THE IMPACT OF PERCEIVED LITIGATION RISK:

EVIDENCES FROM THE U.S. FEDERAL DISTRICT COURT

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Ph.D

The Hong Kong Polytechnic University

2019

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The Impact of Perceived Litigation Risk: Evidences from the U.S. Federal District Court

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A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

April 2019

CERTIFICATE OF ORIGINALITY

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Abstract

This study introduces a novel *ex-ante* securities litigation risk proxy based on federal district courts' dismissal rates (hereafter "court dismissal rate") and explores how heterogenous pleading standards among the U.S. federal district courts affect headquartering firms' disclosure and bank loan pattern. Constructed as the number of cases dismissed in the recent years scaled by that of cases filed in the same period, court dismissal rate has a strong predictive power over the likelihood of sued firms headquartering in the jurisdiction passing the motion-to-dismissal process, indicating that historical court dismissal information can be used to predict future litigation outcomes and can be easily obtained by managers to form headquartering firms' perception on the pleading standard (stringency) of district courts. Using this measure of *ex-ante* litigation risk, firstly, I find robust evidence that misreporting firms headquartered in lenient court jurisdictions are more likely to make voluntary restatements, confirming the defensive disclosure hypothesis that firms in stringent legal environment are more likely to hide misbehaviors in fear of litigation cost. Secondly, interest rates are significantly lower for the firms headquartered in lenient court jurisdictions. The effect is stronger when borrowers have less information asymmetry issues and diminishes after the Supreme Court's *Tellabs* decision that homogenizes court pleading standards. These results indicate that lenders consider the benefit of high pleading standard in curtailing frivolous lawsuits to outweigh the cost of financial misreporting incentives. Finally, I find firms headquartered in stringent courts have annual reports with higher readability. This study contributes to the literature on (1) measurement of *ex-ante* litigation risk and (2) the impact of litigation risk on corporate disclosure and finance.

Acknowledgements

I would like to thank my dissertation committee members, Professor Haitian Lu (Chair), without whose guidance and helpful comments this thesis would not have been possible. I am also very grateful to the intellectual influence of my other professors, at The Hong Kong Polytechnic University, at New York University and at The Hong Kong University of Science and Technology who have taught me different Ph.D. courses at various points during my doctoral studies.

I thank Professor Haitian Lu, Professor C.S. Agnes Cheng and Professor J.C. Lin for their encouragement and support throughout the process. I also thank Professor Kose John, Professor Katherine Schipper and Professor Grace Pownall for their guidance. In addition, I would like to thank Professor Wei-Ling Song for her guidance. Besides, I thank Professor Gilbert Park for his helpful conversations about my doctoral studies and my research projects.

Finally, I would like to thank my girlfriend and my parents for being my biggest supporters, without whom my life will become pale and meaningless.

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1. Introduction

Private securities litigations (hereafter "PSL") or securities class actions are significant for the U.S. public companies. From 2000 to 2015, there are 2859 cases filed with violations of SEC Rule 10b-5, Section 11 or Section 12 (excluding IPO laddering), which is an average number of 179 cases and 3.07% of the total number of the U.S. public companies. Out of those securities class actions, over half were settled and the average settlement amount is over $48 million. Besides the huge amount of direct legal penalties, the market imposes even greater monetary penalties on the firms facing securities litigation, with an average three-day loss of 7.2% of their market values around the announcement of securities class action lawsuits with accounting allegations and a mean three-day excess return of -24.3% around the corrective disclosures (Griffin et al., 2004).

With the large number of cases and huge amount of monetary penalties, securities litigations have further *ex post* impact after firms being sued on corporate behaviors and managerial decisions, such as disclosure (Field, Lowry and Shu, 2005; Rogers and Buskirk, 2009; Kothari, Shu and Wysocki, 2009), governance issues (Cheng et al., 2010; Fich and Shivdasani, 2007; Helland, 2006; Brochet and Srinivasan, 2014; etc.), and financing activities and investment policy (McTier and Wald, 2011; Autore et al., 2014; and Chava et al., 2010). Also, the *ex-ante* PSL risk of being sued and losing the case due to firm characteristics and legal environment can also alter firms' disclosure behaviors (Skinner, 1994; Field, Lowry and Shu, 2005; Kothari, Shu and Wysocki, 2009; Cao and Narayanamoorthy, 2011; Baginski, Hassell, and Kimbrough, 2002; Cazier et al., 2017 etc.).

However, the extant literature on *ex-ante* PSL risk almost only focuses on disclosure behaviors[1], with inconclusive and mixed results, and uses contestable PSL risk measures with various drawbacks. The findings in the impact of lawsuits on the disclosure behaviors support both of the competing hypotheses, that managers disclose more to avoid potential lawsuits when facing high litigation risk (e.g. Skinner, 1994; Kasznik and Lev 1995; Field, Lowry and Shu, 2005; Kothari, Shu and Wysocki, 2009; Cao and Narayanamoorthy, 2011; etc.), and managers disclose less to avoid leaving material facts to the plaintiffs when facing high litigation risk (e.g. Laux and Stocken, 2012; Cazier et al, 2017; etc.). These contradictions are mainly caused by the difference in the context of research and can be potentially due to the drawbacks of the existing *ex-ante* PSL risk measures.

The most commonly used *ex-ante* PSL risk measures include propensity scores from prediction models (Johnson, Kasznik and Nelson, 2000 and 2001; Brown et al., 2005; Rogers and Stocken, 2005; Kothari et al., 2009; Johnson et al., 2007; Gande and Lewis, 2009; Kim and Skinner, 2012; Cazier et al., 2017; etc.), FPS industry indicator (Francis et al., 1994a and 1994b; Field, Lowry and Shu, 2005; Kothari, Shu and Wysocki, 2009), variations in legal environment across countries (La Porta et al. 1997 & 1998; Baginski, Hassell, and Kimbrough, 2002; Kaufmann et al. 2003; Srinivasan, Wahid, and Yu, 2014; etc.), shocks to the pleading standards (Chan and Pae, 1998; Hillegeist, 1999; King and Schwartz, 1999; Cazier et al., 2017; etc.), D&O insurance premium (Cao and Narayanamoorthy, 2011 and 2014) and circuit level judge political ideology measure (Huang, Hui, and Li, 2019).

[1] So far, only Seetharaman, Gul, and Lynn (2002) explore the impact of *ex-ante* litigation risk on auditing fees, and Pellegrina and Saraceno (2011) studied whether securities class actions can play a role in banking supervision.

These *ex-ante* PSL risk measures have various drawbacks. The propensity scores from prediction models are highly correlated with firm characteristics and introduce omitted variable problem to the regression models. FPS industry indicator is highly correlated with firms' business model and lack of time-series variations. Variations in legal environment across countries are mixed with other institutional and cultural differences. Shocks to the pleading standards have bad external validity due to small sample. D&O insurance premium faces reverse causality and D&O insurance covers all types of claims. And, circuit level judge political ideology measure lacks both time-series variations and cross-sectional variations for firm-year level observations.

As the extant *ex-ante* litigation risk measures have various drawbacks, in this project, I propose a novel *ex-ante* PSL risk proxy based on the pleading standard of federal district courts and apply it to three different contexts to study the impact of *ex-ante* litigation risk on various corporate aspects.

In the U.S., federal courts enjoy exclusive jurisdiction to hear securities lawsuits. Although a securities lawsuit can technically be filed in any district court, wherein the defendant is found or an inhabitant or transacts any business, multiple filings must be consolidated into one case typically heard by the district court where the defendant firm is headquartered (Cazier et al. 2017). Two statutory provisions, 28 U.S.C. § 1404(a) and 1406(a), provide the basis for this claim. Section 1404(a) protects witnesses and parties from an undue expenditure of time and money. Given the nature of claims in the PSL, substantially all of the witnesses and sources of proof are likely to be located at the firm's headquarters. Section 1406(a) allows for the transfer of a case that brought in an improper forum. Thus, plaintiffs who file suits outside of the federal district of the firm's headquarters are highly vulnerable to either dismissal based on the well-established doctrine of *forum non-conveniences* or transfer to the district court of the defendant firm's headquarter.

This assumption is also validated by data, as we found nearly 90% of our sample lawsuits are heard at the district court where the defendant firm is headquartered.

Given that securities lawsuits are typically heard by the district court where the firm's headquarter is located, the pleading standard of that court, proxied by the historical dismissal rate of the PSL filed with them, is an important indicator of firms' securities litigation environment.[2] For instance, suppose that the district court of North Carolina has a record of dismissing 80% of the PSL filed with it, whereas the district court of South Carolina dismissed only 20%. This scenario indicates that the North Carolina district court adopts a higher pleading standard, translating into a more lenient environment for its headquartering firms. My research design exploits this heterogeneity to study how their headquartering firms behave under different *ex-ante* PSL risk.

In this project, I construct the court dismissal rates (CDR) with the recent five-year case history and with the recent three-year case history. The five-year measure is less timely and less volatile compared to the three-year measure. I validate these measures by showing that past court dismissal rates positively predict future dismissal probability for headquartering firms.

Court dismissal rates have unique advantages over prior litigation risk proxies. This measure differs from the rule of law indicators used in prior cross-country studies based on laws "on paper". Court dismissal rate captures the within-country heterogeneities in securities law enforcement; thus, the federal regulatory environment is held constant. This rate is at court-level based on past court decisions, which is unaffected by individual firm's characteristics. Also, I assume that firm headquarter locations are exogenous in our setting because the perception that

[2]We assume that the quality of cases brought to each district court is random. Our result remains robust after the exclusion of the five busiest courts.

borrowers choose or switch their headquarters based on district court dismissal rates is preposterous.

Furthermore, court dismissal rates are a good proxy for the perception of firms' securities litigation environment formed by corporate executives and/or other stakeholders. Unlike other *ex-ante* PSL risk measures that require knowledge in complex statistical model and massive calculation[3], court dismissal rates are relatively easy to construct and thus more likely to be referred by corporate executives and other stakeholders in a fast-pace style. Therefore, it is reasonable to anticipate that a genuine impact of firms' securities litigation environment via the perception formed by corporate executives and/or other stakeholders can be captured by the impact of court dismissal rates.

Based on the validation of court dismissal rates, I further explore the impact of court stringency on firms' likelihood of making voluntary restatements, on the terms of bank loans, and on annual report readability by applying my court dismissal rate as the measure of *ex-ante* PSL risk.

The first application of court dismiss rates in this project explores how *ex-ante* PSL risk affects firms' propensity to make voluntary restatements. Restatements are firms' public admittance that their past financial statements were incorrect and thus need remediation. Some restatements are voluntary in the sense that they are made prior to any apprehension by external agencies (e.g., SEC or PSL). Other restatements are forced pursuant to public and private enforcements. In the U.S., the majority of public firms engage in earnings manipulation and

[3] For example, the propensity scores from prediction models need to process large panel data with logit or probit model (Johnson, Kasznik and Nelson, 2000 and 2001; Brown et al., 2005; Rogers and Stocken, 2005; Kothari et al., 2009; Johnson et al., 2007; Gande and Lewis, 2009; Kim and Skinner, 2012; Cazier et al., 2017; etc.); and Circuit level judge political ideology measure requires users to calculate probabilities under binomial distribution (Huang, Hui, and Li, 2019).

violations (Graham, Harvey and Rajgopal 2005). Under probabilistic law enforcement, several misreporting firms deliberately remain silent, gambling that subsequent events would allow them to conceal the accounting mistakes. The systematic under-correction of accounting mistakes lowers investors' confidence in the market. Voluntary restatement increases efficiency in two ways: (1) Efficient remediation is achieved early and with certainty; (2) Enforcement effort needed to deter violations is reduced (Kaplow and Shavell 1994; Innes 1999). Accordingly, the SEC, constrained by resources, explicitly encourages and rewards self-reporting of wrongdoings (SEC Seaboard Report 2001). Hence, this study poses the question "Does high PSL risk prompt or hinder voluntary restatements?"

Drawn upon the largest sample of the PSL from 2001 to 2013 and restatement records from Audit Analytics (AA), we corroborate that misreporting firms headquartered in high dismissal rate (lenient) courts are likely to make voluntary restatements. The effect is statistically significant and economically large. One standard deviation increase in the court dismissal rate leads to 16.6 percentage points and a 23 percentage-point increase in voluntary restatement propensity compared with an average restating rate of 26.50% and 34.5% in our two samples. These findings are robust with the inclusion of firm characters, misstatement magnitude, court filing rates, and state fixed effects.

Our baseline result affirms that high *ex-ante* PSL risk *hinders*, rather than prompts, voluntary restatements. This evidence is consistent with economic argument in the presence of heterogeneous pleading standards. Firms' risk of PSL heightened when past accounting mistakes became known to the management. Voluntary restatements, on the one hand, might increase firms' probability of being sued. On the other hand, voluntary restatements weaken the claim that managers withheld bad news to retain price distortion (evidence of non-*Scienter*). Moreover,

voluntary restatements reduce potential damages by shortening the class period and the number of affected class shareholders, thereby reducing the chances of successful pleading. In lenient courts, judges are more likely to consider firms' voluntary restatements favorably in their decision to support the defendant's motion to dismiss. Plaintiff's attorneys, who anticipate judges' pleading standards, are also less likely to bring lawsuits against firms headquartered in lenient courts. It follows that firms headquartered in lenient courts have high incentives to make voluntary restatements.

The second application of court dismiss rates in this project investigates the impact of *ex-ante* PSL risk on bank loan terms. PSL is designed to protect the interests of shareholders, but lenders are exposed to positive and negative externalities. To realize why lenders should care about the securities litigation risk of firms, we note first that banks are heavy users of the financial reports of firms (Sufi, 2007). Graham, Li, and Qiu (2008) provide empirical evidence that banks increase interest spread following their borrowers' restatements, particularly those companies that commit fraud. Most loan contract terms, such as financial covenants, rely on specific accounting items (Ball, Li, and Shivakumar, 2015; Demerjian, Donovan, and Larson, 2016). Following this conjecture, we expect banks to charge lower interest rate if high PSL risk deters the financial misreporting incentives of firms, which reduces costs in bank information production and monitoring. We call this proposition the "financial misreporting hypothesis."

However, high PSL risk can expose firms to undue risk of liability for frivolous lawsuits. Firms in high PSL risk environments are likely to become targets of securities litigation and face potentially severe penalties if sued. Even if the lawsuit is meritorious, securities litigation is an extremely expensive way to compensate victims. The direct and indirect costs of PSL to firms include settlement cost and attorney fees, diversion of managerial attention from productive

activities, and an increase in the costs of explicit and implicit contracts. In other words, high PSL risk causes a transfer of firm resources that are otherwise available to creditors to lawyers and shareholders, thereby increasing credit risk. Following this argument, banks should charge lower interest rate to firms subjected to lower exposure of frivolous lawsuits, i.e., lower PSL risk, which we test as the "legal efficacy hypothesis."

We draw on a large sample of bank loans transacted from 2001 to 2013 and present evidence consistent with the legal efficacy hypothesis. Results show that banks charge lower interest spreads (over LIBOR) if their borrowers are headquartered in high-standard courts (higher dismissal rate). The effect is not only statistically significant, but also economically large. For example, the estimated coefficients on court dismissal rate in most baseline interest spread regressions are around -11 (basis points). Given the average dismissal rate and facility amount, it means roughly a million dollars of lower total interest payment for a five-year loan. These findings are robust with the inclusions of interest rate environments, district unemployment rates, borrower and loan characteristics, credit ratings, loan type, year, and court-fixed effects. However, this effect is not significant on loan amounts and maturities. We also find that banks significantly increase the usage of net worth covenants when borrowers are headquartered in the districts with higher court dismissal rates or Court filing rates.

Our baseline result suggests that banks consider the benefit of courts' high pleading standards in curtailing frivolous lawsuits to outweigh the potential cost of financial misreporting incentives. If this proposition is true, we expect the net effect to be larger in the group of firms with less information asymmetry problems (i.e., less concerns for financial misreporting incentives). Consistent with this conjecture, we show that the effect of court's pleading standard on interest rate is more pronounced in the group of firms that are (1) without performance pricing

provision, (2) with smaller DEF 14A filing size, and (3) with more analysts following.[4] This result suggests that banks are more likely to view these firms as "victims" of higher *ex-ante* PSL risk without much concern of financial misreporting by these types of firms.

The third application of court dismiss rates in this project studies the impact of *ex-ante* PSL risk on annual report readability. Annual report readability refers to the ease with which a reader can understand the annual report. There is an increasing literature on the association between annual report readability and other fiancé and accounting topics, such as financial performance (Li, 2008; etc.), analyst coverage and earnings forecast accuracy and dispersion (Lehavy, Li, and Merkley, 2011), investors' underreaction to annual report information (You and Zhang, 2009), firms' investment decisions (Biddle, Hilary, and Verdi, 2009), investors' trading behavior (Miller, 2010), stock crash risk (Kim, Wang and Zhang, 2018), and the likelihood of PSLs (Ganguly, 2018). However, the factors that influence annual report readability are merely investigated, with only firm size, growth opportunities, age, special items, stock return volatility, the number of business segments, the number of geographical segments and M&A events identified in the seminal paper by Li (2008) and earnings management identified by Lo, Ramos and Rogo (2017). Thus, there is a research gap for exploring the factors influencing annual report readability. Thus, there is a research gap for exploring the factors influencing annual report readability.

As *ex-ante* PSL risk has impact on corporate disclosure quality either positively to deter potential securities lawsuits or negatively to avoid leaving material facts to the plaintiffs when facing high litigation risk, there is a chance that *ex-ante* PSL risk is correlated with annual report readability for the following logic. Annual reports are the direct evidence in PSLs to show

[4] Loughran and McDonald (2014) examine the readability of 10-K reports and find that document file size provides a simple readability proxy that is correlated with other readability measures. In addition, it outperforms the Fog index—the most commonly applied readability measure.

materiality of misstatements, and annual report readability potentially alters investors' understanding of the contents of annual reports and thus influences their perception of misstatements. To deter potential litigation risk, firms facing high *ex-ante* PSL risk are more likely to prepare annual reports with high readability to decrease ambiguities that might be taken as evidences for misstatements in potential PSLs. Therefore, we expect that firms facing high court stringency (*ex-ante* PSL risk) are more likely to prepare annual reports with high readability.

Drawn on a sample of 33,145 firm-year observations from December 2000 to December 2010, we find that firms' headquartering district court dismissal rate is positively correlated with the Fog index and Flesch-Kincaid formula of their annual reports and negatively correlated with the Flesch Reading Ease of their annual reports. As the Fog index and Flesch-Kincaid formula are negative indicators of readability and Flesch Reading Ease is a positive indicator of readability, these results indicate that firms with low *ex-ante* PSL risk have annual reports with low readability in average, confirming our anticipation that firms facing high court stringency (*ex-ante* PSL risk) are more likely to prepare annual reports with high readability. However, we do not find any evidence on the number of words as a negative indicator of readability. Also, we do not find causal evidence in the Tellabs case. Therefore, we can only conclude that firms with high *ex-ante* PSL risk are associated with having high readability in their annual reports.

The impact of *ex-ante* PSL risk on voluntary restatement and on annual report readability are distinct, which is due to the difference in how *ex-ante* PSL risk impacts on the alternative choices in the cost and benefit analysis for the voluntary restatement problem and for the readability problem. The two alternative choices in the cost and benefit analysis for the voluntary restatement problem are making voluntary restatement or not. They both can trigger PSLs, and thus, the expected cost of both alternative choices are affected by *ex-ante* PSL risk. This leads to

the impact of *ex-ante* PSL risk on voluntary restatement an empirical question because we do not have a prior on which alternative choice is more affected by *ex-ante* PSL risk.

However, for the annual report readability problem, only the choice of disclosing an annual report with low readability can trigger PSLs in the annual report readability problem, and thus, only the expected cost of disclosing an annual report with low readability is affected by *ex-ante* litigation risk. The expected cost of disclosing an annual report with high readability is independent from the legal environment. As a result, the impact of *ex-ante* PSL risk on the decision of annual report readability is directional. We could expect that *ex-ante* PSL risk has a positive impact on annual report readability.

This project contributes to the literature in the following aspects. First, we construct a novel, court-based measure on firms' *ex-ante* securities litigation risk. Our *ex-ante* PSL risk measure has unique advantages over prior litigation risk proxies that rely on firm characteristics associated with the propensity of being sued (e.g., Gande and Lewis 2009; Kim and Skinner 2012). It also differs from the rule of law indicators used in prior cross-country studies based on laws "on paper" (La Porta et al. 2006; Kaufmann et al. 2003; Srinivasan, Wahid, and Yu 2014). Specifically, court dismissal rate captures within-country heterogeneities in pleading standards, holding the federal regulatory environment constant. Importantly, this rate is at the court level based on past court decisions, thus strictly exogenous to individual firm characteristics. In addition, Our dismissal rate captures heterogeneities in observed, as opposed to inferred, tendencies of judges across courts. For example, Huang, Hui, and Li (2018) use federal judge ideology (judge appointed by Republican versus Democratic presidents) in circuit courts to infer ex-ante securities litigation risk. Finally, we assume that firm headquarters locations are exogenous in our setting given that

perceiving that borrowers choose or switch their headquartering location based on district court dismissal rates is difficult.

Second, we complement existing studies on the driving forces of *voluntary* restatements. Prior restatement literature focuses on the *consequence* rather than the *causes* of restatements.[5] Even less scholarly attention has been paid to the distinction between voluntary and forced restatements. Lin and Huang (2016) confirmed that voluntary restatements are used as a strategy of new CEOs to blame past executives and allow credit. On factors that motivate voluntary restatements, Marciukaityte et al. (2009) proved that the probability of voluntary restatements as opposed to forced restatements is positively related to the independence of board and the audit committee. Pfarrer et al. (2008) corroborated that firms follow their peers in the same industry to make voluntary restatements. Missing in this literature is how institutional factors, such as the litigation environment under which firms operate, affect firms' propensity to make voluntary restatements. This study fills this empirical gap.

