HOW DOES THE LEGAL ENVIRONMENT SHAPE QUALITATIVE DISCLOSURE? EVIDENCE FROM A LANDMARK COURT RULING

by

BINGYUN WANG

(Under the Direction of Stephen Baginski)

ABSTRACT

How the legal environment shapes firms' disclosure practices is a longstanding question in accounting research. However, the definition of "disclosure" in prior research is frequently limited to the frequency of management forecasts, and much of the existing research on this topic is subject to endogeneity concerns. Motivated by the upward trend of shareholder lawsuits filed over qualitative disclosure, I investigate how litigation risk affects the amount of qualitative disclosure, the trade-off between qualitative and quantitative information, and the quality of qualitative disclosure in 10-K reports using a landmark court ruling as an exogenous shock to the litigation risk of firms headquartered in the Ninth Circuit. Adopting an entropy balanced difference-in-differences design, I find that treated firms provide less qualitative information but more quantitative information through 10-Ks following the decrease in litigation risk, suggesting that firms use qualitative disclosure and quantitative disclosure as substitutes. Further, the quality of qualitative disclosure seems to improve. Treated firms engage in less tone management and write more readable 10-Ks after litigation risk decreases. Additional evidence suggests that analyst forecast accuracy improves following the decline in litigation risk.

INDEX WORDS: Litigation risk, Corporate disclosure

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B.B.A., Fudan University, China, 2012

A Dissertation Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

DOCTOR OF PHILOSOPHY

ATHENS, GEORGIA

2020

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May 2020

DEDICATION

I hereby dedicate this dissertation to my dissertation committee, family, and friends for their constant support, encouragement, and inspiration throughout my studies.

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CHAPTER 1

INTRODUCTION

Shareholder litigation is an important private enforcement mechanism that contributes to capital market development (e.g., La Porta et al., 2006). It is crucial to understand how the threat of shareholder litigation influences managers' disclosure decisions ex ante. Despite over two decades of research on litigation risk and corporate disclosure, we know little about how litigation risk affects managers' disclosure choices other than management forecasts (e.g., Baginski et al., 2002; Johnson et al., 2001). Accordingly, Beyer et al. (2010) call for research on the relation between litigation and other attributes of disclosures. I examine the effect of shareholder litigation risk on 10-K disclosure. Specifically, I exploit a landmark court ruling as a plausibly exogenous shock to the U.S. legal environment to investigate how a decrease in litigation risk impacts the *amount* of qualitative disclosure, the *trade-off* between qualitative and quantitative disclosure, and the *quality* of qualitative disclosure (i.e., tone management, readability, and uncertainty) in 10-Ks.

Qualitative disclosure represents the majority of corporate disclosure and is often associated with significant economic consequences. Prior empirical studies document various economically and statistically significant market consequences of qualitative disclosure attributes such as tone, readability, and uncertainty (e.g., Baginski et al., 2016; Ertugrul et al., 2017; Huang et al., 2014; Lehavy et al., 2011; Loughran and McDonald, 2016). Moreover, recent anecdotal evidence suggests that qualitative disclosure could lead to severe legal consequences because it is more open to interpretation and tends to be less objective (Cazier et al., 2019). Although shareholder plaintiffs traditionally sue firms for misstated numbers within financial statements,

more and more securities lawsuits are being filed over qualitative statements related to non-financial issues such as drug trials, manufacturing issues, and industry competition (Randazzo, 2017). During the first half of 2017, non-financial qualitative disclosure accounted for over 80% of the securities class actions filed (Randazzo, 2017). A natural question arising from this trend is whether managers adjust qualitative disclosures to deal with ex ante litigation risk.

Although managers could provide qualitative information via various disclosure channels including management forecasts, earnings press releases, 10-Ks, and conference calls (Baginski et al., 2016; Bushee et al., 2018; Huang et al., 2014; Lehavy et al., 2011), I choose to examine qualitative disclosure in 10-Ks for two reasons. First, prior studies argue that managers have greater litigation concerns in 10-Ks compared to other disclosure channels, because 10-K reports are regulated by a broad set of complex accounting rules and disclosure requirements and are frequently subject to evidentiary use in securities class action lawsuits (Davis and Tama-Sweet, 2012; Huang et al., 2014). Indeed, in the first shareholder complaint of the landmark case examined in my study, shareholder plaintiffs devoted five pages to citing the firm's 10-K report as evidence of misstatements, which makes 10-K reports particularly relevant in my setting. Since I am interested in the effect of ex ante litigation risk on disclosure, I identify 10-K as the disclosure channel where managers are most likely to respond to the change in litigation risk. Second, anecdotal evidence suggests that firms often cite litigation concerns as a factor that contributes to the information overload problem in 10-Ks (Dyer et al., 2017; KPMG, 2011). Despite the growing evidence on how various SEC regulations and FASB rules have contributed to information overload (e.g., Dyer et al., 2017), there is a paucity of evidence on how litigation risk impacts the evolution of 10-K disclosures over time. By examining 10-K disclosures, I am able to shed light on regulators' and practitioners' concerns on the information overload problem.

Further, Beyer et al. (2010) point out that much of the existing research on the effect of litigation on disclosure is subject to endogeneity concerns such as omitted correlated variables and reverse causality. To address the lack of causal evidence on litigation risk and qualitative disclosure, I exploit an exogenous decline in litigation risk as a result of a court ruling and examine the effect of the decrease in litigation risk on qualitative disclosure. First, I test whether the decrease in litigation risk surrounding the court ruling encourages or deters the release of qualitative disclosure in 10-Ks. Next, I examine whether managers also respond to the decrease in litigation risk through quantitative disclosure and whether quantitative and qualitative disclosure are complements or substitutes. Lastly, I investigate whether litigation risk influences the way that managers convey qualitative information in 10-Ks: 1) the extent to which managers engage in *tone management*; 2) the *readability* of disclosure; and 3) managers' use of *uncertainty* language.

I choose to examine these three attributes of qualitative disclosures because each of them directly impacts investors' welfare and has potential legal consequences. First, prior studies document that investors, especially small investors, are often misled by abnormal tone that does not reflect firm fundamentals (Huang et al. 2014; Baginski et al., 2018). Moreover, Rogers et al. (2011) provide direct evidence that firms using unusually optimistic language in earnings announcements are more likely to be subsequently sued by shareholders. Second, readability is also associated with potential legal consequences. Anecdotal evidence suggests that managers and lawyers might use less readable language in 10-Ks to protect themselves from litigation (Bloomfield, 2008). Empirical evidence further shows that managers often use less readable language to obfuscate investors when they report bad news or wish to conceal earnings management (Li, 2008; Lo et al., 2017). Lastly, lawyers often use uncertainty words as cautionary language to mitigate litigation risk in 10-Ks (Bozanic et al., 2019). However, Loughran and

McDonald (2011) provide some evidence that uncertainty words are positively associated with the likelihood of litigation in subsequent periods. Given the potential legal consequences arising from these three language attributes, it is important to understand how litigation risk, an ex-ante governance mechanism, affects tone management, readability, and uncertainty.

To test my research questions, I rely on a landmark court ruling as a plausibly exogenous shock to firms' ex ante litigation risk. Although the Private Securities Litigation Reform Act (PSLRA) of 1995 heightened the pleading standards for securities lawsuits nationwide, there continues to be heterogeneity in the interpretation of PSLRA 1995 across different circuits. In 1999, the unanticipated ruling in *Re: Silicon Graphics Inc.* (hereafter *SGI*) from the Ninth Circuit Court of Appeals made it more difficult for shareholder lawsuits to survive the motion stage by requiring plaintiffs to show that the defendants were "deliberately reckless", while other circuits only required shareholders to prove that the defendants were "reckless". Therefore, the ruling substantially raised the pleading standard and decreased litigation risk in the Ninth Circuit, while the pleading standard in other circuits remained unchanged during the same period. Furthermore, the ruling was largely unanticipated at that time because the Ninth Circuit had been historically friendly to plaintiffs (Gibney, 2000). I am able to divide all U.S. firms into treated and control groups because the majority of class action lawsuits are filed in the circuit where the sued firm is headquartered (Cox et al. 2009).[1] I identify firms headquartered in the Ninth Circuit at the time of the ruling as treated firms, and firms headquartered in other circuits serve as my control firms.

I use a difference-in-differences research design with entropy balancing to test my hypotheses. I include four years before and four years after the *SGI* ruling in my event window. I

[1] Cox et al. (2009) provide two explanations. First, plaintiffs are often reluctant to file the suit in another circuit due to the significant delays and costs arising from the litigation process. Second, even when the plaintiff chooses to file in another circuit, the defendant is usually able to immediately relocate the case to the home circuit through a motion (Cox et al., 2009).

find that treated firms (i.e., Ninth Circuit firms) provide less qualitative disclosure in their 10-Ks following the decrease in litigation risk, relative to control firms. However, I also observe an increase in the absolute and relative amount of quantitative information in treated firms' 10-Ks compared to the control group following the reduction in litigation risk. Collectively, the results on qualitative disclosure and quantitative disclosure are consistent with the disclosure suppression hypothesis that firms are reluctant to fully disclose due to the fear of potential legal liabilities (Baginski et al., 2002). My results support the disclosure suppression hypothesis in that firms tend to provide a greater volume of information in a more precise form (i.e., switching from qualitative disclosure to quantitative disclosure) when the legal environment becomes less litigious.

With respect to the effects of the *SGI* ruling on the quality of qualitative disclosure in 10-Ks, I find that firms in the Ninth Circuit engage in less tone management after the reduction in litigation risk. At first glance, the decrease in tone management seems to indicate that there is less bias in disclosure when litigation risk is lower. However, it is possible that managers have shifted from tone management to earnings management. In fact, Hopkins (2018) and Huang et al. (2019) document that firms increase the level of accrual-based and real earnings management after the decrease in litigation risk as a result of the *SGI* ruling. Thus, the collective evidence suggests that managers engage in perception management more through quantitative information and less through qualitative information when the potential legal costs are lower. Second, I find that firms in the Ninth Circuit disclose more readable 10-Ks subsequent to the decrease in litigation risk. The results provide empirical support for the argument that managers write less readable 10-Ks to shield themselves from litigation or that lawyers simply use more complex legalese when litigation risk is higher (Bloomfield, 2008). Lastly, there is no evidence that firms change the level of

uncertain language when litigation risk decreases.[2] Overall, the results suggest that firms in the Ninth Circuit provide less biased and more readable qualitative disclosure following the reduction in litigation risk. However, in corroboration with the findings in Hopkins (2018) and Huang et al. (2019), the results may imply a switch from opportunistic qualitative disclosure to opportunistic quantitative disclosure instead of an overall improvement in disclosure quality. In additional tests, I document that analyst forecast accuracy improves following the decrease in litigation risk and offer preliminary evidence that the disclosure changes provide some valuable information to the capital market.

I further perform several robustness tests to rule out alternative explanations. First, I show that my sample generally satisfies the parallel trends assumption, implying that my findings are unlikely attributable to differences in time trends between treated firms and control firms. Second, I provide evidence that the dot-com bubble likely does not explain my results, although a significant portion of firms in the Ninth Circuit are high-tech firms. Lastly, I document that my findings remain unchanged if I choose to use a shorter and cleaner event window.

