISKDISC	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	0.8601***	0.8128***	0.8804***
	(3.94)	(6.35)	(5.85)
ΔCONS	**-0.5405****	**0.0423**	**-0.2868****
	(-2.34)	**(0.26)**	**(-1.98)**
ΔSIZE	0.0610	-0.0339	0.0430
	(1.25)	(-0.93)	(1.35)
ΔLEV	0.5788**	0.1122	0.3632**
	(2.35)	(0.58)	(2.17)
ΔMTB	-0.0172**	0.0008	-0.0073*
	(-1.98)	(0.21)	(-1.65)
ΔROA	-0.1237	0.2361*	0.0225

	(-0.63)	(1.72)	(0.18)
ΔEARNVOL	-0.2409	-0.1227	-0.2106
	(-0.58)	(-0.45)	(-0.85)
ΔETR	0.0424	-0.0345	0.0028
	(0.43)	(-0.77)	(0.06)
ΔBIGN	0.1117	0.1897*	0.1409
	(0.87)	(1.84)	(1.64)
ΔBETA	-0.0069	-0.0408**	-0.0187
	(-0.33)	(-2.09)	(-1.17)
ΔRET	-0.5539	-0.3787	-0.1577
	(-0.29)	(-0.23)	(-0.12)
ΔRETVOL	0.1021**	-0.0022	0.0686**
	(2.31)	(-0.07)	(2.31)
ΔRETSKEW	-0.0131	0.0099	-0.0002
	(-0.89)	(1.27)	(-0.03)
ΔTURNOVER	0.0255***	0.0033	0.0144***
	(4.46)	(0.92)	(4.33)
ΔLITRISK	0.4287	-0.1356	0.3873
	(1.21)	(-0.33)	(1.29)
ΔFOLLOW	0.0946*	0.0708*	0.0911***
	(1.76)	(1.96)	(2.66)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.0280	0.0210	0.0250
N	22,543	20,781	43,324

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism (CONS) using a change specification. All variables are changes over the prior fiscal year. The original variables are defined in Appendix B2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

For the change specification, I use an alternative measure, the cosine similarity, commonly used in the literature to capture year-over-year updates of textual disclosures (Brown and Tucker 2011; Cohen, Malloy, and Nguyen 2020). I conduct an additional test using this measure as the dependent variable. For all other variables, I use the absolute values of changes over the previous year, because the similarity measure is an unsigned measure, which provides a single value for a

pair of documents. Table 4-7 provides the results of this additional analysis. The dependent variable (*MOD_RISKDISC*) is calculated as (1-cosine similarity) and captures the year-over-year update of risk disclosures. A higher value indicates that the risk disclosures of the current year are more different from those of the previous year. The main variable of interest is *ABS_ΔCONS*, which captures the absolute value of the change in the level of conservatism over the previous year. The coefficients on this variable are negative and significant across all three sample periods, suggesting that firms having greater changes (increases or decreases) in accounting conservatism make smaller updates to their risk disclosures. This result provides mixed evidence for a trade-off between accounting conservatism and risk disclosures. When there is an increase in accounting conservatism, a trade-off between the two accounting choices would suggest a smaller update of risk disclosures due to the stickiness of corporate disclosures. On the other hand, when there is a decrease in accounting conservatism, a trade-off relation between the two accounting choices would indicate a greater update of risk disclosures.

Table 4-7: Relation between Accounting Conservatism and Risk Disclosures (Change Model Based on Cosine Similarity)

DV=MOD_RISKDISC	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	0.2366***	0.1205***	0.2330***
	(10.58)	(11.47)	(15.87)
ABS_ΔCONS	**-0.0395*** **	**-0.0162*** **	**-0.0294*** **
	(-2.86)	**(-2.98)**	**(-3.83)**
ABS_ΔSIZE	-0.0006	0.0027*	0.0004
	(-0.26)	(1.95)	(0.27)
ABS_ΔLEV	0.0835***	0.0271***	0.0586***
	(6.06)	(4.61)	(7.26)
ABS_ΔMTB	0.0008**	-0.0002	0.0002
	(2.03)	(-1.42)	(1.04)
ABS_ΔROA	0.0215**	0.0206***	0.0223***
	(2.28)	(4.60)	(3.97)
ABS_ΔEARNVOL	-0.0082	0.0339***	0.0139

	(-0.39)	(3.48)	(1.20)
ABS_ΔETR	0.0166***	0.0101***	0.0135***
	(2.89)	(6.13)	(5.20)
ABS_ΔBIGN	-0.0020	0.0049*	0.0008
	(-0.36)	(1.78)	(0.23)
ABS_ΔBETA	-0.0003	0.0011*	0.0002
	(-0.36)	(1.77)	(0.25)
ABS_ΔRET	-0.0564	0.0907*	0.0311
	(-0.53)	(1.72)	(0.47)
ABS_ΔRETVOL	-0.0035	0.0007	-0.0015
	(-1.22)	(0.52)	(-0.82)
ABS_ΔRETSKEW	0.0029***	0.0004	0.0014***
	(3.20)	(1.54)	(3.59)
ABS_ΔTURNOVER	0.0000	0.0002	0.0001
	(0.11)	(1.52)	(0.72)
ABS_ΔLITRISK	0.1027***	0.1381***	0.1107***
	(6.40)	(8.74)	(8.16)
ABS_ΔFOLLOW	0.0085***	0.0105***	0.0092***
	(2.78)	(7.09)	(4.93)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.0280	0.0210	0.0250
N	22,543	20,781	43,324

Note: This table reports the results of regressing the year-over-year modification of risk disclosures (*MOD_RISKDISC*) on the absolute year-over-year change in accounting conservatism (*ABS_ΔCONS*). All explanatory variables are absolute values of first differences because the dependent variable is unsigned. The original variables are defined in Appendix B2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

The foregoing results suggest that conservative reporting through timelier recognition of bad news in financial statements makes it less necessary to disclose forward-looking risk information in the current annual reports. This effect may spill over to risk disclosure decisions in future periods. To test this possibility, I include the lag conservatism variable (i.e., the conservatism value of the previous year) as an additional explanatory variable in the main specification and rerun the regression. Table 4-8 presents the results of this analysis. The

coefficients on the lag conservatism measure, *LAG_CONS*, are not significant across the three sample periods. However, the coefficients on the contemporaneous conservatism variable, *CONS*, have magnitudes and significance levels similar to those of the main test without the lag variable for all three sample periods. The level of accounting conservatism in the current period appears to subsume that of the previous period. The result does not support the existence of a spillover effect. Instead, it suggests that the impact of conservative reporting choices on risk disclosures is largely confined to the current reporting period. In an untabulated analysis with only the lag conservatism variable, the coefficient on the lag conservatism variable is negative and significant for the pre-2005 period. For the post-2005 period, the coefficient on the lag conservatism variable is insignificant for this specification.

Table 4-8: Relation between Accounting Conservatism and Risk Disclosures (Effect of Prior Year Conservatism)

DV=RISKDISC	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	10.1380***	18.5833***	9.8140***
	(10.99)	(12.34)	(11.29)
CONS	**-1.6732*** **	**-0.4349**	**-0.9826*** **
	(-3.60)	**(-0.89)**	**(-2.89)**
LAG_CONS	**-0.5887**	**0.1919**	**-0.1266**
	(-1.28)	**(0.45)**	**(-0.40)**
SIZE	-0.3107***	-0.3288***	-0.3050***
	(-5.18)	(-3.67)	(-5.47)
LEV	-1.6263***	-1.0729**	-1.6924***
	(-4.62)	(-2.35)	(-5.62)
MTB	0.0217	0.0207	0.0285**
	(1.35)	(1.33)	(2.38)
ROA	-4.1987***	-2.3771***	-3.4409***
	(-10.13)	(-4.95)	(-10.62)
EARNVOL	5.4381***	3.0814***	4.6969***
	(8.43)	(3.69)	(8.94)
ETR	-1.3844***	-1.1198***	-1.3165***
	(-5.82)	(-5.77)	(-8.48)

BIGN	1.3326***	0.6772***	0.8582***
	(7.68)	(3.28)	(5.90)
BETA	0.1229***	0.1521***	0.1577***
	(2.86)	(2.58)	(4.40)
RET	1.8098	8.3751	5.0040
	(0.48)	(1.39)	(1.48)
RETVOL	1.0760***	0.3453**	0.7965***
	(9.97)	(2.29)	(8.52)
RETSKEW	-0.0451	-0.0244	-0.0341*
	(-1.51)	(-1.02)	(-1.80)
TURNOVER	0.1077***	0.0213**	0.0558***
	(10.28)	(2.08)	(6.93)
LITRISK	-0.3970	-1.3407	-0.1115
	(-0.47)	(-0.60)	(-0.12)
FOLLOW	0.5489***	0.9186***	0.7433***
	(6.11)	(6.53)	(8.43)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3710	0.2660	0.5870
N	22,543	20,903	43,446

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism (*CONS*) with the first lag of accounting conservatism (*LAG_CONS*) included. All variables are defined in Appendix B2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

4.5 Inverse Regression of Accounting Conservatism on Risk Disclosures

For all tests in previous sections, I use accounting conservatism as the explanatory variable and see how its change affects firms' decisions on risk disclosures. As mentioned earlier, I have made this design choice because accounting numbers are usually finalized earlier than qualitative disclosures in annual reports.

As an additional test, I rerun the model in Equation 4-4 but using accounting conservatism as the dependent variable and risk disclosures as the explanatory variable. Following Ahmed and

Duellman (2013), I add a few more variables to control for firms' decisions in conservative reporting.

$$Conservatism_{it} = \alpha_0 + \boldsymbol{\beta_1} RiskDisclosures_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (4\text{-}5)$$

The additional control variables include sales growth (*SALESGROWTH*), R&D and advertising expenses (*R&DAD)*[31], cash flow from operations (*CFO*), and volatility of revenue (*σREV*). Other control variables are the same as those in Equation 4-4. *SALESGROWTH* is the percentage growth in total sales over the prior year. *R&DAD* is the sum of R&D expenses and advertising expenses scaled by total sales. *CFO* is cash flow from operations, scaled by average total assets. *σREV* is the standard deviation of the natural log of the total revenue from year *t-5* to year *t-1*, scaled by the mean log revenue over the same five-year period.

Sales growth (*SALESGROWTH*) is included because it affects accrual changes in inventory and accounts receivables. R&D and advertising expenses (*R&DAD*) reflect regulatory demand for conservatism as they are generally expensed in the current period under GAAP. Cash flow from operations (*CFO*) controls for the profitability of the firm. Volatility of revenue (*σREV*) reflects the level of operating uncertainty. Debt holders usually demand greater reporting conservatism when operations are more volatile.

Table 4-9 provides the results of this additional test. The dependent variable is accounting conservatism, and the main explanatory variable is the level of risk disclosures. I run this test also separately for the three sample periods. As shown in column (1), the coefficient on *RISKDISC* (risk disclosures) is negative and significant for fiscal years before 2005 at the 5% level. Note that the

[31] R&D expenses and advertising expenses are grouped together because these two types of expenses usually provide future benefits but are expensed in the current period under GAAP as a prudent accounting choice, i.e., unconditional conservatism.

coefficient (−0.0003**)** is fairly small, relative to the standard deviation of risk disclosures (5.77) and that of accounting conservatism (0.114) for years before 2005. This suggests that there is a very small change in the level of accounting conservatism given a certain change in the level of risk disclosures. The relation does not hold for the period after 2005 or the whole sample period. The overall weaker result of the inverse regression is consistent with prior evidence showing that recognition usually has a greater impact than disclosure on stock prices (Michels 2017). In other words, recognition decisions have a greater economic impact than disclosure decisions from investors' perspectives.

In an untabulated additional test, I repeat the regression of Equation 4-5 but using the lagged risk disclosure variable, to see whether the level of risk disclosures in one year influences the firm's accounting conservatism in the following year. I do not find an effect for any of the three sample periods. This lack of result is consistent with managers making conservative recognition decisions before risk disclosure decisions.

Table 4-9: Effect of Risk Disclosures on Accounting Conservatism (Inverse Regression)

DV=CONS	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	0.5809***	0.6785***	0.6160***
	(54.53)	(42.49)	(58.29)
RISKDISC	**-0.0003****	**-0.0000**	**-0.0001**
	(-1.98)	**(-0.14)**	**(-0.85)**
SIZE	-0.0248***	-0.0344***	-0.0292***
	(-34.75)	(-41.83)	(-53.38)
LEV	0.1760***	0.1819***	0.1749***
	(43.95)	(40.77)	(57.75)
MTB	-0.0009***	-0.0022***	-0.0017***
	(-3.74)	(-12.32)	(-11.73)
ROA	-0.2053***	-0.2899***	-0.2469***
	(-32.56)	(-38.99)	(-50.11)
EARNVOL	0.0115	0.0047	0.0142*

	(1.20)	(0.41)	(1.91)
ETR	-0.0078**	0.0059**	0.0014
	(-2.51)	(2.20)	(0.68)
BIGN	0.0097***	0.0038*	0.0015
	(4.35)	(1.86)	(1.03)
BETA	-0.0001	0.0056***	0.0068***
	(-0.07)	(3.62)	(6.95)
RET	0.0020***	0.0123***	0.0059***
	(3.39)	(12.67)	(11.38)
RETVOL	0.1120**	0.0506	-0.0186
	(2.34)	(0.71)	(-0.47)
RETSKEW	-0.0001	-0.0005	-0.0002
	(-0.22)	(-1.28)	(-0.62)
TURNOVER	0.0003**	-0.0001	0.0000
	(2.29)	(-0.72)	(0.22)
LITRISK	0.0091	0.0984***	0.0272***
	(1.00)	(5.17)	(3.16)
FOLLOW	0.0011	0.0029**	0.0023***
	(0.97)	(2.29)	(2.60)
SALESGROWTH	-0.0031**	-0.0009	-0.0015
	(-2.44)	(-0.45)	(-1.41)
R&DAD	-0.0305***	-0.0325***	-0.0304***
	(-3.47)	(-3.24)	(-4.53)
CFO	0.0951***	0.1334***	0.1086***
	(15.34)	(16.24)	(21.58)
σREV	-0.0193***	-0.0266***	-0.0249***
	(-5.44)	(-3.68)	(-7.70)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.5760	0.6130	0.5860
N	28,551	24,934	53,485

Note: This table reports the results of regressing accounting conservatism on risk disclosures. All variables are defined in Appendix B2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

4.6 Impact of the SEC Mandate on Risk Factor Disclosures in 2005

The SEC mandate in 2005 on risk disclosures significantly increased the level of risk disclosures in annual reports. This regulation can change firms' decisions in conservative reporting based on the reasoning of my main hypothesis developed in Section 4.2. The underlying rationale of my main hypothesis suggests that firms would reduce the level of accounting conservatism in response to the SEC mandate. Under the regulation, firms must provide an acceptable level of risk disclosures, regardless of the associated cost. If firms see conservative reporting and risk disclosures as substitutes, they would decrease the level of reporting conservatism in response to the regulation, because doing so would reduce the overall reporting cost.

The mandate affects all public firms, except for smaller reporting companies.[32] One challenge of testing the effect of a regulatory change is to rule out confounding effects of other contemporaneous events. Even if a change in accounting conservatism is observed in the post-period, the change is not necessarily attributable to the specific regulation. To overcome this challenge, I use Canadian firms as the control group and test whether US firms subjected to this regulation changed their accounting conservatism relative to Canadian firms. For this analysis, I exclude Canadian firms that are cross listed on US stock exchanges. I use C-Score developed by Khan and Watts (2009) as the main conservatism measure. The construction of the other two conservatism measures requires a long time series of data and that significantly limits the sample size of the control group, which is fairly small to begin with. I use the following Difference-in-Differences specification to test whether US firms changed their accounting conservatism after the mandate:

[32] Some smaller reporting companies voluntarily adopted the mandate and they are included in the sample.

$$CSCORE_{it} = \beta_1 + \beta_2 POST + \beta_3 TREAT + \beta_4 TREAT \times POST + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 MTB_{it} + \beta_8 SALESGROWTH_{it} + \beta_9 R\&DAD_{it} + \beta_{10} CFO_{it} + \beta_{11} \sigma REV_{it} + \beta_{12} LITRISK_{it} + Year\ FE + Industry\ FE + \varepsilon_{it} \quad (4\text{-}6)$$

The dependent variable is *CSCORE*, constructed following Khan and Watts (2009), as described in Section 4.3.2.[33] *POST* is a dummy variable, set to one for firm-years having a 10-K filing date on or after December 1, 2005, and to zero otherwise. The sample period is the four-year period centering on December 1, 2005, two years before and two years after. *TREAT* is set to one for US firms that are subject to the SEC's regulation and to zero for Canadian firms that are not cross listed at a US exchange. *SIZE, MTB, LEV,* and *LITRISK* refer to firm size, Market-to-Book ratio, financial leverage, and litigation risk. They are defined in the same way as those in Equation 4-4. Following Ahmed and Duellman (2013), I include the following additional control variables: sales growth (*SALESGROWTH*), R&D and advertising expenses (*R&DAD)*, cash flow from operations (*CFO*), and volatility of revenue (*σREV*). These variables are defined in the same way as those in Equation 4-5, and they are included for the same reason as described in Section 4.5.

Table 4-10, Panel A provides the sample distributions across the pre-post periods for the two groups of firms. There are 1,524 firm-year observations for Canadian firms over the four-year period, with 595 in the pre-period and 929 in the post-period. The sample size is much larger for US firms, with 9,922 firm years, of which 5,386 belong to the pre-period and 4,536 to the post-period.

Table 4-10, Panel B provides the regression results using the model specified in Equation 4-6. As mentioned earlier, the dependent variable is *CSCORE*, a commonly used firm-level conservatism measure that does not require time-series data and thus allows a larger sample for the control group. The key variable of interest is the interaction term, *TREAT_POST*. The

[33] Recently, Byzalov and Basu (2021) argue that using measures such as *CSCORE* constructed from a stage-one regression model as dependent variable may cause biases in estimates.

coefficient on this variable captures the difference in the pre-post change in accounting conservatism between the two groups of firms. The coefficient on the interaction term is negative and significant (−0.0369 with t = −2.50). This suggests that, relative to Canadian firms unaffected by the regulation, U.S. firms decreased the level of accounting conservatism after they provided more risk disclosures in annual reports as required by the SEC. The result is consistent with firms treating accounting conservatism and risk disclosures as substitutes and corroborates my findings in previous sections of this chapter.[34]

Table 4-10: Implication of the SEC Mandate on Risk Disclosures for Accounting Conservatism

Panel A: Sample Distribution

	Canadian Firm-Years	US Firm-Years	Total
Dec 1, 2003 – Nov 30, 2005 (Pre-period)	595	5,386	5,981
Dec 1, 2005 – Nov 30, 2007 (Post-period)	929	4,536	5,465
Total	1,524	9,922	11,446

Panel B: Regression Results

Variables	DV = CSCORE
Constant	0.7144***
	(42.21)
POST	0.0724***
	(5.01)
TREAT	0.0117
	(1.00)
TREAT×POST	**-0.0369****
	(-2.50)
SIZE	-0.0597***
	(-80.46)
LEV	0.5702***

[34] I want to add a caveat that this result is not robust to a constant sample that consists of same firms in the pre- and post-periods. I cannot rule out the possibility that the current result is driven by the change in the sample composition.

	(68.32)
MTB	-0.0061***
	(-7.24)
SALESGROWTH	-0.0464***
	(-6.87)
R&DAD	0.0326
	(1.51)
CFO	0.0022
	(0.13)
σREV	0.0374***
	(2.76)
LITRISK	-0.0008
	(-0.20)
Year FE	YES
Industry FE	YES
Adjusted R^2	0.3060
N	11,446

Note: This table reports the results for the Difference-in-Differences (DID) analysis of the change in accounting conservatism as measured by CSCORE following the SEC mandate on risk factor disclosures in 2005, using Canadian firms as the control group. All variables are defined in Appendix B2. The coefficient on *TREAT×POST* is the DID estimator that captures the difference in the change in accounting conservatism between the two groups of firms. A negative coefficient indicates a decrease in conservatism for the treatment group relative to the control group. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

4.7 Conclusion

In this chapter, I develop the first hypothesis that managers trade off conservative reporting and risk disclosures because both conservative reporting and risk disclosures can reduce information asymmetry and litigation risk. With two tools that managers can use to achieve the same purpose, they would weigh the relative costs and benefits of these two tools and make a trade-off to minimize the overall cost. I test this hypothesis using risk disclosures in annual reports provided by US firms for fiscal years from 1995 to 2018. I find support for this hypothesis for fiscal years before 2005 when risk disclosures were voluntary. The results are robust to alternative specifications using change models and including the lag conservatism measure. Using cosine

similarity as an alternative measure of year-over-year change in risk disclosures, I find that firms make smaller updates to risk disclosures when there is a greater change (increase or decrease) in accounting conservatism over the previous year.