Third, our paper adds to studies on the net impact of PSL institution from the perspective of lenders. Prior work attempted to infer the net impact of PSL by using stock price reactions to key legislative events in the PSLRA that heighten court pleading standards. For example, Speiss and Tkac (1997) and Johnson, Kasznik, and Nelson (2000) find that shareholders generally benefit from restrictions on private securities litigation, whereas Ali and Kallapur (2001) find the reverse. By contrast, our paper investigates the post-PSLRA period using 13 years of bank loan data. Bank loans provide a unique angle to assess the net impact of court pleading standards on firm risk.

[5]These consequences include, for example, negative market responses (Palmrose, Richardson, and Scholz 2004), increased cost of capital (Hribar and Jenkins 2004), management turnover (Collins et al. 2009), and resultant securities lawsuits (Francis, Philbrick, and Schipper 1994).

Finally, we contribute to the literature of annual report readability by showing the correlation between *ex-ante* PSL risk and annual report readability. Prior annual report readability literature focuses on the *impacts* rather than the *causes* of variations in annual report readability. Only Li (2008) investigates a group of factors that influence annual report readability, including Log Total Assets, growth opportunities, age, special items, stock return volatility, the number of business segments, the number of geographical segments and M&A events. Our study complements this line of literature by showing that firms with high *ex-ante* PSL risk are more likely to issue annual reports with high readability in order to deter potential litigations. This also adds to the field of litigation risk and narrative disclosure.

The rest of this paper is organized as follows. Chapter 2 introduces the institutional background of private securities litigations. Chapter 3 summarizes the literature on *ex-ante* PSL risk. Chapter 4 constructs our *ex-ante* PSL risk measure, court dismissal rate, and conducts several validation tests on this measure. Chapter 5 presents our first application of court dismissal rate to the study on the impact of *ex-ante* PSL risk on the likelihood of firms' making voluntary restatement. Chapter 6 displays our second application of court dismissal rate to the research on the impact of *ex-ante* PSL risk on the bank loan terms. Chapter 7 presents our last application of court dismissal rate to the study on the influence of *ex-ante* PSL risk on the annual report readability. Chapter 8 concludes the study.

2. Background of Private Securities Litigation

A private securities litigation, or securities fraud class action, is a lawsuit filed by investors who purchase or sell a company's securities within a specific period of time (known as a "class period") and suffered economic damage as a result of the company's violations of the securities

laws. In this project, I only focus on the violations of SEC Rule 10b-5, and will introduce the rule, class action procedures, the Private Securities Litigation Reform Act of 1995 and the databases that contain securities class action information.

2.1 SEC Rule 10B-5

In the US securities law, the Rule 10b-5 is one of the most important rules targeting securities fraud promulgated by the SEC, pursuant to its authority granted under § 10(b) of the Securities Exchange Act of 1934. Designed as a public enforcement mechanism to deter securities fraud in order to promote the integrity and efficiency of the capital markets, the rule prohibits any act or omission resulting in fraud or deceit in connection with the purchase or sale of any security:

> "It shall be unlawful for any person, directly or indirectly, by the use of any means or instrumentality of interstate commerce, or of the mails or of any facility of any national securities exchange …… (b) To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, …… in connection with the purchase or sale of any security."

The plaintiffs under this rule are typically shareholders, and the defendants include the firm and any person whose fraudulent activity is in connection with the purchase or sale of a security by the plaintiff. This rule allows the SEC to exercise a number of remedies including civil money penalties, officer and director bars; injunctive relief; cease and desist orders; and orders requiring corrective disclosures and corporate governance changes (Rose, 2008).

To establish private causes of action under rule 10b-5, plaintiff's attorney must satisfy five elements, i.e. "materiality of misrepresentation or omission", "scienter", "reliance", "causation" and "damages". To illustrate, plaintiff must establish that the defendant had misstated or omitted to state a "material fact", with a "particular state of mind". The plaintiff(s) "relied on" the act or

omission of the defendant to make investment decision, which caused the loss to the plaintiff. In practice, the securities class actions are often initiated by plaintiff's attorney after a revelation of truth ("triggering event") that causes substantial decline in stock price. The so called "class period" thus started with the date of alleged misrepresentation that inflated the stock price, and ended with the "truth revelation date" that restored stock price to its true value.

2.2 Class Action Procedures

A complete private securities lawsuit includes four stages. In stage 1, plaintiffs begin filing the complaints and require to be the lead plaintiff, and the U.S. District Court in charge of the sued firm consolidate the case and appoint a lead plaintiff and lead counsel. In a PSL, one or more shareholders who held or hold stock in a particular firm initiate a class action by filing a complaint (most often in federal courts). In most cases, multiple lawsuits are filed by different law firms. The filing date of the first complaint is a very important date in that the "filing date" or "litigation announcement" in most studies refers to this date.

To consolidate the cases and select a lead plaintiff, a 60-day deadline for the plaintiffs, who ask to be the lead plaintiff, to file paperwork with the court starts when the first securities lawsuit is announced. Once the 60-day deadline passed, the judge can review all pleadings filed by all parties and appoint a lead plaintiff and lead counsel, or, more often, the judge schedules a hearing for the attorneys and consolidate the case after the hearing, which is generally set within 30 to 45 days from the lead plaintiff deadline. By the time that the judge appoints the lead plaintiff and the lead counsel, more than 4 months have already past. However, if the judge does not have time to review the cases promptly, it can take 6 to 9 months to consolidate the case.

In the second stage, plaintiffs' counsel generally has 60 to 90 days to file their Amended Consolidated Complaint, and the defendants then have a deadline to file their motion to dismiss. A motion to dismiss is essentially an argument by the defendants that, even if all of the facts alleged in the complaint were assumed to be true, those facts would not be sufficient to give rise to liability under SEC Rule 10b-5. If the court determines that the facts alleged in plaintiffs' complaint are sufficient to uphold a Rule 10b-5 claim, the court will enter an order denying the motion to dismiss, which then gives class plaintiffs the right to obtain "discovery" from the defendants – which is the right to demand documentary evidence in the defendants' possession concerning the facts at issue, and the right to require officers of the company, as well as any experts or other third parties, to sit for depositions. If a motion to dismiss is denied by the Court, the costs of litigation will increase substantially and there is now a much greater chance of a recovery on behalf of the class. However, if a motion to dismiss is granted, the case is over and will be closed by the Court. Thus, the outcome of a motion to dismiss in a Rule 10b-5 case is very important and is often used in the literature as a proxy for the merits of the case. Figure 1 shows the filing and resolutions of motions to dismiss (MTD) in 2015.

[Insert Figure 1 Here]

In the third stage, plaintiffs will conduct discovery and seek class certification under Rule 23 of the Federal Rules of Civil Procedure after discovery is completed. If the court grants plaintiffs' motion for class certification, the case officially becomes a securities fraud class action. At this point, the defendants can face great liability if the case goes to a trial and the jury was to render a verdict against the defendants. Figure 2 displays filing and resolutions of motions for class certification in 2015.

[Insert Figure 2 Here]

Therefore, in most cases, when a securities case is not dismissed and is certified as a class action, the defendants will choose to settle the case to avoid the possibility of a significantly higher award by the jury verdict in class plaintiffs' favor and the case proceeds to the final stage.[6] In the settlement stage, four steps are involved, i.e. negotiating a settlement, seeking preliminary court approval, obtaining final court approval, and the Claims Administration process. After filing some final documents by the Administrator and a dismissal of the lawsuit, the case is finally over, which eventually takes 3 to 4 years to reach this resolution for common cases and even longer for large securities fraud class actions, such as Enron. Figure 3 exhibits the costs of litigation and the class action procedures.

[Insert Figure 3 Here]

2.3 Private Securities Litigation Reform Act of 1995

To protect managers from frivolous lawsuits the Congress enacted the Private Securities Litigation Reform Act (hereafter "PSLRA") in 1995. Prior to the PSLRA, plaintiffs could proceed with minimal evidence of fraud and then use pretrial discovery to seek further proof. This set a very low barrier to initiate litigation, which encouraged the filing of weak or entirely frivolous suits. Defending against these suits could prove extremely costly, even when the charges were unfounded, so defendants often found it cheaper to settle than fight and win.

The PSLRA implemented several substantive changes in the United States, affecting certain cases brought under the federal securities laws, including changes related to pleading,

[6] Since 1996, 43.0% of cases were dismissed while 56.7% were settled and 0.3% went to trial (Cornerstone, 2011a), and the variation in settlements is relatively small: of those cases settled between 1996 and 2010, 57% settled for less than $20 million while 80% settled for less than $25 million (Cornerstone, 2011b).

discovery, liability, class representation, and awards fees and expenses. Most importantly, the PSLRA raised the pleading standards (the specificity and strength of the factual allegations that must be alleged in the plaintiff's complaint) in three specific ways.

First, the PSLRA requires a plaintiff to identify in his complaint "each statement alleged to have been misleading, the reason or reasons why the statement is misleading, and if an allegation regarding the statement or omission is made on information and belief, the complaint shall state with particularity all facts on which that belief is formed." (15 U.S.C. § 78u-4(b)(1)). If a plaintiff's complaint does not specifically identify the allegedly fraudulent statements and explain why they were misleading, the complaint will be dismissed. By requiring plaintiffs to set forth their theory regarding why a particular statement was misleading, the PSLRA enables defendants to put forth arguments as to why the challenged statement was not, in fact, misleading.

Also, the PSLRA also requires a plaintiff to allege that the defendant acted with the required state of mind, i.e., that he knew the challenged statement was false at the time it was made, or was reckless in not recognizing that the statement was false (the legal term of art for this state of mind is "scienter"). In alleging scienter under the PSLRA, the plaintiff must, "with respect to each act or omission alleged to violate this chapter, state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind." (15 U.S.C. § 78u-4(b)(2)). This requirement allows defendants to obtain dismissal of cases where the plaintiff merely points to a false statement and declares that the defendant "must have known" that the statement was false, based upon his position within the company.

Finally, the PSLRA also makes clear that a plaintiff in a Rule 10b-5 case "shall have the burden of proving that the act or omission of the defendant... caused the loss for which the plaintiff seeks to recover damages" (15 U.S.C. § 78u-4(b)(4)). At one time, there was a question over

whether this requirement actually applied at the motion to dismiss stage. The statute says the plaintiff must "prove" loss causation. It does not say the plaintiff must "allege" loss causation. In 2005, the U.S. Supreme Court decided Dura Pharmaceuticals, Inc. v. Broudo. The Court held that a plaintiff alleging securities fraud must prove that a defendant's misrepresentation caused actual economic loss. The Dura decision put to rest the loss causation standard applied by several U.S. courts of appeals, which allowed plaintiffs to merely plead that a misrepresentation caused an artificially inflated purchase price. However, in Dura's wake, the circuit courts have fashioned divergent standards with respect to pleading loss causation. The courts currently apply pleading standards ranging from the lenient and generally applicable Federal Rule of Civil Procedure 8(a) to the stringent and fraud-specific Rule 9(b).[7]

Due to the heightened pleading standards, frivolous securities lawsuits are effectively limited but it is also harder for the meritorious claims to get through after the implement of the PSLRA. Pritchard and Sale (2005) examine the impact of the PSLRA's heightened pleading standards on the ability of plaintiffs to survive a motion to dismiss and find that although revenue-related accounting violations are not significantly related to dismissals, other GAAP allegations are negatively correlated with dismissals in the Second Circuit in the post-PSLRA period. Johnson, Nelson, and Pritchard (2005) provide a test of whether certain merit-related factors matter more in the post-PSLRA period. Focusing on secondary market-related litigation, Johnson, Kasznik and Nelson (2007) report that the likelihood of a securities fraud class action is significantly and positively correlated with whether a firm experienced an accounting restatement of class period results during the pre- and post-PSLRA periods, and that the magnitude of the impact of an accounting restatement on the probability of facing a suit is significantly greater in the post-

[7] See Hill (2010) for the analysis of various loss causation pleading standards applied by the circuit courts.

PSLRA period. Choi (2007) provides evidence that pre-PSLRA nonnuisance claims lacking obvious ‘‘hard evidence’’ indicia of fraud (an accounting restatement or Securities and Exchange Commission action) would have faced a lower probability of suit in the post-PSLRA period and a greater likelihood of receiving a dismissal or low-value settlement in the post-PSLRA period.

The impact of the PSLRA on shareholder welfare can be further capitalized in the stock market reaction around the implement of the PSLRA, and the evidences are also mixed. Spiess and Tkac (1997) and Johnson, Kasznik and Nelson(2000) both report a significant positive abnormal return for dates around the time of Congress's override of President Clinton's veto of the PSLRA, consistent with the view that the PSLRA increased shareholder welfare for firms in high-litigation risk industries. However, Ali and Kallapur (2001) provide evidence of significant negative cumulative abnormal returns from the day before the congressional vote on the conference committee bill on the PSLRA to the trading day after the PSLRA's enactment.

3. Literature Review

There is a huge literature focusing on the impact of *ex-ante* litigation risk on various corporate policies and managerial decisions and using various methods to measure *ex-ante* litigation risk. In this section, I will introduce the methodologies of measuring *ex-ante* litigation risk and summarize the extant literature on the impact of *ex-ante* litigation risk.

3.1 Measuring ex-ante PSL Risk

Unlike other firm characteristics, *ex-ante* litigation risk is unobservable. We can easily observe the size and leverage of a firm, but cannot directly tell whether the firm is going to be sued by its shareholders for its fraudulent behaviors. Therefore, we need proxies of *ex-ante* litigation risk, and previous literature develops three major methods to measure *ex-ante* litigation risk,

including the prediction model method, the industry indicator method and the D&O insurance premium method. I'll introduce the three methods and present other impact factors that influence the probability of being sued.

3.1.1 Prediction Models

The most common and classical way to measure *ex-ante* litigation risk is the prediction model method. The idea of the prediction model method is to use historical association between the probability of being sued and a set of factors to predict the one-period forward probability of being sued. Therefore, as a prediction model, a standard predication model method contains two steps. In the first stage, the one-period forward probability of being sued is regressed on a set of factors:

$$Sued_{it} = \boldsymbol{\beta} \boldsymbol{X}_{it-1} + \varepsilon_{it-1}$$

where, $Sued_{it}$ is a dummy variable that takes value 1 if firm i is sued in year t; $\boldsymbol{X}_{it}$ is a vector of factors that influence the chance of being sued. In the second stage, the fitted value of $Sued_{it}$, $\widehat{Sued_{it}}$ is calculated as the proxy for the litigation risk of firm i in year t, i.e. the predicted probability of being sued in year t.

In the first stage, the prediction models typically include firm characteristics in three aspects, size of potential damage, litigation environment, and firm-specific factors. First, the larger potential damages amounts make firms more attractive to plaintiffs' attorneys (Alexander, 1991; Jones and Weingram, 1996; Skinner, 1997). To proxy the size of potential damage, stock performance variables, such as market capitalization, cumulative stock return, minimum stock return, return skewness, and stock turnover, are included, since damages in Rule 10b-5 litigation depend on the size of the price decline, the number of shares traded during the period of the alleged fraud, the stock price.

Also, litigation environment, such as industry environment and court environment, influences the likelihood of being sued. Francis et al. (1994a and 1994b) found that firms in biotechnology, computers, electronics, and retail industries (hereafter FPS industries) are more likely to be sued compared with firms in other industries. Cazier et al. (2017) found that court administrative divisions also influence the *ex-ante* litigation risk of a firm. Therefore, industry dummies and court variables are included as proxies for litigation environment.

Finally, firm-specific factors, such as monitoring effectiveness, CEO power and insider trading, explain the likelihood of being sued. Firms with weak monitoring scheme or high CEO power are more likely to engage in aggressive financial reporting and other types of opportunistic behavior that increases exposure to securities litigation (Dechow et al., 1996). Insider trading activity and external financing provide opportunities for managers to exploit high market valuations; if the valuations are achieved using what can be alleged to be false or misleading information, these activities increase the probability of a lawsuit filing.

Johnson, Kasznik and Nelson (2000 and 2001) set up the baseline framework by estimating a probit model that regresses the probability of lawsuit filings on market capitalization, stock beta, cumulative stock return, minimum stock return, return skewness, stock turnover, CEO power, management monitoring, external financings, and insider trading. Brown et al. (2005) and Rogers and Stocken (2005) used largely the same set of variables as in Johnson, Kasznik and Nelson (2000) but supplemented them with FPS industry dummy variables. Kothari et al. (2009) directly used the regression coefficients from Rogers and Stocken (2005) to obtain the fitted value of the propensity of being sued. Johnson, Kasznik and Nelson (2007) use a multinomial logistic regression model as the determinant model for lawsuit filings and include disclosure variables into the factors. Gande and Lewis (2009) summarized the framework of estimating the propensity of being sued as a

prediction model that explains the propensity of being sued as a function of size of potential damage, litigation environment, and firm-specific factors.

However, Kim and Skinner (2012) compared the validity and predictive power of several determinant models and provide evidence on the validity of the industry-based litigation risk proxy commonly used in previous research. Also, they argued that while corporate governance and insider trading variables are plausible measures of managerial opportunism that increase firms' exposure to litigation, there are two issues when including these types of variables in litigation risk models. First, it is not clear a priori that most securities litigation results from opportunism by managers as opposed to being driven by adverse outcomes. While it is clear that extreme forms of opportunism such as accounting frauds lead to litigation, these suits form a relatively small part of the population of securities class action suits. Second, corporate governance and insider trading data are less widely available than data on firm characteristics such as size and volatility, constraining sample sizes and perhaps also biasing sample selection. Therefore, in their prediction models, they only included FPS industry dummy, log book size, sales growth, and return variables. On the basis of Kim and Skinner (2012), Cazier et al. (2017) split *ex-ante* litigation risk into conditional litigation risk and unconditional litigation risk, and directly applied the coefficient estimates of Kim and Skinner's (2012) model 3 to their own measure construction.

Regarding to the sample range, in the early studies, Johnson, Kasznik and Nelson (2000) and the following papers limit their samples to firms in the FPS industries. Gande and Lewis (2009) extended the sample to all firms in the ExecuComp database that have the same four-digit SIC code, the same fiscal year end as the sued firm, and the relevant data from Compustat, ExecuComp and First Call. Finally, Kim and Skinner (2012) expanded their sample to all industries.

Although the prediction model method is very classical and common in use, there are two major drawbacks: an inappropriate choice of the prediction model dependent variable and the use of in-sample testing (Cao and Narayanamoorthy, 2011). First, the dependent variable is incorrect specified in the first-stage estimation. In the prediction models, researchers often put the dummy of lawsuit filings as dependent variable and view all firms that got sued as equal. This treats frivolous and meritorious claims the same, potentially leading to an incorrect estimation of the litigation risk model.

Second, most studies use in-sample testing, where the prediction models and their testing models are estimated using the same data. For example, in the early studies, Rogers and Stocken (2005) estimate a probit model for lawsuits from 1995 to 2000. Subsequently, they use the fitted values from the model in a forecast errors regression for the same period (1995 to 2000) to show that managers forecast in a self-serving fashion when faced with litigation risk. Recently, Cazier et al. (2017) also directly applied the coefficient estimates from a panel data regression with their full sample to the calculation of the fitted propensity of being sued, and use the fitted propensity of being sued to investigate the impact of *ex-ante* litigation risk on non-GAAP disclosures. This in-sample testing could draw three potential problems. The first one is the endogeneity issue arising from the overlapping sample period of the prediction models and testing models, as the factors in the prediction models may also be correlated with the dependent variables in the second-stage. The second problem is the information leakage problem, that the coefficient estimates from a panel data regression with the full sample contain information of the future lawsuits, and thus, the *ex-ante* litigation risk measured in this way is no longer *ex-ante*. The third problem is the inappropriate fixed coefficient estimates for all the years in the sample, as the coefficients of the determinant models may be time-varying.

A possible solution for the dependent variable issue is to construct several risk measures from prediction models, such as the *ex-ante* probability of being sued and the *ex-ante* probability of being sued and non-dismissed, and include all the measures in the testing models. For in-sample testing problem, a possible solution is to conduct the determinant model on a rolling window basis, i.e. to estimate the predicted propensity of being sued for year t, using the data in a fixed window before year t to run the prediction model and obtain the coefficient estimates. A potential draw back for the rolling window regression is the lack of information content and the arising estimation error compared with the panel data regression with the full sample. Therefore, rolling window length is very important and should be long enough to avoid the estimation error.

3.1.2 Industry-based Measures

A large body of the research on *ex-ante* litigation risk measures litigation risk by using an industry-based proxy, especially in the early years. A common proxy is the aforementioned FPS measure, which is based on the membership in the biotechnology (SIC codes 2833-2836 and 8731-8734), computers (SIC codes 3570-3577 and 7370-7374), electronics (SIC codes 3600-3674), and retail industries (SIC codes 5200–5961). This measure originates from Francis et al. (1994a, 1994b), who sampled firms drawn from these industries to study the relation between litigation and disclosure because those industries were subject to "a high incidence of litigation during 1988–1992" (1994a, p.144). Although these authors did not advocate the use of industry membership generally, or these industries in particular, as a universal proxy for litigation risk, the use of the FPS industry proxy has become pervasive in the literature. Much of research uses some variant of the FPS industry proxy for litigation risk. For example, many papers use some form of dummy variable for membership in the FPS industries to measure litigation risk (e.g. Matsumoto, 2002;

Ajinkya et al., 2005; Beatty et al., 2008; Jayaraman and Milbourn, 2009; Bhojraj, Libby and, Yang, 2010; Brown and Tucker, 2011; Donelson et al., 2012; Hribar, Kravet, and Wilson, 2010).