This paper contributes to the extant literature in several ways. First, I extend the literature on litigation risk and disclosure by examining how litigation risk can affect the trade-off between different forms of disclosures (i.e., qualitative vs. quantitative). Managers make many disclosure decisions (e.g., selecting disclosure channel, choosing disclosure form) and these decisions are not isolated. Most prior studies focus exclusively on one type of disclosure outcome, such as management forecasts or earnings management (e.g., Baginski et al., 2002; Hopkins, 2018; Houston et al., 2019; Huang et al., 2019), but do not consider how different types of disclosures

[2] However, the results do not necessarily suggest that managers' use of uncertainty or cautionary language is unrelated to litigation concerns, because Nelson and Prichard (2016) argue that firms' use of cautionary language is sticky and firms likely do not remove such language when litigation risk decreases if the marginal cost of including it is low.

may interact in the face of litigation risk or how different disclosure forms may respond to litigation risk in different ways. My study makes an important contribution by showing that qualitative disclosure and quantitative disclosure act as substitutes when litigation risk decreases.

Second, this study is one of the first to examine how the legal environment influences qualitative disclosure.[3] The effect of litigation risk on quantitative disclosure has received substantial attention in the literature (e.g., Johnson et al., 2001; Houston et al., 2019), while there is scarce evidence on whether and how litigation risk also affects qualitative disclosure. It is important to fill this gap in the literature given the increasing number of securities class action lawsuits filed over qualitative statements instead of numbers in recent years. I provide evidence that managers indeed respond to litigation risk through adjusting qualitative disclosures in 10-Ks despite the fact that prior studies find 10-K qualitative disclosure to be generally sticky (e.g., Brown and Tucker, 2011).

Third, I provide causal evidence on the relationship between litigation risk and corporate disclosure. The majority of prior studies examining this topic rely on either a small sample, cross-country variation, or cross-sectional variation (e.g., Baginski et al., 2002; Brown et al., 2005; Cao and Narayanamoorthy, 2011), while I exploit an exogenous shock to the legal environment among U.S. firms. The unique setting allows me to divide all U.S. firms into treatment firms and control firms by circuit and examine a large sample subject to exogenous changes of litigation risk. Therefore, I am able to establish causality on this fundamental question in the accounting literature.

[3] Prior research does not explore the relationship between litigation risk and qualitative disclosure, with a few exceptions. Rogers et al. (2011) examine how optimistic tone could lead to shareholder lawsuits ex post, while I study whether litigation risk affects managers' use of opportunism language (i.e., tone management) ex ante. Nelson and Prichard (2016) document that firms subject to higher litigation risk disclose more readable risk factors using a firm-specific litigation risk measure. In this study, I examine the effect of litigation risk on readability using an exogenous shock to mitigate endogeneity concerns and I reach the opposite conclusion of Nelson and Prichard (2016).

More specifically, my results are unlikely to be attributable to time trends, differences in firm-level and country-level characteristics, or other concurrent events.

This paper is also of interest to regulators and practitioners by broadening our understanding of factors contributing to the information overload problem in corporate disclosure. As former SEC Chairwoman Mary Jo White questioned during her speech at National Association of Corporate Directors Leadership Conference 2013: "*Are our rules the sole or primary cause of potential disclosure overload or do other sources contribute to it? Or said another way, are changes to our disclosure requirements the only way to improve the quality of disclosure?*" Anecdotal evidence suggests that growing litigation concerns contribute to the expansion of 10-Ks over time (Dyer et al., 2017; KPMG, 2011). However, there is a lack of direct evidence on the role that litigation risk plays in shaping 10-K disclosure. This study provides causal evidence that firms indeed provide less qualitative disclosure in a more readable manner and disclose a greater amount of hard information (i.e., quantitative disclosure) when litigation concern is alleviated. Therefore, the growing litigation concerns likely have contributed to the information overload problem in corporate disclosure over time.

CHAPTER 2

BACKGROUND

2.1. The Effect of Litigation on Quantitative Disclosure

Most prior studies on legal environment and voluntary disclosure examine the relation between litigation risk and quantitative voluntary disclosures (e.g., management forecasts) and provide mixed evidence on whether litigation risk increases or decreases the level of quantitative disclosure. On the one hand, some earlier studies find a negative relationship between litigation risk and voluntary disclosure, providing empirical support for the argument that firms are reluctant to provide voluntary disclosure due to fear of legal liability (i.e., the disclosure suppression hypothesis). Relying on country-level or firm-level litigation risk measures, several studies document that firms provide more management forecasts when they face lower litigation risk (e.g., Baginski et al., 2002; Johnson et al., 2001; Rogers and Van Buskirk, 2009). On the other hand, some papers document a positive relationship between litigation risk and the frequency of quantitative disclosure. Their findings are consistent with the idea that firms facing higher litigation risk voluntarily disclose more information to prevent litigation (i.e., the litigation reduction hypothesis). For example, Brown et al. (2005) and Cao and Narayanamoorthy (2011) both find that firms with higher litigation risk are more likely to issue management forecasts using firm-level litigation risk measures.

Endogeneity is a concern in these studies. The results documented in Baginski et al. (2002) could be driven by unobservable uncontrolled cross-country differences beyond legal environment. Firm-level litigation risk measures in Brown et al. (2005), Cao and Narayanamoorthy (2011), and

Nelson and Pritchard (2016) are potentially confounded by other omitted correlated firm characteristics that influence both litigation risk and voluntary disclosure. The approach of using actual litigation to proxy for expected litigation risk in subsequent periods as in Rogers and Van Buskirk (2009) faces a similar potential correlated omitted variable problem. Only a few studies attempt to address the endogeneity problem using law changes or court rulings related to litigation risk.

However, even when studies attempt to improve identification via the use of an exogenous shock research design, results are mixed. Two recent studies use state-level law changes as exogenous shocks to litigation risk and find that firms provide *more* voluntary disclosure when litigation risk decreases (Bonsall et al., 2017; Bourveau et al. 2018), and Cazier et al. (2019) show that firms are more likely to report non-GAAP earnings after an exogenous reduction in litigation risk due to court rulings related to pleading standards. In contrast, two other recent studies exploit the exogenous reduction in litigation risk arising from court rulings and document that firms subsequently disclose fewer management forecasts (Houston et al., 2019; Naughton et al., 2019).

Another stream of related literature examines how litigation risk affects mandatory quantitative disclosure (e.g., earnings management) instead of voluntary quantitative disclosure. Hopkins (2018) finds an increase in the likelihood of restatement, a proxy for accrual-based earnings management, for firms headquartered in the Ninth Circuit relative to other firms following the *SGI* ruling. Huang et al. (2019) document a significant increase in the level of real earnings management for Ninth Circuit firms subsequent to the *SGI* ruling. Both Hopkins (2018) and Huang et al. (2019) provide convincing evidence that shareholder litigation threat deters earnings management activities ex ante.

2.2. The Effect of Litigation on Qualitative Disclosure

Several studies also explore the effect of litigation risk on qualitative disclosure, especially the "quantity" of qualitative disclosure. However, similar to prior studies on quantitative disclosures, the evidence is indirect and inconclusive. On one hand, there is some evidence suggesting a positive association between litigation risk and the amount of qualitative disclosures. Nelson and Pritchard (2016) document that firms subject to higher litigation risk disclose a greater number of risk factors during the voluntary risk factor disclosure regime. Houston et al. (2019) use the number of voluntary 8-Ks as an alternative measure for voluntary disclosure and find treated firms file significantly fewer voluntary 8-Ks after litigation risk decreases. On the other hand, Bourveau et al. (2018) find that firms issue more 8-Ks and disclose longer MD&A in 10-Ks after a reduction in litigation risk as a result of the adoption of universal demand laws. However, none of these studies explicitly examine qualitative disclosure as they do not decompose the content of the disclosure into quantitative information and qualitative information. Therefore, I directly examine whether litigation risk influences the amount of qualitative disclosure and quantitative disclosure similarly.

While the quantity of disclosure is one potential proxy for disclosure quality, richer proxies are available in the qualitative disclosure area. *Tone* is an important attribute of qualitative disclosures with significant market and legal consequences (e.g., Rogers et al., 2011; Baginski et al., 2016; Baginski et al., 2018). Huang et al. (2014) show that managers engage in tone management in earnings press releases, and investors are misled by abnormal tone that is not explained by firms' economic fundamentals. There is little evidence on how legal environment

influences tone management.[4] Rogers et al. (2011) are the first to examine the relationship between tone and litigation, but their research question is about how optimistic language in earnings announcements affect the probability of being sued subsequently by shareholders, while this paper studies the reverse using an exogenous setting.

Readability has always been an area of concern for regulators, especially with the increased amount of disclosure requirements in 10-Ks over time (SEC, 1998; Schroeder, 2002; Cox, 2007). Prior studies have explored various consequences of readability, including analyst forecast properties and cost of capital (Lehavy et al., 2011; Bonsall and Miller, 2017). However, few studies explore the determinants of readability because it is empirically challenging to disentangle the firm's fundamental complexity and readability. In the discussion of Li (2008), Bloomfield (2008) proposes a potential relationship between litigation risk and readability suggesting firms might write less readable 10-Ks to protect themselves from litigation. Nelson and Prichard (2016) document a positive association between litigation risk and the readability of risk factors, contradicting the arguments raised in Bloomfield (2008). However, they limit their analysis to a small sample of risk factor disclosures and their results cannot rule out omitted firm characteristics that correlate with their firm-level litigation risk measure.[5] In a concurrent working paper, Ganguly et al. (2019) also exploit the *SGI* ruling and document an increase in 10-K readability for firms

[4] In a concurrent working paper, Bonsall et al. (2017) investigate whether judicial interpretation of the PSLRA results in more biased forward-looking statements in one of their tests. However, they fail to find any evidence that the legal environment impacts firms' use of opportunistic language. One possible explanation for their results is that they use the tone of non-forward-looking statements as a benchmark to assess the bias in forward-looking statements. However, the tone of non-forward-looking statements is also subject to managerial discretion and may not represent unbiased tone. Therefore, the abnormal tone measure in Bonsall et al. (2017) does not capture tone management, the construct of interest in my paper.

[5] Bourveau et al. (2017) provide some indirect evidence on litigation risk and readability. They find that the length of MD&A in 10-Ks increases after litigation risk decreases following the adoption of universal demand laws. Although their construct of interest is the quantity of voluntary disclosure, the length of 10-Ks is also frequently used as a measure for readability (Loughran and McDonald, 2016). Therefore, their results could be interpreted as a positive relationship between litigation risk and readability.

headquartered in the Ninth Circuit following the ruling. Their results are consistent with what I document in this paper, however, they focus on readability and do not examine any other attributes of 10-K disclosure.