For the period after 2005 when risk disclosures have become mandatory in annual reports, I do not find evidence that managers trade off conservative accounting and risk disclosures. This result is consistent with the notion that the SEC's regulation constrains managers' ability to make such trade-offs. When managers have less flexibility in trading off these two accounting choices, financial statement users may benefit from more transparent information about the risks and uncertainties of the firm. On the other hand, the loss of this flexibility can increase firms' overall reporting costs.

Finally, I test whether the SEC's 2005 regulation, which exogenously increased the level of risk disclosures, has any effect on firms' conservative reporting decisions. Using Canadian firms unaffected by the regulation as the control sample, I find that U.S. firms respond to this regulation by decreasing their level of reporting conservatism in the post period. This additional test provides evidence consistent with my other findings that firms trade off conservative reporting and risk disclosures.

Chapter 5

Costs and Benefits of Accounting Conservatism and Risk Disclosures

5.1 Introduction

The previous chapter provides evidence that firms trade off conservative reporting and risk disclosures. In this chapter, I explore how the costs and benefits of accounting conservatism affect such trade-offs. Both accounting conservatism and risk disclosures impose considerable costs on firms as discussed in Chapter 4. For example, conservative accounting numbers are less useful for valuation purposes (Heflin, Hsu, and Jin 2015; Kim et al. 2019), and risk disclosures may divulge proprietary information (Hope, Hu, and Lu 2016). Firms face different levels of costs for these two choices, depending on their operating environments, governance structures, and needs for financing. Firms achieve a greater decrease in overall cost from a trade-off between these two choices when there is a larger difference between these two costs. In other words, firms have greater incentives to trade off conservative reporting and risk disclosures when the difference in cost is greater between these two choices. By the same reasoning, firms are more incentivized to make such trade-offs when the difference in benefit is greater. Empirically, the negative association between accounting conservatism and risk disclosures would be stronger in these cases.

In this chapter, I consider several scenarios, in which the cost of one choice increases significantly but the cost of the other choice does not change very much. As a result, there is a greater difference in costs between the two choices in these scenarios. I expect that a larger difference in cost would create stronger incentives for managers to make trade-offs. I also consider a scenario, in which the anticipated benefit increases significantly for conservative reporting but not for risk disclosures. I predict that the greater differential in benefit also increases the incentives for trade-offs.

5.2 Hypothesis Development (Hypothesis 2)

5.2.1 SEO Firms (H2a)

For the first scenario, I consider seasoned equity offerings (SEOs). Prior research suggests that SEO firms have incentives to report less conservatively or even choose to report aggressively to attract investor attention and increase share issuance prices. As discussed in Section 2.2, conservative reporting results in a downward bias in accounting numbers and may limit managers' ability to convey their inside information about a firm's true financial performance. Prior studies show that even sophisticated financial statement users such as financial analysts may not be able to fully appreciate the implications of conservative accounting choices (Heflin, Hsu, and Jin 2015; Kim et al. 2019). Conservative accounting can be costly if market participants do not fully appreciate the valuation implications of conservative accounting numbers and undervalue the stock price of the firm.[35] Consequently, managers have strong incentives to report aggressively. Prior studies show that SEO firms have unusually high discretionary accruals in the period before their offerings (Rangan 1998; Teoh, Welch, and Wong 1998). Overall, these studies suggest that conservative reporting is much more costly for SEO firms than for non-SEO firms.

However, prior studies do not provide a clear indication as to whether firms would perceive risk disclosures to be more or less costly for their planned equity offerings. On the one hand, prior research suggests that SEO firms may perceive risk disclosures to be more costly since they point to potential future bad outcomes. Lang and Lundholm (2000) find that SEO firms have the intention to hype their stocks through voluntary disclosure. Huang, Teoh, and Zhang (2014) find that SEO firms are motivated to engage in perception management by managing upward the tone

[35] The prevalence of managers' engagement in earnings management to boost firm values suggests that managers do not believe the market is efficient enough to fully see through their accounting choices (e.g. Cohen and Zarowin 2010).

of qualitative disclosures before security offerings. On the other hand, several studies suggest that firms are motivated to increase disclosures before external financing to decrease the cost of equity by reducing information asymmetry (Frankel, McNichols, and Wilson 1995; Marquardt and Wiedman 1998; Shroff et al. 2013). These findings imply that it can be more beneficial for SEO firms to increase risk disclosures. Overall, it is not clear whether SEO firms would see risk disclosures as more or less costly for their equity offerings.

Based on the foregoing discussion on SEO firms' reporting and disclosure behaviours, I contend that conservative reporting is a more dominant factor than risk disclosures in terms of their impact on equity financing cost. I posit that their different impacts on equity financing cost create greater incentives for SEO firms to report less conservatively and instead rely more on risk disclosures to communicate business uncertainties, relative to non-SEO firms, in the period before equity offerings. Therefore, I predict a more negative association between accounting conservatism and risk disclosures for SEO firms. This leads to the following hypothesis stated in the alternative form:

H2a: *The association between the level of accounting conservatism and the level of risk disclosures is more negative for firms planning seasoned equity offerings (SEOs) relative to Non-SEO firms.*

As with H2a, I focus my discussion on the cost consideration that creates incentives to trade off conservative reporting and risk disclosures when I develop the next two hypotheses (H2b and H2c).

5.2.2 Debt Covenant Violations (H2b)

The second scenario I consider is when a borrowing firm is close to debt covenant violations (DCVs). Covenants are included in debt contracts to mitigate agency conflicts and agency costs between borrowers and lenders (Smith and Warner 1979). Conservative accounting requires

timelier recognition of bad news and can trigger earlier DCVs, which may result in control right transfers to debtholders (Beatty, Weber, and Yu 2008; Nikolaev 2010). DCVs impose significant costs on firms and their managers such as renegotiation costs, refinancing and restructuring costs (Beneish and Press 1993), and restrictions on firm investments (Chava and Roberts 2008). Watts and Zimmerman (1986) posit that managers make accounting choices to avoid covenant violations. This debt covenant hypothesis has been empirically tested by other researchers (Sweeney 1994; Dichev and Skinner 2002) with supporting evidence. Overall, prior studies suggest that conservative reporting becomes more costly when firms are close to DCVs.

On the other hand, when a firm is closer to DVCs, the cost of risk disclosures is not likely to increase significantly. Covenants consist of financial covenants and non-financial covenants. There is no evidence that any non-financial covenants are directly linked to firms' risk disclosures provided in annual reports. Disclosing more risks may alert debt holders to increase their monitoring, but it would not push the firm closer to covenant violations. Based on the foregoing discussions about the different impacts on accounting conservatism and risk disclosures on DVCs, I posit that when a firm is closer to DCVs, managers have greater incentives to trade accounting conservatism for risk disclosures to avoid costly DCVs. Accordingly, I expect that they would rely more on risk disclosures to inform outsiders about downside risk and to reduce litigation risk. This leads to the following hypothesis in the alternate form:

H2b: *The association between the level of accounting conservatism and the level of risk disclosures is more negative for firms close to debt covenant violations (DCVs) relative to those far from DCVs.*

5.2.3 Proprietary Cost (H2c)

In this section, I explore how the cost of risk disclosures affects the relation between accounting conservatism and risk disclosures. A major cost of risk disclosures is the potential revelation of

proprietary information about the firm. Concerns over such proprietary costs can reduce corporate disclosures (Verrecchia 2001). Empirically, Ellis, Fee, and Thomas (2012) find that firms with larger R&D expenditures, greater advertising expenses, and higher investment in intangible assets are more likely to hide information about their major customers in mandatory disclosures. Hope, Hu, and Lu (2016) document that firms with higher proprietary costs, proxied by R&D expenditures, are less transparent in risk disclosures.

While the above-mentioned research suggests that proprietary cost consideration may reduce the level of risk disclosures, there is no prior evidence suggesting that it may suppress conservative reporting. On the contrary, Dhaliwal et al. (2014) find that firms report more conservatively when they face greater product market competition (which is another proxy of proprietary costs in the literature), presumably to deter the entry of new competitors. In summary, prior research suggests that concerns over proprietary costs tend to discourage risk disclosures but are unlikely to reduce incentives for conservative reporting. Therefore, I posit that firms facing higher proprietary costs have greater incentives to trade off risk disclosures and conservative reporting. This suggests a more negative association between the two accounting choices. Accordingly, I have the following hypothesis in the alternate form:

***H2c**: The association between the level of accounting conservatism and the level of risk disclosures is more negative for firms facing greater proprietary costs relative to those facing smaller proprietary costs.*

The above three hypotheses (H2a, H2b, and H2c) explore whether and how the relative cost of conservative reporting or risk disclosures may increase the incentives for trade-offs between these two choices. For the next hypothesis, I explore whether the relative benefit of accounting conservatism has the same effect.

5.2.4 Debt Financing Needs (H2d)

Prior studies document that conservative accounting can benefit firms through higher credit ratings and lower cost of debt because it can mitigate agency conflicts between equity holders and debtholders (Ahmed et al. 2002; Zhang 2008; Sunder, Sunder, and Zhang 2018). Anticipating such benefits, firms seeking debt financing have stronger incentives to report more conservatively. For example, Deng et al. (2018) find that firms with greater needs for debt financing do not decrease their level of conservatism even when existing debtholders reduced their monitoring. These firms voluntarily supply conservative reporting to satisfy prospective lenders in exchange for a lower cost of debt.

Even though risk disclosures provide information useful for debt holders to better assess credit risk (Chiu, Guan, and Kim 2018), a higher level of risk disclosures could increase investors' risk perceptions (Kravet and Muslu 2013). Due to the conflicting evidence of these two prior studies, it is not clear whether firms would be motivated to increase the level of risk disclosures when they have greater needs for debt financing. Even if firms see a greater necessity to reduce information asymmetry by increasing risk disclosures, a higher level of accounting conservatism likely benefits the firm more in lowering the cost of debt, relative to increased risk disclosures. This is because prior research shows that investors respond more strongly to recognized numbers than to disclosed numbers of the same magnitude (Michels 2017). It is likely more so for qualitative disclosures. Therefore, I expect that firms having greater needs for debt financing would rely more on conservative reporting to reduce information asymmetry about downside risk. In other words, I predict that firms with greater needs for debt financing are more incentivized to trade off risk disclosures and accounting conservatism. This leads to the following hypothesis stated in the alternate form:

***H2d**: The association between the level of accounting conservatism and the level of risk disclosures is more negative for firms with greater needs for debt financing relative to those with smaller needs for debt financing.*

5.3 Measures and Empirical Models

The four hypotheses (H2a through H2d) in this chapter predict that the substitutive effect is stronger when managers have greater incentives to make trade-offs due to a larger difference in costs or benefits between accounting conservatism and risk disclosures. My general approach for testing these hypotheses is to first create two sub-samples of firms with stronger and weaker incentives and then test the difference in the coefficients of interest between the two groups. I describe the detailed research design for testing each hypothesis as follows.

5.3.1 Measures and Empirical Model for Testing Hypothesis H2a

For H2a about the incentive created by equity financing, I examine the association between accounting conservatism and risk disclosures in the year before a firm offers additional securities. I test whether the association is significantly smaller for SEO firms relative to non-SEO firms, using the following model:

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 SEO_{i,t+1} + \boldsymbol{\beta_3} SEO_{i,t+1} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (5\text{-}1)$$

The above model expands the specification in Equation 4-4 for testing my first hypothesis (H1) in Chapter 4. All the control variables are the same as those in Equation 4-4. Following Huang, Teoh and Zhang (2014), I identify SEO firms based on the level of Sale of Common and Preferred Stock (SSTK) and require the level to be greater than 10% of the beginning total assets in year *t+1* for a firm to be identified as an SEO firm in year *t*. I construct a control group of non-SEO firms with similar characteristics by using propensity score matching. Following Shroff et al. (2013), I match the test and control samples by industry-year based on eight variables that proxy for firms' growth opportunities (needs) and financing constraints (abilities). These variables include market

value of equity, Tobin's Q, return on assets (ROA), sales growth, cash holdings, firm age, common stock dividends paid, and cumulative abnormal returns in the prior year. H2a predicts that the coefficient on the interaction term, β_3, should be negative, consistent with a stronger substitutive effect for SEO firms.

5.3.2 Measures and Empirical Model for Testing Hypothesis H2b

To capture the distance to covenant violations for testing H2b, I construct a composite measure of covenant tightness, following the procedure in Pittman and Zhao (2019), based on the definitions of 15 common financial covenants specified in Demerjian and Owens (2016). Actual covenant definitions are usually not readily available. Demerjian and Owens (2016) infer covenant definitions from a large number of private loan agreements, which provide detailed covenant definitions. For example, they find that the minimum interest coverage ratio defined in loan agreements is closest to EBITDA/Interest Expense (OIBDPQ/XINTQ for Compustat variables), as shown in Table 4 of their paper. Following Pittman and Zhao (2019), I collect data of the stated financial covenants from DealScan and estimate the actual covenant ratios (e.g. current ratio) or amounts (e.g. tangible net worth) using Compustat data. While doing this, I benefit from the DealScan-Compustat link table created by Chava and Roberts (2008), who have been continuously updating this dataset and made it publicly available.[36]

The detailed procedure to construct the composite index is as follows. First, I compute the actual value for each financial ratio at the end of each quarter.[37] Second, I compute the slack for each ratio as *(Actual ratio – Stated covenant ratio)/Stated covenant ratio* for a minimum threshold

[36] The link table is available at http://finance.wharton.upenn.edu/~mrrobert/styled-9/styled-12/index.html.
[37] I illustrate the procedure using ratio-based covenants. Among the 15 common financial covenants referenced in Table 4 of Demerjian and Owens (2016), 12 are based on ratios. Three of them are based on absolute amounts, which include EBITDA, net worth, and tangible net worth. The slackness for covenants based on absolute amounts is calculated in the same way as the ratio-based covenants.

covenant and as *(Stated covenant ratio – Actual ratio)/Stated covenant ratio* for a maximum threshold covenant. For example, a minimum threshold covenant could be a current ratio of at least 1.2, and a maximum threshold covenant could be a debt-to-equity ratio of no more than 1. Third, I calculate the aggregate covenant slack for each quarter as the average of the slacks for the 15 ratios. Fourth, I take the average of the four quarterly covenant slacks as the annual covenant slack for a firm.[38] A higher value in the annual covenant slack indicates that the firm is further away from a covenant violation. Finally, I transform the aggregate slack value for each firm year by multiplying by minus one so that a higher value indicates greater covenant tightness, i.e., closer to covenant violations.

I assign firm-year observations with a positive value in covenant slack to the high-tightness group (*HIGH_TIGHT*=1), and the rest to the low-tightness group (*HIGH_TIGHT*=0). The high group faces greater covenant tightness and is closer to covenant violations. A positive value in covenant tightness does not necessarily mean that the firm has violated covenant violations due to the potential discrepancies between the standard covenant definitions proposed by Demerjian and Owens (2016) and the actual covenant definitions stated in loan agreements. I then use the following model to test H2b, which predicts a negative coefficient on the interaction term (β_3).

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 HIGH\_TIGHT_{it} + \boldsymbol{\beta_3} HIGH\_TIGHT_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (5\text{-}2)$$

The control variables are the same as those in Equation 4-4 in Chapter 4, as with the models for other hypotheses in this chapter.

[38] I construct an alternative covenant-tightness measure based on the most-biding covenant for each fiscal year instead of the annual average of all covenants. In Section 5.42, I discuss the results for both measures.

5.3.3 Measures and Empirical Model for Testing Hypothesis H2c

For H2c, I measure proprietary cost based on R&D expenditures, following Hope, Hu and Lu (2016), who use the level of R&D expenditures as a proxy for proprietary cost and find that firms with more R&D expenditures are less transparent in risk disclosures. Firms that invest more heavily in R&D are more concerned about revealing sensitive information, which can be used by competitors against them. I partition the sample into the high and low groups based on the median R&D expenses scaled by beginning total assets, following prior studies (e.g. Ellis, Fee, and Thomas 2012; Dambra, Field, and Gustafson 2015). I use the following model to test H2c, which also predicts a negative coefficient (β_3) on the interaction term.

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 HIGH\_R\&D_{it} + \boldsymbol{\beta_3} HIGH\_R\&D_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (5\text{-}3)$$

5.3.4 Measures and Empirical Model for Testing Hypothesis H2d

H2d predicts that firms having greater needs for debt financing are more likely to trade risk disclosures for conservatism so that they can enjoy a lower cost of debt. I capture the needs for debt financing by using the financing deficit measure, following Flannery and Rangan (2006) and Deng et al. (2018). This measure could capture financing needs for debt and/or equity. I exclude the SEO firms from the sample for testing hypothesis H2d because SEO firms are the focus of hypothesis H2a.

Note that firms' disclosure choices and financing choices are endogenous. This is a common challenge for this line of research. The decision to issue equity or debt and the change in the disclosure behaviour could be all driven by a third factor, that is, the presence of a net present value project. The availability of such a project may indicate a change in the risk profile of the firm. My tests are relatively less affected by this issue because my tests are not on the level of risk disclosures but on the level of risk disclosures relative to that of conservatism, i.e., the slope.

The financing deficit measure is calculated as cash dividends plus investment and change in working capital minus internal cash, i.e., [cash dividends + capital expenditure + change in working capital – (income before extraordinary items + depreciation expense)]/total assets.[39] A higher value of this measure indicates that the firm has a greater financing need. To increase the test power, I assign firms to the group of high (low) debt financing needs if the financing deficit variable is in the highest (lowest) quintile. Then, I use the following model to test my hypothesis:

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 HIGH\_FIN\_NEEDS_{it} + \boldsymbol{\beta_3} HIGH\_FIN\_NEEDS_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (5\text{-}4)$$

I predict that the coefficient on the interaction term (β_3) is negative. All the control variables are the same as those in Equation 4-4 in Chapter 4.

5.4 Empirical Analysis

5.4.1 Results of Testing Hypothesis H2a

In this section, I present the results for testing H2a. This hypothesis predicts that the negative relation between accounting conservatism and risk disclosures is stronger for SEO firms than non-SEO firms in the year before equity issuance. This is because SEO firms have greater incentives to boost earnings by reporting less conservatively and rely more on risk disclosures to communicate uncertainty. I identify 1,277 (501) SEO firms for the period before (after) 2005 and create a matched sample of an equal number of non-SEO firms using propensity score matching. I conduct the matching at the industry-year level based on eight variables following prior literature (Shroff et al. 2013).[40] Table 5-1 presents these variables and the differences in their means between

[39] This measure considers the flow of cash and ignores a firm's existing cash holdings. My results in Table 5-5 are robust to the inclusion of a firm's existing cash balance in the calculation of the measure.

[40] To make sure that there are enough observations to estimate the propensity score for each industry year, I generate the matched sample by Fama-French 12 industries for each year.

the two groups of firms for the two sample periods. The sample size is larger for fiscal years before 2005 (1,277 SEO firms) than after 2005 (501 SEO firms). The t-tests show that there is no significant difference in firm characteristics between SEO firms and the matched sample.