Kim and Skinner (2012) provided evidence on the validity of the FPS measure and showed that although litigation rates vary significantly across sectors and industries over time, litigation rates in the four FPS industries (biotechnology, computers, electronics, and retail) are generally consistently higher than those in other industries. While the overall litigation rate across all firm/years in our sample is 1.6%, the rate for firms in the FPS industries is 2.7%, a difference that is statistically significant. Differences in litigation rates between the FPS industries as a group and other industries are statistically significant in 8 of 13 sample years. For the largest firms in the economy (those in the top 5% of the size distribution), the litigation rate is 5.1% across all firm/years, with the rate for firms in the FPS industries at 7.8% (this rate is not significantly higher than that for non-FPS industries).

Field et al. (2005) provided another industry indicator to measure the *ex-ante* litigation risk. They argued that while capturing certain aspects of litigation risk, the industry groupings by technology, retail and regulated industries are too "coarse" to capture industry-specific litigation risk across a variety of industries. For example, Bajaj et al. (2000) found high litigation rates in a variety of industries, such as health care and wholesale, which are not in the FPS industries. To capture such effects in a parsimonious manner, they classified all industries into high/low legal exposure industries based on prior lawsuit rates. Specifically, they calculated the percent of firms in each industry, based on Fama and French (1997) industry groupings, which were sued in earnings-related class action lawsuits between 1988 and 1994. Those industry groups with an above-median percentage of sued firms were considered high-litigation risk, and industry legal exposure is set equal to one. Conversely, those groups with a below-median percentage of sued

firms were considered low-litigation risk, and industry legal exposure equals zero. They found that firms from high-litigation risk industries tend to be sued more frequently. Kothari et al. (2009) followed Field et al. (2005) and used the same measure of *ex-ante* litigation risk as Field et al. (2005).

3.1.3 D&O Insurance Premium

As there are two major drawbacks for the prediction model method: an inappropriate choice of the prediction model dependent variable and the use of in-sample testing, Cao and Narayanamoorthy (2011, and 2014) developed a new approach to measure the *ex-ante* litigation risk using the Directors' and Officers' liability insurance premium (hereafter "D&O insurance premium").

In the United States, firms routinely purchase D&O insurance coverage (or ''D&O limit amount'') for their directors and officers to provide reimbursement of defense costs and settlements arising from litigation. The D&O insurance premium is the price a firm pays for getting such coverage. Conceptually, it aggregates both the expected magnitude of loss or damage recovery amount (through the choice of a D&O insurance limit) and the expected likelihood of such losses (through the pricing of the chosen limit), and thus, it incorporates richer information than a litigation risk proxy derived from prediction models. It also effectively distinguishes between frivolous and meritorious lawsuits, as the former are expected to be dismissed more often than not, resulting in reimbursement for defense costs only and thus affecting D&O premiums to a minimal extent.

Furthermore, the use of the D&O insurance premium, which is determined largely by a competitive D&O underwriting market, dispenses with the need to estimate a model that links the ex post probability of being sued with the underlying economic determinants of litigation risk.

Hence, it bypasses econometric problems such as in-sample estimation and incorrect specification of dependent variables. The promise of D&O insurance premiums as a litigation risk proxy measure has also been recognized in the legal literature recently. For example, based on in-depth interviews with D&O insurance industry participants, Baker and Griffith (2007) explicitly state that "D&O premiums are the only place to look" if one wants to find "the annualized present value of shareholder litigation risk for any particular corporation".

Specifically, Cao and Narayanamoorthy (2011, and 2014) modeled the D&O insurance pricing using a two-stage approach similar to Core (2000) and Cao and Narayanamoorthy (2006), as they assumed that the logarithm of D&O premium is linear in the logarithm of a firm's litigation risk and the logarithm of D&O limit. In the first stage, they regressed the logarithm of D&O limit on a vector of litigation risk proxies and obtained the residuals, which is considered as the abnormal limit by Cao and Narayanamoorthy (2011, and 2014). In the second stage, or the testing model, they regressed the management forecast dummy on the logarithm of D&O premium and the abnormal limit obtained from the first stage. By including the abnormal limit in the testing model, Cao and Narayanamoorthy (2011, and 2014) argued that they controlled the effect from the self-selection issue of the D&O limit.

The use of D&O insurance premiums as a measure for *ex-ante* litigation risk has three major drawbacks. First, D&O insurance covers all types of claims, not just disclosure-related ones initiated by shareholders. Second, D&O policies normally exclude claims against directors and officers for actions made in bad faith that are based on behavior that is fraudulent or involves personal gain. If these types of claims have the greatest deterrence effect on management disclosure choices, using D&O insurance premiums likely biases against finding significant results by understating the true litigation risk. Finally, the D&O premium critically depends on the

insurance limit chosen by a firm, which may encounter a self-selection problem that cannot be disentangled away simply by including a control variable of abnormal limit and there are also estimation errors in the estimation of abnormal limit.

3.1.4 Other Impact Factors and the Characteristics of Sued Firms

Besides the factors identified in the prediction model method and the industry indicator method, there are also several other impact factors that influence the likelihood of being sued. Skinner (1997) found that voluntary disclosures occur more frequently in quarters that result in litigation than in quarters that do not. However, his findings may suffer from an endogeneity issue that managers may voluntarily disclose more to reduce the cost of resolving litigation that inevitably follows in bad news quarters. Using a simultaneous equations methodology, Field, Lowry and Shu (2005) found that voluntary disclosure before bad earnings news could deter certain types of securities litigation.

Files, Swanson and Tse (2009) reported that the likelihood of class action lawsuits is significantly reduced with less prominent disclosure of restatement. Demirkan and Fuerman (2014) showed that revenue restatements, far more than any other kind of restatements, are associated with auditors being named defendants and also auditors experiencing a more severe, negative outcome in the litigation. Using a sample of public firms in the 2001–2004 Tillinghast D&O insurance surveys, Cao and Narayanamoorthy (2014) document that firms with lower earnings quality or prior accounting restatements pay higher premiums, which are the proxies for the *ex-ante* litigation risk, after controlling for other factors impacting litigation risk.

Helland and Sykuta (2005) found that firms that are defendants in securities litigation have higher proportions of insiders and of gray directors and have smaller boards than a matched group of firms that are not sued, even when controlling for firm value and industry. Chhaochharia, Kumar

and Niessen-Ruenzi (2012) documented that firms with high local institutional ownership would have a lower propensity to be a target of class action lawsuits.

Bradley, Cline and Lian (2014) reported that a significant increase in informed insider option exercises during the class action period is positively related to the probability of litigation. Billings and Cedergren (2015) found that the absence of a warning combined with insider trading before earnings disappointments exacerbates the consequences of individual behaviors, but selling prior to a warning typically does not offset all of the warning's benefit.

Regarding corporate investment, McTier and Wald (2011) found that firms which overinvest are more likely to be sued.

Most recently, Huang, Hui and Li (2018) propose a new measure of *ex-ante* litigation risk constructed from the federal judge ideology on the Circuit Court level. They find that firms located in the jurisdiction of more liberal courts are more likely to be sued and that their measure is a good complement for the extant measures in predicating the lawsuits.

3.2 The Impact of ex-ante PSL Risk

3.2.1 Disclosure

Most of the literature on the impact of *ex-ante* litigation risk focus on its impact on the disclosure behavior. However, the theoretical and empirical evidences on whether the *ex-ante* litigation risk improves disclosure quality are mix with two major arguments. The first idea goes, that *ex-ante* litigation risk improves firm disclosure quality as managers increase disclosure quantity and quality to avoid potential class action lawsuits. In contrast, the second argument believes that *ex-ante* litigation risk increases misreporting as managers believe that disclosure

could leave potential material evidence for the shareholders to initiate class actions and holding bad news could deter such litigations.

The early studies mostly support the first argument. By studying corporate voluntary disclosure practices through an examination of the earnings-related disclosures made by a random sample of 93 NASDAQ firms during 1981-90, Skinner (1994) argued that managers voluntarily disclose bad news to prevent large stock price declines and thus defense them from potential class action lawsuits. Investigating the voluntary disclosure behavior prior earnings announcement for a sample of 622 firms in 1988, 1989 and 1990, Kasznik and Lev (1995) found that firms facing earnings disappointments were more likely to make a disclosure. This supports the idea that litigation risk motivates managers to quickly reveal bad news. Using a simultaneous equations methodology, Field, Lowry and Shu (2005) found that firms with higher litigation risk are more likely to issue earnings warnings and firms that disclose early can lower their expected litigation risk.

Exploring a sample of all NYSE, AMEX and Nasdaq firms in 1996 to 2002, Brown, Hillegeist and Lo (2005) found that litigation risk is positively associated with the likelihood of issuing a forecast for both good- and bad-news firms. They examine the effect of litigation risk on the amount of the total earnings news released in the forecast, on forecast horizon, and on forecast precision. These results indicate that higher litigation risk is associated with a higher proportion of news being released when firms have bad news, and higher litigation risk is associated with forecasts being released earlier and being more precise.

Kothari, Shu and Wysocki (2009) used the asymmetric market reaction to bad news and good news to infer the accumulation, and withholding of bad news and found that the asymmetry in the market's reaction to good versus bad news is decreasing in the litigation risk facing a firm.

Studying a sample 203 firms in 2001 and 2002, Cao and Narayanamoorthy (2011) used abnormal D&O insurance premium to measure *ex-ante* litigation risk and found that managers only with bad news, facing higher *ex-ante* litigation risk, are more likely to issue a bad news earnings forecast.

However, most recent studies found evidences supporting the second argument. Laux and Stocken (2012) developed a theory and predicted that higher expected legal penalties imposed on the culpable entrepreneur do not always cause him to be more cautious but instead can increase misreporting.

By comparing disclosure behaviors of firms in Canada and the U.S. as a proxy for the litigation environment, Baginski, Hassell, and Kimbrough (2002) find a greater frequency of management earnings forecast disclosure in Canada relative to the U.S. Further, although U.S. managers are relatively more likely to issue forecasts during interim periods in which earnings decrease, Canadian managers do not exhibit that tendency. Instead, Canadian managers issue more forecasts when earnings are increasing, and their forecasts are of annual rather than interim earnings. Also consistent with a less litigious environment, Canadian managers issue more precise and longer-term forecasts.

Further, Cazier et al. (2017) decomposed *ex-ante* litigation risk into conditional litigation risk and unconditional litigation risk, and found that unconditional litigation risk has a negative impact on non-GAAP reporting while conditional litigation risk has a positive association with non-GAAP reporting. They defined the conditional litigation risk as the litigation risk due to unexpected poor performance, and the unconditional litigation risk as the litigation risk that does not depend on the firm performance. Particularly, in their paper, unconditional litigation risk is due to a heightened pleading standard or due to new legislative action, such as the 1999 Silicon Graphics International case (SGI) on July 2, 1999, and the implementation of Regulation G on

March 28, 2003. They argued that their results suggest that firms reduce non-GAAP reporting in response to broad-based changes in the litigation risk environment, but increase non-GAAP reporting in response to firm-specific litigation risk attributable to firm performance. However, they did not show a further investigation in the reason why conditional and unconditional litigation risk could have a different association with non-GAAP reporting, but rather only claimed that conditional litigation risk captures factors other than the expected costs of shareholder litigation.

Regarding the empirical design of the research on this topic, seldom do the studies address the endogeneity of reverse causality between *ex-ante* litigation risk and disclosure behavior as well as the endogeneity of omitted variables that mutually affect the *ex-ante* litigation risk and disclosure behavior, such as firm performance and internal control. Especially for the studies that measure litigation risk via prediction models and industry indicators, their litigation risk measures capture not only the expected costs of shareholder litigation but also other characteristics, such as size, profitability, and stock performance. These additional characteristics are potentially correlated with the dependent variables in the testing models, and thus, lead to endogenous litigation risk measures.

Only a few studies established an identification of causal relation between *ex-ante* litigation risk and their focal variables. Field, Lowry and Shu (2005) employed a simultaneous-equations framework to account for the endogeneity between litigation risk and disclosure. They believed that once a firm becomes aware of the bad news, it simultaneously chooses a disclosure policy as well as the level of expected litigation risk it is willing to bear. Thus, they established a system of equations with the first equation to capture whether and how a firm's disclosure choice is affected by expected litigation risk and the second equation to capture the effect of an early warning on the

level of litigation risk. By treating the two equations simultaneously, they estimated the impact of litigation risk on the disclosure choice net of the reverse causal effect.

Cazier et al. (2017) addressed the endogeneity issue by testing the impact of *ex-ante* litigation risk on non-GAAP reporting in two quasi-natural experiments. Focusing on two events that shift the litigious environment of particular administrative areas, the authors applied difference-in-difference methodology to identify the causality between unconditional litigation risk and non-GAAP reporting.

3.2.2 Other Topics

The literature on the impact of *ex-ante* litigation risk on other corporate behaviors is relatively small. Seetharaman, Gul and Lynn (2002) studied the impact of litigation risk on the auditing fees. Focusing on UK firms offering to sell their securities publicly in the United States, they found that UK auditors charge higher fees for the services when the clients access US, and the higher fees cannot fully attribute to the SEC's extensive disclosure requirements. They inferred that their findings reflect the differences in litigation risk across liability regimes.

Gande and Lewis (2009) investigated the impact of securities class action lawsuits on the stock price in a sample of 605 lawsuit filings during 1996 to 2003 and found that shareholders partially anticipate these lawsuits based on lawsuit filings against other firms in the same industry and capitalize part of these losses prior to a lawsuit filing date. Measuring *ex-ante* litigation risk via a prediction model, they further found that higher *ex-ante* litigation risk is associated with larger the partial anticipation effect (shareholder losses capitalized prior to a lawsuit filing date) and the smaller the filing date effect (shareholder losses measured on the lawsuit filing date).

Pellegrina and Saraceno (2011) studied whether securities class actions can play a role in banking supervision, both as a warning signal of insolvency and as an instrument of market

discipline to encourage bank managers to carefully evaluate risk. Two groups of US banks are compared over the 2000 to 2008 period, one with at least one securities class action and the other with no class actions. They examined both the effect of the lawsuit as well as the *ex-ante* litigation risk on the excessive risk positions of banks. Results indicated that collective private litigation procedures are more frequently directed at financially fragile intermediaries exhibiting inadequate governance standards. Furthermore, banks which have been subjected to securities class actions are likely to reduce their excessive risk positions. The results support the idea that securities class actions could be efficiently employed as a complement to public supervisory activity in the banking sector.

4. Court Dismissal Rate and Private Securities Litigation Data

4.1 Heterogeneous Pleading Standards of USDCs

Under the Securities and Exchange Act, federal courts are given exclusive jurisdiction to hear securities lawsuits.[8] The federal court system comprises 94 district courts (five outside the main territory), 13 (appellate) circuit courts, and the Supreme Court. Each district court has geographical jurisdiction over a number of counties.[9] All federal judges receive appointment by the President and have lifetime tenure. Each district court has at least one judge, whereas some busy courts, such as the Southern District of New York and Central District of California, have 28 judges.

Though technically securities lawsuits can be filed in any of the district courts where the defendant firm has a place of business, multiple filings need to be consolidated in one case

[8]See Section 27 of the 1934 Securities Exchange Act.

[9]For geographical jurisdiction of federal district courts, see PACER: https://www.pacer.gov/psco/cgi-bin/county.pl.

typically heard by the district court where the defendant firm is headquartered. Cox, Thomas, and Bai (2009) report their interview with well-known plaintiffs' counsels who consistently reflected that it is impractical for them to engage in forum shopping due to the strong likelihood that their choice of a venue other than the defendant firm's principal place of business will be immediately followed by a successful defendant's motion to relocate the suit. Hence, rather than engaging in in futile act, they file suit initially in the defendant company's home district court.

The assignment of cases to federal judges is on rotational or often random basis (Bird, 1975; Galasso and Schankerman, 2015). Appeals against district court rulings go to its corresponding appellate court. Twelve appellate courts divide the country into circuits.[10] Circuit courts in the U.S. are influential lawmakers for their ability to set legal precedents with minimal supervision from the Supreme Court.[11]

Attorneys, commentators, and scholars have long recognized the divergent pleading standards among courts in securities lawsuits. Reflected in their dismissal rates, Figure 4 visualizes the geographical jurisdiction of the federal district courts, with colors and numbers indicating their average dismissal rates and standard deviation over our sample period. The split in pleading standards centers on the legal element of Scienter, which requires plaintiffs to "state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind." [12] Difficulty in obtaining hard evidence of Scienter prior to discovery is well known. In

[10]The thirteenth court of appeals is the United States Court of Appeals for the Federal Circuit, which has nationwide jurisdiction over certain appeals based on their subject matter.

[11]Such a scenario is particularly the case for securities lawsuits: on average, securities cases make up less than 1% of the Supreme Court's docket or about 1.5 cases per year, which makes circuit courts the de facto final arbiter (Pritchard, 2011).

[12]See Exchange Act § 21D(b)(2), 15 U.S.C. 78u-4(b)(2).

practice, whether the plaintiff's evidence can satisfy Scienter depends largely on the pleading standard of the relevant court. For example, the 1st, 4th, 6th, and 9th circuits adopted a "preponderance" standard,[13] which is pro-defendant firms. The 2nd, 8th, 10th and 11th circuits adopted an "equal inference" standard, which requires at least a "tie" of evidence of competing inference of plaintiff's evidence of Scienter and defendant's evidence of No Scienter. The 3rd and 7th circuits adopted a "reasonable person" standard,14 which is pro-plaintiff. (Choi and Pritchard, 2012).

[Insert Figure 4 Here]

4.2 Court Dismissal Rate

As there are heterogeneous pleading standards across district courts, the *ex-ante* litigation risk varies among district courts in the form of court stringency. To capture this variation, I measure court stringency by court dismissal rate, defined by the number of securities cases dismissed within τ ($\tau = 3\ or\ 5$) years prior to a firm's fiscal year end in the federal district court where the firm is headquartered, divided by total such cases filed in the same period and court:

$$CDR_{i,t-\tau\to t} = \frac{no\_dismissal_{i,t-\tau\to t}}{no\_filings_{i,t-\tau\to t}}, \quad (1)$$

where $no\_dismissal_{i,t-\tau\to t}$ is the number of cases dismissed within τ ($\tau = 3\ or\ 5$) years prior to the end of fiscal year t of firm i handled by the district court where firm i is headquartered and

[13] A preponderance standard requires the inference that the defendants had the requisite Scienter (fraudulent intent or recklessness) to be the most plausible when compared with the competing inference of "No Scienter" (Choi and Pritchard, 2012).

[14] A "reasonable person" standard only requires the court to look at the plausibility of the plaintiff's allegations without requiring the assessment of competing inferences (Choi and Pritchard, 2012).

$no\_filings_{i,t-\tau\to t}$ is the number of cases filed within τ ($\tau = 3\ or\ 5$) years prior to the end of fiscal year t of firm i handled by the district court where firm i is headquartered[15]. Note it may take several years for some cases to reach any sort of resolution, while other cases may be dismissed much faster. Therefore, cases dismissed within five years may not exactly correspond to cases filed during the same period.

To our best knowledge, the present study is the first to use court dismissal rate to capture *ex-ante* PSL risk at the district level. Our dismissal rate captures heterogeneities in observed, as opposed to inferred, tendencies of judges across courts. For example, Huang, Hui, and Li (2018) use federal judge ideology (judge appointed by Republican versus Democratic presidents) in circuit courts to infer ex-ante securities litigation risk. Variations in judge tendencies were used to assess the effect of incarceration on individual's earnings prospect (Kling, 2006), of patents on cumulative innovation (Galasso and Schankerman, 2015), and of bankruptcy laws on personal lending behaviors (Dobbie, Goldsmith-Pinkham, and Yang, 2016). We complement this line of research by offering an *ex-ante* PSL risk measure that captures heterogeneities in observed tendencies of judges across courts.

4.3 Private Securities Litigation Data Sources

The PSL data come from the Securities Class Action Services (SCAS) database from RiskMetrics' Institutional Shareholder Services (ISS). Prior work that use SCAS include Cheng et

[15] I use all private securities litigation cases to construct the perceived ex ante litigation risk measure for the following reason. First, the plaintiffs' attorneys often raise more than one allegation to improve the rate of success when filling cases, and thus, it is difficult for the managers to form perceptions on the *ex-ante* litigation risk based on a specific type of allegation when they make decisions on disclosure. As a result, it is better off for the managers to form a thorough estimation based on all class action cases rather than a particular type. In addition, I also construct dismissal rates based on only 10(b)-5 or US GAAP violation. The correlations between the new dismissal rates and the original dismissal rates are over 0.75, and the baseline results of the paper are still robust.

al. (2010) and Donelson et al. (2012). I start the data from 1996 to ensure all lawsuits are filed after the Private Securities Litigation Reform Act of 1995. To compensate for any missing values in the SCAS, I hand-collected additional lawsuit data from the Stanford Law School Securities Class Action Clearinghouse (SCAC) database. There are 6,976 unique cases with federal filing dates, class-start date, class-end date, allegation, and case status information (pending, dismissal date, or settlement date) from either SCAS or SCAC to construct the court dismissal rate. We limit the original sample to 2001 - 2013 to ensure there are five proceeding years of court dismissal rate available. We then merge the lawsuit data with Compustat and finally obtain 3,363 lawsuits with Compustat firm identifications.

4.4 Summary Statistics of Court Dismissal Rates

Table 1 reports the summary statistics of court dismissal rates by Federal Court (Panel A) and by year (Panel B) for our court dismissal rates (both 3-year and 5-year) constructed between December 31, 2000 and December 31, 2013. The mean 3-year court dismissal rate for all court-year observations is 48.4% and mean 5-year court dismissal rate is 43.3 %. The standard deviation of 3-year court dismissal rate for all court-year observations is 47.5% and that of 5-year court dismissal rate is 40.7%. This confirms our expectation that 3-year court dismissal rate is more volatile than the 5-year version.

[Insert Table 1 Here]

From the summary statistics of court dismissal rates by courts, only 10 courts have less than 5 valid dismissal rates, indicating the coverage of court dismissal rate over Federal Courts is high. The standard deviations of 3-year court dismissal rates range from 9.3% to 117.9% with an average of 37.4%. The standard deviations of 5-year court dismissal rates range from 7.7% to

106.2% with an average of 28.2%. This indicates both 3-year and 5-year court dismissal rates are time-varying for most courts.