There is also an emerging literature on *linguistic uncertainty* in accounting. Prior research suggests that the use of uncertainty words in corporate disclosures is positively associated with future stock return volatility, IPO first day return and price revision, and cost of debt (e.g., Loughran and McDonald, 2011; Loughran and McDonald, 2013; Ertugrul et al., 2017; Bonsall et al., 2017). Related to litigation, Loughran and McDonald (2011) document some marginal evidence that firms with more uncertainty words in 10-Ks are more likely to subsequently get sued by shareholders in one of their specifications. Bozanic et al. (2019) provide empirical evidence that the involvement of securities lawyers is associated with a higher frequency of uncertainty words in 10-Ks following SEC comment letter resolution. However, existing literature provides no evidence on how litigation risk causes the use of uncertainty language in disclosures.

2.3. Institutional Background

Congress passed the Private Securities Litigation Reform Act in 1995 as part of an ongoing effort to limit frivolous securities lawsuits and to encourage disclosure. The PSLRA has decreased litigation risk nationwide by requiring plaintiffs to "state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind" (Johnson et al., 2001). It has become significantly more challenging for meritless class actions to survive the motion stage after the PSLRA. However, the application and interpretation of pleading standards continue to vary significantly at the circuit level.

The *SGI* case took place in the Ninth Circuit during the post-PSLRA era. On August 21, *SGI* reported a growth of 45% in revenue for fiscal year 1995 and forecasted a similar growth rate

for fiscal year 1996. In addition, *SGI* announced its plan to launch a line of new graphic design computers, Indigo(2). Following these announcements, the stock price of *SGI* climbed to an all-time high of $44 7/8. However, *SGI*'s first quarter revenue growth turned out to be only 33% and fell short of expectations. Despite the disappointing performance, the managers of *SGI* ensured investors through various disclosure channels that the company would still be able to achieve its revenue growth target for fiscal year 1996. For example, the company stated in its first-quarter report of fiscal year 1996 that "the Company experienced strong demand across its computer system product from the desktop to supercomputing, including its Indigo(2) Impact-Trademark-systems which first shipped in volume during the quarter". Surrounded by rumors that the company might fail to meet its second-quarter forecast, *SGI* finally announced its disappointing second-quarter results and confirmed that its revenue growth would be much lower than expected on January 2, 1996. The stock price of *SGI* subsequently dropped to $21 1/8.

Shareholder plaintiffs filed a class action complaint against *SGI* and its managers with the District Court on January 29, 1996. In September 1996, Judge Fern Smith dismissed the class action complaint because plaintiffs failed to plead scienter adequately under the PSLRA. However, the district-level decision had little impact on the legal environment of firms in the Ninth Circuit because district-level decisions are mostly temporary in nature, do not establish precedence for other districts, and usually receive little media attention. Subsequently, shareholder plaintiffs appealed to the Ninth Circuit Court of Appeals. On July 2, 1999, the Ninth Circuit Court of Appeals issued a decision in *Re: Silicon Graphics Inc.* that required plaintiffs to prove that the defendants were "deliberately reckless" in making the alleged misstatement or omitting any material statement. The ruling imposed the most stringent pleading standard for class action lawsuits filed in the Ninth Circuit among all circuits, since merely showing "recklessness" was sufficient in other circuits

during the same time period. The heightened pleading standard made it more likely for class action lawsuits to be dismissed at an early stage and therefore decreased the litigation risk for firms headquartered in the Ninth Circuit.

Following prior literature, I argue that the ruling from the Ninth Circuit Court of Appeals qualifies as a plausibly exogenous shock to litigation risk because it was largely unanticipated (Hopkins, 2018; Houston et al., 2019; Huang et al., 2019). At that time, although the Ninth Circuit was the most liberal circuit in the country that was known for being friendly to plaintiffs (Gibney, 2000), the randomly selected three-judge panel happened to include two of the most conservative judges in the Ninth Circuit, Judge Sneed and Judge Rhodes (Hopkins, 2018). As a result, the three-judge panel eventually reached the conclusion in favor of the defendants. Despite the fact that the appellant decision remained the same as the decision of the District Court, the outcome was largely unanticipated prior to the ruling because of the historical stance of Ninth Circuit Judges.

Empirically, the number of class action lawsuits filed dropped significantly following the ruling in the Ninth Circuit relative to other circuits. For example, Crane and Koch (2018) document that the number of class action filings decreased by 43% in the second half of 1999 relative to the first half of the year in the Ninth Circuit, while other circuits experienced a 14% increase during the same period. Further, Crane and Koch (2018) find that the effect of *SGI* is persistent through recent years. Therefore, the *SGI* decision serves as a plausibly exogenous shock to the legal environment in the Ninth Circuit.

CHAPTER 3

HYPOTHESES DEVELOPMENT

3.1. Legal Environment, Qualitative Disclosure, and Quantitative Disclosure

Managers are aware of litigation concerns and often involve securities lawyers in corporate disclosure decisions (Bozanic et al., 2019). Litigation risk can affect corporate disclosure in two opposing ways because firms may face shareholder litigation for either making a material misstatement (i.e., inaccurate disclosure) or omission (i.e., failure to disclose) under Rule 10b-5. Under the disclosure suppression hypothesis, heightened litigation risk may curb firms' willingness to disclose, because the disclosure may turn out to be inaccurate and trigger lawsuits ex post (Baginski et al., 2002). Under the litigation reduction hypothesis, litigation risk may encourage managers to provide more disclosure because (1) firms often get sued for withholding information, and (2) disclosure helps to adjust investors' expectations and reduces the likelihood of a dramatic price decline (Skinner, 1994). Both hypotheses imply that managers may respond to the change in litigation risk by adjusting the amount of information they provide in 10-Ks.

Corporate disclosure contains both qualitative information and quantitative information. There are several differences between qualitative disclosure and quantitative disclosure when it comes to potential litigation costs. First, shareholder litigation often occurs after investors discover misrepresentations in previous disclosures, and investors' ability to assess the accuracy of disclosure differs for qualitative information and quantitative information. Prior studies argue that qualitative disclosure shares key characteristics of cheap talk and is usually more difficult to verify, even ex post, compared to quantitative disclosure (Baginski et al., 2016). Therefore, greater

litigation risk may encourage managers' use of qualitative disclosure more than quantitative disclosure. Second, the litigation reduction hypothesis suggests that managers provide more disclosure to adjust investor expectations in a timely manner to avoid future litigation (Skinner, 1994). The impact of disclosure on investor expectations may also differ for qualitative disclosure and quantitative disclosure. Qualitative disclosure usually contains more soft information and less precise signals compared to quantitative disclosure. As a result, although prior studies find evidence on the price relevance of both types of disclosures, qualitative disclosure usually influences investor expectations in a more subtle manner than quantitative disclosure (Davis and Tama-Sweet, 2012). Therefore, managers may prefer to disclose more quantitative information to adjust investor expectation in a more effective way when facing litigation risk. Third, in terms of triggering shareholder lawsuits ex post, there are also differences between qualitative disclosure and quantitative disclosure. While securities action lawsuits usually involve firms that misreport quantitative information, it is less clear whether firms should bear legal responsibilities for qualitative disclosure as some argue that qualitative disclosure does not constitute material information despite the growing number of securities lawsuits filed over qualitative disclosure (Rogers et al., 2011).[6] This argument implies that it is less likely for qualitative disclosure to trigger lawsuits compared to quantitative disclosure. Thus, managers with heightened litigation concerns may communicate more through qualitative information.

Given the different effects of qualitative disclosure and quantitative disclosure in mitigating litigation costs, managers may respond to litigation risk through qualitative and quantitative disclosures differently. Further, the effects of litigation risk on qualitative disclosure

[6] Although Rogers et al. (2011) document a positive association between opportunistic tone and subsequent shareholder litigation, they mention that the treatment of qualitative disclosure in court differs from case to case and appears to be idiosyncratic.

and quantitative disclosure may not be independent from each other, as prior literature suggests that managers use qualitative disclosure and quantitative disclosure as either complements or substitutes. On one hand, managers may provide qualitative statements to complement quantitative disclosure by enhancing the credibility of quantitative information or assist investors in interpreting quantitative information (Baginski et al., 2004; Bonsall et al., 2013; Hutton et al., 2003). On the other hand, qualitative information can substitute for quantitative information because earnings numbers are largely constrained by U.S. GAAP and primarily reflect historical information. Managers may provide qualitative disclosure to communicate firm-specific or forward-looking information that is not conveyed by quantitative disclosure (Bonsall et al., 2013; Brown et al., 2019). Given the countervailing forces of litigation risk on qualitative disclosure and quantitative disclosure and the potential interaction between the two, I present my first set of hypotheses as follows:

H1a: *Litigation risk affects the quantity of qualitative disclosure in 10-Ks.*

H1b: *Litigation risk affects the quantity of quantitative disclosure in 10-Ks.*

3.2. Legal Environment and Tone Management

Huang et al. (2014) document that firms manage the tone of words in earnings press releases to manage investor perception about firm fundamentals (i.e., tone management). They find that abnormal tone, defined as the residual from a tone model that controls for firm fundamentals (e.g., performance, risk, and complexity), is positively associated with earnings announcement stock returns but predicts negative future firm performance. Furthermore, Huang et al. (2014) show that managers use more positive abnormal tone during upward perception management events, such as meeting/beating thresholds, future earnings restatements, seasoned equity offerings, and mergers and acquisitions. However, there are also costs associated with tone

management despite its short-term benefits. Rogers et al. (2011) provide evidence that firms with unusually optimistic tone in earnings announcements are more likely to be sued by shareholders. Therefore, managers must trade off the benefits (e.g., perception management) and costs (e.g., litigation risk) when managing the tone of qualitative disclosure. If litigation risk discourages managers from misleading investors through tone management due to the expected punishment from doing so, managers may subsequently engage in more tone management after the decrease in litigation risk, assuming that managers are on average incentivized to manage investor perception upward.

However, there might also be a positive relationship between litigation risk and tone management for two reasons. First, the use of perception management may stem from managers' litigation concerns. Specifically, to reduce the likelihood of lawsuits triggered by large stock price declines, managers may bias their tone upward when disclosing negative news. This argument implies that managers may decrease the level of tone management when the threat of shareholder litigation is lower. Second, tone management is not the sole mechanism through which firms manage investor perception. Perception management can take place through the manipulation of both qualitative information (e.g., tone management) and quantitative information (e.g., accrual-based earnings management). However, the benefits and costs associated with tone management and earnings management are likely to differ. Managing quantitative information is potentially a more effective way to inflate investor perception but at the same time comes at higher costs. Financial statements are subject to various rules and regulations, which suggest the potential legal penalty arising from earnings management is higher. Manipulating qualitative disclosure through tone management could be less costly because the treatment of misleading qualitative statements in court is relatively unclear (Rogers et al., 2011). However, tone management might also be less

effective as optimistic statements could be viewed as cheap talk and influence investors in a more subtle manner (e.g., Baginski et al., 2016; Davis and Tama-Sweet, 2012). When there is a decrease in litigation risk, it is possible that managers shift from tone management to earnings management to obtain greater capital market benefits. This argument is also consistent with the findings in Hopkins (2018) and Huang et al. (2019) that the level of accrual-based and real earnings management increases following the *SGI* ruling. Further, this argument suggests a substitutive relationship between tone management and earnings management, consistent with the preliminary results in Huang et al. (2014) that managers resort to tone management when they are constrained in earnings management. Therefore, I state my second hypothesis as follows.