Table 5-1: Descriptive Statistics of SEO Firms and Matched Firms

Panel A: SEO samples – Before 2005 (1,277 SEO firms and 1,277 non-SEO firms)

Variable	Mean - SEO	Mean - Non-SEO	Difference	T-stat	P-Value
SIZE	5.484	5.245	0.24	0.47	0.64
TOBINQ	2.839	2.434	0.41	0.56	0.58
ROA	-0.014	-0.040	0.03	0.35	0.73
SALESGROWTH	0.158	0.230	-0.07	-0.64	0.53
CASH	0.209	0.243	-0.03	-0.39	0.70
FIRMAGE	2.230	2.147	0.08	0.43	0.67
DIVIDEND	0.004	0.003	0.00	0.10	0.92
ABRET	1.055	1.121	-0.07	-0.17	0.86

Panel B: SEO samples – After 2005 (501 SEO firms and 501 non-SEO firms)

Variable	Mean - SEO	Mean - Non-SEO	Difference	T-stat	P-Value
SIZE	6.045	5.940	0.11	0.91	0.36
TOBINQ	2.315	2.195	0.12	1.25	0.21
ROA	-0.068	-0.053	-0.01	-1.19	0.24
SALESGROWTH	0.227	0.227	0.00	0.00	1.00
CASH	0.217	0.207	0.01	0.70	0.49
FIRMAGE	2.388	2.420	-0.03	-0.70	0.49
DIVIDEND	0.012	0.011	0.00	0.79	0.43
ABRET	0.205	0.209	0.00	-0.09	0.93

Note: This table presents the comparison of matching variables between SEO firms and matched sample. All variables are for the fiscal year prior to equity offering. *SIZE* is the natural log of total assets at fiscal year end. *TOBINQ* is Tobin's Q, calculated as market value of equity plus book value of debt, scaled by book value of assets. *ROA* is return on assets, calculated as income before extraordinary items scaled by total assets. *SALESGROWTH* is the sales growth over the year. *CASH* is the cash balance scaled by total assets. *FIRMAGE* is the firm age based on the years the firm exists in the COMPUSTAT annual fundamental file. *DIVIDEND* is the cash dividend paid scaled by total assets. *ABRET* is the annual buy-and-hold abnormal return.

Table 5-2 provides the results of regressions using Equation 5-1. Due to the regulation in 2005, I conduct the tests for the three sample periods separately. The main variable of interest is the interaction term, *SEO*×*CONS*. The coefficient on this variable is negative and significant for the period before 2005 (coefficient = −2.6111, t-stat = −2.75). This suggests that the SEO firms make a greater trade-off between accounting conservatism and risk disclosures in the year before equity offerings, consistent with the prediction of H2a. The coefficient on *CONS* is not significant, suggesting that the matched non-SEO firms do not exhibit a negative relation between accounting conservatism and risk disclosures for this period. The coefficient on *SEO*×*CONS* is not significant for the period after 2005 and for the entire period. This is consistent with the argument that the regulation in 2005 constrains managers' ability to trade off conservative reporting and risk disclosures even in a circumstance when firms have great incentives to do so.

H2a focuses on the interaction effect that firms planning equity offerings have greater incentives for trade-offs between accounting conservatism and risk disclosures.[41] The coefficients on conservatism (*CONS*) are the main effects for non-SEO firms. For the three sample periods, the positive coefficients on *CONS* suggest that these firms do not exhibit a trade-off between accounting conservatism and risk disclosures. The main effect for SEO firms is represented by the sum of coefficients on conservatism (CONS) and the interactive term (SEO×CONS). F-tests show that the sum of coefficients is insignificant for all three sample periods. This suggests that overall SEO firms do not exhibit a trade-off between accounting conservatism and risk disclosures, even

[41] I test each of my conditioning hypotheses separately. These conditioning variables have low correlations with each other, with a few exceptions. Analyst following is highly correlated with litigation risk, for a coefficient of 0.42 (pre-2005) and 0.43 (post-2005). For the period after 2005, covenant tightness is highly correlated with debt financing needs, with a coefficient of 0.30.

though SEO firms show a greater tendency towards such trade-offs before 2005 relative to non-SEO firms.

Table 5-2: Relation between Accounting Conservatism and Risk Disclosures for SEO Firms

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	4.1710**	11.0405***	2.5908
	(2.70)	(6.37)	(1.62)
CONS	1.6218	3.2921**	2.0870**
	(1.33)	(2.02)	(2.05)
SEO	1.4220**	1.3208	1.4185
	(2.41)	(0.36)	(0.87)
SEO×CONS	**-2.6111****	**-1.4225**	**-2.3425**
	(-2.75)	**(-0.23)**	**(-0.84)**
SIZE	0.0643	0.1007	0.0860
	(0.61)	(0.61)	(0.99)
LEV	-2.5966**	-0.3514	-1.8909
	(-2.21)	(-0.20)	(-1.62)
MTB	-0.0026	0.1056***	0.0372
	(-0.22)	(8.41)	(1.19)
ROA	-1.3158**	1.2515	-0.6484
	(-2.49)	(1.21)	(-1.00)
EARNVOL	4.2540**	1.2191	3.7665**
	(2.88)	(0.60)	(2.88)
ETR	-3.2028***	-0.9031**	-2.4656***
	(-3.65)	(-1.97)	(-5.50)
BIGN	1.9993***	0.9826	1.5203***
	(5.87)	(1.44)	(7.75)
BETA	0.6678***	-0.0574	0.5523***
	(6.03)	(-0.20)	(6.57)
RET	0.2171**	-0.0767	0.1536
	(3.20)	(-0.18)	(1.55)
RETVOL	20.2702**	30.5074	23.7609**
	(2.22)	(1.41)	(3.07)
RETSKEW	-0.0464	-0.0236	-0.0674
	(-0.61)	(-0.26)	(-1.03)
TURNOVER	0.0402**	0.0014	0.0191
	(2.05)	(0.07)	(1.07)
LITRISK	-0.7712	-3.4881	-0.9310

	(-0.91)	(-0.40)	(-0.78)
FOLLOW	0.8862*	0.6128**	0.7800**
	(1.91)	(2.21)	(2.05)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3550	0.3680	0.5480
N	2,554	1,002	3,556

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for SEO firms relative to non-SEO firms. All variables are defined in Appendix B2 and Appendix C1. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *SEO* is an indicator variable equal to one for SEO firms in year *t+1*, and zero for the matched sample. The interaction term *SEO×CONS* captures the difference in coefficients between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the industry level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

5.4.2 Results of Testing Hypothesis H2b

H2b predicts that firms closer to debt covenant violations (DCVs) have greater incentives to substitute accounting conservatism for risk disclosures. Following Pittman and Zhao (2019), I use the covenant tightness measure to proxy for the distance to DCVs. This measure provides an estimate of the distance to DCVs by calculating covenant ratios using financial statement data and comparing them with those specified in private loan contracts. A greater value in the tightness (*TIGHT*) measure indicates that the firm is more constrained by debt covenants. For greater testing power, I assign firms with a positive *TIGHT* value to the high-tightness group (*HIGH_TIGHT=1*) group and those with a negative value to the low-tightness group (*HIGH_TIGHT=0*) group. Consistent with my prediction, Table 5-3 shows that the interaction term, *HIGH_TIGHT×CONS*, has a negative and significant coefficient (coefficient = −2.3056 and t-stat = −2.04) in column (1) for the sample period before 2005.[42] The coefficients on conservatism (*CONS*) are not significant

[42] An untabulated test using the alternative measure based on the most-binding covenant yields comparable results for the period before 2005.

across all three sample periods, suggesting that firms farther away from DCVs do not exhibit a negative relation between accounting conservatism and risk disclosures. For the pre-2005 period, the main effect for the high tightness group is also negative and significant (i.e. the sum of coefficients on *CONS* and *HIGH_TIGHT*×*CONS*), with a coefficient of –2.9405 and p-value of 0.0115 (two-tailed). Taken together with earlier results, this suggests that only those firms closer to debt covenant violations exhibit a trade-off between accounting conservatism and risk disclosures when risk disclosures were voluntary.

After the SEC's mandate, the coefficient on *HIGH_TIGHT*×*CONS* becomes positive as shown in Column (2), suggesting that firms close to DCVs are more consistent in conservative reporting and risk disclosures in the period after 2005.[43] In my earlier analysis of SEO firms, the interaction term is not significantly different from zero in the post 2005 period, as shown in Table 5-2. Taken together, the results in Table 5-3 suggest that creditors of firms close to DCVs demand more consistent information from conservative reporting and risk disclosures relative to equity holders in the period after 2005. For the post-2005 period, the main effect for the high tightness group is positive and significant at better than 10% level.

Table 5-3: Relation between Accounting Conservatism and Risk Disclosures Conditional on Covenant Tightness

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	8.7598***	19.8701***	9.7301***
	(6.66)	(8.19)	(6.44)
CONS	-0.6349	-0.4431	-0.4266
	(-0.87)	(-0.54)	(-0.77)
HIGH_TIGHT	1.2256*	-1.3781*	0.2050
	(1.76)	(-1.95)	(0.39)

[43] I repeat the test for the post-2005 period using the alternative measure and find that the coefficient on the interactive term is positive but no longer significant at 5% level.

HIGH_TIGHT×CONS	**-2.3056****	**2.7010****	**-0.3339**
	(-2.04)	**(2.35)**	**(-0.39)**
SIZE	-0.3629***	-0.4016***	-0.3184***
	(-4.82)	(-3.21)	(-4.49)
LEV	-0.9674**	0.1605	-0.8581**
	(-2.07)	(0.26)	(-2.16)
MTB	0.0379*	0.0004	0.0231
	(1.79)	(0.02)	(1.63)
ROA	-2.3169***	0.9479	-1.2727**
	(-3.86)	(1.15)	(-2.51)
EARNVOL	5.6846***	1.0978	4.1748***
	(6.20)	(0.95)	(5.77)
ETR	-0.9521***	-0.9074***	-1.0219***
	(-3.27)	(-3.48)	(-5.15)
BIGN	0.8593***	-0.1392	0.2306
	(3.41)	(-0.43)	(1.05)
BETA	0.0759	0.1717*	0.1427**
	(1.05)	(1.86)	(2.41)
RET	8.3820	0.8656	9.4168**
	(1.60)	(0.11)	(2.01)
RETVOL	0.9261***	0.0957	0.5307***
	(6.57)	(0.48)	(4.28)
RETSKEW	-0.0455	-0.0410	-0.0448*
	(-1.24)	(-1.17)	(-1.71)
TURNOVER	0.1037***	0.0205	0.0502***
	(7.16)	(1.57)	(4.67)
LITRISK	0.9081	3.6775	2.0037*
	(0.79)	(1.28)	(1.65)
FOLLOW	0.5586***	0.6084***	0.6311***
	(5.01)	(2.91)	(5.30)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3190	0.2640	0.5620
N	12,310	10,971	23,281

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with high covenant tightness relative to those with low tightness. All variables are defined in Appendix B2 and Appendix C1. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *HIGH_TIGHT* is an indicator variable equal to one for firms with high covenant tightness, and zero for low tightness firms. The interaction term, *HIGH_TIGHT×CONS*, captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the

coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

5.4.3 Results of Testing Hypothesis H2c

H2c predicts that the relation between accounting conservatism and risk disclosures is more negative when firms face greater proprietary costs. Similarly, I assign firms to the high and low-cost groups based on the median R&D expenditures. Table 5-4 presents the regression results. The coefficient on the interaction term, *HIGH_R&D×CONS*, is negative and significant for the period before 2005 as shown in Column (1). This suggests that firms investing more heavily in R&D are more likely to trade off accounting conservatism and risk disclosures, consistent with my prediction. However, this relation does not hold for the period after 2005, again suggesting that the mandate on risk factor disclosures constrains firms' ability to make such trade-offs by imposing a floor level of risk disclosures. Similar to the results about the effect of covenant tightness, the coefficients on conservatism (*CONS*) are not significant for all three sample periods. This suggests that firms facing lower proprietary costs do not appear to trade off accounting conservatism and risk disclosures. For the high proprietary group, the main effect has a coefficient of –3.75, with a p-value of 0.0000 (two-tailed), for the pre-2005 period. Taken together, only firms facing high proprietary costs exhibit a trade-off between the two accounting choices when risk disclosures were voluntary. For the post-2005 period, the main effect of the group with high proprietary costs is not significant, with a coefficient of –0.6384 and a p-value of 0.3630 (two-tailed).

Table 5-4: Relation between Accounting Conservatism and Risk Disclosures Conditional on Proprietary Costs

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	8.0532***	17.9415***	8.4561***
	(9.49)	(13.54)	(10.34)
CONS	-0.3429	-0.5521	-0.2765
	(-0.59)	(-0.78)	(-0.58)

HIGH_R&D	2.6491***	0.2861	1.5169***
	(6.13)	(0.50)	(3.99)
HIGH_R&D×CONS	**-3.4038*** **	**-0.0863**	**-1.7288*** **
	(-4.77)	**(-0.10)**	**(-2.87)**
SIZE	-0.3512***	-0.3898***	-0.3572***
	(-6.53)	(-4.79)	(-7.02)
LEV	-1.7150***	-1.0411**	-1.7518***
	(-5.54)	(-2.53)	(-6.48)
MTB	0.0129	0.0291**	0.0299***
	(0.91)	(2.04)	(2.81)
ROA	-4.3232***	-2.6479***	-3.6503***
	(-12.28)	(-6.44)	(-13.12)
EARNVOL	4.1901***	2.6216***	3.7501***
	(7.61)	(4.06)	(8.60)
ETR	-1.2897***	-1.1499***	-1.2815***
	(-6.01)	(-6.32)	(-8.93)
BIGN	1.4375***	0.7059***	0.9170***
	(9.13)	(3.77)	(6.94)
BETA	0.1705***	0.1928***	0.1995***
	(4.32)	(3.59)	(6.04)
RET	3.2519	9.6307*	5.4246*
	(0.98)	(1.74)	(1.80)
RETVOL	0.9862***	0.3751***	0.8066***
	(10.88)	(2.88)	(10.01)
RETSKEW	-0.0512*	-0.0258	-0.0380**
	(-1.86)	(-1.19)	(-2.19)
TURNOVER	0.1086***	0.0203**	0.0559***
	(11.43)	(2.21)	(7.74)
LITRISK	-0.1303	-1.1238	0.1184
	(-0.17)	(-0.54)	(0.14)
FOLLOW	0.6463***	0.9591***	0.7965***
	(8.03)	(7.55)	(10.05)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3950	0.3090	0.6000
N	28,753	24,886	53,639

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with high R&D relative to those with low R&D. All variables are defined in Appendix B2 and Appendix C1. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *HIGH_R&D* is an indicator variable equal to one for firms with above-

median R&D expenditure and zero otherwise. The interaction term *HIGH_R&D×CONS* captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

5.4.4 Results of Testing Hypothesis H2d

H2d predicts that firms with greater needs for debt financing have stronger incentives to trade off accounting conservatism and risk disclosures because such firms benefit more from conservative reporting through lower cost of borrowing. Table 5-5 provides the regression results for testing this hypothesis. *HIGH_FIN_NEEDS* is an indicator variable equal to one for firms with greater financing needs and zero otherwise.

For this analysis, I exclude firms that issued equity in year *t+1*, so that the *HIGH_FIN_NEEDS* variable captures the needs for debt financing. These firms are the focus of H2d, which predicts that firms are more likely to trade off these two choices in the period before their planned equity offerings to reduce the cost of equity. A firm's financing decision to issue debt or equity depends on many factors. According to the pecking order theory, firms will rely first on internal funds to finance their investments, then on debts, and finally on equity as the last choice (Myers and Majluf 1984).

The interaction term, *HIGH_FIN_NEEDS×CONS*, is the main variable of interest, which reflects the impact of debt financing incentives on the trade-off between accounting conservatism and risk disclosures. The coefficient on this variable is negative and significant for the period before 2005. This is consistent with the notion that firms with greater needs for debt financing benefit more from conservative reporting and they have relatively lower incentives to provide risk disclosures. In other words, such firms have a greater tendency to trade off accounting conservatism for risk disclosures. Accordingly, we observe a more negative association between accounting conservatism and risk disclosures for this group of firms. The coefficient on the

interaction term is negative but not significant for the period after 2005, probably also due to the SEC regulation in 2005. Similar to the tests for the previous two hypotheses, the coefficient on conservatism (*CONS*) is not significant for any of the three sample periods. This suggests that firms with smaller needs for debt financing do not exhibit a substitutive relation between accounting conservatism and risk disclosures.

For the group of firms with high needs for debt financing, the main effects are negative and significant for both pre and post-2005 periods. The sum of the coefficients on *CONS* and *HIGH_FIN_NEEDS×CONS* is –3.3499 (p-value of 0.0003, two-tailed) and –2.0835 (p-value of 0.0277) respectively for the pre and post-periods. Given that the coefficients on conservatism (*CONS*) alone are insignificant, this suggests that only firms with high needs for debt financing exhibit a trade-off between conservative accounting and risk disclosures in the pre-2005 period. In particular, firms with high needs for debt financing also exhibit a trade-off in the post-2005 period. This is in contrast to the result of H1 about the general relation between accounting conservatism and risk disclosures for the post-2005 period presented in Table 4-5, which shows an insignificant relation between these two accounting choices.

Table 5-5: Relation between Accounting Conservatism and Risk Disclosures Conditional on Debt Financing Needs

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	7.1466***	18.2141***	7.7442***
	(4.98)	(10.69)	(6.80)
CONS	-0.8268	-1.0884	-0.9076
	(-0.89)	(-1.10)	(-1.33)
HIGH_FIN_NEEDS	1.9701***	1.0046	1.5537***
	(3.49)	(1.60)	(3.58)
HIGH_FIN_NEEDS×CONS	**-2.5231*** **	**-0.9951**	**-1.8311** **
	(-2.62)	**(-0.95)**	**(-2.50)**
SIZE	-0.2979***	-0.4560***	-0.3528***
	(-3.57)	(-4.34)	(-5.07)

LEV	-2.7315***	-1.8711***	-2.6015***
	(-6.18)	(-3.33)	(-7.13)
MTB	0.0082	0.0430	0.0382**
	(0.38)	(1.60)	(2.09)
ROA	-3.2031***	-1.3158**	-2.4719***
	(-6.71)	(-2.47)	(-6.93)
EARNVOL	4.0226***	2.5175***	3.6205***
	(5.26)	(2.85)	(6.16)
ETR	-1.4605***	-1.1008***	-1.3565***
	(-4.05)	(-3.32)	(-5.43)
BIGN	1.4711***	1.1393***	1.2066***
	(6.25)	(4.87)	(6.90)
BETA	0.9668***	0.2665	0.7784***
	(6.80)	(1.57)	(7.12)
RET	0.0926	0.3494***	0.1718***
	(1.26)	(3.60)	(2.84)
RETVOL	0.3277	22.6912***	7.2730*
	(0.06)	(2.97)	(1.67)
RETSKEW	-0.0529	-0.1280***	-0.0790**
	(-1.08)	(-3.24)	(-2.53)
TURNOVER	0.1043***	0.0089	0.0490***
	(7.89)	(0.79)	(5.45)
LITRISK	-0.8247	1.2258	0.1698
	(-0.82)	(0.45)	(0.17)
FOLLOW	0.7434***	1.2411***	0.9695***
	(6.19)	(7.26)	(8.91)
Time fixed effects	YES	YES	YES
Industry fixed effects	YES	YES	YES
Adjusted R^2	0.4080	0.3410	0.6000
N	8,912	7,550	16,462

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with higher needs for debt financing relative to those with lower needs. All variables are defined in Appendix B2 and Appendix C1. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *HIGH_FIN_NEEDS* is an indicator variable equal to one for firms with high needs for debt financing and zero otherwise. The interaction term, *HIGH_FIN_NEEDS×CONS*, captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

5.5 Conclusion

In this chapter, I explore how the relative costs and benefits of conservative reporting and risk disclosures affect firms' decisions in coordinating these two choices. I hypothesize that firms have greater incentives to trade off conservative reporting and risk disclosures under situations where one choice becomes more costly relative to the other choice. Specifically, I look at firms planning for equity offerings, firms close to debt covenant violations, firms facing greater proprietary cost, and firms having greater needs for debt financing. I find evidence consistent with these hypotheses for the period before 2005 when risk disclosures were voluntary. The results do not hold for the period after 2005, consistent with the notion that the SEC's regulation and its subsequent enforcement impose a floor level of risk disclosures and thus constrain firms' ability to coordinate conservative reporting and risk disclosure decisions. Moreover, I find that firms facing low incentives for trade-offs do not exhibit a substitutive relation between accounting conservatism and risk disclosures even in the period before 2005. Taken together, these results suggest that the relative costs and benefits of conservative reporting and risk disclosures are important factors that firms consider when they coordinate these two choices.

Chapter 6

Factors Constraining Trade-offs between Accounting Conservatism and Risk Disclosures

6.1 Introduction

In this chapter, I consider several factors that can potentially constrain firms' ability to trade off conservative reporting and risk disclosures. Broadly speaking, these factors are related to the monitoring roles played by various parties. The first factor is litigation risk, which can be seen as a form of monitoring by shareholders, who can take legal actions against firms' information misrepresentation. The second is the external monitoring role played by financial analysts, who are sophisticated information users. For the third factor, I examine the internal monitoring role played by disclosure committees, which are part of the corporate governance structure of some firms.