From the summary statistics of court dismissal rates by year, the number of valid court dismissal rates are more than 65 for each year, indicating the coverage of court dismissal rate over time is also high. The standard deviations of 3-year court dismissal rates range from 36.5% to 55.8% with an average of 45.9%. The standard deviations of 5-year court dismissal rates range from 26.3% to 54.6% with an average of 38.7%. This indicates both 3-year and 5-year court dismissal rates have sizable cross-sectional variations for most years.

4.5 The Validation of Court Dismissal Rates

As I use historical court dismissal rate to measure headquartering firms' perception on the pleading standard (leniency) of district courts, the predictive power of historical court dismissal rate on the likelihood of dismissal in the future needs to be confirmed. To achieve this, I regress the probability that sued cases are dismissed by that court on court dismissal rate in a probit model, controlling for a bunch of firm characteristics:

$$Dismissed_{i,t+1} = \theta_0 + \theta_1 CDR_{i,t-\tau\to t} + \theta_2 CFR_{i,t-\tau\to t} + Controls + \varepsilon_{i,t,} \qquad (1)$$

where, $Dismissed_{i,t+1}$ is a dummy variable that takes value 1 if the sued cases of firm i are dismissed by that court in year $t+1$; $CDR_{i,t-\tau\to t}$ is my court dismissal rate measure based on the historical dismissal rate from year $t-\tau$ to year t; $CFR_{i,t-\tau\to t}$ is the court filing rate based on the historical filing rate from year $t-\tau$ to year t; and $Controls$ are the control variables. My general firm-level controls consist of natural logarithm of total assets (*Log Total Assets*), *Leverage,* and *Book-to-market ratio*. I use *ROA, Sales Growth,* and *Last Year Stock Return* to control for firm performance. I further control stock trading activities by including market risk factor loading

(*Beta*), previous-year stock return volatility (*Return Volatility*), stock turnover (*Turnover*), and stock return skewness (*Skewness*) (Kim and Skinner, 2012). Finally, to account for the strength of governance and monitoring system, we include whether the firm is audited by a Big 4 auditing firm (*Big4*) (Srinivasan, Wahid, and Yu, 2015). All variables are defined in Appendix A and winsorized at the 1% level, except for court dismissal, and filing rates. I also include industry fixed effects in the model.

To conduct this test, I match the 3,363 lawsuits that have Compustat firm identifications with all the control variables and obtain a sample of 1,143 observations. Table 2 presents the result of the regression test in Equation (1) and confirms that court dismissal rate positively predicts the likelihood of future cases being dismissed. This evidence provides validation to my measure of court stringency – court dismissal rate, that historical court dismissal information can be used to predict future litigation outcomes and can be easily obtained by managers to form headquartering firms' perception on the pleading standard (leniency) of district courts.

[Insert Table 2 Here]

5. Ex-ante PSL Risk and Voluntary Restatement

5.1 Executive Summary

Numerous studies examine how PSL risk affects managers' disclosure policies, such as earnings warnings, and yields mixed evidence (Skinner 1994, 1997; Baginski, Hassell, and Kimbrough 2002; Field, Lowry, and Shu 2005; Rogers and Buskirk 2009; Donelson et al. 2012). Less is known, however, on how PSL risk affects firms' propensity to admit their past accounting mistakes. To bridge this gap, this chapter explores misreporting firms' propensity to make voluntary restatements applying court dismissal rate.

Restatements are firms' public admittance that their past financial statements were incorrect and thus need remediation. Some restatements are voluntary in the sense that they are made prior to any apprehension by external agencies (e.g., SEC or PSL). Other restatements are forced pursuant to public and private enforcements. In the U.S., the majority of public firms engage in earnings manipulation and violations (Graham, Harvey and Rajgopal 2005). Under probabilistic law enforcement, several misreporting firms deliberately remain silent, gambling that subsequent events would allow them to conceal the accounting mistakes.[16] The systematic under-correction of accounting mistakes lowers investors' confidence in the market. Voluntary restatement increases efficiency in two ways: (1) Efficient remediation is achieved early and with certainty; (2) Enforcement effort needed to deter violations is reduced (Kaplow and Shavell 1994; Innes 1999). Accordingly, the SEC, constrained by resources, explicitly encourages and rewards self-reporting of wrongdoings (SEC Seaboard Report 2001)[17]. Hence, this study poses the question "Does high PSL risk prompt or hinder voluntary restatements?"

[Insert Figure 5 Here]

A caveat in this study is that high *ex-ante* PSL risk can affect headquartering firms' propensity to make financial misreporting and their propensity to make voluntary restatements. For the mitigation of selection bias, our sample should focus only on "culpable" firms. We employ two strategies to identify misreporting firms. The first sample comprises all PSL defendant firms

[16]To appreciate its magnitude, Figure 5 shows that, among the 4,085 defendants of securities lawsuits from 2001 to 2013, only 197 (4.8%) made restatements before the class-end (truth revelation) date. Another 383 (9.4%) made "forced" restatements after being sued, and the remaining 3,505 (85.8%) never restated their financials despite being sued.

[17]See the SEC's Report of Investigation pursuant to Section 21(a) of the Securities Exchange Act of 1934 and Commission Statement on the Relationship of Cooperation to Agency Enforcement Decision (Seaboard Report). October 23, 2001, which explained how self-reporting, cooperation, self-policing, and remediation factors affect SEC decisions when considering enforcement actions.

with alleged violations of the SEC 10b-5 anti-fraud provision and GAAP. The second sample comprises all PSL defendant firms that made either voluntary or forced restatements. Among these sample firms, some made voluntary restatements, that is, restatement *before* apprehension by the SEC or the PSL. Others made either *forced* restatements or none at all. We then ask whether culpable firms headquartered in lenient district court jurisdictions are likely to make *voluntary* restatements.

Drawn upon the largest sample of the PSL from 2001 to 2013 and restatement records from Audit Analytics (AA), we corroborate that misreporting firms headquartered in high dismissal rate (lenient) courts are likely to make voluntary restatements. The effect is statistically significant and economically large. One standard deviation increase in the court dismissal rate leads to 16.6 percentage points and a 23 percentage-point increase in voluntary restatement propensity compared with an average restating rate of 26.50% and 34.5% in our two samples. These findings are robust with the inclusion of firm characters, misstatement magnitude, court filing rates, and state fixed effects.

Our baseline result affirms that high *ex-ante* PSL risk *hinders*, rather than prompts, voluntary restatements. This evidence is consistent with economic argument in the presence of heterogeneous pleading standards. Firms' risk of PSL heightened when past accounting mistakes became known to the management. Voluntary restatements, on the one hand, might increase firms' probability of being sued.[18] On the other hand, voluntary restatements weaken the claim that managers withheld bad news to retain price distortion (evidence of non-*Scienter*). Moreover, voluntary restatements reduce potential damages by shortening the class period and the number of

[18]Note that this probability is debatable. Field, Lowry, and Shu (2005) employed a simultaneous equation methodology to address the endogeneity between disclosure and litigation and to find disclosure deters rather than trigger litigation.

affected class shareholders, thereby reducing the chances of successful pleading. In lenient courts, judges are more likely to consider firms' voluntary restatements favorably in their decision to support the defendant's motion to dismiss.[19] Plaintiff's attorneys, who anticipate judges' pleading standards, are also less likely to bring lawsuits against firms headquartered in lenient courts. It follows that firms headquartered in lenient courts have high incentives to make voluntary restatements.

Our causal evidence comes from the landmark case of *Tellabs v. Makor* (551 U.S. 308, 2007). *Tellabs* represents the U.S. Supreme Court's first effort to clarify the strong inference standard of *Scienter,* a core legal component and a major source of heterogeneity to plead the PSL across federal courts. *Tellabs* tightens the pleading standard of district courts under pre-*Tellabs* lenient circuits. Using difference-in-differences, we initially validate that, after *Tellabs*, district courts under previously lenient circuits decreased their dismissal rates relative to control courts. Thereafter, we verify that misreporting firms under pre-*Tellabs* lenient courts also decrease their voluntary restatement propensity after *Tellabs* relative to the control firms. This evidence confirms that misreporting firms deliberately alter their restatement policy in response to (exogenous) changes in court stringency.

We see several contributions to the literature. First, we complement existing studies on the driving forces of *voluntary* restatements. Prior restatement literature focuses on the *consequence* rather than the *causes* of restatements.[20] Even less scholarly attention has been paid to the

[19]We validate this statement by comparing the dismissal probability of voluntary restating defendants with that of non-voluntary restating defendants. In unreported tables, we find in lenient (stringent) courts, voluntary restating firms are more (less) likely to have their case successfully dismissed by the court.

[20]These consequences include, for example, negative market responses (Palmrose, Richardson, and Scholz 2004), increased cost of capital (Hribar and Jenkins 2004), management turnover (Collins et al. 2009), and resultant securities lawsuits (Francis, Philbrick, and Schipper 1994a and 1994b).

distinction between voluntary and forced restatements. Lin and Huang (2016) confirmed that voluntary restatements are used as a strategy of new CEOs to blame past executives and allow credit. On factors that motivate voluntary restatements, Marciukaityte et al. (2009) proved that the probability of voluntary restatements as opposed to forced restatements is positively related to the independence of board and the audit committee. Pfarrer et al. (2008) corroborated that firms follow their peers in the same industry to make voluntary restatements. Missing in this literature is how institutional factors, such as the litigation environment under which firms operate, affect firms' propensity to make voluntary restatements. This study fills this empirical gap.

Second, this study presents important evidence on how *ex-ante* litigation risk affects firms' self-policing behavior, such as voluntary restatements. In the first-best world where violations are detected and enforced without cost, one shall expect no self-policing behavior. In prior literature, the question "Why firms voluntarily disclose bad news" was asked in important works, such as Skinner (1994, 1997), Kothari, Shu, and Wysocki (2009), Rogers and Buskirk (2009), and Donelson et al. (2012). The literature affirms that firms actively consider litigation risk when issuing earnings warnings (Field, Lowry, and Shu, 2005) and restatements (Files et al. 2009; Myers et al. 2008). However, these studies use (potentially endogenous) firm-level litigation risk derived from prediction models (see Kim and Skinner 2012 for a review) and have not factored in the securities litigation environment that a firm operates in. Two studies close to our idea include Baginski, Hassell, and Kimbrough (2002), who found a great frequency of management earnings forecast in Canadian firms relative to American firms. Canada and the U.S. have similar business environments but fairly different litigation environments. Srinivasan, Wahid, and Yu (2014) corroborated that U.S. listed firms headquartered in weak rule-of-law countries have a low

restatement frequency than those from strong rule-of-law countries. However, neither of these works made the distinction between voluntary and forced restatements. By contrast, our study focuses precisely on *ex-ante* securities litigation risk, and our measure captures within-country heterogeneities in court pleading standards.

Lastly, our findings that misstated firms under lenient court jurisdictions are willing to self-correct their accounting mistakes informs resource-constrained regulators on the complex role of courts in firms' financial reporting quality. Stringent courts, on the one hand, may deter fraudulent behavior, such as financial misreporting. On the other hand, they may also invite frivolous lawsuits that deter honest firms from making voluntary restatements. One practical solution appears to be letting higher courts set case precedents that explicitly reward voluntary restatements. Promises of reduced sanction for self-initiated remediation have been used by different industry regulators, including the SEC[21] (SEC Seaboard Report 2001; Reason 2005), the U.S. Department of Agriculture (USDA), the Department of Defense (USDD), and the National Collegiate Athletic Association (NCAA) (Pfarrer et al. 2008). We add to this literature the hitherto unexploited evidence from courts.

5.2 Hypothesis Development

5.2.1 Voluntary Restatement Decisions

The observation of an accounting restatement, whether voluntary or forced, is a joint outcome of two stages. First, firms made misstatements in financial reporting that involve

[21]The Securities Exchange Commission (SEC) states explicitly that it will "reward self-reporting (of wrongdoings) while simultaneously increasing punishment for those firms that do not cooperate with investigations (SEC Seaboard Report 2001; Reason 2005).

accounting errors or irregularities. Second, upon discovery[22], the management faces the choice of *whether*, *when*, and *how* to issue a restatement although firms have statutory duty to make corrective restatements.[23] Several firms make voluntary (pre-apprehension) restatements. Others make forced restatements post-apprehension, and some never admit their accounting mistakes. Conditional on restatements, the mediums of report can differ (Files, Swanson, and Tse 2009). Certain restatements are reported in a press release or series of press releases. Some are in the form of Form 8-K filings with the SEC, and others are done by filing of amended financials (10-Ks). The information provided in such disclosures, such as accounting issues involved and circumstances underlying the restatement, also varies (Palmrose et al 2004).

Voluntary restatement is a crucial disclosure choice. Significant literature highlights its negative effect, such as short-term share price drop (Desai et al. 2006), increases in subsequent cost of capital (Hribar and Jenkins 2004; Graham et al. 2008), CEO turnover, and poor personal career prospects (Collins et al. 2009). However, it has also many benefits. These benefits include improving the accuracy of financials (Lundholm 1999), limiting legal penalties (Simpson 2002; Field et al. 2005), and showing credibility of internal control and management oversight

[22]For instance, the company can identify misstatements through internal audits and other internal control procedures, such as period-end closing processes, policy reviews, and mechanisms that solicit and investigate complaints from employees. Alternatively, when auditors discover that previously issued financial statements contain misrepresentations, GAAS requires that they advise the client to make appropriate disclosures and take the necessary steps to ensure that this disclosure occurs (AICPA, 2002, Section AU 561). Finally, external agencies such as the SEC and private lawsuits can detect fraud, forcing firms to make restatements.

[23]The SEC has ruled that "*There is a duty to correct statements made in any filing…if the statements either have become inaccurate by virtue of subsequent events or are later discovered to have been false or misleading from the outset, and the issuer knows or should know that persons are continuing to rely on all or any material portion of the statements*" (Sec. Act. Rel. 6084, 17 SEC Dock. 1048, 1054 (1979)). The FASB (2005) ASC Topic 250, Accounting Changes and Error Corrections, states, ''*Any error in the financial statements of a prior period discovered after the financial statements are issued shall be reported as an error correction, by restating the prior-period financial statements.*'' See also Accounting Principles Board Opinion 20; Statement of Financial Accounting Standards (SFAS) No. 16; and SFAS No. 154 (issued in May, 2005), among others.

(Palmorose et al. 2004). Moreover, Akhigbe, Kudla and Madura (2005) argued that a firm's legitimacy may be maintained when it restates voluntarily than when it is forced to restate by external agencies.

5.2.2 Court Stringency and Voluntary Restatement

When past accounting mistakes became known to the management, firms' choice on voluntary restatement versus concealment depends on the expected cost and benefit.

Managers face trade-offs in disclosing the restatement now or waiting till future with a wish that the misreporting will not be discovered. Elements affecting such a decision including the current costs when restatements are disclosed (such as price drop, reputational damage, executive compensation loss etc.), the possibility to be sued, the probability of losing, the litigation costs (such as lawyers' fee) and the litigation outcome, denoted by C, s_X, p_X, L and O_X respectively with subscript $X = D$ indicating disclosing (making restatement) and $X = H$ indicating hiding. Therefore, the expected cost of disclosing is $\delta_D = C + s_D L + s_D p_D O_D$ and the expected cost of hiding is $\delta_H = s_H L + s_H p_H O_H$. Note C will occur for sure if disclosed, and L will occur as long as being sued regardless of loss or not.

Hence, the decision relies on the net expected cost between disclosing and hiding is $\delta_D - \delta_H = C + (s_D - s_H)L + (s_D p_D O_D - s_H p_H O_H)$. Making the restatement leads to C, and may increase s_X and reduce p_X and O_X due to reduced scienter, so that δ_D may or may not exceed δ_H.

Court stringency alters this net expected cost by influencing the difference between s_D and s_H, the difference between p_D and p_H, and the difference between O_D and O_H. Previous literature has suggested two hypotheses: preempt hypothesis and defensive hypothesis.

In the preempt hypothesis, court stringency enlarges the difference between p_H and p_D as stringent (pro-plaintiff) court is more likely to deny defendants' motion-to-dismiss when they fail

to reduce their scienter by making restatement. Hence, the net expected cost between disclosing and hiding, i.e. $\delta_D - \delta_H$, decreases in court stringency, leading to the situation that firms are more likely to make restatement in stringent courts. Hence, I propose the following hypothesis:

H1a: The likelihood of voluntary restatement is higher in the jurisdictions of more stringent courts.

However, in the defensive hypothesis, court stringency enlarges the difference between s_D and s_H as well as the difference between p_D and p_H, because lenient courts reduce plaintiff's attorney's incentive to file lawsuits, and their judges are more likely to take firms' voluntary restatement as evidence of non-Scienter and thereby dismiss the lawsuit, etc. Hence, the net expected cost between disclosing and hiding, i.e. $\delta_D - \delta_H$, increases in court stringency. As a result, firms are more likely to make restatement in lenient courts. Therefore, I proposal the following competing hypothesis to H1a.

H1b: The likelihood of voluntary restatement is higher in the jurisdictions of more lenient courts.

In sum, it is an empirical question as to which hypothesis will prevail.[24]

5.3Data, Sample and Research Methodology

5.3.1 Data Source

[24] Since the study uses "class period end date" to distinguish voluntary and forced restatements, this generates an alternative hypothesis for the findings. When ex ante the odds to (successfully) sue a firm is high (i.e., the court is more stringent), plaintiff may file the case as early as possible, not necessarily wait until obtaining sufficiently convincing evidence. Then we will see that the class periods end early but restatements are made later. One way to test this alternative hypothesis is to check whether the class periods for stringent courts are shorter than those for lenient courts. I run a simple regression within my sample and find that the length of class period does not correlate with court stringency (t-stat = 0.89 and Adj. R-squared = -0.06%). Also, I split the sample into stringent courts and lenient courts based on the median of dismissal rates and find the average length of class periods for the two sample are not significantly different from each other. Therefore, we could rule out this alternative explanation.

The PSL data is from the sample of 3,363 lawsuits with Compustat firm identifications described in Section 4.3. I obtain restatement data from Audit Analytics (AA). For restatement identification, we exclude firms labeled in AA as "Res Clerical Errors" because we are interested in restatement of accounting irregularities that give rise to legal liability. Stock trading data come from CRSP.

5.3.2 Sampling Method

Our objective is to identify the group of firms with accounting misstatements including those that make restatements and those that not. In practice, whether a firm has misreported its financial statement can only be identified through evidence ex post facto, such as firms' own restatements, SEC sanctions, or lawsuits. In this project, I employ three strategies to identify misstated firms:

1) Defendant firm sample

Our first sample of misstated firms contains those sued by shareholders in securities litigation (hereafter "Defendant Firms"). Some defendant firms made restatements before the *class-end date*, which is the date when the corrective disclosure that triggers the lawsuit was revealed to the market (Kellogg 1984; Griffin, Grundfest, and Perino 2004; Gande and Lewis 2009). We identify these firms as voluntary restating firms. For the control sample, we further screen the remaining defendant firms and require the allegations to include US GAAP violations and Rule 10b-5 violations.

For voluntary restating firms, we start with 3,363 lawsuits whose GVKEY, federal filing date, class periods, and dismissal date (settlement date) are identifiable, and 11,377 restatement records merged from Audit Analytics (AA) restatement database and Compustat annual financial database. We obtain 789 non-duplicated defendant firms with non-error-based restatements by matching the

lawsuit class and restating periods. Subsequently, we identify voluntary restating firms, which conduct restatements before class-end date and obtain 275 observations.

For control firms, we merge 3,363 lawsuits with the Compustat annual financial database and obtain 3,175 non-duplicated defendant firms. Excluding those with voluntary restatements, we obtain 2,921 observations without voluntary restatements. Thereafter, we require our defendant firms to be alleged of GAAP violations and Rule 10b-5 violations, leaving 928 observations. We obtain a final sample comprising 366 defendant firms from 2001 to 2013, with 97 voluntary restating and 269 control firms without voluntary restatements by eliminating observations without valid variables in our tests and requiring fiscal-end date to be between December 31, 2000 and December 31, 2013. Appendix B.1 summarizes the screening process for the defendant firm sample.

2) Restating firm sample

The second sample of misstated firms contains defendant firms with (voluntary or forced) restatements (hereafter "Restating Firms"). Our 97 voluntary restating firms are the same as the defendant firm sample. For control firms, we require our defendant firms to perform corresponding restatements on or after the class-end date (i.e., "forced" restatements). Intuitively, forced restating firms constitute the best counterfactual group, which is required to (but did not) perform voluntary restatements. Our final restating firm sample comprises 281 observations from 2001 to 2012, with 97 voluntary restating and 184 control firms.

Some of the defendant firms also receive the SEC sanctions. To ensure that our 97 voluntary restating firms are voluntary restaters, we further compare their restatement filing date with the SEC enforcement date (if any), which we obtain from the SEC's Accounting and Auditing Enforcement Releases (AAER). We find eight related SEC enforcements, but no enforcement

occurred before the restatement date. Therefore, all 97 observations in our defendant firm and restating firm sample are voluntary restatements. Appendix B.2 summarizes the screening process for the restating firm sample.

3) Material Weakness Sample

Our defendant firm and restating firm samples rely on ex post lawsuit to identify misstating firms. To test the external validity of our result, we employ an alternative sample of "material weakness" (MW) firms.

This alternative sample draws upon the internal control reports on the material weakness pursuant to Sarbanes-Oxley Act (SOX) Section 404. After the SOX, auditors have responsibility to identify "Material Weakness (MW)" in the internal control of the firm following Section 404, which is approved on June 5, 2003 and mandatorily enforced after April 15, 2005. Studies confirm that firms, which receive MW opinion, have high restatement propensity and are likely to continue having misstatements in the following two years after receiving MW opinions (e.g., Myllymäki 2013). Therefore, firms that receive MW opinion could be an alternative sample of misstated firms not based on *ex post* lawsuits.