H2: *Litigation risk affects the level of tone management in 10-Ks.*

3.3. Legal Environment and Readability

Firms facing higher litigation risk may write *less* readable 10-Ks for several reasons. In the discussion of Li (2008), Bloomfield (2008) argues that firms might write less readable 10-Ks to shield themselves from litigation through obfuscation when they report poor performance or expect to do so in the future. In addition, Bloomfield (2008) mentions that concerns about litigation may also lead to less readable 10-Ks if more authority over the writing of 10-Ks is handed over to lawyers, who are known for using more complex language. Thus, if litigation risk decreases, firms may obfuscate less or rely less heavily on lawyers when compiling 10-Ks. This argument suggests that there is an increase in the readability of 10-Ks following the decrease in litigation risk.

However, prior research suggests that managers often use less readable language to obfuscate investors or conceal earnings management (e.g., Lo et al., 2017). Litigation risk can play a disciplinary role in constraining obfuscation or misreporting. Hopkins (2018) documents that firms engage in more misreporting when the threat of shareholder litigation is lower. Therefore,

managers may have stronger incentives to obfuscate through qualitative disclosure as litigation risk goes down, which implies a decrease in readability after litigation risk decreases. Given the countervailing forces discussed earlier, I present my third hypothesis as follows:

H3: *Litigation risk affects the readability of 10-Ks.*

3.4. Legal Environment and Uncertainty

I argue that the sudden change in legal environment is likely to influence managers' discretionary use of uncertainty words. On one hand, managers' use of uncertainty language is often driven by litigation concerns. For example, managers frequently use uncertainty words to hedge against possible legal liabilities when making forward-looking statements, because the PSLRA's safe harbor provision shields firms from liability for forward-looking statements when they are accompanied by "meaningful cautionary statements" (Nelson and Prichard, 2016). On the other hand, uncertainty conveyed in corporate disclosure may also trigger stock price volatility and trigger shareholder lawsuits (Loughran and McDonald, 2011). Therefore, managers may be reluctant to communicate the underlying uncertainty to investors when potential legal liabilities are high.

However, managers may not change the level of linguistic uncertainty in 10-Ks because prior research argues that the use of cautionary language in corporate disclosure is sticky and the relationship between litigation risk and cautionary language is asymmetric (Nelson and Prichard, 2016). Specifically, firms may use more uncertainty language when litigation risk increases but likely do not remove uncertainty language from 10-Ks when litigation risk decreases because the marginal cost of including it is low. If this is the case, I may not observe a change in the use of uncertainty language in 10-Ks subsequent to the decrease in litigation risk. Thus, the effect of

litigation risk on the use of uncertainty language is an empirical question, and I state my last hypothesis as follows:

H4: *Litigation risk affects the use of uncertainty language in 10-Ks.*

CHAPTER 4

RESEARCH DESIGN AND RESULTS

4.1. Research Design

As I note in the introduction, endogeneity is a potentially significant problem in the research on the relation between litigation risk and corporate disclosure. There are two types of endogeneity concerns. One concern is that prior research often uses ex ante firm characteristics, industry membership, and ex post filings of class action lawsuits to proxy for litigation risk (e.g., Cao and Narayanamoorthy, 2011; Nelson and Pritchard, 2016; Rogers and Van Buskirk, 2009). These studies are subject to the correlated omitted variable problem, because the selected ex ante firm characteristics are likely correlated with unobservable characteristics that also affect disclosure decisions. A second endogeneity-related concern is that the direction of causality between disclosure and litigation risk is unclear, especially in studies that examine the relation between disclosure and ex post litigation (e.g., Francis et al., 1994). Timely disclosure is a way for firms to mitigate expected litigation costs (e.g., Skinner, 1994), that is, disclosure leads to subsequently lower litigation costs. However, firms facing higher litigation risk have stronger incentives to disclose bad news early (Skinner, 1997), that is, litigation risk leads to greater disclosure. Because of these endogeneity concerns, the use of exogenous shocks as an identification strategy enhances causal inference.

I rely on the *SGI* ruling that lowers the litigation risk for firms in the Ninth Circuit to establish causality in my study. Therefore, I identify treated firms as those headquartered in the Ninth Circuit at the time of the ruling as my treatment firms, while firms headquartered in other

circuits during the same period serve as potential control firms. Figure 1 illustrates the geographic boundaries of the twelve U.S. Circuit Courts of Appeals. The Ninth Circuit includes Alaska, Arizona, California, Hawaii, Idaho, Montana, Neveda, Oregon, and Washington. Since Compustat only provides firms' current headquarter information, I extract firms' historical business addresses from their 10-K filings and fill missing values with the headquarter state in Compustat. I include four years before and after the ruling in my sample period and exclude the transition year when the ruling took place following prior literature (Houston et al., 2019; Huang et al., 2019). Specifically, because the Ninth Circuit Court of Appeals announced its final decision on July 2, 1999, my pre-*SGI* sample includes firm-years from 1995 to 1998, and my post-*SGI* sample includes firm-years from 2000 to 2003. I use Python to measure the amount of qualitative and quantitative information, tone, and uncertainty of 10-Ks, explained in more details in Section 4.2. I use the Bog Index developed by Bonsall et al. (2017) to proxy for 10-K readability and download the dataset from Brian Miller's website.[7] I obtain other control variables from Compustat, CRSP, IBES, and SDC. I require a firm to be present in both the pre- and post- periods to be included in my sample and all control variables to be non-missing. After performing these procedures, I obtain a final sample of 15,798 firm-year observations consisting of 582 treated firms and 2,013 control firms. Panel A of Table 1 presents the sample construction process for my sample. Panel B of Table 1 reports descriptive statistics for all variables in this paper. All continuous variables are winsorized at the 1st and 99th percentiles.

Since firms' decisions to choose their headquarter locations are not random, it is possible that my treatment firms and control firms are significantly different. Therefore, I use entropy balancing to achieve a high covariate balance between my treated firms and control firms

[7] I express my gratitude to Brian Miller and the authors of Bonsall et al. (2017) for making this data available.

(Hainmueller, 2012). To implement entropy balancing, I first match firms domiciled in the Ninth Circuit with firms from other circuits on a set of firm characteristics including firm size, book-to-market ratio, firm age, current earnings, current stock return, change in earnings, unexpected earnings, a loss indicator, analyst forecast for future earnings, earnings volatility, return volatility, the number of business segments, the number of geographic segments, special items, an indicator for seasoned equity offering, an indicator for mergers and acquisitions, and an indicator for firms incorporated in Delaware. All firm characteristics used in the model are measured as the average value over the four years in the pre-period. I next match the first and second moments of firms headquartered in the Ninth Circuit and firms headquartered in other circuits using the entropy balancing technique specified in Hainmueller and Xu (2013). Finally, each control firm is assigned a weight after multiple iterations, and I use these weights in my subsequent difference-in-differences regressions.

4.2. Models and Results

4.2.1. Qualitative Disclosure and Quantitative Disclosure

I estimate Equation (1) to examine how firms respond to litigation risk through the amount of qualitative disclosure.

$$\#Word_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

The dependent variable, *#Word*, is the natural logarithm of the total number of words in a 10-K.[8] *Ninth_Circuit* is an indicator variable for firms headquartered in the Ninth Circuit during my sample period. *Post* equals 1 if the fiscal year is after 1999 and zero otherwise. I include two

[8] I remove all numerical values (i.e., 0-9) from 10-Ks to calculate this variable in order to capture the amount of qualitative information.

different sets of fixed effects to account for other factors that may influence corporate disclosure and report results from both specifications. First, I add firm fixed effects and year fixed effects to control for time-invariant firm characteristics and time trends. Second, I replace year fixed effects with industry-year fixed effects to account for time trends and concurrent events that are specific to a given industry. These fixed effects subsume the main effects of *Ninth_Circuit* and *Post* in all specifications. To adjust for serial and cross-sectional correlations in the error terms for observations from a given state, I cluster all standard errors by headquarter state following prior studies that explore this setting (e.g., Houston et al., 2019). The coefficient of interest is β_3, which captures the incremental change in the number of words disclosed in 10-Ks for firms located in the Ninth Circuit relative to control firms subsequent to the ruling.

I include control variables related to firm fundamentals, current and future performance, operating risk, business complexity, and corporate events, because these firm characteristics can potentially impact 10-K disclosures (e.g., Li, 2008; Li, 2010). I control for size because larger firms typically have longer annual reports. *Size* is the logarithm of market value of equity at the end of the fiscal year. I also control for the book-to-market ratio because growth firms tend to have more complex business models and longer disclosures. *Btm* is the book-to-market ratio calculated at the fiscal-year end. I further include firm age as a control because older firms usually have a better information environment and exhibit different annual report characteristics. *Age* is the logarithm of firm age calculated from the first year since the firm appeared on CRSP. I also include various measures for current and future firm performance because 10-K disclosure likely depends on firms' underlying economic performance. *Earn* is earnings before extraordinary items scaled by beginning total assets. *Ret* is the annual stock return measured over the fiscal year calculated using CRSP monthly returns. $\Delta EARN$ is the change in *Earn* from the previous year. *Afe* is analyst

forecast error, defined as the difference between the actual EPS and the most recent median of analyst forecasts from I/B/E/S scaled by the stock price at the end of the fiscal year. *Af* is one-year ahead analyst consensus EPS forecast scaled by the stock price at the fiscal-year end. I control for business volatility using return and earnings volatility, since firms in a more volatile environment are more likely to have more complex annual reports. *Std_Ret* is the standard deviation of monthly stock returns over the fiscal year. *Std_Earn* is the standard deviation of earnings over the past five years. Because the amount of 10-K disclosure likely correlates with the complexity of a firm's underlying business, I include the logarithm of the number of business segments (*Busseg*) and the logarithm of the number of geographic segments (*Geoseg*) to control for business complexity in the model. Special items are also included in the regression because firms reporting special items are often experiencing certain unusual activities that impact the length of annual reports. *Spi* is defined as the amount of special items scaled by book value of assets at the end of the fiscal year. Firms that undergo major corporate events may provide longer and more complex information in their disclosure. Therefore, I add two indicator variables for SEO (*SEO*) and M&A (*MA*) if it had occurred during the fiscal year. Lastly, I control for firms' incorporation state, because firms incorporated in Delaware have different corporate laws and may provide longer disclosure. *Delaware* equals 1 for firms incorporated in Delaware.

Table 2 reports results from estimating Equation (1). Column (1) presents results after including firm and year fixed effects and Column (2) reports results after controlling for firm and industry-year fixed effects. *Ninth_Circuit* and *Post* indicators are absorbed by the fixed effects and only the interaction between *Ninth_Circuit* and *Post* remains in the regression for all specifications. In Column (1), the coefficient on the interaction term is negative but insignificant. However, the coefficient on the interaction term stays negative and becomes significant in Column (2) after

controlling for industry-year fixed effects. The results suggest that that there is 2.1% decrease in the amount of qualitative information around the *SGI* ruling for the treated firms relative to control firms. Although a 2.1% change seems small, the change in the number of words is significant given that a 10-K contains over 20,000 words on average in my sample. The results from Table 2 could be interpreted in two ways. The findings may suggest that firms preempt qualitative disclosure in the pre-period to mitigate litigation costs and decrease the level of qualitative disclosure subsequent to the ruling when litigation risk is lower, consistent with the litigation reduction hypothesis in Skinner (1994). Alternatively, the results might also suggest that firms provide less soft information through qualitative disclosure and switch to more precise disclosure to convey hard information when there is less litigation concern. This interpretation is consistent with the disclosure suppression hypothesis that managers are reluctant to fully disclose information because disclosure could be viewed as misleading ex post and trigger shareholder litigation (Baginski et al., 2002). In order to distinguish between the two possibilities, I further examine how managers respond to litigation risk through quantitative disclosure, a more precise form of disclosure.