6.2 Hypothesis Development (Hypothesis 3)

As described earlier, both conservative reporting and risk disclosures can benefit firms by reducing litigation risk. Prior studies find that litigation concern is a key driver of conservative reporting choices (e.g. Chung and Wynn 2008; Ettredge, Huang, and Zhang 2016). Firms report more conservatively when they face higher litigation risk. On the other hand, one major benefit of risk disclosures is that they reduce litigation risk (Field, Lowry, and Shu 2005; Nelson and Pritchard 2016). When facing a high level of litigation risk, firms may need to apply both conservative reporting and provide risk disclosures at high levels to protect themselves from potentially high litigation costs. Therefore, I contend that a high litigation pressure reduces the room for firms to trade off conservative reporting and risk disclosures. Empirically, firms facing

higher litigation risks may exhibit a more positive (i.e., less negative) association between accounting conservatism and risk disclosures. Formally, I formulate the following hypothesis in the alternate form:

H3a*: The association between the level of accounting conservatism and the level of risk disclosures is more positive for firms facing high litigation risk relative to those facing low litigation risk.*

For the next hypothesis, I explore whether external monitoring by financial analysts may constrain firms' ability to make the tradeoff. Since accounting numbers and risk disclosures are included in the same information package, managers face the pressure to provide coherent and consistent information. Accounting conservatism requires timelier recognition of losses versus gains in earnings. This makes it necessary for managers to discuss and disclose more about the risks and uncertainties surrounding potential future losses to justify the accounting numbers that have been recognized in financial statements. Prior research suggests that financial statement users are sensitive to disagreements between accounting numbers and the tone of qualitative disclosures, and they would question the credibility of the information when disagreements are detected (Henry 2008; Baginski et al. 2016). For example, Baginski et al. (2016) find that when the signal from the quantitative news is consistent with that of the linguistic tone, investors react more strongly to the linguistic tone. D'Augusta and DeAngelis (2020) find that conservative accounting mitigates upward tone management in MD&As of annual reports. These findings suggest that conservative accounting numbers (hard information) tend to discipline qualitative disclosures (soft information). Overall, the evidence offered by this line of research implies that managers have incentives to provide consistent information.

The pressure faced by firms and managers to maintain consistency in conservative reporting and risk disclosures likely varies with the scrutiny from the investment community. Sophisticated

financial statement users are better able to detect inconsistencies between quantitative information and qualitative disclosures. Financial analysts are sophisticated information users, who regularly track firms' financial reports and collect information from other sources. With their industry knowledge and their superior information processing ability, they are better equipped to detect inconsistencies in a financial report. Prior studies have documented the monitoring role played by financial analysts in improving financial reporting. For example, using brokerage closure as an exogenous shock, Irani and Oesch (2013) find that firms with a drop in analyst coverage experience a decrease in their reporting quality. When firms' financial reporting is under the scrutiny of more financial analysts, managers face greater pressure to maintain consistency between conservative reporting and risk disclosures. Therefore, I expect a greater consistency (i.e., less trade-off) between financial accounting conservatism and risk disclosures for firms followed by more financial analysts. Formally, I have the following hypothesis in the alternate form:

***H3b**: The association between the level of accounting conservatism and the level of risk disclosures is more positive for firms followed by a high number of financial analysts relative to those followed by a low number of financial analysts.*

For the above hypothesis, I predict that external monitoring by financial analysts mitigates the trade-off between conservative reporting and risk disclosures. For the next hypothesis (H3c), I examine whether corporate governance, as a form of internal monitoring, plays a similar role. Specifically, I focus on the role of disclosure committees, a governance mechanism that has received little attention in the academic literature (Bailey, Nash, and Xu 2020). Back in 2002 when the SEC enacted management certification of annual and quarterly reports and internal control procedures pursuant to Section 302 of the Sarbanes-Oxley Act, it recommended firms form committees with the responsibility "for considering the materiality of information and determining disclosure obligations on a timely basis" (SEC 2002). Some firms established disclosure committees in response to the SEC's recommendation.

Practitioners believe that disclosure committees can "help ensure that company filings are accurate, complete, timely and fair" (Deloitte 2013). Anecdotal evidence suggests that many firms describe disclosure committees as an effective governance mechanism that allows them to provide disclosures meeting investor expectations and regulatory requirements (EY 2014; 2015). Empirically, Bailey, Nash, and Xu (2020) find that firms with a disclosure committee provide more readable 10-K disclosures and file their 10-K Forms in a timelier manner. These findings suggest that the presence of a disclosure committee improves disclosure outcomes. If disclosure committees promote transparent and faithful disclosures, then a firm with a disclosure committee should provide a level of risk disclosures that is more in line with the actual risks and uncertainties faced by the firm. The decision about risk disclosures would be less affected by a firms' recognition decisions when it comes to the timing of loss recognition related to conservative reporting. In other words, the existence of a disclosure committee may constrain managers' ability to use risk disclosures and conservative reporting as substitutes. This leads to the following hypothesis stated in the alternate form:

***H3c**: The association between the level of accounting conservatism and the level of risk disclosures is more positive for firms having a disclosure committee relative to those having no disclosure committee.*

However, it is also possible that the presence of a disclosure committee does not have a significant impact on managers' coordination of conservative reporting and risk disclosures. Ultimately, it is senior executives, "who bear express responsibility for designing, establishing, maintaining, reviewing and evaluating the issuer's disclosure controls and procedures" (SEC 2002). A disclosure committee may play a symbolic role with little impact on a firm's disclosure policy. If that is the case, I would not find results supporting H3c.

6.3 Measures and Models for Testing Hypotheses H3a, H3b, and H3c

In this section, I describe the measures and models for testing my third set of hypotheses. For H3a, I assign a firm-year observation to the high (low) litigation risk group based on the litigation risk measure developed by Kim and Skinner (2012). The high (low) litigation risk group consists of firms whose litigation risk is above (below) the median litigation risk. I expand the base model specified in Equation 4-4 in Chapter 4 by including the high-low indicator variable and its interaction with accounting conservatism. I use the following model to test H3a:

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 HIGH\_LITRISK_{it} + \boldsymbol{\beta_3} HIGH\_LITRISK_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (6\text{-}1)$$

The variable, *HIGH_LITRISK*, is an indicator variable set to one (zero) for the high (low) litigation risk group. H3a predicts a positive coefficient on the interaction term, *HIGH_LITRISK*× *Conservatism,* consistent with the notion that firms have less flexibility to trade off conservative reporting and risk disclosures when they face high litigation risk.

For H3b, I partition the sample into two groups based on the median analyst following. Similarly, I use the following model to test this hypothesis.

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 HIGH\_FOLLOW_{it} + \boldsymbol{\beta_3} HIGH\_FOLLOW_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (6\text{-}2)$$

The variable, *HIGH_FOLLOW*, is an indicator variable equal to one (zero) if the number of analysts that follow a firm is above (below) the median. I predict that the coefficient on the interaction term (β_3) is positive, consistent with firms followed by more financial analysts having less flexibility in trading off conservative reporting and risk disclosures.

For H3c, I measure the existence of a disclosure committee by searching for "disclosure committee" in all SEC filings, following Bailey, Nash, and Xu (2020). I code a firm as having a

disclosure committee if "disclosure committee" is mentioned at least once in any of its SEC filings since electronic filing started in 1994. This search relies on a data service provided by SeekEdgar[44], which provides an engine for quickly searching through all electronic SEC filings, such as 10-Ks, 10-Qs, proxy statements, among others. I acknowledge that some firms may have a disclosure committee but never disclosed this in any of their filings. This measurement error can bias against finding results. I use the following model to test H3c:

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 DISC\_COMM_{it} + \boldsymbol{\beta_3} DISC\_COMM_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (6\text{-}3)$$

DISC_COMM is a dummy variable equal to one if the firm has a disclosure committee and zero otherwise. I predict a positive coefficient on the interaction term, *DISC_COMM*×*Conservatism*. All control variables are the same as those in Equation 4-4 specified in Chapter 4.

6.4 Results of Testing Hypotheses H3a, H3b, and H3c

6.4.1 Results for H3a

H3a predicts that when firms face high litigation risk, they may need to supply both accounting conservatism and risk disclosures at high levels to guard against shareholder litigations. This can limit firms' ability to trade off accounting conservatism and risk disclosures. Table 6-1 presents the results for this test. Across all three sample periods, the coefficient on the interaction term, *HIGH_LITRISK*×*CONS*, is positive and significant, consistent with my prediction. Moreover, the effect appears to be slightly stronger for the period before 2005 when qualitative risk disclosures were voluntary, according to the magnitudes and significance levels of the coefficients. The coefficients on conservatism (*CONS*) are negative and significant across the three

[44] More details about SeekEdgar can be found at https://www.seekedgar.com.

sample periods, even for the period after 2005. This suggests that firms facing a lower level of litigation risk also trade off conservative reporting and risk disclosures even in the period when risk disclosures have become mandatory. Compared with the period when risk disclosures were voluntary, the magnitude and significance level are smaller in the mandatory period after 2005. F-tests show that the sum of the coefficients on *CONS* and *HIGH_LITRISK×CONS* is insignificant for the pre-2005 or post-2005 period. This suggests that firms facing high litigation risks do not exhibit a trade-off between accounting conservatism and risk disclosures for both sample periods.

Table 6-1: Effect of Litigation Risk on the Relation between Accounting Conservatism and Risk Disclosures

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	9.6038***	18.5988***	9.5069***
	(11.45)	(13.70)	(11.53)
CONS	-2.9274***	-1.6133**	-2.0878***
	(-5.27)	(-2.43)	(-4.82)
HIGH_LITRISK	-1.2642***	-0.9151**	-1.0783***
	(-3.41)	(-2.12)	(-3.65)
HIGH_LITRISK×CONS	**2.4488*** **	**1.7383** **	**1.9551*** **
	(3.85)	**(2.50)**	**(3.95)**
SIZE	-0.3280***	-0.3858***	-0.3353***
	(-6.02)	(-4.84)	(-6.61)
LEV	-1.8990***	-1.1562***	-1.8887***
	(-6.13)	(-2.81)	(-7.02)
MTB	0.0202	0.0312**	0.0337***
	(1.43)	(2.18)	(3.16)
ROA	-4.2946***	-2.7448***	-3.6959***
	(-12.30)	(-6.72)	(-13.43)
EARNVOL	4.4088***	2.6605***	3.8830***
	(7.99)	(4.12)	(8.91)
ETR	-1.4001***	-1.1786***	-1.3576***
	(-6.50)	(-6.48)	(-9.42)
BIGN	1.4476***	0.6897***	0.9117***
	(9.21)	(3.68)	(6.93)
BETA	0.1536***	0.1921***	0.1901***

	(3.87)	(3.55)	(5.72)
RET	4.1954	10.3631*	6.6372**
	(1.27)	(1.89)	(2.22)
RETVOL	1.0018***	0.3268**	0.7865***
	(11.02)	(2.57)	(9.95)
RETSKEW	-0.0506*	-0.0249	-0.0366**
	(-1.84)	(-1.15)	(-2.12)
TURNOVER	0.1087***	0.0188**	0.0550***
	(11.39)	(2.05)	(7.60)
LITRISK	-0.1891	-0.9247	0.2886
	(-0.24)	(-0.43)	(0.33)
FOLLOW	0.6418***	0.9716***	0.8094***
	(7.95)	(7.63)	(10.25)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3920	0.3090	0.5990
N	28,753	24,886	53,639

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with high litigation risk relative to those with low litigation risk. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *HIGH_LITRISK* is an indicator variable equal to one for firms with high litigation risk, and zero for low litigation risk. The interaction term *HIGH_LITRISK*×*CONS* captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

6.4.2 Results for H3b

H3b predicts that external monitoring by financial analysts leads to greater consistency in recognition and qualitative disclosure decisions. This is because financial analysts have superior information processing ability, and they are more capable of detecting inconsistencies between accounting numbers and qualitative disclosures. As predicted, the coefficients on the interaction term are positive and significant for all three sample periods, as shown in Table 6-2. Similar to the results for H3a, the effect appears to be slightly stronger for the period before the regulation change, as indicated by the magnitudes and significance levels of the coefficients. The coefficients on conservatism (*CONS*) are negative and significant across all sample periods. This suggests that

firms with lower analyst following also demonstrate a trade-off between accounting conservatism and risk disclosures in the period after 2005. The trade-off appears to be weaker in the mandatory period than in the voluntary period, based on the magnitude and significance level of the coefficients. Similar to H3a, F-tests show that firms followed by more financial analysts do not exhibit a negative relation between accounting conservatism and risk disclosures.

Table 6-2: Effect of Analyst Monitoring on the Relation between Accounting Conservatism and Risk Disclosures

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	9.3887***	18.6080***	9.4649***
	(11.15)	(13.94)	(11.59)
CONS	-2.6877***	-1.6038**	-2.0416***
	(-4.90)	(-2.34)	(-4.65)
HIGH_FOLLOW	-1.5824***	-0.8666*	-1.2722***
	(-3.92)	(-1.92)	(-4.10)
HIGH_FOLLOW×CONS	**2.1576*** **	**1.8130** **	**2.0138*** **
	(3.03)	**(2.40)**	**(3.74)**
SIZE	-0.3149***	-0.3818***	-0.3358***
	(-5.84)	(-4.71)	(-6.67)
LEV	-1.8438***	-1.1286***	-1.8606***
	(-5.96)	(-2.77)	(-6.94)
MTB	0.0202	0.0319**	0.0348***
	(1.42)	(2.22)	(3.25)
ROA	-4.2654***	-2.7080***	-3.6667***
	(-12.24)	(-6.63)	(-13.34)
EARNVOL	4.3933***	2.6494***	3.8656***
	(7.97)	(4.10)	(8.86)
ETR	-1.4043***	-1.1757***	-1.3584***
	(-6.52)	(-6.47)	(-9.43)
BIGN	1.4309***	0.6930***	0.9106***
	(9.12)	(3.71)	(6.92)
BETA	0.1448***	0.1901***	0.1869***
	(3.67)	(3.53)	(5.66)
RET	5.3108	11.1362**	7.2592**
	(1.60)	(2.03)	(2.43)
RETVOL	0.9997***	0.3349***	0.7829***

	(11.02)	(2.64)	(9.90)
RETSKEW	-0.0522*	-0.0255	-0.0367**
	(-1.89)	(-1.18)	(-2.12)
TURNOVER	0.1096***	0.0184**	0.0551***
	(11.46)	(2.00)	(7.59)
LITRISK	-0.1070	-0.7527	0.2608
	(-0.14)	(-0.36)	(0.31)
FOLLOW	0.8071***	0.9167***	0.8824***
	(8.47)	(6.03)	(9.64)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3921	0.3094	0.5991
N	28,753	24,886	53,639

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with high analyst following relative to those with low analyst following. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *HIGH_FOLLOW* is an indicator variable equal to one for firms with high analyst following, and zero for low analyst following. The interaction term, *HIGH_FOLLOW×CONS*, captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

6.4.3 Results for H3c

To test H3c, I focus on the period after 2005 because few companies have disclosure committees for the period before 2005. The SEC recommended firms establish disclosure committees in 2002. For this post-2005 period, I find that 3,469 firm-years have a disclosure committee and 21,221 firm-years do not. A firm's decision to establish a disclosure committee is not exogenous. To control for differences in observable firm characteristics between those with and without a disclosure committee, I adopt a matched sample design using propensity score matching. I match on the variables that are used as control variables in Equation 4-4. I perform a one-to-one matching with replacement within each industry year.

The matching process results in 2,001 matched pairs for a total of 4,002 observations. Table 6-3, Panel A provides the mean values of all the matching variables across the two groups of firms,

indicated by DCOM (with a disclosure committee) and Non-DCOM (without a disclosure committee). The *t-stat* shows that there is no significant difference between these two groups of firms across all the matching variables. Panel B provides the regression results. The main variable of interest is the interaction term, *DCOM×CONS*. The coefficient on this term is negative but not significant. This suggests that there is no significant difference in the relation between conservatism and risk disclosures for firms with or without a disclosure committee. Disclosure committees seem to play a very limited role in affecting how managers coordinate their decisions between conservative reporting and qualitative disclosures. This is probably because managers have great discretion over qualitative disclosures due to their soft nature.

Table 6-3: Effect of Disclosure Committees on the Relation between Accounting Conservatism and Risk Disclosures

Panel A: Sample comparison

Variable	Mean - DCOM	Mean - Non-DCOM	Difference	T-stat	P-Value
SIZE	6.926	6.889	0.04	0.09	0.93
LEV	0.285	0.249	0.04	0.75	0.45
MTB	2.792	2.654	0.14	0.17	0.86
ROA	0.035	0.052	-0.02	-0.86	0.39
EARNVOL	0.054	0.050	0.00	0.28	0.78
ETR	0.327	0.348	-0.02	-0.44	0.66
BIGN	0.872	0.872	0.00	0.00	1.00
BETA	1.142	1.080	0.06	0.61	0.55
RET	-0.058	-0.039	-0.02	-0.35	0.73
RETVOL	0.027	0.026	0.00	0.51	0.61
RETSKEW	0.213	0.246	-0.03	-0.30	0.77
TURNOVER	9.678	8.919	0.76	0.45	0.66
LITRISK	0.049	0.050	0.00	-0.05	0.96
FOLLOW	1.989	1.717	0.27	1.23	0.22

Note: This panel provides the mean values of the matching variables for firms with a disclosure committee (DCOM) and the match group (Non-DCOM). The "Difference" column shows the differences between the mean values of the two groups of firms. The "T-Stat" and "P-value" show the t-statistics and p-values for whether the mean differences are significantly different from zero. All variables are defined in Appendix B2 at the end of Chapter 4.

Panel B: Regression results

DV=RISKDISC	After-2005
Constant	16.4260***
	(11.73)
CONS	2.0183
	(1.36)
DCOMM	-0.0737
	(-0.07)
DCOMM×CONS	**-0.4091**
	(-0.23)
SIZE	-0.4946***
	(-3.61)
LEV	-2.6196***
	(-3.18)
MTB	0.0364*
	(1.76)
ROA	1.6890
	(1.57)
EARNVOL	2.8857*
	(1.87)
ETR	-0.6537
	(-1.52)
BIGN	0.7203**
	(2.02)
BETA	-0.3186
	(-1.20)
RET	0.0703
	(0.49)
RETVOL	30.8618**
	(2.55)
RETSKEW	-0.0093
	(-0.15)
TURNOVER	0.0059
	(0.32)
LITRISK	6.4284*
	(1.87)
FOLLOW	1.2423***
	(5.46)
Year FE	YES

Industry FE	YES
Adjusted R^2	0.2570
N	4,002

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms with disclosure committees relative to those without, for fiscal years after 2005. *DCOMM* is an indicator variable equal to one for firms with a disclosure committee, and zero for the matched sample. The interaction term, *DCOMM×CONS*, captures the difference in coefficients between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the industry level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

6.5 Conclusion

In this chapter, I examine whether the monitoring by external and internal parties constrains managers' ability to trade off conservative reporting and risk disclosures. For external monitoring, I look at monitoring by shareholders through litigation threats and monitoring by financial analysts as sophisticated information users. I find that the trade-off between conservative reporting and risk disclosures is weakened when firms face greater litigation risk (i.e., greater monitoring by shareholders through litigation threats) and when they are followed by more financial analysts. The results hold for both voluntary and mandatory periods of risk disclosures. I find that firms with lower litigation risk or smaller analyst following also exhibit trade-offs between the two choices in the period when risk disclosures were mandatory. This suggests that those firms with weaker monitoring from other parties still use conservative reporting and risk disclosures as substitutes even when regulatory oversights set a floor on the level of risk disclosures. Additionally, I examine the role of disclosure committees, a form of corporate governance mechanism which has received little academic attention. I do not find that disclosure committees play a significant role when it comes to influencing managers' coordination of conservative reporting and risk disclosure decisions. This is probably because risk disclosures are qualitative and subject to tremendous managerial discretion.