To obtain our MW firm sample, we start with 149,223 SOX 404 disclosure records from Audit Analytics SOX 404 database with opinion fiscal year in the period of 2003 to 2013. Thereafter, we merge the SOX 404 records with Compustat firm-years by CIK and ensure that the Compustat data date is within the three-year window (-1,+1), where SOX 404 opinion fiscal year is year 0 (Myllymäki 2013). Thus, we obtain 23,625 observations with at least one item of material weakness reported. We obtain 24,084 observations with or without restatement records by

combining the 23,625 material weakness records with restatement database from Audit Analytics[25]. We select the firms with non-accounting-error restatement and restating date within one-year period after the restating period as our voluntary restating firms, and the remaining as the control firms. Finally, by matching the sample with SCAS, CRSP, and Compustat variables in the subsequent tests, we obtain a final sample comprising 6,436 observations from January 1, 2003 to December 31, 2013, with 1,591 voluntary restating firm-years and 4,845 control observations. Appendix B.3 summarizes the screening process for the MW firm sample.

5.3.3 Research Methodology

1) Baseline Model

We propose the following probit model to test the predictive power of the court dismissal rate on misstating firms' propensity to make voluntary restatements:

$$\begin{aligned} Restating_{i,t+1} &= \beta_0 + \beta_1 CDR_{i,t-4\to t} + \beta_2 CFR_{i,t-4\to t} + \beta_3 Filing\ Date\ CAR \\ &+ \beta_4\ log\ Total\ Assets_{i,t} + \beta_5 Leverage + \beta_6 ROA_{i,t} \\ &+ \beta_7 Sales\ Growth_{i,t} + \beta_8 Last\ Year\ Stock\ Return_{i,t} + \beta_9 Beta_{i,t} \\ &+ \beta_{10} Return\ Volatility_{i,t} + \beta_{11} Turnover_{i,t} + \beta_{12} Skewness \\ &+ \beta_{13} Book\ to\ Market_{i,t} + \beta_{14} Big\ 4 + \varepsilon_{i,t,} \end{aligned} \quad (2)$$

[25]The number of observations (24,084) in matched result exceeds 23,625 because some MW firms made multiple restatements on different periods of a fiscal year.

where $Restating_{t+1}$ is an indicator variable that takes a value of 1 if the firm makes a voluntary restatement before class-end date[26]; $CDR_{i,t-4\to t}$ represents the court dismissal rate for the headquartering firm.

Our control variables follow the literature on litigation risk and restatement (Myers et al. 2004; Griffin et al. 2008; Cheng et al. 2010). To control for the potential selection bias caused by the likelihood of being sued, we initially include court filing rate $CFR_{i,t-4\to t}$, which is defined as the total number of security cases filed within five years prior to a firm's fiscal year end in the federal district court, where the firm is headquartered, divided by the total number of Compustat firms in the same period and court. To control the magnitude of misreporting, we include Filing Date CAR (-1,+1). Our general firm-level controls consist of the natural logarithm of the total assets (Log Total Assets), Leverage, and Book-to-market ratio. We use ROA, Sales Growth, and Last Year Stock Return to control for firm performance, following the work on restatements (Files, Swanson, and Tse 2009; Srinivasan, Wahid, and Yu 2014). We further control stock trading activities by including market risk factor loading (Beta), previous-year stock return volatility (Return Volatility), stock turnover (Turnover), and stock return skewness (Skewness) (Kim and Skinner 2012). Finally, to account for the strength of governance and monitoring system, we include the information on whether or not the firm is audited by a Big Four auditing firm (Big4) (Srinivasan, Wahid, and Yu 2014). All variables are defined in Appendix A and winsorized at the 1% level, except for restating dummy, court dismissal, and filing rates. We control the state fixed effects because several states have more than one district court. Therefore, we must disentangle

[26]The class-end date of the control firms in the samples of defendant and restating firms is considered the hypothetical restating date, and the latest fiscal year up to the class-end date is fiscal year *t* in Equation (2) because the restating and control firms are matched by lawsuit and class-end year in these two samples.

the effect of court stringency from the unobservable state-level economic, social, and political effects. We also control the industry and year fixed effects.

2) Causality Identification

Our causal evidence comes from the landmark case of Tellabs vs. Makor (hereafter "*Tellabs*"). The case was originally dismissed by the district court of Northern Illinois, reversed by the 7th Circuit Court upon appeal,[27] further appealed to the Supreme Court, which granted *certiorari*,[28] and ultimately rendered a final ruling by Judge Posner following the clarified pleading standard of the Supreme Court.[29] *Tellabs* represents the U.S. Supreme Court's first effort to clarify the strong inference standard of *Scienter*, a core legal component and major source of heterogeneity to plead PSL across federal courts.

Prior to *Tellabs*, a longstanding confusion among federal courts was required from Scienter allegations to defeat a motion to dismiss under the PSLRA of 1995. The element of *Scienter* requires plaintiffs to "*state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind*"[30], which "embraces the intent to deceive, manipulate, or defraud."[31] The plaintiff's difficulty in obtaining hard evidence of *Scienter* prior to discovery is well known. In practice, whether the plaintiff's evidence can satisfy *Scienter* depends largely on the pleading standard of the court.

[27]See 437 F.3d 588, 602 (7th Cir. 2006).

[28]See *Tellabs, Inc. v. Makor Issues & Rights, Ltd*. 551 U.S. 308 (2007).

[29]See *Makor Issues & Rights, Ltd. v. Tellabs, Inc.*, F.3d, No. 04-1687, 2008 WL 151180 (7th Cir. Jan. 17, 2008).

[30]See Exchange Act § 21D(b)(2), 15 U.S.C. 78u-4(b)(2).

[31]See *Ernst & Ernst v. Hochfelder*, 425 U.S. 185, 193 (1976).

As *de facto* lawmakers, different circuit courts followed their own approaches. For instance, the 1st, 4th, 6th, and 9th circuit courts adopted a "preponderance" standard most favorable to the defendant. A preponderance standard requires the inference that the defendants had the most plausible requisite *Scienter* compared with the competing inference of *Non- Scienter*. The 2nd, 8th, 10th, and 11th circuit courts and DC District Court adopted an "equal inference" standard that requires at least a "tie" of competing inference of *Scienter* and *Non- Scienter*. Finally, the 3rd and 7th circuit courts adopted a "reasonable person" standard most favorable to plaintiffs, thereby only requiring the court to consider the plausibility of the plaintiff's allegations without requiring the assessment of competing inferences (Choi and Pritchard 2012).

Notably, the Supreme Court's ruling on *Tellabs* in 2007 clarified the requirement of the plaintiff to plead *Scienter*. The ruling held that plaintiffs shall survive a motion to dismiss "*only if a reasonable person would deem the inference of [culpable state of mind] cogent and at least as compelling as any opposing inference one could draw from the facts alleged.*"[32] This stance mimics the "equal inference" standard, which is more stringent than the "preponderance" standard adopted by the 1st, 4th, 6th, and 9th circuit courts. Specifically, we hypothesize that the *Tellabs* decision exogenously tightened the securities litigation environment for firms headquartered in pre-*Tellabs* case lenient courts.

We follow this conjecture to design a quasi difference-in-differences (DiD) test. With *Tellabs* as a shock on the court pleading standard, the first difference is the voluntary restatement propensity of headquartering firms before and after the event. The second difference is the voluntary restatement propensity of headquartering firms under the pre-event lenient versus non-lenient courts. We define district courts under the 1st, 4th, 6th, and 9th circuits as "pre-event lenient

[32]See *Tellabs, Inc. v. Makor Issues & Rights, Ltd*. 551 U.S. 308 (2007), at 324.

courts" and district courts under other circuits as "pre-event non-lenient courts". We select the six-year window (three-year pre- and three-year post-*Tellabs*) because it takes time for managers of misstating firms to learn about their accounting mistakes and deliberate on voluntary restatement decisions in response to the altered pleading standard. The *Tellabs* case lasted from 2006 to 2007; thus, these two years are excluded from our event window. The pre-event period for the six-year window is from January 2003 to December 2005, whereas the post-event period is from January 2008 to December 2010. Figure 6 displays the event window of 2006 Tellabs case.

[Insert Figure 6 Here]

5.3.4 Descriptive Statistics

Table 3 displays the distribution of samples by district courts (Panel A) and by year (Panel B). The top three busiest district courts are California (Northern), California (Central), and New York (Southern), accounting for 29.0% and 31.0% of the total caseload in the three samples.

[Insert Table 3 Here]

Table 4 summarizes the descriptive statistics of variables in our three samples and compares the characteristics of voluntary restating firms and non-voluntary restating firms in each sample. For the defendant firm sample (Panel A), the average court dismissal rate is 35.9%, and the average court filing rate is 15.8%. The mean log total asset (Log Total Assets) is 7.49, the leverage of the total assets is 22.8%, and the book-to-market ratio is 0.629. The average ROA is −2.0% of the total assets, and the sales growth rate is 18.8%. The average daily return volatility is 3.5%, the skewness is 0.148, and the annual turnover is 2,979. The firms audited by the Big Four auditing firms comprise 72.1% of the sample. The comparative result between the voluntary restating and control firms in the defendant firm sample affirms that the former have significantly

higher court dismissal and lower court filing rates. Meanwhile, the other characteristics are nearly similar. Thus, our control firms are a good match for voluntary restating firms.

[Insert Table 4 Here]

For the restatement firm sample (Panel B), the average dismissal rate is 34.5%, and the average court filing rate is 16.0%. The mean log total asset (Log Total Assets) is 7.26, the leverage of the total assets is 25.2%, and the book-to-market ratio is 0.57. The average ROA is −2.9% of the total assets, and the sales growth rate is 23.4%. The average daily return volatility is 3.6%, the skewness is 0.136, and the annual turnover is 3,080. Firms audited by the Big Four comprise 76.0% of the sample. The comparative result between the voluntary restating and forced restating firms in this sample corroborates that the voluntary restaters have higher court dismissal and lower court filing rates and marginally lower return volatility. Other characteristics are nearly similar.

For the MW firm sample (Panel C), the average dismissal rate is 45.7%, and the average court filing rate is 13.9%. The mean log total asset (Log Total Assets) is 5.96, the leverage of the total assets is 20.9%, and the book-to-market ratio is 0.745. The average ROA is −6.8% of the total assets, and the sales growth rate is 11.3%. The average daily return volatility is 3.6%, the skewness is 0.439, and the annual turnover is 1,845. Firms audited by the Big Four comprise 57.0% of the sample.

The univariate analysis of the three samples reveals that court dismissal and filing rates significantly distinguish voluntary restating firms with control firms. High court dismissal and low court filing rates are associated with high propensity to restate voluntarily, thereby indicating that firms are highly likely to make voluntary restatements when the court is lenient, and the risk of being sued is low, that is, a lenient litigation environment. Section 5.3 presents the comprehensive results in regression analysis.

5.4 Empirical Results

Table 5 reports the effect of court dismissal rate on the likelihood of misstating firms issuing voluntary restatements using the defendant firm sample (Columns 1 and 2), the restating firm sample (Columns 3 and 4) and the MW firm sample. Industry and year fixed effects are included in all six regressions. State fixed effects are included in the regressions in Columns 1, 3 and 5. We corroborate that court dismissal rate significantly positively affects the likelihood of misreporting firms issuing voluntary restatements (p = 0.0054, 0.0126, 0.0305, 0.0043, 0.0424 and 0.0151 for the six regressions, respectively). In terms of economic significance, a one-standard deviation (22.0%, 20.8% and 26.5% for the defendant firm sample, the restating firm sample and the MW firm sample, respectively) increase in court dismissal rate is associated with 16.62, 9.01, 23.03, 22.83, 8.77 and 9.63 percentage-point increases in voluntary restatement propensity for the six regressions in Columns 1 to 6 compared with the average restating rates of 26.5%, 34.5% and 24.7% for the three samples. One standard deviation in dismissal rate (22.0%) amounts to the difference in the rates between the Illinois (Northern) and California (Northern) district courts. Hypothetically, if a firm moves from Illinois (Northern) to California (Northern), *ceteris paribus*, its voluntary restatement propensity would increase by 16.62% according to the results in Column (1), which increases over 63% of its voluntary restatement rate.

[Insert Table 5 Here]

In terms of control variables, *Last Year Stock Return* and *Turnover* have marginally significant coefficients at the restating firm sample. Having a Big Four auditor has limited effects on voluntary restatements probably because auditors are concerned with their legal and reputational penalties when their audited firm has accounting mistakes (Seetharaman, Gul, and

Lynn 2002; Hope and Langli 2010). In sum, our baseline model analysis supports the *defensive* disclosure hypothesis as follows: misstated firms are likely to make voluntary restatements in lenient court environments.

To validate whether *Tellabs* decision has a homogenizing effect on federal courts, we initially check the court dismissal rate for the district courts under the lenient circuits and the pre- and post-*Tellabs* case under other circuits. The results are shown in Panel A of Table 6. Consistent with Choi and Pritchard (2012), the mean of court dismissal rates for the district courts under lenient circuits decreases after the *Tellabs* case from 45.8% to 39.8%, whereas that under the non-lenient circuits increases after the *Tellabs* from 30.1% to 36.3%.

Panel B of Table 6 presents the results of the DiD analysis. Columns 1 and 2 use defendant firm sample, Columns 3 and 4 use the restating firm sample, and Columns 5 and 6 use the MW firm sample. Remarkably, the voluntary restatement probability of the lenient circuit firms significantly decreases relative to the control group after *Tellabs*. The coefficient estimate of the interaction term between pre-event lenient circuit and post-event dummies is significantly negative (p=0.0484, p=0.0394, p=0.0303, 0.0870, 0.0583 and 0.0900 in Columns 1 to 6, respectively). In sum, our result provides strong causal evidence that firms adjust their voluntary restatement policy in response to (exogenous) changes in court stringency.

[Insert Table 6 Here]

6. Court Stringency and Bank Loan

6.1 Executive Summary

This chapter presents novel evidence of the net impact of *ex-ante* PSL risk on firm value from the perspective of lenders. PSL is designed to protect the interests of shareholders, but lenders

are exposed to positive and negative externalities. To realize why lenders should care about the securities litigation risk of firms, we note first that banks are heavy users of the financial reports of firms (Sufi, 2007). Graham, Li, and Qiu (2008) provide empirical evidence that banks increase interest spread following their borrowers' restatements, particularly those companies that commit fraud. Most loan contract terms, such as financial covenants, rely on specific accounting items (Ball, Li, and Shivakumar, 2015; Demerjian, Donovan, and Larson, 2016). Following this conjecture, we expect banks to charge lower interest rate if high PSL risk deters the financial misreporting incentives of firms, which reduces costs in bank information production and monitoring. We call this proposition the "financial misreporting hypothesis."

However, high PSL risk can expose firms to undue risk of liability for frivolous lawsuits. Firms in high PSL risk environments are likely to become targets of securities litigation and face potentially severe penalties if sued. Even if the lawsuit is meritorious, securities litigation is an extremely expensive way to compensate victims. The direct and indirect costs of PSL to firms include settlement cost and attorney fees, diversion of managerial attention from productive activities, and an increase in the costs of explicit and implicit contracts. In other words, high PSL risk causes a transfer of firm resources that are otherwise available to creditors to lawyers and shareholders, thereby increasing credit risk. Following this argument, banks should charge lower interest rate to firms subjected to lower exposure of frivolous lawsuits, i.e., lower PSL risk, which we test as the "legal efficacy hypothesis."

The two hypotheses yield opposite predictions on the impact of *ex-ante* securities litigation risk on bank loan characteristics. To investigate the netting of these impacts, this chapter applies the court dismissal rate to proxy for *ex-ante* PSL risk.

We draw on a large sample of bank loans transacted from 2001 to 2013 and present evidence consistent with the legal efficacy hypothesis. Results show that banks charge lower interest spreads (over LIBOR) if their borrowers are headquartered in high-standard courts (higher dismissal rate). The effect is not only statistically significant, but also economically large. For example, the estimated coefficients on court dismissal rate in most baseline interest spread regressions are around -11 (basis points). Given the average dismissal rate and facility amount, it means roughly a million dollars of lower total interest payment for a five-year loan. These findings are robust with the inclusions of interest rate environments, district unemployment rates, borrower and loan characteristics, credit ratings, loan type, year, and court-fixed effects. However, this effect is not significant on loan amounts and maturities. We also find that banks significantly increase the usage of net worth covenants when borrowers are headquartered in the districts with higher court dismissal rates or Court filing rates.

Our baseline result suggests that banks consider the benefit of courts' high pleading standards in curtailing frivolous lawsuits to outweigh the potential cost of financial misreporting incentives. If this proposition is true, we expect the net effect to be larger in the group of firms with less information asymmetry problems (i.e., less concerns for financial misreporting incentives). Consistent with this conjecture, we show that the effect of court's pleading standard on interest rate is more pronounced in the group of firms that are (1) without performance pricing provision, (2) with smaller DEF 14A filing size, and (3) with more analysts following. This result suggests that banks are more likely to view these firms as "victims" of higher *ex-ante* PSL risk without much concern of financial misreporting by these types of firms.

Our causal evidence comes from the landmark case of Tellabs v. Makor (hereafter "Tellabs"). Tellabs represents the U.S. Supreme Court's initial effort to clarify the strong inference

standard of Scienter, a core legal component and a major source of heterogeneity to plead PSL across federal courts. The decision on Tellabs "homogenizes" the pleading standards of federal courts (Choi and Pritchard, 2012), thereby causing the PSL risk associated with different pleading standards across district courts to converge. Consistent with our hypothesis, we find our baseline results concentrate in the pre-Tellabs period and diminish after Tellabs decision. This evidence suggests that banks deliberately alter their lending behaviors in response to (exogenous) changes in court pleading standards.

We offer several important contributions to the literature. First, our analysis circumvents empirical challenges in studying the relations between law and finance. The main challenge of cross-country studies is the control for omitted country-level factors that are correlated and time-varying with interested country variables. We avoid this issue by focusing on the variations of court dismissal rates within the U.S. We complement prior literature that studies how country-level legal environments (such as creditor's protection) affect financial contracting and bank lending decisions (Qian and Strahan 2007; Bae and Goyal 2009). However, their focus is laws "on paper."[33] We focus on the law "in action" by investigating heterogeneities in dismissal rates across federal district courts.

Our paper adds to studies on the net impact of PSL institution from the perspective of lenders. Prior work attempted to infer the net impact of PSL by using stock price reactions to key legislative events in the PSLRA that heighten court pleading standards. For example, Speiss and Tkac (1997) and Johnson, Kasznik, and Nelson (2000) find that shareholders generally benefit from restrictions on private securities litigation, whereas Ali and Kallapur (2001) find the reverse.

[33] Specifically, Bae and Goyal (2009) show that banks in countries with stronger creditor rights charge lower loan spreads. Qian and Strahan (2007) study the impacts of laws and institutions on loan ownership, maturity, and spreads.

By contrast, our paper investigates the post-PSLRA period using 13 years of bank loan data. Bank loans provide a unique angle to assess the net impact of court pleading standards on firm risk.

Finally, we contribute to research by showing that the mechanisms intended for one type of investor can spill over to other types. For example, Chava, Livdan, and Purnanandam (2009) study the effects of shareholder rights on cost of debt. Although the securities litigation institution is designed to help protect investors from defrauding firms issuing public securities, its impact on other stakeholders, such as that on bank lending decisions, warrants investigation. Our results show that lenders consider a high pleading standard environment beneficial to firms. This finding suggests that the benefit of courts screening out frivolous lawsuits to outweigh the cost of potential financial misreporting incentives. Our analysis is unique and different from Deng, Willis, and Xu (2014), who find that banks tighten their lending terms after the firms are sued in securities class actions.

6.2 Hypothesis Development

Considerable disagreement arises on the economic impact of litigation environment on debt holders because heightened pleading standards for plaintiffs (or lenient litigation environment for firms) can positively or negatively affect debt holders.

On the positive side, a higher pleading standard means more restrictions for shareholders to bring securities litigations. This situation rescues firms from the deadweight loss incurred as a result of nuisance lawsuits. Examples of these losses include the costs of defenses and settlement, diverted managerial attention from productive activities, reputational damages to firms, management, and auditors, and managers' reluctance to disclose forward-looking information. Following this hypothesis, banks lend favorably to firms under high-standard court jurisdictions.

On the negative side, a higher pleading standard can hurt meritorious lawsuits, thereby increasing the financial misreporting incentives of firms. Banks face higher risk when firms have a lower incentive to provide accurate information. Following the financial misreporting hypothesis, banks charge higher interest rate to firms under high-standard courts.

The aggregate impact of litigation environment on banks reflects the netting of these effects. I propose the following two competing hypotheses:

H2a: Banks charge lower interest rates to firms headquartered in high dismissal rate courts.

H2b: Banks charge higher interest rates to firms headquartered in high dismissal rate courts.

6.3 Data, Sample Selection and Variables

Our sample of bank loans comes from the DealScan database of Thomson Reuters LPC. Court dismissal rate, which is the main explanatory variable, is available from 2000 and onwards; thus, we obtain loan deals from 2001 to 2013[34]. To ensure the homogeneity of loan sample, we only include loans that have available interest spreads (allindrawn item in DealScan), country of syndication is in USA, and distribution method is syndication. A total of 16,875 loan facilities satisfy these criteria. We further screen loans with firm characteristics in Compustat and derive 11,178 loan facilities. Panel A of Table 7 reports sample distribution by deal year. The number of loan facilities is evenly distributed across years with the exception of the periods surrounding the 2008 Financial Crisis. Panel B reports the frequency of sample by S&P domestic long-term issuer credit ratings of borrowers. Among the 11,178 facilities, 43.91% of loans are borrowed by firms without credit ratings. The largest credit rating group appears to be BBB; whereas the smallest is

[34] We use three and five years to construct court dismissal rate and find that the results are qualitatively similar. We mainly show results using a three-year window in this chapter.