I estimate Equation (2) to test H1b on the effect of litigation risk on the amount of quantitative information disclosed in 10-Ks. The dependent variable, *#Number*, is the natural logarithm of the total number of numerical values in a 10-K.[9] All other variables in Equation (2) are previously defined.

[9] I include all numerical values (i.e., 0-9) disclosed in 10-Ks when constructing this measure and this research design choice may differ from several other papers. Some prior studies only include earnings-related numbers when identifying quantitative information because they are interested in financial information (e.g., Huang et al., 2014; Bozanic et al., 2017). However, I include non-earnings related numbers as well because I am interested in all types of quantitative information. For example, the number of new stores opened may not be earnings-related, however, the number does provide precise information to investors regarding the firm's operation. Some others exclude date-related numbers when measuring numerical intensity of 10-Ks (e.g., Bozanic et al., 2017). But I argue that sometimes date-related numbers can also provide concrete information with respect to firm's operation (e.g., the date of launch for a new product.

$$\#Number_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (2)$$

I report the results from estimating Equation (2) in Panel A of Table 3. The coefficient of interest is positive and significant in Column (1), suggesting a 2.4% increase in the absolute amount of quantitative information in 10-K for Ninth Circuit firms compared to other firms following the *SGI* ruling. The coefficient remains significant in Column (2) with firm and industry-year fixed effects. In Panel B of Table 3, I use the percentage of numbers in a 10-K as an alternative proxy for quantitative disclosure following prior literature (Dyer et al., 2017; Bozanic et al., 2017). The coefficient on the interaction between *Ninth_Circuit Post* is positive and significant in both columns in Panel B. The results indicate a 0.32% increase in the percentage of numbers in 10-K, which translates into an increase of 2.9% relative to the sample mean of *%Number*. Panel A and Panel B of Table 3 provide consistent evidence that the absolute and relative amount of quantitative information rises subsequent to the reduction in litigation risk. Combining the results in Table 2 and Table 3, I find that firms disclose less qualitative information but provide more quantitative information when the threat of shareholder litigation is lower. My findings are inconsistent with the prediction from the litigation reduction hypothesis because I do not observe decreases in both qualitative disclosure and quantitative disclosure. Instead, the results are consistent with the disclosure suppression hypothesis in that firms switch from a less precise form of disclosure (i.e., qualitative disclosure) to a more precise form of disclosure (i.e., quantitative disclosure) when managers are less concerned about legal liability.

4.2.2. Tone Management

Next, I explore whether litigation risk affects how managers convey qualitative disclosure in 10-Ks. In this section, I investigate the effect of litigation risk on the extent of tone management.

I use a two-stage model to measure abnormal tone following Huang et al. (2014). I calculate the tone of 10-K based on the dictionary from Loughran and McDonald (2011) instead of other available dictionaries because Henry and Leone (2016) find that domain-specific wordlists are more powerful in the context of financial disclosure research relative to general wordlists. *Tone* is defined as the difference between the count of positive and negative words divided by total words in a 10-K. In the first-stage model, I run a set of annual cross-sectional regressions where I regress *Tone* on a set of determinants of normal tone including current performance, firm fundamentals, growth opportunities, operating risk, and complexity, as outlined in Huang et al. (2014). All variables follow prior definitions. I define the residual from Equation (3) as abnormal tone (*Abtone*) and subsequently use it in the second-stage model.

$$Tone_{i,t} = \beta_0 + \beta_1 Earn_{i,t} + \beta_2 Ret_{i,t} + \beta_3 Size_{i,t} + \beta_4 Btm_{i,t} + \beta_5 Std\_Ret_{i,t} + \beta_6 Std\_Earn_{i,t} + \beta_7 Age_{i,t} + \beta_8 Busseg_{i,t} + \beta_9 Geoseg_{i,t} + \beta_{10} Loss_{i,t} + \beta_{11} \Delta Earn_{i,t} + \beta_{12} Afe_{i,t} + \beta_{13} Af_{i,t} + \varepsilon_{i,t} \quad (3)$$

To test H2, I estimate Equation (4) where I regress abnormal tone from Equation (3) on a set of variables using a difference-in-differences design. All key variables are defined the same as Equation (1). The coefficient of interest is β_3, which captures the incremental change in abnormal tone for firms located in the Ninth Circuit relative to other firms subsequent to the court ruling.

$$Abtone_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (4)$$

I report results from estimating Equation (4) in Table 4. In both Columns (1) and (2), the coefficient on the interaction between *Ninth_Circuit* and *Post* is negative and significant, suggesting a decrease in the level of tone management for Ninth Circuit firms compared to other firms around the ruling. In terms of economic magnitude, the change in abnormal tone for treated

firms is approximately 5.0% relative to the interquartile range of *Abtone*.[10] Since abnormal tone proxies for tone not explained by firm fundamentals, the results indicate that managers of treated firms bias their tone less when they face lower litigation risk after the *SGI* ruling. At face value, the results in Table 4 suggest a negative relationship between litigation risk and tone management and are inconsistent with the argument that shareholder litigation threat constrains managers from providing optimistic qualitative disclosure. However, the results may not reflect a pure increase in disclosure quality subsequent to the *SGI* ruling, because Hopkins (2018) and Huang et al. (2019) document an increase in the level of earnings management for firms in the Ninth Circuit following the *SGI* ruling. Considered with the findings in Hopkins (2018) and Huang et al. (2019), my results imply a switch from perception management through qualitative information to perception management with quantitative information.

4.2.3. Readability

Next, I examine how 10-K readability changes as a result of changes in litigation risk. I measure the readability of 10-Ks using the Bog Index from Bonsall et al. (2017) since Bonsall et al. (2017) suggest that other readability proxies such as the Fog index and 10-K file size used in prior literature are more subject to measurement errors. Specifically, Bonsall et al. (2017) argue that the Fog index categorizes certain commonly used business terms as complex words and the variation of 10-K file size over time is driven by differences in file formats (e.g., HTML, XML, PDFs). I estimate Equation (5) to test H3. I use a difference-in-differences research design with entropy balancing, similar to Equations (1), (2), and (4). Key variables are defined in the same way as Equation (1). I include the same set of control variables as Equation (1) because Li (2008) documents that firms characteristics such as firm performance, growth opportunities, operating

[10] I compare the magnitude to the interquartile range instead of the mean of *Abtone*, because the value of *Abtone* is on average zero by construction.

risk, and complexity could impact the readability of 10-K. I am interested in the coefficient on the interaction term between *Ninth_Circuit* and *Post*.

$$Bog_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (5)$$

I report results from estimating Equation (5) in Table 5. The coefficient on the interaction term between *Ninth_Circuit* and *Post* is negative and significant in both Column (1) and Column (2). Since a higher Bog Index indicates lower readability, my results indicate an improvement in the readability of the 10-K subsequent to the reduction in litigation risk for firms in the Ninth Circuit compared to other firms. The magnitude of the coefficient suggests that the relative increase in readability for treated firms is about 8.9% of the interquartile range of the Bog Index. Overall, I find some evidence that ex ante litigation concerns have partially contributed to the low readability of 10-Ks. My results provide empirical support for the conjecture of a negative relationship between litigation risk and readability in Bloomfield (2008), suggesting that ex ante litigation risk incentivizes managers to use more legalese and less readable language in 10-Ks in an attempt to obfuscate investors and to protect themselves from shareholder litigation.

4.2.4. Uncertainty

I measure uncertainty using the dictionary from Loughran and McDonald (2011). The uncertainty words defined in Loughran and McDonald (2011) include words such as "*approximate*" and represent imprecise disclosure. This uncertainty measure is also often used as a proxy for cautionary language (e.g., Bozanic et al., 2019). I test the effect of the *SGI* ruling on the use of uncertainty language using Equation (6). *Uncertain* is defined as the proportion of uncertainty words in 10-Ks. I include the same set of control variables from Equation (5) because firm

characteristics that influence readability are also likely to impact the use of uncertainty language. I am primarily interested in the coefficient on the interaction term between *Ninth_Circuit* and *Post*.

$$Uncertain_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (6)$$

Table 6 presents results from estimating Equation (6). In both Columns (1) and (2), the coefficient on the interaction term between *Ninth_Circuit* and *Post* is insignificant. Although I fail to find empirical evidence that use of uncertainty language is positively related to litigation risk, the results might be attributable to firms' asymmetric use of cautionary language. Nelson and Prichard (2016) argue that firms that experience an increase in litigation risk will increase the use of cautionary language while firms that experience a decrease in litigation risk will not remove such language as long as the marginal cost of including it in subsequent filings is low. Since I examine a setting where there is an exogenous decrease in litigation risk, it is likely that managers do not decrease the use of uncertain language if firms do not suffer significant capital market consequences from retaining it.

Combining results from Table 3 to Table 6, I provide evidence that managers disclose less qualitative information but more quantitative information when there is a decrease in ex-ante litigation risk. My results are consistent with the disclosure suppression hypothesis raised in Baginski et el. (2002) that managers are reluctant to fully disclose or provide precise disclosure due to fear of potential legal liability. Therefore, firms harden the soft information contained in qualitative disclosure and translate it into a more precise form (i.e., quantitative disclosure) when litigation concerns decline. In terms of the attributes of qualitative disclosure, my findings suggest that managers engage in less tone management, provide more readable disclosure, and do not change the level of uncertainty language in 10-Ks when facing lower litigation risk.

There are two takeaways from these findings. First, although the results seem to suggest an improvement in the quality of qualitative disclosure, they need to be interpreted together with other studies that document an increase in earnings management activities following the *SGI* ruling (Hopkins, 2018; Huang et al., 2019). Instead of simply improving overall disclosure quality, the *SGI* ruling appears to incentivize firms to shift from the manipulation of qualitative information (i.e., tone management) to the manipulation of quantitative information (e.g., earnings management). Second, my results provide the first piece of causal evidence that litigation risk has contributed to information overload in 10-Ks. Firms shorten the length of qualitative disclosure and enhance the readability of qualitative disclosure subsequent to the decrease in litigation risk. In addition to FASB standards and SEC requirements documented in Dyer et al. (2017), I identify litigation risk as another factor that explains the change in 10-K characteristics over time.