Chapter 7

Effects of Executive Characteristics and Compensation

7.1 Introduction

My hypotheses in previous chapters assume that managers are rational decision-makers who make decisions in the best interest of their firms subject to the monitoring of various internal and external mechanisms. However, managers, as individuals, are subject to biases and have self-interest. Such biases, rooted in their personal characteristics, influence their decision-making. A line of literature finds that managerial characteristics have a great impact on managers' reporting and disclosure decisions.[45] One of these characteristics is overconfidence, which affects managers' conservative reporting decisions (Ahmed and Duellman 2013). In this chapter, I explore whether managerial overconfidence plays a role in moderating the relation between accounting conservatism and risk disclosures. Since managers have self-interest, I also investigate how personal economic gains from their compensation influence their decisions in risk disclosures and in trade-offs between accounting conservatism and risk disclosures. In the following, I first discuss the related literature and then describe the expected impacts of executive characteristics and compensation, without formulating formal hypotheses for this chapter's tests.

7.2 Managerial Overconfidence

7.2.1 Prior Literature

Overconfident managers tend to overestimate their personal abilities and judgements, and the prospects of their firms (Hirshleifer, Low, and Teoh 2012). They are less likely to recognize losses in a timely manner due to their tendency to overestimate future returns of their investment

[45] Plockinger et al. (2016) provides a recent survey of this line of literature.

projects. Consistent with this notion, Ahmed and Duellman (2013) find that overconfident CEOs report less conservatively. Several other studies on the reporting and disclosure choices of overconfident managers provide evidence consistent with our general expectation of this managerial trait. For example, Schrand and Zechman (2012) find that overconfident executives are more likely to be associated with financial misreporting, presumably to cover up the reversals of their over-optimistic reporting choices made in prior periods. For quantitative disclosures, Hribar and Yang (2016) document that overconfident CEOs are more likely to issue earnings forecasts and their forecast ranges are narrower. Subsequently, they are more likely to miss their forecasts, which prove to be too optimistic. For qualitative disclosures, Davis et al. (2015) find that managerial characteristics can explain a significant amount of variation in the tone of earnings conference calls. Even though these authors do not directly test the impact of overconfidence, they examine the effects of managerial traits such as age, gender, and educational background. These factors touch on risk aversion, a construct that to some extent overlaps with overconfidence, since overconfident managers engage in more risk taking (Goldberg, Graham, and Ha 2020).

It is unclear whether overconfident managers would provide fewer or more risk disclosures due to the lack of prior research evidence. Since they tend to provide over-optimistic forecasts (Hribar and Yang 2016), arguably overconfident managers would provide a lower level of risk disclosures. They are more likely to overlook or disregard risks and uncertainties for the following two reasons. First, they are optimistic about the prospects of firm performance and may fail to see downside risk. Second, they are confident about their ability to manage risks and limit the downside even when adverse events do occur. Given prior research showing that overconfident managers tend to report less conservatively (Ahmed and Duellman 2013), I expect that firms managed by overconfident managers are more consistent in accounting conservatism and risk

disclosures in that both are likely to be at relatively lower levels. Empirically, I expect that such firms would exhibit a more positive relation between accounting conservatism and risk disclosures.

An additional consideration about the impact of executive characteristics is whether the CEO or the CFO of a firm has a greater impact on firms' reporting and disclosure decisions. Ge, Matsumoto, and Zhang (2011) find that CFO styles affect the accounting choices of firms. Jiang, Petroni, and Wang (2010) show that CFOs have a greater influence on earnings management than CEOs do. For disclosures in 10-Ks, survey evidence shows that CFOs are more involved in preparing MD&A sections in annual reports than CEOs (Amel-Zadeh, Scherf, and Soltes 2019). On the other hand, Hsieh, Wang, and Demirkan (2018) find that firms with both overconfident CEOs and overconfident CFOs engage more in tax avoidance than firms of other CEO/CFO combinations. In my later tests, I consider the effects of both CEO and CFO by constructing a composite overconfidence measure.

7.2.2 Empirical Tests

In this section, I discuss the measure, empirical model, and results for testing the impact of managerial overconfidence on the relation between accounting conservatism and risk disclosures. I measure managerial overconfidence following prior studies (e.g. Campbell et al. 2011; Hirshleifer, Low, and Teoh 2012; Ahmed and Duellman 2013). This measure is based on the varied tendency of executives to hold deep-in-the-money stock options of the firm. Top executives typically do not hold a well-diversified portfolio. Their compensation packages usually contain large amounts of stock and option grants, subjecting them to overexposure to the idiosyncratic risk of their company. After their stock options are vested, they should exercise these options quickly to reduce the holdings of their company's equity (Malmendier and Tate 2005). Overconfident executives believe that their companies will continue to perform well and delay option exercising

even when their options are deep in the money. This is the rationale behind the overconfidence measure based on the holdings of deep-in-the-money stock options.

Consistent with prior studies, I construct overconfidence measures for CEOs/CFOs following the steps described in Appendix E1. For each firm-year, I construct an indicator variable, *OverConf*, which is set to one if both the CEO and the CFO of the firm are overconfident and to zero if neither the CEO nor the CFO is overconfident. Then, I use the following model to test the impact of managerial overconfidence on the relation between accounting conservatism and risk disclosures.

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 OverConf_{it} + \boldsymbol{\beta_3} OverConf_{it} \times Conservatism_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (7\text{-}1)$$

Table 7-1 provides the regression results using the above model. The coefficient on the interaction term, *OVERCONF×CONS*, captures the difference in the relation between accounting conservatism and risk disclosures across firms managed by overconfident and non-overconfident managers. The coefficient is not significant across the three sample periods. This suggests that executive overconfidence does not have a significant impact on the relation between accounting conservatism and risk disclosures. I do not find evidence supporting my earlier conjecture that firms with overconfident executives would be more consistent in accounting conservatism and risk disclosures.

I conduct two additional un-tabulated analyses to further investigate the effect of managerial overconfidence. For the first analysis, I regress conservatism on the overconfidence variable and a group of control variables following Ahmed and Duellman (2013). I find that I can replicate their finding that managerial overconfidence is negatively associated with accounting conservatism, even though their study considers only CEO overconfidence. For the second analysis, I test whether managerial overconfidence is associated with a lower level of risk disclosures. To do this,

I expand the model for my main hypothesis specified in Equation 4-4 by including the overconfidence measure as an additional explanatory variable. I find that the coefficients on the overconfidence variable are positive but not significant for the pre-2005 period or the post-2005 period. For the entire sample period, the coefficient is significant. This suggests that overall overconfident managers provide more risk disclosures. I speculate that this counterintuitive finding is perhaps because overconfident managers are usually more risk-seeking, and the impact of their risk-seeking behaviour on the risk profile of their firm is not adequately captured by conventional risk proxies such as stock beta, stock volatility, and earnings volatility.

Table 7-1: Effect of Managerial Overconfidence on the Relation between Accounting Conservatism and Risk Disclosures

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	10.5982***	19.8353***	10.6112***
	(4.87)	(6.78)	(4.98)
CONS	-1.6518	0.3079	-0.3513
	(-1.37)	(0.32)	(-0.46)
OVERCONF	0.1454	0.9393	0.7957
	(0.15)	(1.19)	(1.26)
OVERCONF×CONS	**0.1488**	**-0.9816**	**-0.6528**
	(0.08)	**(-0.70)**	**(-0.57)**
SIZE	-0.3964***	-0.5440***	-0.4991***
	(-3.37)	(-4.63)	(-5.73)
LEV	-0.0302	-1.0784*	-0.9837*
	(-0.04)	(-1.68)	(-1.96)
MTB	0.0435	0.0110	0.0210
	(1.58)	(0.65)	(1.38)
ROA	-0.8609	-0.4595	-0.5883
	(-0.80)	(-0.56)	(-0.90)
EARNVOL	5.7915***	2.9926***	4.2170***
	(4.18)	(2.64)	(4.72)
ETR	-0.6497	-0.4821*	-0.5320**
	(-1.44)	(-1.96)	(-2.39)
BIGN	0.4401	0.6323	0.6259*
	(0.81)	(1.64)	(1.81)

BETA	0.4423*	0.0303	0.2131
	(1.86)	(0.14)	(1.31)
RET	0.1945*	0.1375*	0.2021***
	(1.82)	(1.65)	(2.92)
RETVOL	39.5648***	9.7291	26.5519***
	(3.23)	(1.00)	(3.29)
RETSKEW	0.0145	-0.0152	-0.0183
	(0.24)	(-0.44)	(-0.59)
TURNOVER	0.1146***	0.0439***	0.0607***
	(5.30)	(3.20)	(5.08)
LITRISK	2.0211	0.5894	2.1081
	(1.40)	(0.21)	(1.43)
FOLLOW	0.6293***	1.0703***	0.9709***
	(3.66)	(5.93)	(6.86)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3860	0.2850	0.5680
N	5,791	9,878	15,669

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism for firms managed by overconfident executives vs those by non-overconfident executives. All variables are defined in Appendix B2 and Appendix E2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. *OVERCONF* is an indicator variable equal to one for firms with both overconfident CEO and overconfident CFO, and zero for those with neither overconfident CEO nor overconfident CFO. The interaction term, *OVERCONF×CONS*, captures the difference in coefficient between the two groups of firms. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

7.3 Executive Compensation

7.3.1 Cash Bonuses

Other than salaries, executives are usually compensated with cash bonuses and equity incentives such as restricted stocks and stock options. Among these, cash bonuses represent a substantial portion of the compensation packages of CEOs and other executives (Frydman and Jenter 2010; Shan and Walter 2016). Prior research shows that cash bonuses are more closely linked to earnings-based performance measures (Murphy 1999; Core, Guay, and Verrecchia 2003). Conservative accounting choices lead to lower reported earnings and may reduce managers'

compensation. When a greater portion of managers' compensation depends on bonuses, conservative accounting lowers managers' compensation more pronouncedly. Therefore, managers have greater incentives to report less conservatively when cash bonuses account for a greater portion of their total compensation.

On the other hand, risk disclosures are unlikely to have a significant impact on cash bonuses since they neither affect reported numbers nor affect how bonuses are calculated based on those numbers. When their compensation depends more on cash bonuses, managers likely have stronger incentives to rely on risk disclosures to reduce information asymmetry and litigation risk. Empirically, firms would exhibit a stronger negative association between conservatism and risk disclosures when their executives are compensated more with cash bonuses.

7.3.2 Equity Incentives

To better align the interest between executives and shareholders, equity incentives are included as a key component of executive compensation packages. Several studies document that equity incentives change managers' reporting and disclosure behaviours. Bergstresser and Philippon (2006) find that a firm engages more in earnings management when its CEO's compensation is more closely linked to the share price of the firm (as measured by the change in the value of a CEO's stock and option holdings due to one percentage point increase in the company stock price, commonly referred to as *Delta*). Burns and Kedia (2006) find that the likelihood of accounting restatement increases with the Delta of the CEO's stock option holdings. Efendi, Srivastava, and Swanson (2007) find that a firm is more likely to make restatements when its CEO holds a large amount of in-the-money stock options. Jiang, Petroni, and Wang (2010) find that a higher Delta of CEO's or CFO's equity portfolios is associated with an increased likelihood of beating analyst forecasts, suggesting that greater sensitivity of CEO's/CFO's wealth to firms'

stock price provides incentives for upward earnings management. Stock options render managers' wealth to be more sensitive to both changes in stock price (*Delta*) and changes in stock price volatility (*Vega*). Armstrong, Larcker, Ormazabal, and Taylor (2013) find that Vega is positively associated with financial misreporting and its effect subsumes that of Delta.

For disclosures, Nagar, Nanda, and Wysocki (2003) find that the proportion of stock-based incentives in the CEO's compensation package is positively related to disclosure quality, proxied by management earnings forecast frequency and analysts' subjective ratings of firm's disclosure practice. Kim, Li, and Zhang (2011) provide evidence suggesting that CFOs with large option holdings hide bad news to prevent or delay stock price declines. This finding implies that option holdings can discourage managers from disclosing risks and uncertainties, which point to potential future bad outcomes. Kim, Li, and Zhang (2011) do not distinguish the effects of Delta and Vega. Larger option holdings usually indicate a high level of both Delta and Vega. As mentioned in Chapter 4, Kravet and Muslu (2013) find that an increase in risk disclosures is associated with higher stock volatility. This suggests that managers with a larger Vega can benefit from a higher level of risk disclosures. Taken together with the finding in Kim, Li, and Zhang (2011), empirically it is not clear whether Vega would be positively or negatively associated with the level of risk disclosures.

In summary, prior research suggests that a greater portion of bonus in the compensation package may increase the incentives for managers to trade off conservative reporting and risk disclosures. On the other hand, prior research does not provide a clear indication as to how equity incentives (Delta and Vega) may affect managers' decisions in risk disclosures. In the next section, I conduct tests to explore the effects of these two important components of the executive compensation package.

7.3.3 Empirical Results

In this section, I describe the measures, model, and regression results for testing the effects of executive compensation. Following Deng et al. (2018), I measure the executive bonus intensity by using the ratio of the top five executives' total bonuses to their total compensation. The results are robust to measuring the bonus intensity based on the compensation of CEO and CFO only.

Following prior studies (e.g. Core and Guay 2002; Coles, Daniel, and Naveen 2006), I estimate the Delta and Vega using the modified Black and Scholes (1973) option valuation model. Based on the calculations, Delta captures the change in the value (in million dollars) of the executive compensation portfolio when the stock price increases by 1%. Vega captures the change in the value (in million dollars) of the executive compensation portfolios (including both stocks and stock options) when the annualized stock volatility increases by 1%. I further transform the raw Delta (Vega) as the logarithm of (1+ raw Delta (Vega)). For empirical tests, I focus on the Delta and Vega of CFOs because prior research suggests that CFOs play a greater role in determining the contents of annual reports (Amel-Zadeh, Scherf, and Soltes 2019). Moreover, I find that the Delta/Vega of the CFO is highly correlated with those of the CEO. Including both may cause collinearity issues.

I use the following model to test the effects of executive compensation on risk disclosures.

$$RiskDisclosures_{it} = \alpha_o + \beta_1 Conservatism_{it} + \beta_2 Bonus_{it} + \beta_3 Bonus_{it} \times Conservatism_{it} + \beta_4 DeltaCFO_{it} + \beta_5 VegaCFO_{it} + \sum \beta_k Control_{k,it} + Industry\ FE + Year\ FE + \varepsilon_{it} \quad (7\text{-}2)$$

The control variables are the same as those in Equation 4-4 in Chapter 4. *Bonus* is the ratio of the top five executives' total bonuses to their total compensation as described above. *DeltaCFO* and *VegaCFO* are the Delta and Vega of the CFO's equity holdings of the firm. The interaction

term, *Bonus×Conservatism*, captures whether the relation between accounting conservatism and risk disclosures varies with the level of bonus intensity.

Table 7-2 provides the regression results using the model specified in Equation 7-2. To increase the power of the test, I focus on firm-year observations for which the bonus intensity variable is not zero. About 25% of firm-years have zero values for this variable. To observe the main effects of the compensation-related variables, I first run Equation 7-2 without the interaction term. Panel A provides the results for the main effects of the three compensation-related variables on risk disclosures. Across the three sample periods, the coefficients on bonus intensity (*BONUS*) are negative and significant at better than 5% levels. This suggests that managers provide more risk disclosures when a greater portion of their compensation comes from cash bonuses. For equity incentives, the Delta of the CFO (*DELTACFO*) is not associated with the level of risk disclosures, as the coefficients are not significant. The Vega of the CFO (*VEGACFO*) is positive and significant for the period before 2005 and for the entire sample period both at better than 1% levels. This suggests that when CFOs benefit more from an increase in the stock price volatility of the firm, they provide more risk disclosures. As described earlier, prior research finds that an increase in risk disclosures is associated with an increase in future stock return volatility (Kravet and Muslu 2013). CFOs appear to understand the implication of risk disclosures for stock return volatility.

Table 7-2, Panel B provides the regression results using Equation 7-2 with the interaction term between bonus intensity and accounting conservatism. The coefficients on the interaction term, *BONUS×CONS*, are positive and significant at 10%, 5%, and 1% levels respectively for periods before 2005, after 2005, and the entire period. These results suggest that the negative relation between accounting conservatism and risk disclosures decreases with the level of bonus intensity. This finding is not consistent with my expectation, as discussed in Section 7.3.1, that

managers should have greater incentives to trade off conservative reporting and risk disclosures when their compensation depends more on reported earnings. The conflicting result is perhaps because executives compensated with a greater portion of cash bonuses, relative to those with a greater equity component, are more risk-averse and self-select to work for firms offering such pay structures. These firms likely face lower risks and uncertainties and are more affected by the flooring effect, which limits the negative association between accounting conservatism and risk disclosures. The results in Panel A show that firms compensating their managers with more cash bonuses provide a lower level of risk disclosures.

For both tests, I use the Delta/Vega of the CFO. The results are slightly weaker when I use the Delta/Vega of the CEO. This is consistent with prior survey evidence that CFOs play a greater role in disclosure decisions for annual reports (Amel-Zadeh, Scherf, and Soltes 2019).

Table 7-2: Effect of Executive Compensation on the Relation between Accounting Conservatism and Risk Disclosures

Panel A: Impact of executive compensation on risk disclosures (main effects)

DV=RISKDISC	Before-2005 (1)	After-2005 (2)	All-Years (3)
Constant	11.5913***	20.2379***	11.4017***
	(6.07)	(9.33)	(6.83)
CONS	-1.6858*	-1.8332*	-1.8425***
	(-1.72)	(-1.93)	(-2.63)
BONUS	**-0.0130****	**-0.0274****	**-0.0192*****
	(-2.28)	**(-2.55)**	**(-3.51)**
DELTACFO	**-0.0000**	**0.0001**	**0.0000**
	(-0.07)	**(0.32)**	**(0.15)**
VEGACFO	**0.0040*****	**0.0029**	**0.0038*****
	(2.75)	**(1.54)**	**(3.07)**
SIZE	-0.5469***	-0.5732***	-0.5732***
	(-4.88)	(-4.23)	(-6.35)
LEV	-0.6040	-0.9911	-1.0991**
	(-0.90)	(-1.34)	(-2.12)
MTB	0.0449*	0.0167	0.0412**

	(1.79)	(0.75)	(2.40)
ROA	-0.9676	-0.6796	-0.8462
	(-0.95)	(-0.72)	(-1.20)
EARNVOL	4.7578***	2.6981**	3.8969***
	(3.81)	(2.05)	(4.25)
ETR	-0.9334**	-0.3214	-0.5740**
	(-2.22)	(-0.97)	(-2.17)
BIGN	0.7069	0.5885	0.6157*
	(1.31)	(1.54)	(1.81)
BETA	0.1810**	0.1354	0.2119***
	(2.12)	(1.27)	(3.04)
RET	34.4726***	26.9189**	34.5045***
	(3.04)	(2.42)	(4.05)
RETVOL	0.5835***	-0.1650	0.3139**
	(2.77)	(-0.71)	(2.02)
RETSKEW	0.0167	-0.0447	-0.0300
	(0.31)	(-1.01)	(-0.86)
TURNOVER	0.1173***	0.0338**	0.0726***
	(6.53)	(2.43)	(6.29)
LITRISK	0.5353	1.5270	1.5108
	(0.43)	(0.54)	(1.26)
FOLLOW	0.7255***	0.8608***	0.8564***
	(4.55)	(4.35)	(6.31)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Adjusted R^2	0.3880	0.3030	0.5850
N	7,228	5,611	12,839

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism (*CONS*) and several compensation-related variables, including bonus intensity (*BONUS*), CFO's pay sensitivity to the firm's stock price (*DELTACFO*), and CFO's pay sensitivity to the firm's stock volatility (*VEGACFO*). All variables are defined in Appendix B2 and Appendix E2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

Panel B: Impact of executive compensation on risk disclosures with the interactive effect

DV=RISK_DISC	Before-2005	After-2005	All-Years
	(1)	(2)	(3)
Constant	12.4024***	20.8148***	12.1227***
	(6.31)	(9.50)	(7.18)