D with only one observation. In Panel C, we list the USDC included in our sample with the number of loans, average number of firms, three-year Court filing rate, and three-year dismissal rate in each district.

[Insert Table 7 Here]

Panel A of Table 8 presents the summary characteristics of loan terms. More detailed variable descriptions are provided in Appendix A. The mean interest spread (above LIBOR) is 208.5 basis points. The mean size of facility is $413.3 million. The mean maturity is 48.26 months. The average level of covenants index is 2.2. Average facility contains 0.92 sweep type of covenants and 1.52 financial covenants. Around 36% of loans are secured with collaterals, 54% have dividend restriction, 15% contains net worth covenants, and 49% have performance pricing provision. The vast majority (62%) of loans are multi-year revolvers, followed by traditional term loans (16%), and institutional term loans and lines of credit (both at 11%).

[Insert Table 8 Here]

We control for the extent of lawsuit intensity (court filing rate $CFR_{i,t-\tau\to t}$), which is the number of lawsuits filed within the prior three or five years scaled by the number of firms in the same district, to match the dismissal rates used in the regressions. The summary statistics of both variables using the three-year window by USDC are reported in Panel C of Table 7. We report various USDC characteristics in Panel B of Table 8. The mean three-year dismissal rate is 0.45, whereas the corresponding court filing rate is 0.14. On average, 278 firms are in a district with an average unemployment rate of 6.01%.

To control for borrower characteristics, the analysis uses listed company available in Compustat. We include audit fees from Audit Analytics to control for firms' financial report complexity. The availability of audit fees further reduces loan observations from 11,178 to 8,886.

Finally, we include analyst information from I/B/E/S as a robustness test. This step further reduces our sample to 6,042 loan facilities in the regression analysis.

Panel C of Table 8 reports descriptive statistics of variables used in the regression analysis. On average, firms have resided in district (the address) since 1996 for 8.94 (8.29) years. The mean log version of borrower total assets (Log Total Assets) is 7.24, Tobin's q 1.72, cash holdings 9.62% of total assets, and profitability is 12.71% of total assets. Average current ratio is 1.91, leverage 59.25% of total assets. Nearly 43% of assets are tangible on average and 52% of sample pay dividends. Average interest expenses are 32.32% of operating profits. Mean capital expenditure scaled by total assets is 5.82%; R&D scaled by sales is 0.09% with 53% of firms without R&D information. The average one-year abnormal stock return is 7%. Mean beta is 1 and mean residual risk is 2.56%. On average, 12.14 analysts are following the firms. Mean analyst forecast dispersion is 0.02. Panel D of Table 3 reports interest rate environments, i.e., credit spread between Baa and Aaa bonds and term yield using the yield of 10-year T-note minus that of 1-year T-bill.

Also, we note that different USDCs can have fundamental differences in political environment. Therefore, we control for court fixed effects to address the unobserved heterogeneity of geographic areas.

6.4 Univariate Analysis

Before we conduct formal regression analysis, Table 9 presents univariate tests of loan terms by level of dismissal rate. Court districts with above median dismissal rate are classified as high level. Every single loan term compared in Table 9 is significantly different between high and low dismissal rate courts. Mean interest rate, facility amount, and maturity are all significantly higher in the high dismissal district courts than in the low ones. By contrast, the extent of all

covenants is significantly lower. However, to reach any conclusions, we proceed with multivariate regressions with different sets of control variables.

[Insert Table 9 Here]

6.5 Regression Analysis

6.5.1 Interest Spreads

The first loan term we examine is loan price, i.e., interest spreads (in basis points) charged above LIBOR. The spreads include interest costs if the funds are drawn and annual fees. For loans not based on LIBOR, Thomson Reuters LPC converts the spreads into LIBOR terms by adding or subtracting a differential adjusted periodically. Table 10 reports four different model specifications that range from the full controls that include firm and loan characteristics, as well as various fixed effects to less controls, that exclude loan characteristics and court fixed effects.

[Insert Table 10 Here]

Regardless of model specifications, coefficient estimates on court dismissal rate are stable and statistically and economically significant at around 11 basis points in most model specifications. Coupling with the average dismissal rate and facility amount, it implies slightly less than a quarter million dollars of lower interest payment per year. The findings are consistent with the legal efficacy hypothesis that lenders view that higher pleading standard is beneficial in discouraging frivolous lawsuits. The estimates on control variable, Court filing rate, are all insignificantly different from zero. Hence, the important factor is not how many lawsuits are filed but how judges view securities litigation.

Among firm characteristics, larger, high Q, profitable, and high R&D firms pay significantly lower interest rate than firms that do not possess these qualities. Firms that pay dividends or without R&D information pay significantly lower interest rate. These results are

consistent with prior literature, such as Chava, Livdan, and Purnanandam (2009) and Graham, Li, and Qiu (2008). Loans that require collaterals have significantly higher interest rate. This notion is consistent with previous research, such as Berger and Udell (1990), who find that riskier borrowers use more collateral.

6.5.2 Non-price Loan Terms

In this section, we examine the effects of court dismissal rate on loan maturity, amounts, and selective covenants. Under the legal efficacy hypothesis, which reduces firms' litigation risk, banks are likely to lend with longer maturity, larger size, and fewer covenants. However, if banks are not concerned with financial reporting incentives, they may use more covenants in exchange of lower interest rates.

Covenants reduce agency costs of debt, but it comes with the costs of reduced flexibility (Smith and Warner, 1979) and in some cases leads to inefficient investment decisions. Therefore, it is in both lenders' and borrowers' interests to use covenants carefully without imposing undue burden on borrowing firms while providing ample lender protections. In general, riskier firms that have the higher potential of agency problem tend to borrow with more covenant restrictions. However, most covenants are built on accounting information. A court that has a high pleading standard can reduce the financial reporting incentives of a borrowing firm, which then reduces the usefulness of accounting information for loan contracting purpose. Therefore, the effects of court dismissal rate on covenant inclusions are ambiguous.

The prediction on loan maturities is clearly shorter based on the financial misreporting hypothesis. Shorter loan maturity has been recognized as an effective monitoring mechanism to address information problem because of more frequent information disclosure and renegotiation

of contract terms. Through the debt renewal processes, banks also obtain a stronger bargaining position (see, for example, Barclay and Smith, 1995 and Rajan and Winton, 1995).

We report the results for non-price analyses in Table 11. We did not find any significant impact of dismissal rate and lawsuit filing intensity on all non-price loan terms, except for net worth covenant. The significantly positive estimates for net worth covenants in Table 11 suggest that banks are more likely to impose net worth covenants in jurisdictions with high-standard courts. In conjunction with the result of lower interest rate charged in high-standard courts, the findings are more consistent with the legal efficacy hypothesis than the financial misreporting hypothesis. The most common allegation of securities lawsuits is inflating stock prices. The most common accounting manipulation is done on earnings, which has a direct impact on the level of net worth. Therefore, if banks are concerned with financial misreporting, which makes accounting items less reliable, banks are less likely to use such items for loan contracting and should just charge higher interest rates. Therefore, our evidence is consistent with the legal efficacy hypothesis.

[Insert Table 11 Here]

6.5.3 Subsamples with different information asymmetry problems

As a robustness test, we examine interest spreads of subsamples. In the first (second) column of Table 12, we only include loans without (with) performance pricing provisions. If banks are uncertain about the quality and outlook of borrowers, they can impose performance pricing to address such uncertainties (Asquith, Beatty, and Weber, 2005). We did not find that court dismissal rate affects bank choices of using performance pricing, but the subsample of loans with such a provision are likely to be the borrowers that banks cannot gauge their credit quality more precisely upon loan initiation. If one major source of such information problem is related to financial reporting incentives, we will see interest spreads positively associated with court dismissal rate

under the financial misreporting hypothesis, particularly among firms with performance pricing. On the contrary, under the legal efficacy hypothesis, if financial misreporting is less of a concern, banks should charge lower interest rates when court dismissal rate is high, particularly among firms without performance pricing.

Despite fewer observations, the estimated coefficient on court dismissal rate in Column (1), which contains only loans without performance pricing, remains significantly negative. The estimated coefficient on court dismissal rate is -21.76, which is larger than that of full sample. By contrast, the estimated coefficient on court dismissal rate is -3.36, which is insignificant from zero for the subsample of loans with performance pricing provisions. These findings are consistent with the legal efficacy hypothesis. The insignificant result among loans with performance pricing is consistent with the possibility that banks suspect of higher level of information problem, which then offsets the benefit of high pleading standard.

In the third (forth) column of Table 12, the sample contains firms that have filed form DEF 14A, i.e., proxy statement, with file size less (greater) than 1 MB. Firms with fewer issues to communicate with shareholders are likely to have short proxy statements and less likely to have information problems. It is a known accounting practice to bury negative information in a voluminous amount of uninformative text and data (Loughran and McDonald, 2014). Therefore, firms file larger statements are more likely to have information issues. Similar to the argument for performance pricing provisions, we find that the significant result is concentrated among firms with smaller filing size. This finding is consistent with the legal efficacy hypothesis.

[Insert Table 12 Here]

Finally, we split the sample based on the number of analysts following the firms. Firms with fewer analysts tend to have less information available. The estimate on dismissal rate in

Column (6), which only includes firms with less than ten analysts, is still significantly negative, but marginal. By contrast, firms with more than nine analysts, reported in Column (5), appear to have more significant estimate on dismissal rate.

6.5.4 Shock in Court Pleading Standards: Supreme Court's Tellabs Decision

This section presents causal evidence on how exogenous change in court pleading standards affects bank lending. The exogenous shock we use is the 2007 case of *Tellabs, Inc. versus Makor Issues & Rights, Ltd* (551 U.S. 308, 2007).[35] We choose *Tellabs* because it is the Supreme Court's first effort to clarify the legal element of *Scienter,* which requires plaintiffs to "*state with particularity facts giving rise to a strong inference that the defendant acted with the required state of mind*" [36]; this case typically includes "*intent to deceive, manipulate, or defraud.*"[37]

Prior to *Tellabs,* a longstanding confusion among federal courts was the requirement of *Scienter* allegations to defeat a motion to dismiss under the PSLRA. Difficulty in obtaining hard evidence of *Scienter* is common. Courts follow their own approaches. In practice, the potential of plaintiff's evidence to satisfy *Scienter* depends largely on the pleading standard of each court. Specifically, the case law precedents in several circuits allow legal scholars to categorize courts into three groups: The 1st, 4th, 6th, and 9th circuits adopted a "preponderance" standard,[38] which is pro-defendant firm. The 2nd, 8th, 10th, and 11th circuits adopted an "equal inference" standard,

[35] The case was originally dismissed by the district court of Northern Illinois, reversed by the 7th Circuit Court upon appeal (437 F.3d 588, 602 7th Cir. 2006), and further appealed to the Supreme Court. The Supreme Court granted certiorari (551 U.S. 308, 2007) and ultimately rendered a final ruling by Judge Posner of the following clarified pleading standard of the Supreme Court (7th Cir. Jan. 17, 2008).

[36]See Exchange Act § 21D(b)(2), 15 U.S.C. 78u-4(b)(2).

[37] See *Ernst & Ernst v. Hochfelder,* 425 U.S. 185, 193 (1976).

[38] A preponderance standard requires the inference that the defendants had the requisite Scienter (fraudulent intent or recklessness) to be the most plausible when compared with the competing inference of "No Scienter" (Choi and Pritchard, 2012).

which requires at least a "tie" of evidence of competing inference of plaintiff's evidence of *Scienter* and defendant's evidence of No Scienter. The 3rd and 7th circuits adopted a "reasonable person" standard,[39] which is pro-plaintiff.

The Supreme Court's ruling on *Tellabs* in 2007 held that plaintiffs shall survive a motion to dismiss "*only if a reasonable person would deem the inference of [culpable state of mind] cogent and at least as compelling as any opposing inference one could draw from the facts alleged.*"[40] This stance mimics the middle "equal inference" standard adopted by the 2nd, 8th, 10th, and 11th circuits. The effect of *Tellabs* is that the ruling *homogenizes* the requirement for plaintiffs to establish Scienter across all courts. If our proposition is true that banks are sensitive to the securities litigation environment of their borrowers, we expect that after the Tellabs decision, the effect of court dismissal rate on interest spread shall attenuate.

Given the above analysis, it is expected that our main findings are driven by the pre-Tellabs period as banks' concern for frivolous lawsuits is mitigated across the board following Tellabs. Table 13 reports the results of interest spreads by sub-period. Column (1) only includes years 2001 to 2005, which is strictly prior to the Tellabs case. Column (2) extends the years in Column (1) to 2007, which includes the Tellabs case ruling period. Finally, Column (3) consists only years 2008 to 2013, i.e., post-Tellabs period. The estimated coefficients on dismissal rate in Columns (1) and (2) are significantly negative. The magnitude of estimates is larger than that of our baseline estimates in Table 10. We rerun regressions in Table 11 and replace court fixed effects by circuit

[39] A "reasonable person" standard only requires the court to look at the plausibility of the plaintiff's allegations without requiring the assessment of competing inferences (Choi and Pritchard, 2012).

[40] See *Tellabs, Inc. v. Makor Issues & Rights, Ltd*. 551 U.S. 308 (2007), at 324.

court type. The estimates are very similar and qualitatively the same. Thus, the results are not reported for brevity.

[Insert Table 13 Here]

6.5.5 Shock in Court Pleading Standards: Silicon Graphics Inc (1999)

This section presents another causal evidence on how exogenous change in court pleading standards affects bank lending. The exogenous shock we use is the 1999 case of *Re: Silicon Graphics Inc (SGI)*. We choose *SGI* because the Ninth Circuit's interpretation in *SGI* is the most stringent, requiring plaintiffs to allege facts that would show the defendants were "deliberately reckless" in making the misrepresentation that gave rise to the fraud claim[41]. The pleading standards of the district courts under the Ninth Circuit rose substantially compared to other circuits, especially those conventionally pro-defendant courts (1st, 4th and 6th Circuits), after *SGI*.

To exploit the impact of SGI on perceived litigation risk, I design a group of diff-in-diff tests. In these tests, the treatment group is the loans borrowed by firms under the jurisdiction of the Ninth Circuit and the control group is those borrowed by firms under the jurisdiction of the First, Fourth and Sixth Circuits. There are two lengths of event windows, 2 years and 6 years. In the 2-year event, the pre-event period is 1998 and the post-event period is 2000. In the 6-year event, the pre-event period is 1996 to 1998 and the post-event period is 2000 to 2002. I exclude the event year 1999 as it takes time for banks to respond to the change of legal environment.

Table 14 presents the results, with Column 1 for the 2-year event window and column 2 for the 6-year event window. I find that after the SGI case, the loan spread of the borrowers located in the jurisdiction of the 9th Circuit decreases marginally significantly compared to that of the

[41] In re Silicon Graphics Inc. Sec. Litig., 183 F.3d at 974.

borrowers located in the jurisdiction of the control circuit, which is consistent with my main results that the loan spread is lower for firms located in more lenient courts.

[Insert Table 14 Here]

7. Court Stringency and 10-K Readability

7.1 Executive Summary

This chapter studies the impact of *ex-ante* PSL risk on annual report readability. Annual report readability refers to the ease with which a reader can understand the annual report. There is an increasing literature on the association between annual report readability and other fiancé and accounting topics, such as financial performance (Li, 2008; etc.), analyst coverage and earnings forecast accuracy and dispersion (Lehavy, Li, and Merkley, 2011), investors' underreaction to annual report information (You and Zhang, 2009), firms' investment decisions (Biddle, Hilary, and Verdi, 2009), investors' trading behavior (Miller, 2010), stock crash risk (Kim, Wang and Zhang, 2018), and the likelihood of PSLs (Ganguly, 2018). However, the factors that influence annual report readability are merely investigated, with only firm size, growth opportunities, age, special items, stock return volatility, the number of business segments, the number of geographical segments and M&A events identified in the seminal paper by Li (2008) and earnings management identified by Lo, Ramos and Rogo (2017). Thus, there is a research gap for exploring the factors influencing annual report readability.

To see why *ex-ante* PSL risk is correlated with annual report readability, note that annual reports are one of the direct sources of evidence in PSLs to show materiality of misstatements. Annual report readability potentially alters investors' understanding of the contents of annual

reports[42], and thus, influences their perception of misstatements. Evidences show that less readable annual reports indeed increase the odds of litigations (Ganguly, 2018). To deter potential litigation risk, firms facing high *ex-ante* PSL risk are more likely to prepare annual reports with high readability to decrease ambiguities that might be taken as evidences for misstatements in potential PSLs. Therefore, we expect that firms facing high court stringency (*ex-ante* PSL risk) are more likely to prepare annual reports with high readability.

To proxy annual report readability, we apply four measures, the Fog index, Flesch Reading Ease, Flesch-Kincaid formula and the natural logarithm of the number of words (*Ln No. Words*). Developed in 1952 by Robert Gunning, The Fog index estimates the years of formal education a person needs to understand the text on the first reading and negatively indicates the readability of a text (Gunning, 1952). For instance, a Fog index of 12 requires the reading level of a United States high school senior (around 18 years old). The Fog index is commonly used to confirm that text can be read easily by the intended audience. Texts for a wide audience generally need a Fog index less than 12. Texts requiring near-universal understanding generally need an index less than 8.

Flesch Reading Ease is one of the oldest and most accurate readability formulas and was developed in 1948 by Rudolph Flesch (Flesch, 1948). It is a number ranging from 0 to 100. The higher the number, the easier the text is to read. For example, scores between 90.0 and 100.0 are considered easily understandable by an average 5th grader; scores between 60.0 and 70.0 are considered easily understood by 8th and 9th graders; and, scores between 0.0 and 30.0 are considered easily understood by college graduates.

[42] For example, Levy, Li, and Merkley (2009) find that communication complexity reduces earnings forecast accuracy and increases forecast dispersion.

Flesch-Kincaid formula, also known as Flesch–Kincaid Grade Level, was developed under contract to the U.S. Navy in 1975 by J. Peter Kincaid and his team with the same core measures of Flesch Reading Ease (Kincaid et al., 1975). Flesch-Kincaid formula presents a score as a U.S. grade level, making it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts. It can also mean the number of years of education generally required to understand this text, relevant when the formula results in a number greater than 10.

Drawn on a sample of 33,145 firm-year observations from December 2000 to December 2010, we find that firms' headquartering district court dismissal rate is positively correlated with the Fog index and Flesch-Kincaid formula of their annual reports and negatively correlated with the Flesch Reading Ease of their annual reports. As the Fog index and Flesch-Kincaid formula are negative indicators of readability and Flesch Reading Ease is a positive indicator of readability, these results indicate that firms with low *ex-ante* PSL risk have annual reports with low readability in average, confirming our anticipation that firms facing high court stringency (*ex-ante* PSL risk) are more likely to prepare annual reports with high readability. However, we do not find any evidence on the number of words as a negative indicator of readability. Also, we do not find causal evidence in the Tellabs case. Therefore, we can only conclude that firms with high *ex-ante* PSL risk are associated with having high readability in their annual reports.

We contribute to the literature of annual report readability by showing the correlation between *ex-ante* PSL risk and annual report readability. Prior annual report readability literature focuses on the *impacts* rather than the *causes* of variations in annual report readability. Only Li (2008) investigates a group of factors that influence annual report readability, including Log Total Assets, growth opportunities, age, special items, stock return volatility, the number of business segments, the number of geographical segments and M&A events. Our study complements this

line of literature by showing that firms with high *ex-ante* PSL risk are more likely to issue annual reports with high readability.

This also expands the impact of *ex-ante* litigation risk to the narrative parts of disclosure, i.e. readability. Previous studies focus on the impact of *ex-ante* PSL risk on firms' disclosure quality mainly in the quantitative parts, such as earnings management (Brown, Hillegeist and Lo, 2005), management earnings forecasts (Cao and Narayanamoorthy, 2011), the likelihood of voluntary disclosure (Baginski, Hassell, and Kimbrough, 2002), and the likelihood of issuing earnings warnings (Field, Lowry and Shu, 2005). However, none of the extant literature looks at the narrative parts of disclosure, such as readability of annual reports and tone of Management Discussion and Analysis (MD&A). This project is the first to fill this gap by explore the impact of *ex-ante* PSL risk on annual reports readability.

7.2 Background of Finance and Accounting Research on Readability

7.2.1 Major Readability Measures

Readability is the ease with which a reader can understand a written text. However, what is meant by "readability" is hard to precisely quantify and its measure has evolved predominantly in the process of grade leveling school textbooks. In linguistics, major readability measures include, Flesch Reading Ease, Flesch-Kincaid formula, Dale–Chall formula, the Fog index, Fry Readability Graph, McLaughlin's SMOG formula, FORCAST formula, Golub Syntactic Density Score, John Bormuth formulas, Lexile framework, and etc.

In finance and accounting studies, most commonly used readability measures are the Fog index, Flesch Reading Ease, Flesch-Kincaid formula and the natural logarithm of the number of

words (*Ln No. Words*)[43]. As this project follows major finance and accounting studies, we measure annual report readability by the Fog index, Flesch Reading Ease, Flesch-Kincaid formula and *Ln No. Words*, and briefly introduce these four measures in this section.

1) The Fog index

Developed in 1952 by Robert Gunning, the Fog index estimates the years of formal education a person needs to understand the text on the first reading and negatively indicates the readability of a text (Gunning, 1952). For instance, a Fog index of 12 requires the reading level of a United States high school senior (around 18 years old). The Fog index is commonly used to confirm that text can be read easily by the intended audience. Texts for a wide audience generally need a Fog index less than 12. Texts requiring near-universal understanding generally need an index less than 8.

To construct the Fog index for a piece of text, one needs to select a passage of around 100 words from the text, with no sentence omitted. Then, the Fog index is calculated by the following formula:

$$Fog\ Index = 0.4\left[\frac{words}{sentences} + 100\frac{complex\ words}{words}\right],$$

where, $words$ is the number of words in the sample passage; $sentences$ is the number of sentences; and $complex\ words$ is the number of complex words. Here, complex words refer to the words that consist of three or more syllables but are not proper nouns, familiar jargon, or compound words. Common suffixes (such as -es, -ed, or -ing) are not counted as a syllable.