CHAPTER 5

ADDITIONAL EVIDENCE: CAPITAL MARKET CONSEQUENCES

Thus far I have documented a decrease in the amount of qualitative information, an increase in the amount of quantitative information, and an improvement in the quality of qualitative disclosure. However, it is an empirical question what the net capital market effect of the *SGI* ruling is for two reasons. First, it is unclear ex ante whether the additional quantitative disclosure contains valuable information and whether the changes in qualitative disclosure matter to capital market participants. Second, it is especially difficult to predict the net effect given the increase in earnings management activity and the decrease in management forecasts surrounding the same ruling, as documented in other studies (Hopkins, 2018; Houston et al., 2019; Huang et al., 2019). In this section, I investigate the change in analyst forecast accuracy following *SGI* to assess the net effect of the disclosure changes triggered by the ruling. I choose to focus on analyst forecasts instead of other capital market consequences such as market reactions and trading volume, because prior studies document that 10-Ks usually do not generate as much capital market reaction as some other disclosure channels (Beyer et al., 2010). Further, the existing literature provides strong evidence that analysts incorporate both qualitative and quantitative information from 10-K reports when generating earnings forecasts (Botosan and Harris, 2000; Hirst and Hopkins, 1998; Lehavy et al., 2011; Previts et al., 1994).

To empirically test the effect of the *SGI* ruling on analyst forecast accuracy. I estimate the following model where the dependent variable is analyst forecast accuracy (*Accuracy*). Following Lehavy et al. (2011), I first calculate the squared analyst forecast error for the first median

consensus annual earnings forecast for the following fiscal year issued right after the 10-K filing, scaled by stock price 90 days before the release of the consensus forecast. Next, I further multiply the measure by -1 for interpretation purposes. A higher value of *Accuracy* indicates higher analyst forecast accuracy. I focus on the first analyst consensus forecast following the release of the 10-K because these forecasts are the ones most likely to be influenced by 10-K disclosure. I include control variables from my main model, as prior studies document that firm fundamentals, business complexity, and other variables related to firms' information environment are likely to impact analyst forecast properties. In addition, I also control for the number of analysts following the firm (*Coverage*). The coefficient of interest is β_3, which reflects the incremental change in analyst forecast accuracy for firms located in the Ninth Circuit relative to control firms subsequent to the ruling.

$$Accuracy_{i,t} = \beta_0 + \beta_1 Ninth\_Circuit_{i,t} + \beta_2 Post_{i,t} + \beta_3 Ninth\_Circuit_{i,t} \times Post_{i,t} + Controls + Fixed\ Effects + \varepsilon_{i,t} \quad (7)$$

I report results on analyst forecast accuracy in Table 7. In both Columns (1) and (2), I observe a significant increase in analyst forecast accuracy for firms headquartered in the Ninth Circuit following the ruling. The results suggest that the disclosure changes in 10-Ks triggered by *SGI* appear to provide some useful information on firms' future earnings to at least one group of capital market participants (i.e., securities analysts). The results are likely attributable to the greater amount of hard information and more readable disclosure contained in 10-Ks, since prior studies document that analysts heavily rely on both qualitative and quantitative information, but are also negatively affected by complexity in qualitative disclosure (Lehavy et al., 2011).

CHAPTER 6

ROBUSTNESS TESTS

6.1. Parallel Trends Assumption

Drawing causal inferences from a difference-in-differences research design using a quasi-natural experiment heavily relies on the parallel trends assumption (Armstrong and Kepler, 2018). I perform a parallel trends analysis in this section to explicitly test whether firms in the Ninth Circuit and firms outside the Ninth Circuit exhibit similar trends in terms of their disclosure characteristics preceding the *SGI* ruling. If I observe significance differences in disclosure trends between the treatment group and the control group prior to the *SGI* ruling, my findings could be a result of the differing trends instead of the change in litigation risk. I re-estimate all of my models using observations from 1995 to 1998. I employ a pseudo-event design by treating 1995 to 1996 as the pre-period and 1997 to 1998 as the post-period. I report the results from this analysis in Table 8. Most coefficients on the interaction between *Ninth_Circuit* and *Post* are insignificant. Although I observe a significant coefficient on *Ninth_Circuit*×*Post* in Column (2), where the number of numbers is the dependent variable, the coefficient becomes insignificant in Column (3) when I switch the dependent variable to the percentage of numbers in 10-Ks. Overall, the results in Table 8 suggest that my tests satisfy the parallel trends assumption in general.

6.2. Alternative Event Window

I follow prior literature and use four years before and after the *SGI* ruling in all of my main tests (Houston et al., 2019; Huang et al., 2019). In this section, I employ a shorter window, three years before and after the ruling, to mitigate the concern that my results are attributable to other

concurrent events during the sample period (e.g., the Sarbanes-Oxley Act of 2002). Although ex ante it is not clear why contemporaneous nationwide events should affect my treatment firms and control firms differently. I report results for each of the dependent variables in Table 9. I continue to observe a significant decrease in the quantity of qualitative disclosure, an increase in the relative amount of quantitative information, a decline in the level of tone management, and an improvement in readability for firms headquartered in the Ninth Circuit following the ruling.

6.3. High-Tech Firms

Since a significant portion of firms located in the Ninth Circuit (including California) are high-tech firms and the *SGI* ruling was issued around the same time as the start of the dot-com bubble, an alternative explanation for my results is that some treated firms change their qualitative disclosure in response to the poor performance as a result of the dot-com bubble. However, I choose not to remove high-tech firms from my sample to reserve the power of my tests, especially since *SGI* was a high-tech firm and the effect of the ruling may be more pronounced for its industry peers. Instead, I address this potential concern using two alternative approaches. First, I include industry-year fixed effects in the test of each hypothesis. Industry-year fixed effects control for all industry-specific time trends or concurrent events that occur in a specific industry, such as the dot-com bubble. All of my results are robust to this specification, suggesting that the dot-com bubble likely does not explain the results that I observe. Second, I only keep high-tech firms in my sample and repeat the main analyses. I define high-tech firms following Francis and Schipper (1999). These high-tech firms should be similarly affected by the dot-com bubble although they are headquartered in different circuits. I report results based on the high-tech sample in Table 10 Overall, the results are largely consistent with my main findings. Even among high-tech firms, firms headquartered in the Ninth Circuit disclose more quantitative information, engage in less

tone management, and provide more readable disclosure. The evidence collectively suggests that my results are unlikely to be an artifact of the dot-com bubble.

Further, firms in the high-tech industries likely had poor performance in the post-period of my sample. The existing literature documents that the annual reports of firms reporting lower earnings tend to be longer and less readable (Li, 2008). Further, the use of tone management is often associated with negative performance (Huang et al., 2014). These arguments suggest that high-tech firms would engage in more tone management and disclose longer and less readable 10-Ks in the post-period, implying that the effect of the dot-com bubble on some Ninth Circuit firms should bias against finding the results that I document in the main tests.

CHAPTER 7

CONCLUSION

This study explores how the legal environment influences managers' decisions to disclose qualitative information in 10-Ks. To examine my research question, I exploit a court ruling as a plausibly exogenous shock to the legal environment of a subset of U.S. firms. Specifically, the *SGI* ruling in 1999 significantly lowers the litigation risk of firms located in the Ninth Circuit. Following prior literature, I predict that managers alter their disclosure choices in response to the change in ex ante litigation risk based on the costs and benefits of disclosure. First, I examine the effects of the ruling on the amount of qualitative disclosure and the trade-off between disclosing qualitative versus quantitative information. Second, I study whether managers respond to the decline in litigation risk through the way they communicate qualitative information (i.e., tone management, readability, and uncertainty) in 10-Ks.

Using a difference-in-differences design with entropy balancing, I document that treated firms provide less qualitative disclosure but more quantitative disclosure subsequent to the decrease in litigation risk. My results suggest that managers treat qualitative and quantitative disclosure as substitutes instead of complements in the face of litigation concerns. Specifically, firms switch from providing imprecise soft information to disclosing more precise hard information when they are less concerned that inaccurate hard information may trigger litigation ex post. Therefore, my results support the disclosure suppression hypothesis that managers are reluctant to fully disclose information due to potential litigation costs (e.g., Baginski et al., 2002; Bourveau et al., 2018). Further, I provide evidence that firms also alter the attributes of qualitative

disclosure in response to litigation risk. There is a significant decrease in the level of tone management in 10-Ks when managers face less threat from shareholder litigation. There is also a substantial improvement in 10-K readability subsequent to the decline in litigation risk. The results suggest that managers provide less biased qualitative statements and obfuscate less through qualitative disclosure following the *SGI* ruling. However, considering the increase in earnings management documented in Hopkins (2018) and Huang et al. (2019), the empirical evidence collectively suggests a switch from perception management through qualitative information to perception management through quantitative information when the potential legal penalty is lower. In additional tests, I further explore the capital market consequences of the decrease in litigation risk. Specifically, I document an improvement in analyst forecast accuracy following the ruling, indicating that the disclosure changes provide some useful information to capital market participants.

My study contributes to the disclosure literature in several ways. First, prior studies on litigation risk and disclosure exclusively focus on a single form of disclosure, management forecasts, and overlooks other disclosure venues. I examine the effect of litigation risk on qualitative disclosure because of the growing prevalence of securities class action lawsuits filed over qualitative disclosure in recent years. Second, the existing literature does not examine the potential interaction between different types of disclosures in face of litigation risk although it is well recognized that disclosure decisions are not independent from each other. I provide evidence that qualitative disclosure and quantitative disclosure react to litigation risk in opposite directions, suggesting that the two are substitutes. Third, most studies on litigation risk face severe endogeneity problems as a result of omitted correlated variables or reverse causality (Beyer et al. 2010). I rely on a court ruling as a plausibly exogenous shock to litigation risk to draw causal

inferences. Lastly, my study provides policy implications regarding how different economic forces shape 10-K disclosure in addition to FASB standards and SEC regulations documented in Dyer et al. (2017). Consistent with the beliefs of practitioners and regulators (KPMG, 2011; White, 2013), I empirically identify litigation risk as a factor that contributes to longer and less readable 10-Ks.