CONS	-3.2223**	-2.8384***	-3.1209***
	(-2.55)	(-2.68)	(-3.82)
BONUS	**-0.0543****	**-0.0936****	**-0.0662*****
	(-2.42)	**(-2.54)**	**(-3.56)**
BONUS×CONS	**0.0817***	**0.1299****	**0.0929*****
	(1.92)	**(1.97)**	**(2.72)**
DELTACFO	**-0.0000**	**0.0001**	**0.0000**
	(-0.09)	**(0.38)**	**(0.19)**
VEGACFO	**0.0040*****	**0.0030**	**0.0038*****
	(2.73)	**(1.58)**	**(3.08)**
SIZE	-0.5479***	-0.5716***	-0.5757***
	(-4.89)	(-4.22)	(-6.39)
LEV	-0.5970	-1.0385	-1.1131**
	(-0.89)	(-1.40)	(-2.15)
MTB	0.0446*	0.0172	0.0412**
	(1.78)	(0.77)	(2.39)
ROA	-1.0628	-0.7213	-0.9366
	(-1.04)	(-0.76)	(-1.33)
EARNVOL	4.7434***	2.6969**	3.8898***
	(3.80)	(2.05)	(4.24)
ETR	-0.9371**	-0.3320	-0.5713**
	(-2.23)	(-1.00)	(-2.16)
BIGN	0.7089	0.5912	0.6108*
	(1.31)	(1.55)	(1.80)
BETA	0.5832***	-0.1687	0.3297**
	(2.77)	(-0.72)	(2.13)
RET	0.1777**	0.1225	0.2078***
	(2.08)	(1.16)	(2.98)
RETVOL	35.2129***	26.7019**	34.8066***
	(3.11)	(2.40)	(4.08)
RETSKEW	0.0139	-0.0429	-0.0315
	(0.26)	(-0.97)	(-0.90)
TURNOVER	0.1169***	0.0336**	0.0722***
	(6.50)	(2.42)	(6.27)
LITRISK	0.5076	1.5269	1.4689
	(0.40)	(0.55)	(1.23)
FOLLOW	0.7268***	0.8580***	0.8585***
	(4.56)	(4.33)	(6.33)
Year FE	YES	YES	YES
Industry FE	YES	YES	YES

Adjusted R^2	0.3890	0.3040	0.5850
N	7,228	5,611	12,839

Note: This table reports the results of regressing risk disclosures (*RISKDISC*) on accounting conservatism (*CONS*) and several compensation-related variables, including bonus intensity (*BONUS*), CFO's pay sensitivity to the firm's stock price (*DELTACFO*), and CFO's pay sensitivity to the firm's stock volatility (*VEGACFO*), as well as the interaction between *BONUS* and *CONS*. All variables are defined in Appendix B2 and Appendix E2. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Fama-French 48-industry fixed effects are included. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

7.4 Conclusion

In this chapter, I examine the effects of executive characteristics and compensation on the relation between accounting conservatism and risk disclosures. Unlike previous chapters, this chapter recognizes that managers, as decision-makers for choices in conservative reporting and risk disclosures, are individuals subject to behavioral biases and self-interest. I test whether and how CEO/CFO overconfidence may affect their decisions in coordinating these two choices. I do not find evidence that this managerial characteristic has an impact on the relation between accounting conservatism and risk disclosures. My second test looks at how executive compensation affects risk disclosure decisions. I find that CFO Vega is positively associated with the level of risk disclosures. This seems to suggest that CFOs understand the positive effect of risk disclosures on stock return volatility. Quite puzzlingly, I find that when cash bonuses make up a greater portion of executive compensation, managers make a smaller trade-off between accounting conservatism and risk disclosures. Taken together, these results suggest that the interaction among executive compensation, accounting conservatism, and risk disclosures is more complex than it appears.

Chapter 8

Stock Market Consequences of Trade-offs between Accounting Conservatism and Risk Disclosures

8.1 Introduction

My results in previous chapters suggest that firms trade off accounting conservatism and risk disclosures, and such trade-offs seem to be motivated by incentives for reducing the overall reporting cost related to the two accounting choices. If this is the case, then such strategies should be welcomed by investors. On the other hand, such trade-offs could reduce the amount of information available to investors, making it harder for investors to assess business risks and uncertainties faced by the firm. Mangers may abuse such strategies and lower the transparency about firms' risks and uncertainties. If this is the case, then investors would react negatively. For example, managers may excessively delay the recognition of bad news and try to cover the ground through risk disclosures. Investors and other financial statement users may eventually detect conflicting signals between quantitative numbers and qualitative disclosures and would question the credibility of the information (Henry 2008; Baginski et al. 2016; D'Augusta and DeAngelis 2020). Therefore, it is not clear, ex-ante, how investors would react to firms' trade-offs between these two accounting choices.

To understand the consequences of trade-offs between accounting conservatism and risk disclosures, I perform stock returns analyses similar to Frank, Lynch and Rego (2009). These authors investigate the relation between financial reporting aggressiveness and tax reporting aggressiveness. For qualitative disclosures, a few studies conduct market tests in similar veins to explore the pricing implication of the interaction between hard accounting numbers and soft qualitative disclosures. For example, Baginski et al. (2016) find that hard accounting information

helps market participants better price qualitative disclosures. D'Augusta and DeAngelis (2020) document that conservative reporting helps investors see through managers' manipulation of linguistic tone in MD&A disclosures.

For my analyses, I calculate cumulative abnormal returns over several windows from 10-K filing dates, ranging from 30 days to 240 days. I stop at 240 days to avoid the confounding effect of the announcement and filing of next year's financial results. With approximately 252 trading days in a year, firms are close to announcing their earnings for the next reporting period at the 240^{th} trading day from their 10-K filing dates. Prior research finds that it takes a long time for investors to interpret and react to the information in 10-K filings (You and Zhang 2009). However, there is no consensus over how long it takes for the information to be fully reflected in stock prices. Kravet and Muslu (2013) examine the informativeness of risk disclosures using a window of 60 trading days after 10-K filing. D'Augusta and DeAngelis (2020) test the pricing implications of accounting conservatism and abnormal tones for windows from three months to as long as 36 months after 10-K filing. A window of 240 days should be long enough for investors to interpret the disclosures and revise their expectations. Using a longer window increases the risk of subjecting the results to confounding effects of other firm disclosures.

Based on these cumulative abnormal returns, I examine how the stock market prices the relation between accounting conservatism and risk disclosures. I rank firm-years into quintiles based on their levels of accounting conservatism and risk disclosures and analyze stock returns of these firms in ways similar to Sloan (1996), Xie (2001) and Frank, Lynch and Rego (2009). This process classifies firm-years into a 5-by-5 matrix, that is, 25 portfolios. Those firm-year observations on or close to the diagonal show a more complementary relation between accounting conservatism and risk disclosures. Those far off the diagonal show a more substitutive relation. I

test how the stock market values firms with different strategies in the coordination of conservative reporting and risk disclosures.

8.2 Distribution of Firm Years based on Quintiles of Accounting Conservatism and Risk Disclosures

Table 8-1 presents the frequencies of firm-years for each quintile combination of accounting conservatism and risk disclosures for the entire sample period. Because I rank firms annually by Fama-French 12 industries, there is a slight difference in the sum of frequencies across the five quintiles. Firm-years in cells far off the diagonal (e.g., those highlighted in yellow) exhibit a more substitutive relation between conservative reporting and risk disclosures. Those on the diagonal (highlighted in green) exhibit a more complementary relation. If the distribution of firm-years were random across all quintile combinations, we would observe an equal number of firm-years in each cell, approximately 2,150 (53,799/25). Q5Q5 on the diagonal has 1,943 firm-year observations, the smallest among all cells, suggesting that fewer firms provide accounting conservatism and risk disclosures both at very high levels. On the contrary, Q1Q1 has the largest number of observations (2,325), suggesting that a large number of firms have low levels in both accounting conservatism and risk disclosures. Overall, there is no clear pattern in where those over-represented cells are located in the matrix.

The distribution of firm-years does not show noticeable patterns in the matrix for the period before 2005 or after 2005. For brevity, I do not tabulate the numbers separately for these two sample periods.

Table 8-1: Distribution of Firm-Years across Quintile Combinations of Accounting Conservatism and Risk Disclosures

Conservatism Quintiles	Risk Disclosures Quintiles: Q1	Q2	Q3	Q4	Q5	Total
Q1	2,325	2,153	2,065	2,076	2,233	10,852
Q2	2,157	2,130	2,189	2,090	2,191	10,757
Q3	2,126	2,128	2,138	2,184	2,176	10,752
Q4	2,102	2,153	2,188	2,207	2,107	10,757
Q5	2,158	2,203	2,174	2,183	1,943	10,661
Total	10,868	10,767	10,754	10,740	10,650	53,779

Note: This table provides the distribution of firm-year observations across each combination of conservatism quintile and risk disclosures quintile for the entire sample period. Q1 is the lowest quintile and Q5 the highest quintile. For example, the number in cell Q1Q5 indicates that there are 2,233 firm-year observations for which the level of accounting conservatism is in the first quintile (Q1) and the level of risk disclosures in the fifth quintile (Q5). Firms are ranked annually by Fama-French 12 industries independently based on the levels of accounting conservatism and risk disclosures.

8.3 Regression Results

To explore how investors interpret the relation between accounting conservatism and risk disclosures, I conduct additional analysis by regressing cumulative abnormal returns on quintiles of conservatism and risk disclosures, the interaction between them, and variables that affect stock returns according to prior research. This analysis is similar to stock return tests in Hanlon (2005) and Frank, Lynch and Rego (2009). I use the following model for this test:

$$CAR_{i,t+1} = \alpha_0 + \boldsymbol{\beta_1} QuinCons_{it} + \boldsymbol{\beta_2} QuinRisk_{it} + \boldsymbol{\beta_3} HIGH_{it} + \beta_4 QuinSize_{it} + \beta_5 QuinMTB_{it} + \beta_6 QuinCFO_{it} + \beta_7 QuinPE_{it} + \varepsilon_{it} \quad (8\text{-}1)$$

The dependent variable, *CAR*, is the cumulative abnormal return over windows from 30 days to as long as 240 days since 10-K filing, at a 30-day interval. For example, the 240-day CAR is the abnormal return cumulated over [0, 240], where "0" indicates the 10-K filing date. I estimate the CARs using the Fama-French 3-factor model plus momentum. *QuinCons* is the quintile rank

based on the composite conservatism measure at year *t*. *QuinRisk* is the quintile rank based on the risk disclosures measure at year *t*. *QuinSize*, *QuinMTB*, *QuinCFO*, and *QuinPE* are the quintile ranks based on size, market-to-book (MTB) ratio, cash flow from operations (CFO), and price-to-earnings (PE) ratio at year *t*. All quintile variables are ranked annually by Fama-French 12 industries. I do not include the year and industry fixed effects for this reason.

For each firm-year, *HIGH* is set to one when the absolute difference between *QuinCons* and *QuinRisk* is greater than or equal to three and set to zero when *QuinCons* and *QuinRisk* are equal. In other words, the high trade-off group (HIGH=1) consists of firm-year observations in the yellow cells in Table 8-1 and the low trade-off group (HIGH=0) corresponds to the green cells.[46] The high (low) group exhibits a more substitutive (complementary) relation between accounting conservatism and risk disclosures.

To find out how the market reacts to trade-offs between accounting conservatism and risk disclosures, I run regressions using the model in Equation 8-1. Table 8-2 provides the regression results for several observation windows across three sample periods. If the expected return model (for estimating abnormal returns) and the additional control variables fully capture non-diversifiable risks, then there should be no loading on β_1, β_2, and β_3 in Equation 8-1, assuming investors properly impound the information of conservatism and risk disclosures into stock prices. The coefficients on conservatism (β_1) are not significant, except for the 90-day window before 2005. This suggests that investors overall correctly interpret the implication of accounting conservatism. The coefficients on risk disclosures (β_2) are negative and significant for 30-day, 60-day, and 90-day windows for the period before 2005. This suggests that risk disclosures provide additional information not captured by conventional risk factors.

[46] To increase the power of test, I exclude firm-year observations in other cells from the analysis.

For the period before 2005 when risk disclosures were voluntary, the coefficients on *HIGH* for high trade-off firms are negative but not significant for any observation window. This suggests that the market fully anticipates such a strategy when risk disclosures were voluntary. For the period after 2005 when risk disclosures became mandatory, the coefficients on *HIGH* are negative and significant for most observation windows. At the end of the 240-day period, the coefficient on *HIGH* is no longer significant. This suggests that investors initially interpret the trade-off between conservative reporting and risk disclosures as sending a negative signal, for the period when risk disclosures have become mandatory. In earlier chapters, I find that the SEC's regulation on risk factor disclosures in 2005 overall constrains managers' ability to trade off conservative reporting and risk disclosures. Investors appear to initially punish firms that trade off these two choices, for the period after 2005 when firms are expected to provide more complementary information about business uncertainties as required by the securities regulator. It takes the stock market approximately 210 days to understand the implication of such trade-offs. After about 210 trading days, the stock market reverses the earlier negative reaction to the high trade-off group relative to the low group. The stock return trajectory of the high group suggests that firms should provide more complementary information between conservative reporting and risk disclosures so that investors can more quickly assess risks and uncertainties faced by firms.

To provide the full time-series of data, I plot the cumulative abnormal returns (CARs) over the entire observation window for the period after 2005 in Figure 4, since the regression analysis shows that there is a significant difference in stock returns between the high and low trade-off groups for this period. The horizontal axis represents the days relative to 10-K filing and the vertical axis represents the CARs. The yellow curve shows the CARs of the high trade-off group (HIGH=1) and the green curve shows those of the low group (HIGH=0). The red curve shows the

difference in CARs between the two groups of firms. The high trade-off firms underperform the low trade-off firms throughout the first 100 days after 10-K filing. After that, the high trade-off firms catch up and overtake the low trade-off firms in abnormal returns. Towards the end of the observation window, there is no noticeable difference in returns between the two groups of firms. The pattern is largely in line with the earlier regression analysis, except that the reversal of the high group's returns relative to the low group occurs much earlier than that indicated by the regression result.

In Chapter 4, I find that firms do not exhibit a trade-off between accounting conservatism and risk disclosures after risk disclosures became mandatory in 2005. The results in this chapter suggest that investors prefer more complementary information, i.e., less trade-off between accounting conservatism and risk disclosures. If the tendency for reduced trade-offs between the two accounting choices in the post-2005 period is due to the SEC's regulation that constrains firms' flexibility in making such trade-offs, then investors' negative reaction documented in this chapter may indicate that the regulation is beneficial to investors and leads to a positive outcome from the perspectives of the stock market. However, my tests do not consider all social costs and benefits of the regulation, and are not able to draw conclusions on the net cost or net benefit of the regulation.

Table 8-2: Stock Market Reactions to Trade-offs between Accounting Conservatism and Risk Disclosures

Panel A: Windows over 30 days ([0, 30]) and 60 days ([0, 60]) from 10-K filing

	Window = 30 Days			**Window = 60 Days**		
DV=CAR	Before-2005	After-2005	All-Years	Before-2005	After-2005	All-Years
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	-2.4257***	-0.3533	-1.6076***	-2.8662**	-0.6652	-1.9287**
	(-3.09)	(-0.56)	(-3.10)	(-2.56)	(-0.67)	(-2.52)
QuinCons	0.0911	0.0910	0.1107	0.0154	0.2181	0.1270
	(0.87)	(1.06)	(1.58)	(0.10)	(1.61)	(1.23)
QuinRisk	**-0.2039****	0.0183	-0.0843	**-0.3125****	0.0713	-0.1234
	(-2.22)	(0.27)	(-1.45)	**(-2.43)**	(0.67)	(-1.45)
HIGH	-0.3006	**-0.4604****	**-0.4137****	-0.2600	-0.5505	-0.4892*
	(-1.06)	**(-2.15)**	**(-2.28)**	(-0.64)	(-1.62)	(-1.82)
QuinSize	1.4772***	0.5452***	1.0309***	2.1895***	1.3153***	1.7483***
	(11.67)	(5.61)	(12.51)	(11.87)	(8.53)	(14.28)
QuinMTB	-1.8314***	-1.2803***	-1.5729***	-3.2922***	-1.9923***	-2.7201***
	(-15.21)	(-13.80)	(-20.27)	(-18.83)	(-13.73)	(-23.42)
QuinCFO	0.6458***	0.5187***	0.6044***	1.0675***	0.4553***	0.8460***
	(6.09)	(5.76)	(8.42)	(6.89)	(3.06)	(7.78)
QuinPE	0.1052	0.0540	0.0943	0.0539	-0.2722**	-0.0800
	(0.97)	(0.63)	(1.33)	(0.35)	(-2.05)	(-0.77)
Adjusted R^2	0.028	0.021	0.024	0.039	0.022	0.031
N	11,938	10,229	22,167	11,904	10,217	22,121

Table 8-2: Stock Market Reactions to Trade-offs between Accounting Conservatism and Risk Disclosures (Continued)

Panel B: Windows over 90 days ([0, 90]) and 120 days ([0, 120]) from 10-K filing

	Window = 90 Days			**Window = 120 Days**		
DV=CAR	Before-2005	After-2005	All-Years	Before-2005	After-2005	All-Years
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	-5.0467***	-1.1385	-3.4008***	-4.2048**	-1.0212	-2.8778**
	(-3.55)	(-0.93)	(-3.48)	(-2.46)	(-0.65)	(-2.41)
QuinCons	**0.4236****	0.2238	**0.3687*****	0.1020	0.0565	0.1169
	(2.24)	(1.34)	**(2.82)**	(0.45)	(0.27)	(0.74)
QuinRisk	**-0.3854****	0.1814	-0.1076	-0.2937	0.1350	-0.0662
	(-2.39)	(1.38)	(-0.99)	(-1.51)	(0.80)	(-0.50)
HIGH	-0.7152	**-1.0206****	**-1.0093*****	-0.8664	**-1.2062****	**-1.2196*****
	(-1.41)	**(-2.40)**	**(-2.97)**	(-1.43)	**(-2.23)**	**(-2.95)**
QuinSize	3.1850***	1.6313***	2.4047***	3.8604***	2.0180***	2.9201***
	(13.88)	(8.59)	(15.62)	(13.97)	(8.26)	(15.44)
QuinMTB	-4.6986***	-2.6649***	-3.7948***	-5.6421***	-3.3342***	-4.5963***
	(-21.41)	(-14.27)	(-25.49)	(-21.08)	(-14.28)	(-25.02)
QuinCFO	1.7059***	0.6091***	1.3031***	1.4901***	0.6298***	1.1965***
	(8.79)	(3.27)	(9.51)	(6.35)	(2.70)	(7.13)
QuinPE	-0.3895*	-0.2678	-0.3120**	-0.5723**	-0.1000	-0.3281**
	(-1.90)	(-1.61)	(-2.31)	(-2.36)	(-0.48)	(-2.01)
Adjusted R^2	0.050	0.024	0.038	0.048	0.023	0.036
N	11,827	10,180	22,007	11,737	10,170	21,907

Table 8-2: Stock Market Reactions to Trade-offs between Accounting Conservatism and Risk Disclosures (Continued)

Panel C: Windows over 150 days ([0, 150]) and 180 days ([0, 180]) from 10-K filing

	Window = 150 Days			**Window = 180 Days**		
DV=CAR	Before-2005	After-2005	All-Years	Before-2005	After-2005	All-Years
	(1)	(2)	(3)	(1)	(3)	(3)
Constant	-5.2276***	-0.2043	-3.0506**	-5.9851***	-1.5478	-4.0596***
	(-2.69)	(-0.11)	(-2.25)	(-2.84)	(-0.78)	(-2.74)
QuinCons	0.1406	-0.0365	0.0998	0.1332	-0.1135	0.0557
	(0.54)	(-0.15)	(0.55)	(0.47)	(-0.42)	(0.28)
QuinRisk	-0.2312	0.1466	-0.0183	-0.4201*	0.1087	-0.1373
	(-1.05)	(0.77)	(-0.12)	(-1.79)	(0.52)	(-0.85)
HIGH	-1.0677	**-1.7805*** **	**-1.6334*** **	-1.0894	**-2.1784*** **	**-1.8434*** **
	(-1.56)	**(-2.90)**	**(-3.48)**	(-1.47)	**(-3.17)**	**(-3.56)**
QuinSize	4.3238***	2.1218***	3.2108***	4.9216***	2.8614***	3.8613***
	(14.04)	(7.88)	(15.26)	(14.64)	(9.29)	(16.47)
QuinMTB	-6.1552***	-3.8397***	-5.0966***	-7.2642***	-4.6283***	-6.0594***
	(-20.61)	(-14.73)	(-24.84)	(-22.35)	(-15.69)	(-27.03)
QuinCFO	1.4323***	0.6930***	1.1885***	1.6160***	1.0328***	1.4680***
	(5.29)	(2.61)	(6.20)	(5.56)	(3.49)	(7.01)
QuinPE	-0.7503***	-0.1171	-0.4319**	-0.5910**	-0.2587	-0.4204**
	(-2.72)	(-0.48)	(-2.30)	(-1.96)	(-0.94)	(-2.02)
Adjusted R^2	0.045	0.023	0.034	0.050	0.028	0.040
N	11,629	10096	21,725	11,470	9,951	21,421