2) Flesch Reading Ease

[43] See Li (2008), Biddle, Hilary, and Verdi (2009), Miller (2010), Dougalet al. (2011), Lehavy, Li, and Merkley (2011), Lo, Ramos and Rogo (2017), Kim, Wang and Zhang (2018), and Ganguly (2018), etc.

Flesch Reading Ease is one of the oldest and most accurate readability formulas and was developed in 1948 by Rudolph Flesch (Flesch, 1948). It is a number ranging from 0 to 100. The higher the number, the easier the text is to read. For example, scores between 90.0 and 100.0 are considered easily understandable by an average 5th grader; scores between 60.0 and 70.0 are considered easily understood by 8th and 9th graders; and, scores between 0.0 and 30.0 are considered easily understood by college graduates.

The formula for Flesch Reading Ease is as follows

$$Flesch\ Reading\ Ease = 206.835 - 1.015\frac{words}{sentences} - 84.6\frac{syllables}{words},$$

where, $words$ is the number of words in the sample; $sentences$ is the number of sentences; and $syllables$ is the number of syllables in the sample.

3) Flesch-Kincaid formula

Flesch-Kincaid formula, also known as Flesch–Kincaid Grade Level, was developed under contract to the U.S. Navy in 1975 by J. Peter Kincaid and his team with the same core measures of Flesch Reading Ease (Kincaid et al., 1975). Flesch-Kincaid formula presents a score as a U.S. grade level, making it easier for teachers, parents, librarians, and others to judge the readability level of various books and texts. It can also mean the number of years of education generally required to understand this text, relevant when the formula results in a number greater than 10.

Flesch-Kincaid formula is calculated with the following formula

$$Flesch - Kincaid\ formula = 0.39\frac{words}{sentences} + 11.8\frac{syllables}{words} - 15.59,$$

where, $words$ is the number of words in the sample; $sentences$ is the number of sentences; and $syllables$ is the number of syllables in the sample.

4) Ln No. Words

Ln No. Words is the natural logarithm of the number of words. Although Ln No. Words is not a comprehensive measure for readability in linguistics, it is sometimes used either by itself or in addition to the Fog index as a readability measure.[44] Specifically, Loughran and McDonald (2014) examine the effectiveness of readability measures in 10-K filings by investigating the association between readability measures and measures of information environment. They find that Ln No. Words outperforms the Fog index as 10-Ks containing fewer words have lower analyst dispersion and this relation is robust in the context of alternative measures of the information environment.

7.2.2 Literature on Readability in Finance and Accounting

Finance and accounting literature on readability starts with the seminal paper by Li (2008) and develops rapidly in the last decade. As the seminal paper of this field, Li (2008) examines the relation between annual report readability and firm performance and earnings persistence. Measuring the readability of public company annual reports by the Fog index and Ln No. Words, he finds that the annual reports of firms with lower earnings are harder to read (i.e., they have a higher Fog index and are longer); and firms with annual reports that are easier to read have more persistent positive earnings. He also explores firm characteristics that potentially impact on annual report readability and finds that size, stock return volatility, earnings volatility and M&A events are positively correlated with the Fog index; however, age, special items and the number of geographical segments are negatively associated with the Fog index.

With the findings of Li (2008), a natural question is how annual report readability affects the decisions of information users. Lehavy, Li, and Merkley (2011) investigate the effect of the

[44] See Li (2008), You and Zhang (2009), and Miller (2010).

annual report readability on the behavior of sell-side financial analysts. They find that analyst following, effort (measured as the length of time required for analysts to issue their first forecast revision following the 10-K filing), and the informativeness of their reports are negatively related to annual report readability. Further, they find that annual reports with low readability reduce earnings forecast accuracy and increases forecast dispersion. You and Zhang (2009) explore the impact of annual report readability on investors' underreaction to annual report information and find that investors' underreaction tends to be stronger for firms with more complex 10-K reports. Miller (2010) examines the effects of financial reporting complexity on investors' trading behavior. He finds that more complex (longer and less readable) filings are associated with lower overall trading, and that this relationship appears due to a reduction in small investors' trading activity. Biddle, Hilary, and Verdi (2009) study whether higher-quality financial reporting reduces over- or under-investment. Using the Fog index as one of their three disclosure quality measures, they find that higher-quality financial reporting reduces both over- and under-investment by documenting a conditional negative (positive) association between financial reporting quality and investment for firms operating in settings more prone to over-investment (under-investment).

Another interesting question is whether the readability of a firm's filings is manipulated systematically to achieve its earnings management. Lo, Ramos and Rogo (2017) explore how the readability of annual reports varies with earnings management. Using the Fog index to measure readability (Li, 2008), and focusing on the management discussion and analysis section of the annual report (MD&A), they predict and find that firms most likely to have managed earnings to beat the prior year's earnings have MD&As that are more complex.

One step further on the topic of earnings management and readability is to explore the consequences of annual reports with low readability via the channel of earnings management. Kim,

Wang and Zhang (2018) finds that less readable 10-K reports are associated with higher stock price crash risk. The results are consistent with the argument that managers can successfully hide adverse information by writing complex financial reports, which leads to stock price crashes when the hidden bad news accumulates and reaches a tipping point.

Linking Kim, Wang and Zhang (2018) to PSLs, one could expect that less readable 10-K reports lead to higher stock price crash risk, and thus, potentially provide "damage" element for the plaintiffs to establish securities class action lawsuits under Rule 10b-5. As a result, a further interesting question which is relevant to our study is whether less readable 10-K reports lead to higher probability of being sued in PSLs. Ganguly (2018) investigates this question and finds that less readable annual reports increase the odds of litigations. He argues that more and difficult to comprehend disclosure is often perceived as ex-post misleading, hence, increasing the likelihood of litigations. However, Ganguly (2018) does not disentangle the alternative channel that annual reports with low readability lead to stock crashes, provide "damage" or "loss causation" element to plaintiffs and thus increase the likelihood of PSLs.

7.3 Hypothesis Development

Annual reports are one of the direct sources of evidence in PSLs for the plaintiffs to show materiality of misstatements by the defendants since Rule 10b-5 of Securities Exchange Act of 1934 defines a fraudulent behavior as "to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made". As a result, annual report readability potentially alters investors' understanding of the contents of annual reports, and thus, influences their perception of misstatements. For example, Ganguly (2018) hypothesizes that complex and difficult to comprehend language can potentially cause divergence in opinions on the

same text, increasing the likelihood of litigations. In the empirical tests, he finds that more and difficult to comprehend disclosure is often perceived as ex-post misleading, hence, increasing the odds of litigations.

Also, annual reports with less readability are associated with higher stock price crash risk (Kim, Wang, and Zhang, 2018), providing "damage" or "loss causation" element for the plaintiffs to establish securities class action lawsuits under Rule 10b-5.

Similar to the cost and benefit analysis by firms in Chapter 5, firms' choice on the readability of their annual reports in the context of litigation risk depends on the expected cost and benefit.

Managers face trade-offs in preparing an annual report with high readability or with low readability. The costs of disclosing an annual report with readability, denoted by C, are due to several causes. Firstly, an annual report with high readability can potentially leak information to the firm's competitors and then incur a strategic loss to the firm (e.g. Cheong and Kim, 2004; Janssen and Roy, 2013; etc.). Secondly, when a firm's performance is dissatisfactory, an annual report with high readability can potentially disclose more negative information to the investors and lead to a strong negative market reaction to the annual report.

On the other hand, a firm disclosing an annual report with low readability can be more likely to face PSLs as is discussed above (Ganguly, 2018; Kim, Wang, and Zhang, 2018). Denote the possibility to be sued, the probability of losing, the litigation costs (such as lawyers' fee) and the litigation outcome, denoted by s, p, L and O respectively. We have the costs of disclosing an annual report with low readability is $s \times L + s \times p \times O$.

Hence, the decision relies on the net expected cost between high readability and low readability is $C - s \times L - s \times p \times O$. There is a threshold for C which is $\bar{C} = s \times L + s \times p \times O$.

For firms with $C > \bar{C}$, the net expected cost between high readability and low readability is positive so that they are better off to disclose annual reports with low readability. However, for firms with $C < \bar{C}$, the net expected cost between high readability and low readability is negative so that they are better off to disclose annual reports with high readability. Finally, for firms with $C = \bar{C}$, the net expected cost between high readability and low readability is zero so that they are indifference between disclosing annual reports with high readability and with low readability.

Court stringency alters this net expected cost by influencing the difference s, p and O. In more stringent court, the probability of losing and litigation outcome are higher *ceteris paribus* so that p and O increases (decrease) in court stringency (court dismissal rate). The higher p and O in more stringent courts also attract more lawyers to initiate shareholders to sue the headquartering firms, and thus, s also increases (decrease) in court stringency (court dismissal rate).

As a result, the threshold $\bar{C}$ increases (decrease) in court stringency (court dismissal rate). If the distribution of firms is set, the higher court stringency, the higher the threshold $\bar{C}$ is, and thus, the higher probability of $C < \bar{C}$. That is, the likelihood of firms to disclose annual reports with high readability increases (decrease) in court stringency (court dismissal rate). This is consistent with the preempt hypothesis (Skinner, 1994; Kasznik and Lev 1995; Field, Lowry and Shu, 2005; etc.), that firms learn to alter their disclosure, in this context the readability of their annual reports, in order to deter potential litigations.

Therefore, we propose the following hypothesis:

H3: Firms facing high court stringency (*ex-ante* PSL risk) are more likely to prepare annual reports with high readability.

Note, unlike the two alternative choices in the cost and benefit analysis for Chapter 5 that both can trigger PSLs, only disclosing an annual report with low readability can trigger PSLs in

this Chapter, and thus, lead to the expected cost of disclosing an annual report with low readability being affected by *ex-ante* litigation risk. The expected cost of disclosing an annual report with high readability is independent from the legal environment. This difference explains why the decision making process of managers in this chapter does not face the defensive hypothesis as in Chapter 5.

7.4 Data, Sample and Research Methodology

7.4.1 Sample Selection

Our sample of 10-K readability comes from Feng Li's website.[45] Court dismissal rate and court filing rate are obtained from Section 4. The stock trading data are from CRSP. The financial statement variables and segment information are from Compustat. I finally obtain auditor data from Audit Analytics. As our court dismissal rate is available from December 31, 2000 to December 31, 2013, our sample period is restricted within this period. By excluding the missing value for the variables, I obtain a sample of 33,145 firm-year observations.

Table 15 presents the yearly distribution of the sample. The number of firms peaks around 2002 and reduces after 2008, which conforms to the number of firms in Compustat due to the burst of the Internet Bubble and the Financial Crisis.

[Insert Table 15 Here]

7.4.2 Variable Constructions

Readability in this project is measured by four variables, Fog, Flesch, Kincaid and Ln No. Words. The construction of all these variables follows Section 7.2.1. Fog is the Fog index

[45] See http://webuser.bus.umich.edu/feng/.

calculated as (words per sentence + percent of complex words) * 0.4; Flesch is the Flesch Reading Ease calculated as 206.835 - (1.015 * words per sentence) - (84.6 * syllables per word); Kincaid is the Flesch-Kincaid formula and calculated as (11.8 * syllables per word) + (0.39 * words per sentence) - 15.59; and Ln No. Words is the natural logarithm of the number of words. Within these four measures, the Fog index, Flesch-Kincaid formula and Ln No. Words are negatively associated with the ease of understanding, and Flesch Reading Ease is positively associated with readability. All of these four measures are obtained from Feng Li's website.

In this analysis, we use our five-year horizon court dismissal rate since the five-year measure is less volatile and noisy.

To control for the determinants of readability, we follow Li (2008) and include the logarithm of total assets, book-to-market ratio, the number of years since a firm shows up in Compustat annual fundamentals file, special items scaled by book value of assets, the standard deviation of the daily stock returns in the last year, the number of business segments, the number of geographic segments. We also include industry fixed effects, year fixed effects and state fixed effects. The standard errors are clustered at firm level.

Table 16 displays the summary statistics of the variables. The average Fog index is 19.799, the average Flesch Reading Ease is 22.242, the average Flesch-Kincaid formula is 15.744, and the average log number of words is 10.121. The mean court dismissal rate is 40.9%, and the average court filing rate is 13.5%. The mean log total asset (Log Total Assets) is 6.198, the mean age of firms is 22.934, and the mean special items scaled by book value of assets is -0.021. The average number of business segments is 5.661, and the average number of geographic segments is 6.1. The average daily return volatility is 3.7%. The mean sales growth is 15.1%. The firms audited by the Big Four auditing firms comprise 62.1% of the sample. The average book-to-market ratio is 0.758.

[Insert Table 16 Here]

7.5 Empirical Results

Table 17 presents the contemporary impact of court dismissal rate on readability. The dependent variables are the Fog index in Column (1), the Flesch Readability Ease in Column (2), the Flesch-Kincaid formula in Column (3) and the logarithm number of words in Column (4). From Column (1) to Column (3), court dismissal rate is positively correlated with the Fog index (*p*-value=0.009) and the Flesch-Kincaid formula (*p*-value=0.028), and negatively correlated with the Flesch Readability Ease (*p*-value=0.014). However, the effect of court dismissal rate is insignificant on the logarithm number of words.

[Insert Table 17 Here]

The results indicate that the 10-K filings readability by the ease of understanding is lower for firms headquartering in the jurisdiction of more lenient courts, although the length of the contents does not vary across courts.

However, we do not find any causal evidence from the Tellabs case. Hence, currently, we can only conclude that court stringency (*ex-ante* PSL risk) is positively associated with annual report readability.

8. Future Applications

As this project provides an exogenous measure of *ex-ante* PSL risk, there are many significant topics beyond voluntary restatement, bank loans and annual report readability remaining to be explored.

Above all, extant literature on the consequences of *ex-ante* litigation risk almost only focuses on the impact of *ex-ante* PSL risk on disclosure behaviors, with only two published studies looking at other topics. Seetharaman, Gul, and Lynn (2002) explore the impact of ex-ante litigation risk on auditing fees. Pellegrina and Saraceno (2011) studied whether securities class actions can play a role in banking supervision. It is meaningful to explore other topics. For example, as McTier and Wald (2011) show that securities class action lawsuits have an ex post impact on firms' investment and financing choices, it is worth investigating the impact of *ex-ante* PSL risk on firms' financing and investment activities.

Also, there are a number of studies on the ex post impact of PSLs on corporate governance issues, such as board turnover (Baum, Bohn, and Chakraborty, 2016), value of Chief Legal Officer (Bird, Borochin and Knopf, 2015), the leave of independent directors (Brochet and Srinivasan, 2014), and reputational impact of directors (Fich and Shivdasani, 2007; Helland, 2006). It is meaningful to study how *ex-ante* PSL risk shape patterns of corporate governance.

Within the topics of disclosure behaviors, the literature on textual narratives is increasing and getting more and more important (Li, 2008; Biddle, Hilary, and Verdi, 2009; You and Zhang, 2009; Miller, 2010; Lehavy, Li, and Merkley, 2011; Lo, Ramos and Rogo, 2017; Kim, Wang and Zhang, 2018; Ganguly, 2018). Following the same logic as for H3, textual characteristics of SEC filings influence investors' perception of misstatements and provide "damage" element for the plaintiffs to establish securities class action lawsuits under Rule 10b-5. As a feedback or response from the managers in learning about the impact of textual characteristics of SEC filings on the likelihood of PSLs, firms may alter their textual characteristics of SEC filings under different *ex-ante* PSL risk environment. Therefore, a close investigation on the impact of *ex-ante* PSL risk on

textual characteristics of SEC filings, such as the readability, tone and sentiment of 10-K and 10-Q fillings, is necessary.

9. Conclusion

This study provides a novel measure for *ex-ante* PSL risk, court dismissal rates, based on the pleading standard of federal district courts and apply it to three different contexts to study the impact of *ex-ante* litigation risk on various corporate aspects. Court dismissal rates present a good predictive power for the likelihood of case dismissals in the future, captures the within-country heterogeneities in securities law enforcement, are unaffected by individual firm's characteristics, and captures the perception formed by corporate executives and/or other stakeholders.

Our novel, court-based measure on firms' *ex-ante* security litigation risk opens new avenue to study the long-debated question of how the security litigation environment affects managerial decisions, such as disclosure.

In the first application of court dismissal rates, we provide the first evidence that the district court pleading standards, which are measured by case dismissal rate, affect the propensity of misreporting firms to admit their accounting mistakes through voluntary restatements. We find strong and robust evidence that a more stringent legal environment deters rather than prompts voluntary restatements. Using Supreme Court's Tellabs decision as an exogenous shock to securities litigation environments, we find that an increase in court stringency leads to a decrease in headquartering firms' voluntary restatement propensity. Our results are robust to different samples of misstating firms.

Our results complement existing studies on the driving forces of voluntary restatements. Importantly, we warrant researchers on the complex relationship between legal environment and

financial reporting quality. Stronger legal environment, on the one hand, might deter firms from misreporting. On the other hand, it deters misreporting firms from admitting their mistake to the extent that public and private enforcements on security fraud are costly. Our evidence informs regulators on the hitherto under-investigated role of courts in motivating self-policing behavior, such as voluntary restatements.

In the second application of court dismissal rates, we find robust evidence that firms headquartered in district court jurisdictions that dismiss more securities lawsuits (a proxy of lower *ex-ante* PSL risk) pay significantly lower interest rates. This effect is stronger when borrowers have less information asymmetry issues and declines after the Supreme Court's *Tellabs* decision that homogenizes courts' pleading standards. These results are attributed to the fact that lenders consider the benefit of higher pleading standard in curtailing frivolous lawsuits to outweigh its cost of financial misreporting incentives.

Our paper adds to the studies on the net impact of securities litigation environment on firms. We show that the PSL mechanism designed for shareholders has externalities on lenders. Our novel *ex-ante* securities litigation risk measure circumvents empirical challenges in studying the relations between law and finance and informs banks on the hitherto under-investigated role of courts in debt contracting.

In the third application of court dismissal rates, we find evidences that firms headquartering in more stringent district courts are more likely to prepare annual reports with high readability (lower the Fog index and Flesch-Kincaid formula, and higher Flesch Reading Ease). However, we do not find any evidence on the number of words as a negative indicator of readability. Also, we do not find causal evidence in the Tellabs case. Therefore, we can only conclude that firms with high *ex-ante* PSL risk are associated with having high readability in their annual reports.

This project contributes to the literature of annual report readability by showing that firms with high *ex-ante* PSL risk are more likely to issue annual reports with high readability in order to deter potential litigations. Our study also expands the field of litigation risk on disclosure quality to textual narrative disclosure, being the first to fill this gap by explore the impact of *ex-ante* PSL risk on annual reports readability.