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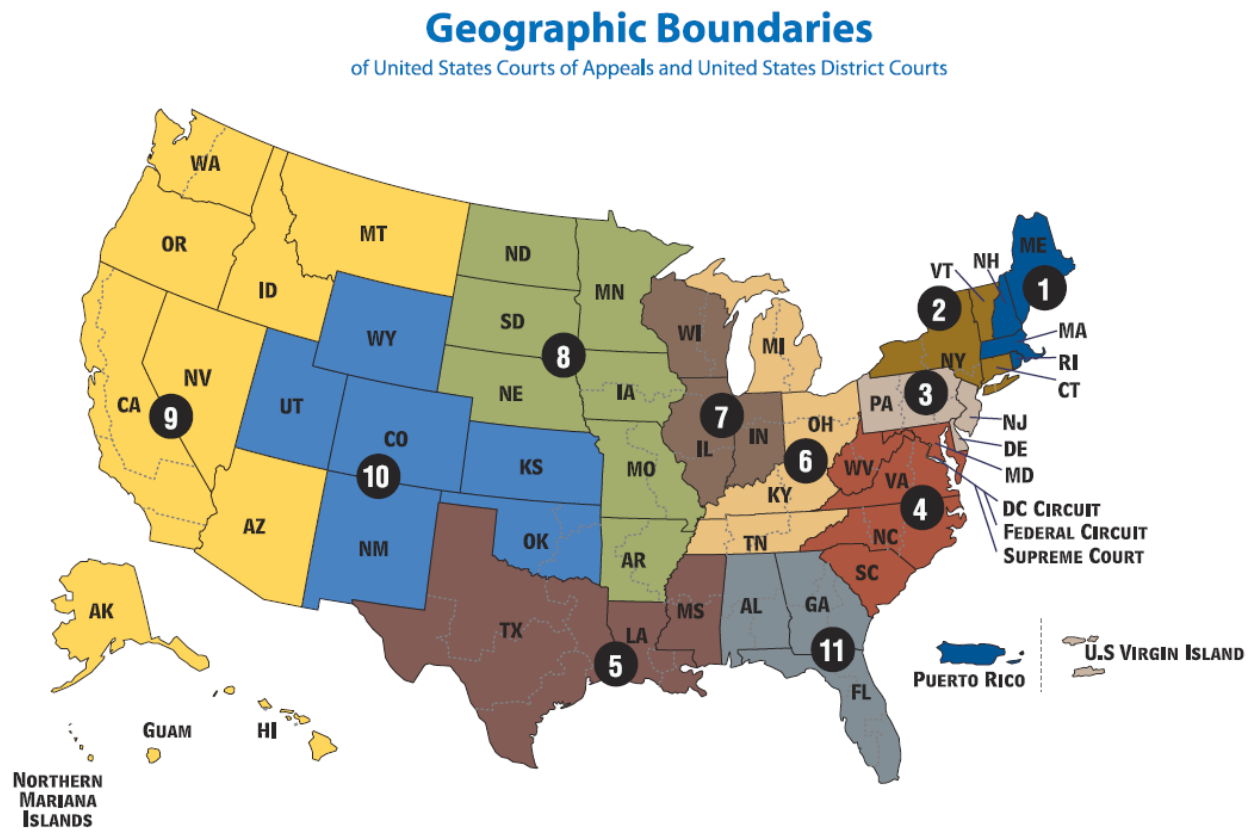
APPENDIX A
VARIABLE DEFINITIONS

Variable	Definition
Key Variables	
Ninth_Circuit	An indicator that equals one if a firm is historically headquartered in the Ninth Circuit at the time of the *SGI* ruling and zero otherwise.
Post	An indicator that is set to one for fiscal years after 1999 and zero otherwise.
#Word	The natural logarithm of the total number of words in a 10-K.
#Number	The natural logarithm of the total number of numbers in a 10-K.
%Number	The number of numerical values divided by the total number of numbers and words in a 10-K.
Tone	The frequency difference between the positive and the negative words defined in Loughran and McDonald (2011) scaled by total words in a 10-K.
Abtone	The residual from regressing *Tone* on a set of firm fundamentals in an annual cross-sectional regression.
Bog	The Bog Index from Bonsall et al. (2017). Higher value of *Bog* indicates lower readability.
Uncertain	The number of uncertainty words defined in Loughran and McDonald (2011) scaled by total words in a 10-K.
Control Variables	
Earn	Earnings before extraordinary item scaled by lagged total assets.
Ret	Contemporaneous annual stock returns calculated using CRSP monthly return data.
Size	Logarithm of market value of equity at fiscal year-end.
Btm	Book-to-market ratio measured at fiscal year-end.
Std_Ret	Standard deviation of monthly stock returns over the fiscal year.
Std_Earn	Standard deviation of *Earn* calculated over the last five years, with at least three years of data required.
Age	The natural logarithm of one plus the number of years since the first year the firm entered the CRSP dataset.
Busseg	The natural logarithm of one plus the number of business segments or one if item is missing from Compustat.
Geoseg	The natural logarithm of one plus the number of geographic segments or one if item is missing from Compustat.
Loss	An indicator variable that equals one when *Earn* is negative and zero otherwise.
ΔEarn	Change in earnings before extraordinary item scaled by beginning total assets.
Afe	Analyst forecast error, defined as I/B/E/S earnings per share minus the median of the most recent analysts' forecasts, deflated by stock price per share at the end of the fiscal year.

Af	Analyst consensus forecast for one-year-ahead earnings per share scaled by stock price per share at the end of the fiscal year.
Spi	The amount of special items scaled by book value of assets at the end of the fiscal year.
MA	An indicator set to one for a year in which a company appears in the SDC Platinum M&A database as an acquirer and zero otherwise.
SEO	An indicator set to one for a year in which a company has a common equity offering in the secondary market according to the SDC Global New Issues database and zero otherwise.
Delaware	An indicator set to one if a firm is historically incorporated in Delaware and zero otherwise.
Accuracy	The squared difference between I/B/E/S actual earnings per share and the first median consensus annual earnings forecast issued following the 10-K filing for the following fiscal year, scaled by stock price 90 days before the release of the consensus forecast. I further multiply this measure by -1 for easier interpretation. A higher value indicates higher analyst forecast accuracy.
Coverage	The number of analysts included in the first consensus annual earnings forecast following the 10-K filing.

Figure 1
Federal Court Circuits



Source: https://www.uscourts.gov

Table 1
Sample and Descriptive Statistics

This table summarizes the sample construction process and descriptive statistics for my sample used in the main tests. Panel A reports sample filters and the number of observations dropped after each filter. The sample includes firm-year observations from 1995 to 2003. Panel B reports summary statistics of key variables and control variable for my sample between 1995 and 2003.

Panel A: Sample selection

Sample filters	# of obs
Observations with available 10-K data from 1995 to 2003	47,190
Remove observations missing control variables	(17,800)
Remove firms without both pre- or post- observations	(10,997)
Remove observations from event year (i.e., 1999)	(2,595)
Final Sample	15,798

Panel B: Descriptive Statistics

VARIABLES	N	mean	sd	p25	p50	p75
Key Variables						
Ninth_Circuit	15,798	0.218	0.413	0.000	0.000	0.000
Post	15,798	0.537	0.499	0.000	1.000	1.000
#Word	15,798	10.080	0.432	9.787	10.070	10.360
#Number	15,798	7.973	0.440	7.669	7.939	8.258
%Number	15,798	0.111	0.024	0.095	0.109	0.126
Tone	15,798	-0.004	0.004	-0.006	-0.003	-0.001
Abtone	15,798	0.000	0.003	-0.002	0.000	0.002
Bog	15,317	80.730	8.010	75.000	80.000	86.000
Uncertain	15,798	0.008	0.002	0.007	0.008	0.010
Control Variables						
Earn	15,798	0.021	0.157	0.007	0.038	0.090
Return	15,798	0.202	0.526	-0.077	0.192	0.457
Size	15,798	6.374	1.767	5.089	6.263	7.513
Btm	15,798	0.563	0.462	0.277	0.465	0.701
Std_Ret	15,798	0.139	0.082	0.080	0.118	0.175
Std_Earn	15,798	0.085	0.153	0.014	0.035	0.086
Age	15,798	2.587	0.787	2.005	2.532	3.232
Busseg	15,798	0.955	0.527	0.693	0.693	1.386
Geoseg	15,798	0.961	0.555	0.693	1.099	1.386
Loss	15,798	0.214	0.410	0.000	0.000	0.000
ΔEarn	15,798	0.004	0.108	-0.016	0.004	0.029
Afe	15,798	-0.009	0.070	-0.001	0.000	0.001
Af	15,798	0.053	0.204	0.021	0.045	0.076
Spi	15,798	-0.037	0.145	-0.021	0.000	0.000
MA	15,798	0.528	0.499	0.000	1.000	1.000
SEO	15,798	0.292	0.455	0.000	0.000	1.000
Delaware	15,798	0.542	0.498	0.000	1.000	1.000
Accuracy	14,906	-0.251	1.611	-0.009	-0.001	0.000
Coverage	14,906	7.594	6.791	3.000	5.000	10.000

Table 2
Litigation Risk and Qualitative Disclosure

This table presents results on how the decrease in litigation risk impacts the amount of qualitative disclosure in 10-K. The dependent variable, *#Word*, is the natural logarithm of the total number of words in a 10-K. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *#Word*	
	(1)	(2)
Ninth_Circuit×Post	-0.0157	-0.0210**
	(-1.58)	(-2.13)
Earn	-0.1869***	-0.1713***
	(-6.81)	(-6.43)
Return	-0.0174***	-0.0207***
	(-3.03)	(-3.85)
Size	0.0186***	0.0224***
	(3.65)	(4.46)
Btm	0.0287***	0.0288***
	(3.43)	(3.67)
Std_Ret	0.2396***	0.2521***
	(6.18)	(6.42)
Std_Earn	0.0512	0.0608
	(1.62)	(1.61)
Age	-0.0850***	-0.0973***
	(-4.89)	(-6.89)
Busseg	0.0937***	0.0788***
	(10.39)	(9.13)
Geoseg	0.0245*	0.0202*
	(1.94)	(1.71)
Loss	0.0292***	0.0268***
	(4.53)	(3.74)
ΔEarn	0.0865***	0.0800***
	(4.68)	(4.53)
Afe	-0.0703	-0.0643
	(-1.41)	(-1.29)
Af	0.0028	0.0107
	(0.21)	(0.96)
Spi	-0.0326**	-0.0442***
	(-2.12)	(-3.00)
SEO	0.0083	0.0057
	(0.67)	(0.48)
MA	0.0326***	0.0291***
	(4.47)	(3.82)
Delaware	0.0972***	0.0847***
	(3.93)	(4.04)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,798	15,798
Adjusted R^2	0.7929	0.8012

Table 3
Litigation Risk and Quantitative Disclosure

This table reports results on how the decrease in litigation risk impacts the amount of quantitative disclosure in 10-K. The dependent variable in Panel A, *#Number*, is the natural logarithm of the total number of numbers in a 10-K. The dependent variable in Panel B, *%Number*, is the percentage of numbers in 10-K. *Ninth_Circuit* is an indicator for firms historically headquartered in the Ninth Circuit. *Post* is an indicator for fiscal years after 1999. Standard errors are clustered by state and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: The Number of Numbers in 10-K

	Dependent Variable: *#Number*	
	(1)	(2)
Ninth_Circuit×Post	0.0237**	0.0174*
	(2.37)	(1.77)
Earn	-0.1183***	-0.1076***
	(-5.33)	(-5.80)
Return	-0.0155***	-0.0189***
	(-3.85)	(-4.84)
Size	0.0135***	0.0165***
	(2.96)	(3.69)
Btm	0.0197***	0.0175**
	(2.91)	(2.63)
Std_Ret	0.1902***	0.1926***
	(7.30)	(7.48)
Std_Earn	0.0347	0.0582**
	(1.51)	(2.61)
Age	-0.0012	-0.0193
	(-0.09)	(-1.60)
Busseg	0.1007***	0.0915***
	(7.74)	(6.85)
Geoseg	0.0157*	0.0169**
	(1.80)	(2.41)
Loss	0.0140	0.0121
	(1.34)	(1.01)
ΔEarn	0.0905***	0.0828***
	(6.36)	(6.27)
Afe	-0.0600	-0.0437
	(-1.52)	(-1.11)
Af	-0.0076	0.0033
	(-0.61)	(0.36)
Spi	-0.0607***	-0.0680***
	(-3.07)	(-3.30)
SEO	0.0146	0.0107
	(1.60)	(1.31)
MA	0.0401***	0.0395***
	(5.28)	(5.45)
Delaware	0.0930***	0.0816***
	(3.33)	(4.02)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,798	15,798
Adjusted R^2	0.8121	0.8199