Table 8-2: Stock Market Reactions to Trade-offs between Accounting Conservatism and Risk Disclosures (Continued)

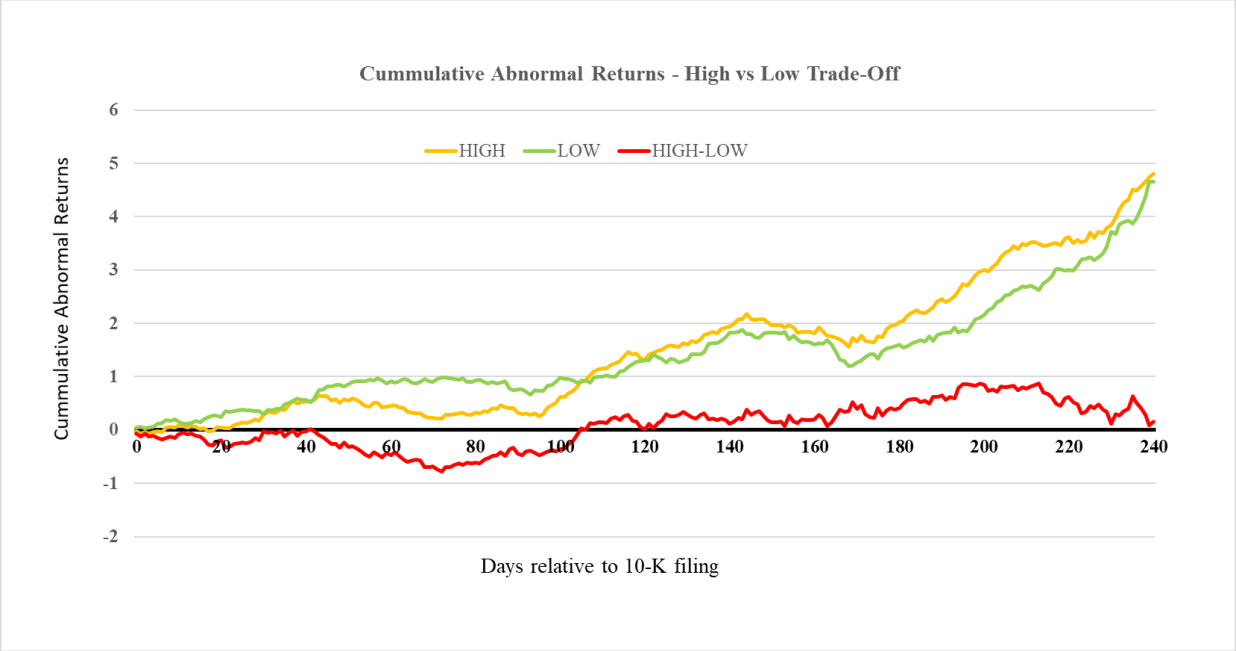
Panel D: Windows over 210 days ([0, 210]) and 240 days ([0, 240]) from 10-K filing

	Window = 210 Days			**Window = 240 Days**		
DV=CAR	Before-2005	After-2005	All-Years	Before-2005	After-2005	All-Years
	(1)	(2)	(3)	(1)	(2)	(3)
Constant	-2.9842	2.0283	-0.7975	-1.2731	4.0958*	0.9718
	(-1.28)	(0.94)	(-0.48)	(-0.49)	(1.72)	(0.53)
QuinCons	0.1741	-0.2189	0.0351	0.2652	-0.4045	0.0029
	(0.55)	(-0.74)	(0.16)	(0.77)	(-1.26)	(0.01)
QuinRisk	**-0.5174****	0.0911	-0.2000	**-0.6344****	-0.0080	-0.3175
	(-1.97)	(0.40)	(-1.12)	**(-2.21)**	(-0.03)	(-1.64)
HIGH	-0.7539	**-1.9296*****	**-1.5784*****	-0.2099	-1.4842*	-1.0316*
	(-0.92)	**(-2.61)**	**(-2.81)**	(-0.23)	(-1.86)	(-1.68)
QuinSize	4.9451***	2.6074***	3.7377***	5.8850***	3.4714***	4.6663***
	(13.25)	(7.78)	(14.34)	(14.46)	(9.75)	(16.62)
QuinMTB	-8.1697***	-4.8532***	-6.6590***	-9.1307***	-5.7651***	-7.6210***
	(-22.77)	(-14.90)	(-26.78)	(-23.10)	(-16.41)	(-27.99)
QuinCFO	1.5944***	0.6104*	1.2915***	1.4059***	0.6122*	1.2063***
	(4.92)	(1.90)	(5.58)	(3.96)	(1.77)	(4.77)
QuinPE	-0.8044**	-0.4981	-0.6467***	-1.1335***	-1.0030***	-1.0608***
	(-2.42)	(-1.64)	(-2.81)	(-3.08)	(-3.05)	(-4.16)
Adjusted R2	0.052	0.026	0.039	0.054	0.034	0.044
N	11,316	9,803	21,119	11,148	9,288	20,436

Table 8-2: Stock Market Reactions to Trade-offs between Accounting Conservatism and Risk Disclosures (Continued)

Note: This table provides the results for regressing Cumulative Abnormal Returns (CARs) on the quintiles of accounting conservatism and risk disclosures, and the interaction between them. The CARs are cumulated over the period from the 10-K filing date to the days indicated by the windows at the top of each column. For example, "Window = 30 Days" indicates that the abnormal return is cumulated over [0, 30], where "0" represents the 10-K filing date. *QuinCons* is the quintile rank of conservatism. *QuinRisk* is the quintile rank of risk disclosures. *HIGH* is coded as one when the absolute difference between *QuinCons* and *QuinRisk* is greater than or equal to three and as zero when *QuinCons* and *QuinRisk* are equal. *QuinSize*, *QuinMTB*, *QuinCFO* and *QuinPE* are the quintile ranks of firm size, Market-to-Book (MTB) ratio, and Cash flow from operations (CFO), and price-to-earnings (PE) ratio respectively. All quintiles are ranked annually by Fama-French 12 industries. All variables are defined in Appendix F1. Column (1) is for the period before fiscal year 2005, Column (2) for the period after 2005, and Column (3) for the entire period. Coefficients that are significant at 5% levels are bolded for *QuinCons*, *QuinRisk*, and *HIGH*. Influential observations with an absolute R-Student value greater than two are removed, accounting for 4.5%, 3.7%, and 4.10% of all observations respectively for pre-2005, post-2005, and all-years. The t-statistics are reported in parentheses below the coefficients, with robust standard errors clustered at the firm level. *, **, *** indicate significance at 10%, 5% and 1% respectively (2-tailed).

Figure 4: Cumulative Abnormal Returns for High and Low Trade-off Firms



Note: This figure shows the cumulative abnormal returns (CARs) from 10-K filing for firms with high and low trade-off between accounting conservatism and risk disclosures for the period after 2005. The horizontal axis represents the days relative to 10-K filing, where "0" marks the 10-K filing date. The vertical axis represents the CARs in percentage. The yellow curve represents the CARs of the HIGH trade-off group, defined as firm-years with the absolute difference between quintile ranks of conservatism and risk disclosures greater than or equal to three. The green curve represents the CARs of the LOW trade-off group, defined as firm-years with the same ranks in conservatism and risk disclosure quintiles. The red curve shows the difference in CARs between the HIGH group and LOW groups (HIGH-LOW).

8.4 Conclusion

This chapter explores the stock market consequences of trade-offs between accounting conservatism and risk disclosures. I find that the market fully anticipated firms to trade off conservative reporting and risk disclosures in the period when risk disclosures were voluntary. However, after the SEC mandated risk factor disclosures in 10-Ks, investors appear to expect firms to provide more complementary information between conservative accounting numbers and risk disclosures. In the period of mandatory risk disclosures, firms that engage more in trade-offs between the two accounting choices initially have lower abnormal returns. It takes more than 210

trading days for investors to understand the implication of such trade-offs. Overall, the evidence in this chapter suggests that it is beneficial for firms to provide more complementary information in conservative reporting and risk disclosures so that investors can quickly assess the risks and uncertainties faced by firms.

Chapter 9

Conclusion

This study examines the relation between conservative reporting and textual risk disclosures in 10-K filings. I hypothesize that managers treat these two accounting choices as substitutes to reduce the overall reporting and disclosure costs associated with communicating business uncertainties since both of the two choices can achieve this objective. Using a large sample of U.S. firms over fiscal years from 1995 to 2018, I find a negative relation between accounting conservatism and risk disclosures when qualitative risk disclosures were voluntary in years before 2005, suggesting that managers trade off these two choices before the SEC mandated risk disclosures. I further find that the negative relation is stronger when firms are planning for equity offerings, are closer to debt covenant violations, face greater proprietary cost, or have greater needs for debt financing. Under each of these conditions, managers have greater incentives to make such trade-offs, because one of the two choices becomes more cost-effective relative to the other for communicating business uncertainties. The negative relation does not hold for the period after 2005 when risk disclosures became mandatory. I contend that the lack of results in the post-2005 period is likely because the SEC's regulation sets a lower bound in the level of risk disclosures and thus constrains managers' ability to trade off these two accounting choices. Using the SEC's regulation as an exogenous shock that increases the level of risk disclosures, I find some evidence that firms reduced the level of conservative reporting in response to the regulation. This evidence is consistent with my main finding that managers see conservative reporting and risk disclosures as substitutes.

Additional analyses show that the substitutive relation is weakened when firms face greater litigation risk or are followed by more financial analysts. While I do not find a significant trade-

off for the full sample in the post-2005 period, my conditioning analyses show that firms with lower litigation risk or analyst following still exhibit a negative relation between accounting conservatism and risk disclosures even after the SEC mandated risk disclosures. Overall, my results suggest that regulatory oversight mitigates but does not eliminate managers' ability to trade off these two choices when firms face a lower level of monitoring by shareholders or financial analysts.

Although prior research suggests that managers, as individuals, are subject to behavioral biases and are driven by self-interest, I do not find executive overconfidence or compensation has a significant impact on their coordination of conservative reporting and risk disclosures. Overconfident managers do not appear to supply accounting conservatism and risk disclosures in a more complementary manner, contrary to prior studies which imply that their overoptimism would lead to lower levels of both accounting conservatism and risk disclosures (Ahmed and Duellman 2013; Hribar and Yang 2016). For equity incentives, I find that the Vega of CFO's equity holdings is positively associated with the level of risk disclosures. This is consistent with the argument that CFOs understand the implication of risk disclosures in that an increase in risk disclosures may lead to greater stock return volatility (Kravet and Muslu 2013). Managers benefit more from an increase in volatility when the value of their equity holdings is more sensitive to stock volatility (i.e., having a greater Vega).

Finally, I examine the stock market implications of the trade-off between accounting conservatism and risk disclosures. I do not find a significant difference in stock returns between firms that make greater or smaller trade-offs in the period when risk disclosures were voluntary. This is consistent with the notion that investors expected managers to make such trade-offs when risk disclosures were at the full discretion of managers. After the risk disclosures became

mandatory, I find that firms appearing to have engaged in more trade-offs between these two accounting choices initially have lower stock returns relative to those firms that have provided more complementary information in conservative accounting numbers and risk disclosures. This result suggests that investors react negatively to trade-offs between conservative reporting and risk disclosures when the SEC has expressly required firms to be more transparent in risk disclosures. Investors appear to interpret a high level of trade-offs in the post period as a signal about firms' high business uncertainties.

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Appendices

Appendix A: Appendix for Chapter 2

Appendix A1
Sample Risk Disclosures

Sample 1:

Part of this portfolio includes minority equity investments in several publicly traded companies, the values of which are subject to market price volatility. For example, as a result of market price volatility of our publicly traded equity investments, we experienced a $5.76 billion ($3.81 billion, net of tax) decrease in net unrealized gains during fiscal 2001 on these investments. As of July 28, 2001, our publicly traded equity investments had gross unrealized losses of $784 million. Recent events have adversely affected the public equities market and general economic conditions may continue to worsen. As a result, subsequent to fiscal 2001, we may recognize in earnings declines in fair value of our publicly traded equity investments below the cost basis that are considered to be other-than-temporary. (CISCO SYSTEMS INC, filed on September 24, 2001)

Sample 2:

For the fourth quarter of fiscal 2010, we recognized an impairment loss of approximately $37.4 million on goodwill allocated to the Hardware, software and related technology sales segment as a result of deteriorating trading conditions of this segment, particularly at Net1 UTA, and uncertainty surrounding contract finalization dates which will impact future cash flows. A further deterioration in the Hardware, software and related technology sales segment, or in any other of our businesses, may lead to additional impairments in future periods. (NET 1 UEPS TECHNOLOGIES INC., filed on August 25, 2011)

Sample 3:

Our sales to branches, agencies and departments of the US government and their contractors were $304.3 million (17.4% of consolidated sales) in fiscal 2018 (See Note 13 of Notes to Consolidated Financial Statements). The majority of our US government sales is for products and services supporting DoD logistics and mobility strategy and is, therefore, subject to changes in defense and other governmental agency funding and spending. Our contracts with the US government and their contractors are typically agreements to provide products and services at a fixed price and have a term of one year or less, frequently subject to extension for one or more additional periods of one year at the option of the government customer. Sales to agencies of the US government and their contractors are subject to a number of factors, including the level of troop deployment worldwide, competitive bidding, US government funding, requirements generated by world events, and budgetary constraints. (AAR CORP., filed on July 11, 2018)

Appendix A2

Sample Risk Factor Summary

Our business is subject to numerous risks and uncertainties that represent challenges that we face in connection with the successful implementation of our strategy and the growth of our business. In particular, the following considerations, among others, may offset our competitive strengths or have a negative effect on our business strategy or operating results, which could cause a decline in the price of shares of our common stock:

- The COVID-19 pandemic adversely affected our business in 2020. The extent to which COVID-19 will impact our future operations is highly uncertain and cannot be predicted at this time;
- Our business and operating results may be significantly impacted by general economic conditions, the health of the U.S. residential real estate industry and risks associated with our real estate assets;
- We have a history of losses, and we may not achieve or maintain profitability in the future;
- We operate in a competitive and fragmented industry, which could impair our ability to attract users of our products, which could harm our business, results of operations and financial condition;
- We have identified a material weakness in our internal control over financial reporting and may identify additional material weaknesses in the future or fail to maintain an effective system of internal control over financial reporting, which may result in material misstatements of our consolidated financial statements or cause us to fail to meet our periodic reporting obligations;
- Our business is dependent upon access to desirable inventory. Obstacles to acquiring attractive inventory, whether because of supply, competition, or other factors may have a material adverse effect on our business, sales and results of operations;
- We operate in a highly regulated industry and are subject to a wide range of federal, state and local laws, rules and regulations. Failure to comply with these laws, rules and regulations or to obtain and maintain required licenses, could adversely affect our business, financial condition and results of operations;
- Our growth depends in part on the success of our strategic relationships with third parties;
- We process, store and use personal information and other data, which subjects us to governmental regulation and other legal obligations related to privacy, and violation of these privacy obligations could result in a claim for damages, regulatory action, loss of business, or unfavorable publicity; and
- We utilize a significant amount of debt and financing arrangements in the operation of our business, and so our cash flows and operating results could be adversely affected by required payments of debt or related interest and other risks of our debt financing.

(OPENDOOR TECHNOLOGIES INC, filed on March 04, 2021)

Appendix B: Appendix for Chapter 4

Appendix B1

Procedures to Construct Risk Disclosure Measures

I take the following steps to download and parse 10-K filings and construct textual risk measures.

Step 1: Download 10-K filings

Downloading 10-K filings involves three sub-steps.

Step 1.1: Download the crawler index files from the SEC's website. The index files contain the company name, form type, CIK number, filing date, and URL of each filing. The SEC provides a separate index file for all filings submitted to the EDGAR database in each calendar quarter. For example, the index file for Q4 2020 is located at https://www.sec.gov/Archives/edgar/full-index/2020/QTR4/crawler.idx. The screenshot in Figure 2 shows part of the index file for this quarter. The file contains the information for all types of forms. The form type for annual reports is "10-K".

Figure 2: Crawler Index of SEC Filings

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Description:           Crawler Index of EDGAR Dissemination Feed by Company Name
Last Data Received:    December 31, 2020
Comments:              webmaster@sec.gov



Company Name                                                  Form Type   CIK         Date Filed  URL
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'Merican Mule, Inc.                                           D           1833137     2020-12-02  https://www.sec.gov/Archives/edgar/data/1833137/0001833137-20-000002-index.htm
1 800 FLOWERS COM INC                                         10-Q        1084869     2020-11-06  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-022923-index.htm
1 800 FLOWERS COM INC                                         3           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025162-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-10-14  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021140-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-10-16  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021206-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-10-20  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021306-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-10-22  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021459-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-10-28  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021775-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-03  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-022332-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-03  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-022351-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023184-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023188-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023191-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023193-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023196-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023211-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023219-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023247-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-09  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-023264-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-11-23  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-024312-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-07  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-024931-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025163-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025167-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025169-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025175-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025178-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025181-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025183-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025191-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-11  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-025198-index.htm
1 800 FLOWERS COM INC                                         4           1084869     2020-12-21  https://www.sec.gov/Archives/edgar/data/1084869/0001140361-20-029006-index.htm
1 800 FLOWERS COM INC                                         8-K         1084869     2020-10-29  https://www.sec.gov/Archives/edgar/data/1084869/0001157523-20-001376-index.htm
1 800 FLOWERS COM INC                                         8-K         1084869     2020-12-10  https://www.sec.gov/Archives/edgar/data/1084869/0001157523-20-001582-index.htm
1 800 FLOWERS COM INC                                         8-K/A       1084869     2020-10-19  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021273-index.htm
1 800 FLOWERS COM INC                                         8-K/A       1084869     2020-10-29  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021941-index.htm
1 800 FLOWERS COM INC                                         DEF 14A     1084869     2020-10-26  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021591-index.htm
1 800 FLOWERS COM INC                                         DEFA14A     1084869     2020-10-26  https://www.sec.gov/Archives/edgar/data/1084869/0001437749-20-021592-index.htm
1 800 FLOWERS COM INC                                         SC 13D/A    1084869     2020-12-28  https://www.sec.gov/Archives/edgar/data/1084869/0001140361-20-029560-index.htm
1 800 FLOWERS COM INC                                         SC 13D/A    1084869     2020-12-28  https://www.sec.gov/Archives/edgar/data/1084869/0001140361-20-029563-index.htm
1 800 FLOWERS COM INC                                         SC 13G      1084869     2020-11-04  https://www.sec.gov/Archives/edgar/data/1084869/0000814133-20-000064-index.htm
1-10 Logistics Center, LLC                                    D           1834322     2020-12-01  https://www.sec.gov/Archives/edgar/data/1834322/0001834322-20-000001-index.htm
1-10 Logistics Center, LLC                                    D/A         1834322     2020-12-10  https://www.sec.gov/Archives/edgar/data/1834322/0001832287-20-000003-index.htm
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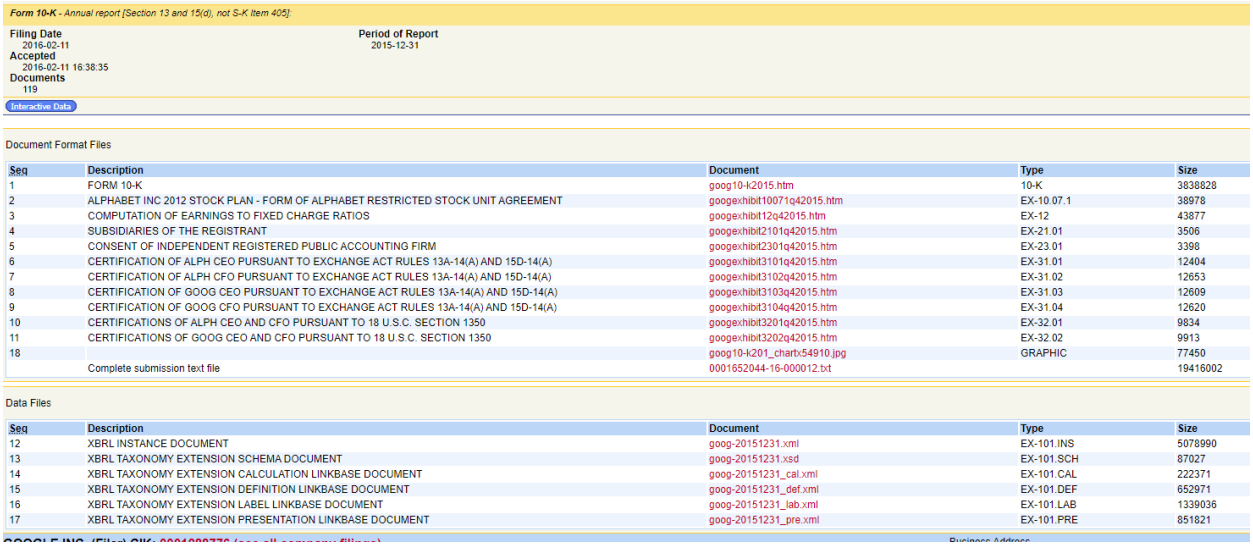
The SEC offers another type of index file. This second type of index file provides the URL for the complete text submission file of each filing. The complete submission file packages in a single text file the key component of the filing as well as all the related appendices and attachments. Prior studies usually collect URLs from this type of index file and download the complete submission files of 10-K filings. The advantage is that the URLs from this type of index file are links to the actual filings and they can be used

directly to download the needed filings. For example, the following link provides access to the complete text file of a 10-K:
https://www.sec.gov/Archives/edgar/data/1288776/000165204416000012/0001652044-16-000012.txt

The disadvantage is that the complete submission file contains many unnecessary contents, for example, XBRL tags and other attachments, which are not useful for constructing textual measures. It is much larger and takes longer to pre-process.

Step 1.2: Extract the URLs for 10-Ks in the HTML format. The URLs from the previous step provide access to the so-called crawler webpages, as shown in Figure 3. A crawler webpage provides the URL link for the 10-K filing in the HTML format (Seq 1, "FORM 10-K") as well as those for exhibits, graphic attachments, and XBRL files. For my analysis, I am interested only in the disclosures in the main body of the 10-K, same as many prior studies using 10-Ks. It is more efficient to download and process 10-Ks packaged in the HTML format.

Figure 3: Crawler Webpage of a SEC Filing



Form 10-K - Annual report [Section 13 and 15(d), not S-K Item 405]:

Filing Date 2016-02-11 **Period of Report** 2015-12-31
Accepted 2016-02-11 16:38:35
Documents 119

Interactive Data

Document Format Files

Seq	Description	Document	Type	Size
1	FORM 10-K	goog10-k2015.htm	10-K	3838828
2	ALPHABET INC 2012 STOCK PLAN - FORM OF ALPHABET RESTRICTED STOCK UNIT AGREEMENT	googexhibit10071q42015.htm	EX-10.07.1	38978
3	COMPUTATION OF EARNINGS TO FIXED CHARGE RATIOS	googexhibit12q42015.htm	EX-12	43877
4	SUBSIDIARIES OF THE REGISTRANT	googexhibit2101q42015.htm	EX-21.01	3506
5	CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM	googexhibit2301q42015.htm	EX-23.01	3398
6	CERTIFICATION OF ALPH CEO PURSUANT TO EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)	googexhibit3101q42015.htm	EX-31.01	12404
7	CERTIFICATION OF ALPH CFO PURSUANT TO EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)	googexhibit3102q42015.htm	EX-31.02	12653
8	CERTIFICATION OF GOOG CEO PURSUANT TO EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)	googexhibit3103q42015.htm	EX-31.03	12609
9	CERTIFICATION OF GOOG CFO PURSUANT TO EXCHANGE ACT RULES 13A-14(A) AND 15D-14(A)	googexhibit3104q42015.htm	EX-31.04	12620
10	CERTIFICATIONS OF ALPH CEO AND CFO PURSUANT TO 18 U.S.C. SECTION 1350	googexhibit3201q42015.htm	EX-32.01	9834
11	CERTIFICATIONS OF GOOG CEO AND CFO PURSUANT TO 18 U.S.C. SECTION 1350	googexhibit3202q42015.htm	EX-32.02	9913
18		goog10-k201_chart-54910.jpg	GRAPHIC	77450
	Complete submission text file	0001652044-16-000012.txt		19416002

Data Files

Seq	Description	Document	Type	Size
12	XBRL INSTANCE DOCUMENT	goog-20151231.xml	EX-101.INS	5078990
13	XBRL TAXONOMY EXTENSION SCHEMA DOCUMENT	goog-20151231.xsd	EX-101.SCH	87027
14	XBRL TAXONOMY EXTENSION CALCULATION LINKBASE DOCUMENT	goog-20151231_cal.xml	EX-101.CAL	222371
15	XBRL TAXONOMY EXTENSION DEFINITION LINKBASE DOCUMENT	goog-20151231_def.xml	EX-101.DEF	652971
16	XBRL TAXONOMY EXTENSION LABEL LINKBASE DOCUMENT	goog-20151231_lab.xml	EX-101.LAB	1339036
17	XBRL TAXONOMY EXTENSION PRESENTATION LINKBASE DOCUMENT	goog-20151231_pre.xml	EX-101.PRE	851821

I extract the link behind "goog10-k2015.htm" in the above screenshot. This is the URL for the 10-K in the HTML format. I also extract the link for the "Complete submission text file" in case the link for the 10-K in the HTML format is not available. The links for the "Complete submission text file" are readily available in the other type of index file.

Step 1.3: Download 10-K filings using the URLs for HTML files or the URLs for complete submission files when the former is not available.

Step 2: Preprocess 10-K filings

I preprocess 10-K filings by removing exhibits and all tags except for table tags largely following the first-stage parsing procedure of Loughran and McDonald (2011). The detailed procedure is available at https://sraf.nd.edu/data/stage-one-10-x-parse-data/.

One important difference is that I keep all tables and table tags at this stage. The table tags are useful for further cleaning 10-K filings. Another important difference is that I tag the Item headings based on their HTML formatting. The headings are useful for extracting specific sections, e.g., Item 1A, from the 10-K, because they mark the beginning and end of a section.

Another important difference is that I maintain the paragraph structure of a 10-K by replacing HTML tags indicating the start/end of a paragraph with two blank lines. My later sentence tokenization is conducted within each paragraph. This increases the accuracy of sentence tokenization.

Step 3: Clean up 10-K filings.

I further clean up the 10-K filings from the previous steps to make them ready for calculation of textual measures. I first clean up the table of contents. For 10-K filings in the HTML format, I identify the Table of Contents as the table (enclosed in <table> and </table>) with more than ten Item headings. For 10-Ks filed in text format only, I identify the Table of Contents as the block of text that contains more than ten references of "Item" and the total number of characters divided by the number of "Item" references is less than 300.

Then, I remove tables in which more than 15% of characters are digits. I also remove the cover page of the 10-K and the list of exhibits, which are usually included in Item 14 or Item 15. Occasionally, one paragraph is shown on two adjacent pages, separated by a page number. I remove the page number and combine the two partial paragraphs into a single paragraph.

I also remove short paragraphs which have less than 80 characters. These are predominantly headings. Finally, I remove the dots from common abbreviations, for example, "No.", so that the sentence tokenization algorithm will not treat the dot that is part of an abbreviation as a full stop, thus, the end of a sentence.

Step 4: Generate risk disclosure measures.

I tokenize the clean text from the previous step into sentences. I do this within the boundary of each paragraph. To get all the sentences of a 10-K, I collect the sentences from each paragraph. If a sentence contains any of the following keywords, I count the sentence as a risk-related sentence. Then I calculate the risk disclosure measure as the number of risk-related sentences divided by the total number of sentences in a 10-K, and multiplied by 100. These keywords include can/cannot, could, may, might, risk*, uncertain*, likely to, subject to, potential*, vary*/varies, depend*, expos*, fluctuat*, possibl*, susceptible, affect, influenc*, and hedg* (where * denotes suffixes).

I calculate cosine similarity between 10-Ks of two adjacent years using TextDistance. This is a Python library that calculates the text distance between two documents using many different algorithms. More information about this library can be found at https://pypi.org/project/textdistance/.

The cosine similarity is bounded between 0 and 1. A higher value indicates two documents are more similar. Two documents with a similarity of one are considered identical. I further convert the cosine similarity measure into the modification measure as 1 − Cosine similarity. After this transformation, a higher value indicates that the 10-K is more different from that of the previous year. In other words, the firm has made more updates to the 10-K relative to the previous year.

I calculate the specificity measure (Hope et al. 2016) using the Stanford Named Entity Recognizer (NER). I use the 7-category classifier, which classifies named entities into seven categories, including Location, Person, Organization, Money, Percent, Date, and Time. The idea behind this measure is that these specific terms provide concrete information and a greater percentage of such terms in the text indicates that the disclosure is less likely to be boilerplate. More information about this package can be found at https://nlp.stanford.edu/software/CRF-NER.html.

I calculate the fog index by replicating the Perl library, "Lingua::EN::Fathom - Measure readability of English text" (https://metacpan.org/pod/Lingua::EN::Fathom), in Python. Li (2008) uses this Perl library to construct the fog index for one of the earliest major studies on readability in the accounting literature.

Appendix B2

Variable Definitions for Empirical Tests in Chapter 4

The following table provides the definitions of all variables used in empirical tests in Chapter 4.

Variable	*Definition*	*Source*
	Conservatism measures	
CONS	Composite measure of conservatism, equal to the average of annual standardized values of CSCORE, CRATIO, and EARNSKEW	Compustat and CRSP
CSCORE	Annual standardized value of firm-level conservatism measure developed by Khan & Watts (2009), through a linear transformation in the form of [(raw value – annual minimum value)/(annual maximum value – annual minimum value)	Compustat and CRSP
CRATIO	Annual standardized value of firm-level conservatism ratio developed by Callen et al. (2010), through a linear transformation in the form of [(raw value – annual minimum value)/(annual maximum value – annual minimum value)]. When there is a positive shock, the ratio is multiplied by −1, so that the interpretation is consistent with asymmetric timeliness in recognition of bad news. The standardization is conducted separately for positive and negative shocks.	Compustat and CRSP
EARNSKEW	Annual standardized value of (−1) * (Skewness of earnings – skewness of cash flow from operations), where skewness is defined as $E[(x-\mu)^3]/\sigma^3$, and estimated using quarterly data over year *t−4* to *t*, for at least nine quarters' data. The standardization is the same linear transformation as with *CSCORE* and *CRATIO*. When cash flow from operations is not available, it is calculated as Funds from operations − ΔCurrent assets + ΔCurrent liabilities + ΔCash − ΔDebt in current liabilities.	Compustat
	Textual measures	
RISKDISC	The number of sentences containing any of the risk-related keywords per Kravet and Muslu's (2013) word list in the entire 10-K, scaled by the total number of sentences in the entire 10-K, then multiplied by 100	EDGAR
MOD_RISKDISC	1−Cosine similarity between risk-related sentences at year *t* over year *t−1*	EDGAR
	Control variables	
SIZE	Natural log of total assets at fiscal year end	Compustat

MTB	Market to Book ratio, calculated as market value of equity divided by book value of equity at fiscal year end	Compustat
LEV	Financial leverage, calculated as total debts (long-term plus short-term) divided by total assets at end of fiscal year	Compustat
ROA	Net income before extraordinary items, scaled by total average assets	Compustat
EARNVOL	Earning volatility, calculated as the standard deviation of net income scaled by total assets over year *t-5* to year *t-1*	Compustat
ETR	Effective tax rate, calculated as total tax expenses divided by pre-tax income	Compustat
BIGN	Indicator variable set to one for firms with Big N auditors and zero otherwise	Compustat
BETA	Stock return beta estimated over the 12-month period ending three months after the fiscal year-end	CRSP
RET	Buy-and-hold return over the 12-month period ending three months after fiscal year end	CRSP
RETVOL	Standard deviation of stock return over the 12-month period ending three months after fiscal year end	CRSP
RETSKEW	Skewness of stock return over the 12-month period ending three months after the fiscal year-end	CRSP
TURNOVER	Average daily stock turnover over the 12-month period ending three months after fiscal year end	CRSP
LITRISK	Litigation risk for a firm-year estimated using the coefficients from Table 7, model (2), of Kim and Skinner (2012).	Compustat and CRSP
FOLLOW	Log(1 + number of analysts providing estimates at the last month of the fiscal year)	IBES
	Additional variables for Equation 4-5 and Equation 4-6	
POST	Indicator variable set to one for firm-years where 10-K filing dates are between November 1, 2005 and October 30, 2007, and to zero for firm-years where 10-K filing dates are between November 1, 2003 and October 30, 2005. For Canadian firms which do not	Compustat and EDGAR

	file 10-Ks, the dates are deemed as the 90th day after fiscal year end.	
TREAT	Indicator variable set to one for US firms and to zero for Canadian firms that are not cross listed on any US stock exchange	Compustat
CFO	Cash flow from operations, scaled by average total assets	Compustat
R&DAD	Sum of R&D expense and advertising expense, scaled by total sales	Compustat
σREV	Coefficient of variation of total sales, where the standard deviation and mean are calculated from natural log of sales over year *t-5* to year *t-1*	Compustat

Appendix C: Appendix for Chapter 5

Appendix C1

Variable Definitions for Empirical Tests in Chapter 5

The following table provides the definitions of additional variables used for empirical tests in Chapter 5. Control variables already defined in Chapter 4 are not included.

Variable	*Definition*	*Source*
	Variables for H2a	
SIZE	Natural log of total assets at fiscal year end	Compustat
TOBINQ	Tobin's Q, calculated as market value of equity plus book value of debt, scaled by book value of assets	Compustat and CRSP
ROA	Net income before extraordinary items, scaled by total average assets	Compustat
SALESGROWTH	Sales growth, calculated as the percentage of annual growth in total sales	Compustat
CASH	Cash balance scaled by total assets	Compustat
FIRMAGE	Firm age, calculated as log(1+ years the firm exists in the COMPUSTAT annual fundamental file)	Compustat
DIVIDEND	Cash dividend paid, scaled by total assets	Compustat
ABRET	Annual buy-hold abnormal return ending three months after the fiscal year end	CRSP
SEO	Indicator variable set to one for firms whose level of Sale of Common and Preferred Stock (SSTK) is greater than 10% of beginning total assets at year *t+1* and to zero for matched firms	Compustat and CRSP
	Variable for H2b	
HIGH_TIGHT	Indicator variable set to one for firms whose covenant tightness measure is positive and to zero otherwise. The covenant tightness measure is constructed following Pittman and Zhao (2019). Firms in the high tightness group (HIGH_TIGHT=1) are closer to debt covenant violations.	Dealscan and Compustat
	Variable for H2c	
HIGH_R&D	Indicator variable set to one for firms whose levels of R&D expenditures are above the median and to zero	Compustat

	otherwise. The level of R&D expenditures is calculated as the R&D expenses scaled by beginning total assets.	
	Variable for H2d	
HIGH_FIN_NEEDS	Indicator variable set to one for firms whose financing needs are above the median and to zero otherwise. The level of financing needs is calculated as [cash dividends + capital expenditure + change in working capital – (income before extraordinary items + depreciation expense)]/total assets, following Flannery and Rangan (2006).	Compustat

Appendix D: Appendix for Chapter 6

Appendix D1

Variable Definitions for Empirical Tests in Chapter 6

The following table provides the definitions of additional variables used for empirical tests in Chapter 6. Variables already defined in previous chapters are not included.

Variable	***Definition***	***Source***
HIGH_LITRISK	Indicator variable set to one for a firm whose predicted litigation risk is above the median and to zero otherwise. Litigation risk for a firm year is estimated using the coefficients from Table 7, model (2), of Kim and Skinner (2012).	Compustat and CRSP
HIGH_FOLLOW	Indicator variable set to one for a firm followed by more analysts than the median firm and to zero otherwise	IBES
DISC_COMM	Indicator variable set to one if a firm has a disclosure committee and to zero otherwise. The existence of a disclosure committee is determined by searching for "disclosure committee" in all electronic filings of the firm on EDGAR.	EDGAR

Appendix E: Appendix for Chapter 7

Appendix E1
Procedure for Constructing the Overconfidence Measure

Consistent with prior studies (e.g. Campbell et al. 2011; Hirshleifer, Low, and Teoh 2012; Ahmed and Duellman 2013), I take the following steps to construct overconfidence measures for CEO/CFO using compensation data from Compustat Execucomp:

- Calculate the average value per option (C) as (value of exercisable unexercised options/number of exercisable unexercised options), or OPT_UNEX_EXER_EST_VAL /OPT_UNEX_EXER_NUM based on Execucomp variables.
- Calculate the average exercise price per option (X) as the difference between the stock price (S) at fiscal year end and the average value per option (C), i.e., PRCC_F − C, where PRCC_F is the Compustat variable for stock price at fiscal year end.
- Calculate the degree of option-in-money as the ratio between the average value per option (C) and the average exercise price per option (X), i.e., C/X, or C/(PRCC_F − C).
- Create an indicator variable, Holder67, and set it to one from the first year in which the in-money ratio (C/X) exceeds 0.67 if this occurs at least twice during the sample period.

For each firm-year, an executive is deemed to be overconfident if Holder67 equals one and not overconfident if Holder67 equals zero.

Appendix E2

Variable Definitions for Empirical Tests in Chapter 7

The following table provides the definitions of additional variables used for empirical tests in Chapter 7. Variables already defined in previous chapters are not included.

Variable	***Definition***	***Source***
OVERCONF	Indicator variable set to one if both the CEO and CFO of a firm are overconfident per the overconfidence measure in Campbell et al. 2011 and to zero if neither of them is overconfident	Compustat Execucomp
BONUS	Ratio of the top five executives' total bonuses to their total compensation	Compustat Execucomp
DELTACFO	log(1+ raw Delta of the CFO's executive compensation portfolios, including both stocks and options). The raw delta is calculated using the modified Black and Scholes (1973) option valuation model, following prior studies (e.g. Coles, Daniel, and Naveen 2006). This measure captures the sensitivity of the CFO's wealth to the change in the stock price of the firm.	Compustat Execucomp and CRSP
VEGACFO	log(1+ raw Vega of the CFO's executive compensation portfolios, including both stocks and options). The raw Vega is calculated using the modified Black and Scholes (1973) option valuation model, following prior studies (e.g. Coles, Daniel, and Naveen 2006). This measure captures the sensitivity of the CFO's wealth to the change in the stock return volatility of the firm.	Compustat Execucomp and CRSP

Appendix F: Appendix for Chapter 8

Appendix F1

Variable Definitions for Empirical Tests in Chapter 8

The following table provides the definitions of additional variables used for empirical tests in Chapter 8. Variables already defined in previous chapters are not included.

Variable	*Definition*	*Source*
CAR	Cumulative abnormal return estimated using the 3-factor Fama-French model plus momentum, starting from the 10-K filing date, and ending on the date depending on the window; for example, CAR (Window=30) is the CAR over [0, 30], i.e., from the 10-K filing date to the 30th day after the filing date.	Compustat and CRSP
QuinCons	Quintile of the composite conservatism measure as defined in Appendix B2, ranked annually by Fama-French 12 industries	Compustat and CRSP
QuinRisk	Quintile of the RISKDISC (risk disclosures) variable as defined in Appendix B2, ranked annually by Fama-French 12 industries	EDGAR
HIGH	Indicator variable, set to zero for a firm year if the absolute difference between *QuinCons* and *QuinRisk* is greater than two and set to one if these two quintile ranks are equal. The HIGH group, thus, exhibits a greater substitutive relation, or trade-off, between conservatism and risk disclosures.	Compustat and CRSP
QuinSize	Quintile of the SIZE (firm size) variable as defined in Appendix B2, ranked annually by Fama-French 12 industries	Compustat
QuinMTB	Quintile of the MTB (market to book) variable as defined in Appendix B2, ranked annually by Fama-French 12 industries	Compustat and CRSP
QuinCFO	Quintile of the CFO (cash flow from operations) as defined in Appendix B2, ranked annually by Fama-French 12 industries	Compustat
QuinPE	Quintile of the price-to-earnings ratio, ranked annually by Fama-French 12 industries	Compustat