Panel B: The Percentage of Numbers in 10-K

	Dependent Variable: *%Number*	
	(1)	(2)
Ninth_Circuit×Post	0.0032***	0.0031***
	(4.23)	(3.93)
Earn	0.0058***	0.0055***
	(3.98)	(3.73)
Return	0.0001	0.0001
	(0.47)	(0.45)
Size	-0.0003	-0.0003
	(-0.76)	(-0.66)
Btm	-0.0008	-0.0009*
	(-1.58)	(-1.99)
Std_Ret	-0.0066**	-0.0066**
	(-2.60)	(-2.06)
Std_Earn	-0.0006	0.0002
	(-0.30)	(0.07)
Age	0.0072***	0.0070***
	(9.76)	(8.52)
Busseg	0.0009	0.0015*
	(1.27)	(1.70)
Geoseg	-0.0003	0.0001
	(-0.51)	(0.19)
Loss	-0.0013**	-0.0012**
	(-2.33)	(-2.04)
ΔEarn	-0.0003	-0.0004
	(-0.28)	(-0.36)
Afe	0.0017	0.0024
	(1.10)	(1.47)
Af	-0.0005	-0.0004
	(-0.86)	(-0.63)
Spi	-0.0021**	-0.0016
	(-2.15)	(-1.56)
SEO	-0.0001	-0.0001
	(-0.16)	(-0.15)
MA	0.0005	0.0008
	(0.98)	(1.22)
Delaware	-0.0005	-0.0005
	(-0.53)	(-0.52)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,798	15,798
Adjusted R^2	0.7535	0.7612

Table 4
Litigation Risk and Tone Management

This table presents results on how the decrease in litigation risk impacts tone management in 10-K. The dependent variable, *Abtone*, is the residual from regressing the tone of 10-K on a set of firm fundamentals in an annual cross-sectional regression. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Abtone*	
	(1)	(2)
Ninth_Circuit×Post	-0.0002**	-0.0002**
	(-2.38)	(-2.66)
Earn	-0.0000	-0.0004
	(-0.12)	(-1.24)
Return	-0.0003***	-0.0003***
	(-5.02)	(-4.84)
Size	0.0008***	0.0008***
	(10.18)	(10.31)
Btm	0.0006***	0.0006***
	(3.71)	(4.48)
Std_Ret	0.0026***	0.0026***
	(8.37)	(5.94)
Std_Earn	0.0001	0.0003
	(0.48)	(1.14)
Age	-0.0001	0.0000
	(-0.20)	(0.15)
Busseg	0.0001	0.0002
	(0.67)	(1.18)
Geoseg	-0.0001	-0.0001
	(-0.87)	(-0.67)
Loss	0.0007***	0.0007***
	(6.15)	(5.63)
ΔEarn	0.0007***	0.0009***
	(3.17)	(3.65)
Afe	-0.0008**	-0.0007**
	(-2.12)	(-2.13)
Af	0.0011***	0.0011***
	(7.32)	(7.27)
Spi	0.0009***	0.0009***
	(4.93)	(5.10)
SEO	-0.0003**	-0.0003***
	(-2.55)	(-3.11)
MA	-0.0001	-0.0000
	(-1.16)	(-0.19)
Delaware	0.0001	0.0001
	(0.74)	(0.75)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,798	15,798
Adjusted R^2	0.6270	0.6411

Table 5
Litigation Risk and Readability

This table presents results on how the decrease in litigation risk impacts readability in 10-K. The dependent variable, *Bog*, is the Bog Index as defined in Bonsall et al. (2017). *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Bog*	
	(1)	(2)
Ninth_Circuit×Post	-0.9757**	-0.9036**
	(-2.07)	(-2.36)
Earn	-0.9285*	-0.7789
	(-1.79)	(-1.42)
Return	0.0516	-0.1097
	(0.44)	(-0.94)
Size	-0.1310	0.0223
	(-1.39)	(0.23)
Btm	0.6104***	0.4746**
	(3.32)	(2.43)
Std_Ret	-1.2557	-0.1645
	(-1.66)	(-0.27)
Std_Earn	0.9864	0.8289
	(1.53)	(1.44)
Age	-3.5277***	-3.2411***
	(-6.77)	(-6.03)
Busseg	1.0320***	0.8131***
	(3.63)	(3.39)
Geoseg	0.3959**	0.4179**
	(2.52)	(2.34)
Loss	0.5285***	0.4257***
	(4.07)	(3.20)
ΔEarn	-0.2720	-0.2208
	(-0.72)	(-0.50)
Afe	0.7588	0.5201
	(1.32)	(0.94)
Af	1.0633**	0.8533
	(2.04)	(1.63)
Spi	-0.2822	-0.2955
	(-1.09)	(-1.11)
SEO	-0.6975***	-0.4759
	(-2.79)	(-1.51)
MA	0.6990***	0.6615***
	(4.28)	(4.14)
Delaware	0.2912	0.4888
	(0.71)	(1.14)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,317	15,317
Adjusted R^2	0.8016	0.8125

Table 6
Litigation Risk and Uncertainty

This table presents results on how the changes in litigation risk impact uncertainty language in 10-K. The dependent variable, *Uncertain*, is the number of uncertainty words defined in Loughran and McDonald (2011) scaled by total words in a 10-K. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Uncertain*	
	(1)	(2)
Ninth_Circuit×Post	0.0001	0.0001
	(0.97)	(0.61)
Earn	-0.0004	-0.0002
	(-1.14)	(-0.66)
Return	-0.0001***	-0.0001**
	(-3.22)	(-2.59)
Size	0.0002***	0.0002***
	(6.35)	(5.55)
Btm	0.0002***	0.0001***
	(4.07)	(3.88)
Std_Ret	0.0007**	0.0005
	(2.45)	(1.36)
Std_Earn	-0.0001	-0.0001
	(-0.38)	(-0.47)
Age	-0.0001	-0.0001
	(-0.64)	(-0.83)
Busseg	0.0000	-0.0001
	(0.06)	(-0.91)
Geoseg	0.0002**	0.0001
	(2.31)	(0.71)
Loss	0.0001	0.0001
	(0.88)	(0.77)
ΔEarn	0.0001	0.0000
	(0.72)	(0.02)
Afe	0.0002	0.0002
	(1.20)	(0.84)
Af	-0.0002***	-0.0002**
	(-2.87)	(-2.43)
Spi	0.0001	0.0001
	(0.90)	(0.78)
SEO	0.0000	0.0000
	(0.22)	(0.16)
MA	0.0001	0.0001
	(1.46)	(1.36)
Delaware	-0.0000	0.0000
	(-0.35)	(0.04)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	15,798	15,798
Adjusted R^2	0.7703	0.7783

Table 7
Analyst Forecast Accuracy

This table presents results on how the decrease in litigation risk affects analyst forecast accuracy. The dependent variable, *Accuracy*, is the squared analyst forecast error using the first median consensus annual earnings forecast issued after the 10-K filing for the following fiscal year, scaled by stock price 90 days before the release of the consensus forecast. I further multiply this measure by -1 for easier interpretation. A higher value indicates higher analyst forecast accuracy. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: *Accuracy*	
	(1)	(2)
Ninth_Circuit×Post	0.1138**	0.1146**
	(2.52)	(2.38)
Earn	-0.3214	-0.3468
	(-1.62)	(-1.66)
Return	0.0035	0.0049
	(0.09)	(0.12)
Size	0.1156	0.0991
	(1.38)	(1.32)
Btm	-0.1869	-0.2065
	(-1.31)	(-1.45)
Std_Ret	-0.6911**	-0.4306*
	(-2.43)	(-1.80)
Std_Earn	0.3396**	0.3269*
	(2.04)	(1.96)
Age	0.0119	-0.0363
	(0.15)	(-0.54)
Busseg	-0.0153	-0.0062
	(-0.21)	(-0.10)
Geoseg	-0.0598	0.0100
	(-1.23)	(0.15)
Loss	-0.0294	-0.0172
	(-0.57)	(-0.33)
ΔEarn	0.2226	0.2690
	(1.14)	(1.31)
Afe	2.8418***	3.0310***
	(4.82)	(5.30)
Coverage	-0.0029	-0.0022
	(-0.36)	(-0.35)
Spi	-0.1077	-0.0633
	(-0.59)	(-0.39)
SEO	0.0265	0.0322
	(0.54)	(0.63)
MA	-0.0387	-0.0195
	(-0.86)	(-0.40)
Delaware	0.0736	0.0547
	(1.06)	(0.64)
Firm FE	Yes	Yes
Year FE	Yes	No
Industry×Year FE	No	Yes
Observations	14,906	14,906
Adjusted R^2	0.6287	0.6405

Table 8
Parallel Trends Analysis

This table reports results from the parallel trends analysis using firm-year observations prior to the *SGI* ruling (i.e., 1995-1998). All dependent variables have been previously defined. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1997. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable					
	#Word	*#Number*	*%Number*	*Abtone*	*Bog*	*Uncertain*
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth_Circuit×*Post*	0.0053	0.0220**	0.0010	-0.0002	-0.3728	0.0000
	(0.42)	(2.47)	(1.30)	(-0.92)	(-1.44)	(0.34)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,318	7,318	7,318	7,318	7,158	7,318
Adjusted R^2	0.8483	0.8687	0.8804	0.7692	0.8823	0.8657

Table 9
Tests Using Alternative Event Window

This table presents results on how the *SGI* ruling impacts disclosure in 10-K using three years before and after the ruling. All dependent variables have been previously defined. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable					
	#Word	*#Number*	*%Number*	*Abtone*	*Bog*	*Uncertain*
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth_Circuit×Post	-0.0189**	0.0168	0.0030***	-0.0002**	-0.9549*	0.0001
	(-2.06)	(1.65)	(3.65)	(-2.38)	(-1.91)	(1.06)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	12,768	12,768	12,768	12,768	12,400	12,768
Adjusted R^2	0.7961	0.8120	0.7665	0.6553	0.8139	0.7733

Table 10
Tests Using Only High-Tech Firms

This table presents results on how the *SGI* ruling impacts disclosure in 10-K for high-tech firms. All dependent variables have been previously defined. *Ninth_Circuit* is an indicator for firms headquartered in the Ninth Circuit at the time of the ruling. *Post* is an indicator for fiscal years after 1999. All other variables are defined in Appendix A. Standard errors are clustered at the state level and t-statistics are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable					
	#Word	*#Number*	*%Number*	*Abtone*	*Bog*	*Uncertain*
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth_Circuit×Post	0.0077	0.0497**	0.0032***	-0.0004**	-1.2632**	0.0000
	(0.33)	(2.38)	(2.91)	(-2.07)	(-2.61)	(0.00)
Control	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,660	3,660	3,660	3,660	3,545	3,660
Adjusted R^2	0.7752	0.7718	0.6718	0.5695	0.6944	0.7401