Appendix A Variable Constructions

Variable names	Variable definitions	Source of Data
USDC characteristics		
Court dismissal rate (3 years)	Number of dismissed cases in the Federal District Court that the firm belongs to in the 3 years before the most recent fiscal year end, scaled by the number of cases filed during the same period in the Court.	SCAS, SCAC, SEC Edgar and Compustat
Court dismissal rate (5 years)	Number of dismissed cases in the Federal District Court that the firm belongs to in the 5 years before the most recent fiscal year end, scaled by the number of cases filed during the same period in the Court.	SCAS, SCAC, SEC Edgar and Compustat
Court filing rate (3 years)	Number of filed cases in the Federal District Court that the firm belongs to in the 3 years before the most recent fiscal year end, scaled by the number of Compustat firms during the same period in the Court	SCAS, SCAC, SEC Edgar and Compustat
Court filing rate (5 years)	Number of filed cases in the Federal District Court that the firm belongs to in the 5 years before the most recent fiscal year end, scaled by the number of Compustat firms during the same period in the Court.	SCAS, SCAC, SEC Edgar and Compustat
Dismissed	indicator variable, equal to 1 if the case is dismissed, 0 otherwise	SCAS and SCAC
District unemployment rate (%)	District unemployment rate prior to the end of a borrowing firm's fiscal year	Bureau of Labor Statistics
Filing date CAR (-1,+1)	3-day [t-1, t+1] cumulative abnormal return around the Federal case filing date, calculated by the cumulative return of the defendant firm's stock over the event window minus the cumulative return of the CRSP value-weighted return including dividends over the event window	CRSP and SCAS
No. of firms in District	Number of firms resided in the court's jurisdiction within three years prior to the end of a borrowing firm's fiscal year.	Compustat
Pre-event lenient circuit dummy	indicator variable, equals to 1 if the firm is in the jurisdiction of district courts under the 1st, 4th, 6th, and 9th circuit following Choi and Pritchard (2012), 0 otherwise	Wikipedia
Years in the Court's jurisdiction	Number of years a borrowing firm has resided in the court's jurisdiction since 1996	Compustat and SEC Edgar
Restatement Characteristics		

Voluntary restating	An indicator variable that equals to 1 if the firm restated its financial statements before class-end date in Sample 1 and 2 or within 1 year after restating period in Sample 3 and is not labelled in Audit Analytics as "Res Clerical Errors", 0 otherwise	SCAS and Audit Analytics
Loan Characteristics		
=1 if having dividend restriction	A dummy variable that equals one if the loan facility has a restriction on dividend payment and zero otherwise	DealScan
=1 if having net worth covenant	A dummy variable that equals one if the loan facility has net worth covenants	DealScan
=1 if having performance pricing	A dummy variable that equals one if the loan facility contains performance pricing provision	DealScan
=1 if secured	A dummy variable that equals one if the loan facility is secured by collateral and zero otherwise	DealScan
Covenant index	The sum of number of sweeps and four covenant indicators: secured, dividend restriction, more than two financial covenants, net worth.	DealScan
Facility amount/TA	Loan amount scaled by total assets	DealScan
Interest spread	The All-In-Drawn item in DealScan database. It includes interest cost in basis points over LIBOR (prime rate) and annual fees	DealScan
Ln(loan maturity in months)	Natural log of the loan maturity measured in months	DealScan
Loan type fixed effects	Loan types include line of credit less than one year maturity, revolvers, traditional term loans, and institutional term loans.	DealScan
No of financial covenants	Number of restrictions to maintain certain financial ratios	DealScan
No of sweeps	Asset sales sweep, debt issuance sweep, equity issuance sweep, and insurance proceeds sweep	DealScan
Prior lenders/syndicate size (%)	Number of lenders who have lent within the prior three years scaled by syndicate size	DealScan
syndicate size	Number of lenders in the syndicate	DealScan
Readability Measures		
Fog	The Fog index is calculated as (words per sentence + percent of complex words) * 0.4.	Feng Li's Website
Flesch	The Flesch Reading Ease is calculated as 206.835 - (1.015 * words per sentence) - (84.6 * syllables per word)	Feng Li's Website
Kincaid	The Flesch-Kincaid formula is calculated as (11.8 * syllables per word) + (0.39 * words per sentence) - 15.59	Feng Li's Website
Ln No. Words	The natural logarithm of the number of words.	Feng Li's Website

Firm Characteristics

=1 if firm has investment grade	A dummy variable equals to one if firm's S&P Domestic Long Term Issuer Credit Rating is equal to BBB or better and zero otherwise	DealScan
=1 if no credit rating	A dummy variable equals to one if firm does not have S&P Domestic Long Term Issuer Credit Rating and zero otherwise	DealScan
=1 if pay dividends	A dummy variable that equals to one if firm pays dividends and zero otherwise.	Compustat
=1 if R&D missing	A dummy variable equals to one if R&D expenses are missing and zero otherwise	Compustat
Age	Number of years since a firm shows up in Compustat annual fundamentals file	Compustat
Beta	beta from CAPM model, estimated from the monthly stock returns of the 5-year period before the most recent fiscal year end	CRSP
Beta (lead)	Estimated from a market model using daily stock returns of a borrowing firm during one year prior to (following) loan deal activation date	CRSP
Big 4	An indicator variable equals to 1 if the firm is audited by big 4, 0 otherwise	Audit Analytics
Capital expenditure/TA (%)	Capital expenditure as a percentage of total assets	Compustat
Cash holdings (%)	Cash and equivalent as a percentage of total assets	Compustat
Credit rating fixed effects	S&P Domestic Long Term Issuer Credit Rating	DealScan
Current ratio	Current assets divided by current liabilities	Compustat
Earnings forecast dispersion	Standard deviation of one-year ahead earnings forecast issued during the year prior to loan deal activation date scaled by stock price.	I.B.E.S.
Interest expenses/operating profits (%)	Interest expenses as a percentage of operating income before depreciation	Compustat
Last year stock return	compounded gross return over the most recent fiscal year	CRSP
Leverage	leverage, total debt scaled by total assets ((dltt+dlc)/at)	Compustat
Ln(Auditor fees)	Natural log of auditor fees in dollars	Audit Analytics
Log Total Assets	Natural log of total assets in million	Compustat
No. of analysts	Number of analysts following the firms during the year prior to loan deal activation date	I.B.E.S.
No. of Business Seg.	Number of business segments	Compustat
No. of Geographic Seg.	Number of geographic segments	Compustat
One-year abnormal stock returns	One-year cumulative stock returns of a borrowing firm prior to loan deal activation date minus that of equally weighted CRSP index	CRSP

Operating income/TA (%)	Operating income before depreciation as a percentage of total assets	Compustat
R&D scaled by sales (%)	R&D expenses as a percentage of sales; equals to zero if the value is missing.	Compustat
Residual risk (lead)	Residual standard error estimated from a market model using daily stock returns of a borrowing firm during one year prior to (following) loan deal activation date	CRSP
Return volatility	The standard deviation of the daily stock returns within the most recent fiscal year	CRSP
ROA	return on assets, net income scaled by total assets (ni/at)	Compustat
Sales growth	the different between sales in the most recent fiscal year and pervious year divided by the sales in pervious year	Compustat
Skewness	The third moment of the return distribution over the most recent fiscal year	CRSP
Special item	Special items scaled by book value of assets	Compustat
Tangible Assets/TA (%)	Net property, plant, and equipment plus inventory as a percentage of total assets	Compustat
Tobin's q	(Total assets + market value of equity – book value of equity)/total assets	CRSP and Compustat
Total debt/TA (%)	Total liabilities as a percentage of total assets	Compustat
Total risk (lead)	Daily stock returns volatility of a borrowing firm during one year prior to (following) loan deal activation date	CRSP
Turnover (in 1000s)	1-(1-TURN)n, where turn is average daily trading volume divided by the number of shares outstanding and n is the number of trading days in the most recent fiscal year	CRSP
Years in the Address	Number of years a borrowing firm have resided in the address since 1996	Compustat and SEC Edgar
Interest rate environments		
Credit spread: Baa-Aaa	Yield of Baa bond minus that of Aaa bond during the month of loan deal activation date	DealScan
Term yield: 10-1 year	Yield of 10-year Treasury bond minus that of 1-year Treasury bill during the month of loan deal activation date	DealScan

Appendix B Sample Selection for Chapter 5

Appendix B.1 Selection of Defendant Firms Sample

This table presents the selection process of our defendant firms sample, where each observation is a defendant firm in securities class action lawsuits (SCA). Voluntary restating firms are those with restatement before class-end date, and control firms are those without voluntary restatement but alleged with both GAAP violation and Rule 10b-5 violation.

Sample Selection Procedures	**No. of Obs.**
Voluntary Restating Firms	
Begin with securities class action lawsuit defendant firms whose GVKEY, federal filing date, class periods and dismissal date (settlement date) are identifiable;	3,363
Merge with 11,377 restatement records from Audit Analytics;	789
Eliminate 514 observations with restatement on or after class-end date;	275
Eliminate observations without valid variables in our tests and require fiscal-end date to be between December 31, 2000 to December 31, 2013.	97
Control Firms without Voluntary Restatement	
Begin with securities class action lawsuit defendant firms whose GVKEY, federal filing date, class periods and dismissal date (settlement date) are identifiable;	3,363
Merge with Compustat annual financial database;	3,170
Exclude 249 observations with restatement before class-end date;	2,921
Require defendant firms to be alleged of both GAAP violations and Rule 10b-5 violations;	928
Eliminate observations without valid variables in our tests and require fiscal-end date to be between December 31, 2000 to December 31, 2013.	269
Total Sample of Defendant Firms	**366**
Voluntary Restating Firms	97
Control Firms without Voluntary Restatement	269

Appendix B.2 Selection of Restating Firms Sample

This table presents the selection process of our restating firms sample, where each observation is an SCA defendant firm with restatement. Voluntary restating firms are defined and selected using the same method in Appendix B.1. For control firms, we require our defendant firms to have made corresponding restatement on or after the class-end date. The final sample comprises 300 observations from 2001 to 2012, with 111 voluntary restating firms and 189 control firms.

Sample Selection Procedures	**No. of Obs.**
Begin with securities class action lawsuit defendant firms whose GVKEY, federal filing date, class periods and dismissal date (settlement date) are identifiable;	3,363
Merge with 11,377 restatement records from Audit Analytics;	789
Take 275 observations with restatement before class-end date as voluntary restating firms and 514 observations with restatement on or after class-end date as control firms;	
Eliminate observations without valid variables in our tests and require fiscal-end date to be between December 31, 2000 and December 31, 2013.	281
Total Sample of Restating Firms	**281**
Voluntary Restating Firms	97
Control Firms without Voluntary Restatement	184

Appendix B.3 Selection of Material Weakness Firms Sample

This table presents the selection process of our material weakness firms sample, where each observation is a firm-year with material weakness (MW) from auditor's opinion. We define voluntary restating observations as those that made non-error-based restatement within 1 year after restating period, and the remaining as control observations. The final sample comprises 6,436 firm-year observations from January 1, 2003 to December 31, 2013, with 1,591 voluntary restating observations and 4,845 control observations.

Sample Selection Procedures	**No. of Obs.**
Begin with SOX 404 disclosure records from Audit Analytics SOX 404 database with opinion fiscal year 2004 to 2013	149,223
Merge with Compustat firm-years with three criteria: 1) CIK is matched; 2) at least 1 material weakness item is reported; and (3) the Compustat datadate is within the 3-year window (-1,+1) taking SOX 404 opinion fiscal year as year 0	23,625
Combine with restatement records from Audit Analytics restatement database	24,084
Eliminate observations without valid variables in our tests	6,436
Total Sample	**6,436**
Voluntary Restating Firms	1,591
Control Firms	4,845

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Figure 1 Filing and Resolutions of Motions to Dismiss (MTD) in 2015

This figure presents the fillings and resolutions of motions to dismiss (MTD) in 2015. Only cases in which holders of common stock are part of the class and a Rule 10b-5 or Section 11 violation is alleged are included. The data come from the Stanford Law School Securities Class Action Clearinghouse (SCAC) database.

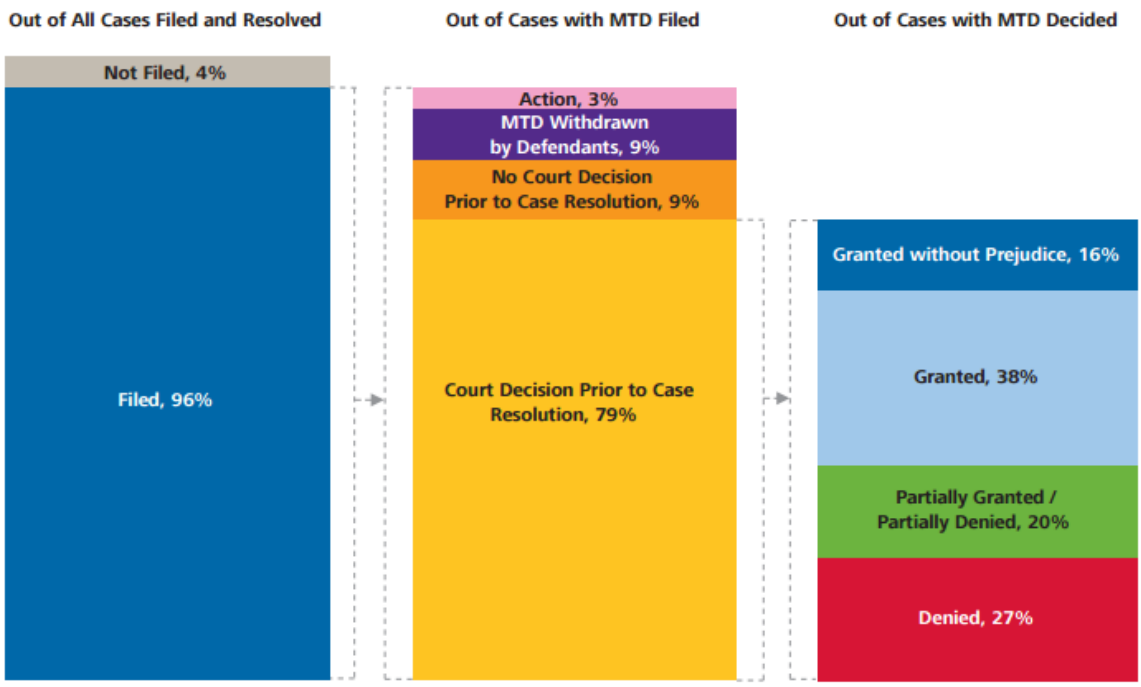

Figure 2 Filing and Resolutions of Motions for Class Certification in 2015

This figure presents the fillings and resolutions of motions for class certification in 2015. Only cases in which holders of common stock are part of the class and a Rule 10b-5 or Section 11 violation is alleged are included. The data come from the Stanford Law School Securities Class Action Clearinghouse (SCAC) database.

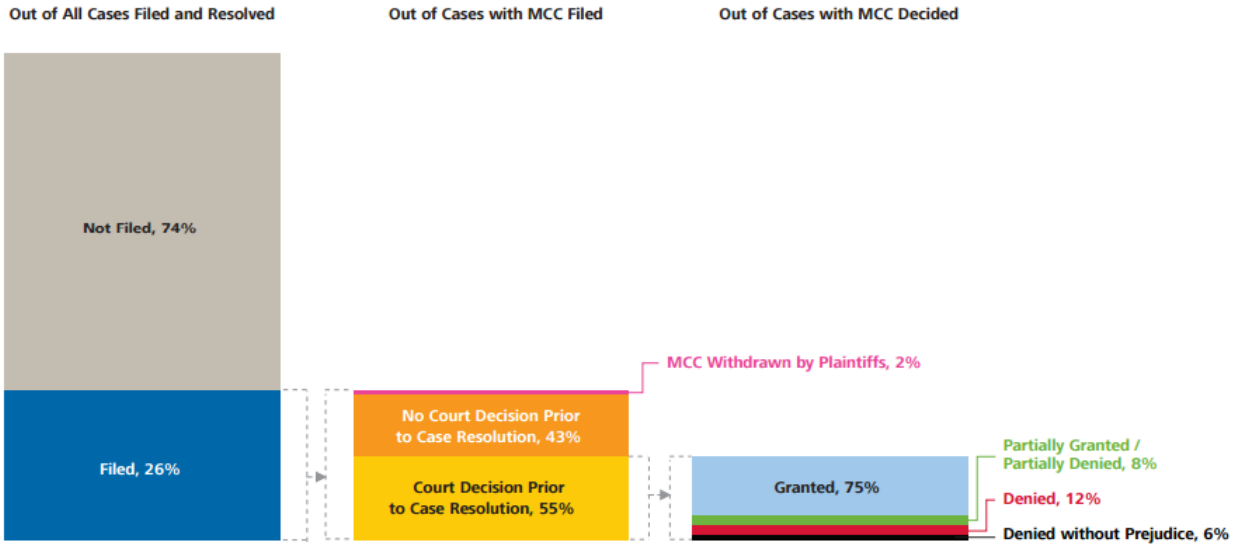

Figure 3 The Costs of Litigation and the Class Action Procedures

This figure illustrates the costs of litigation and the class action procedures.

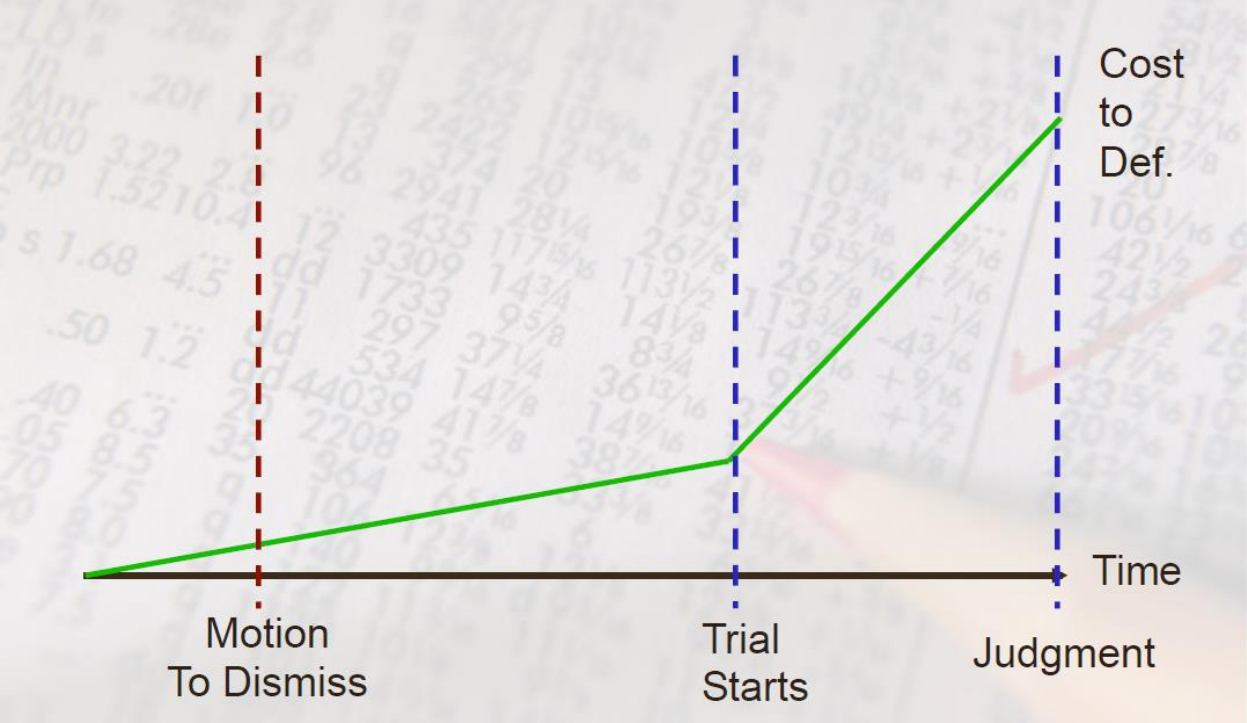

Figure 4 Federal District Court Dismissal Rate on 10b-5 securities lawsuits (2001-2013)

This figure displays the variation of court dismissal rate among district courts and volatility of court dismissal rate within each district court. According to the five-year court dismissal rate calculated in Appendix A, we take average of each court's dismissal rate in the period between December 31, 2000 and December 31, 2013 and calculate the standard deviation of court dismissal rate for each court in this period. Then, we rank all the courts according to their average court dismissal rate into three tertiles and mark them on the map with three different colors. The numbers in the map represent the standard deviation of court dismissal rate for each court and indicate the volatility of dismissal rate within each district court.

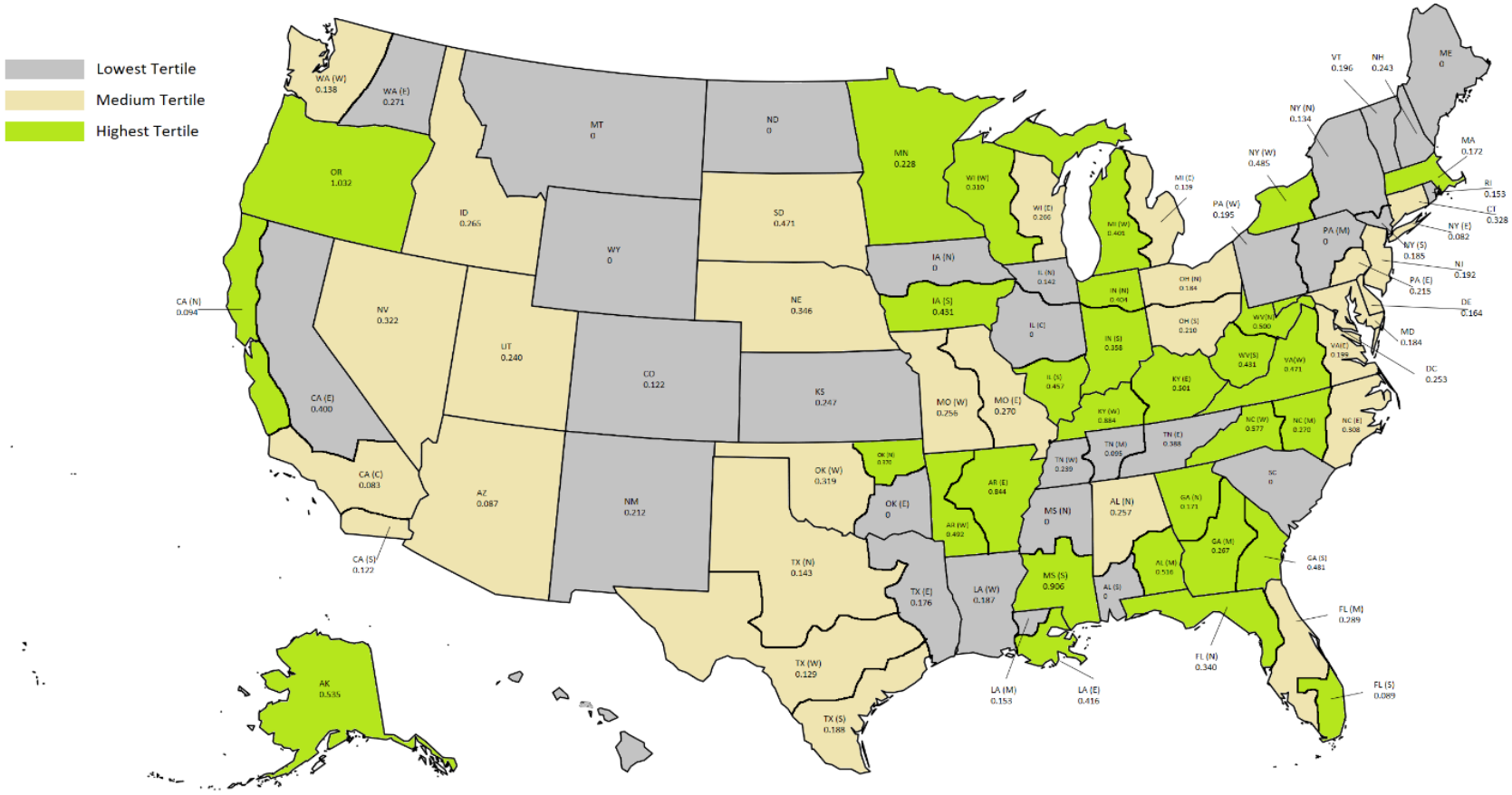

Figure 5 Trends in Voluntary Restatement for Securities Class Action Defendants

This figure presents the trends in voluntary restatement among securities class action (SCA) defendants. We assign the value series of lawsuits to the left vertical axis while the right axis indicates the proportion of voluntary restatements. Voluntary restatements are defined as SCA lawsuit defendants that make non-accounting-error restatement before class-end date (misstatement revealing date). Involuntary restatements are defined as SCA lawsuit defendants that make non-accounting-error restatement on or after class-end date. Other SCA lawsuits are the SCA lawsuits excluding voluntary restatements and involuntary restatements.

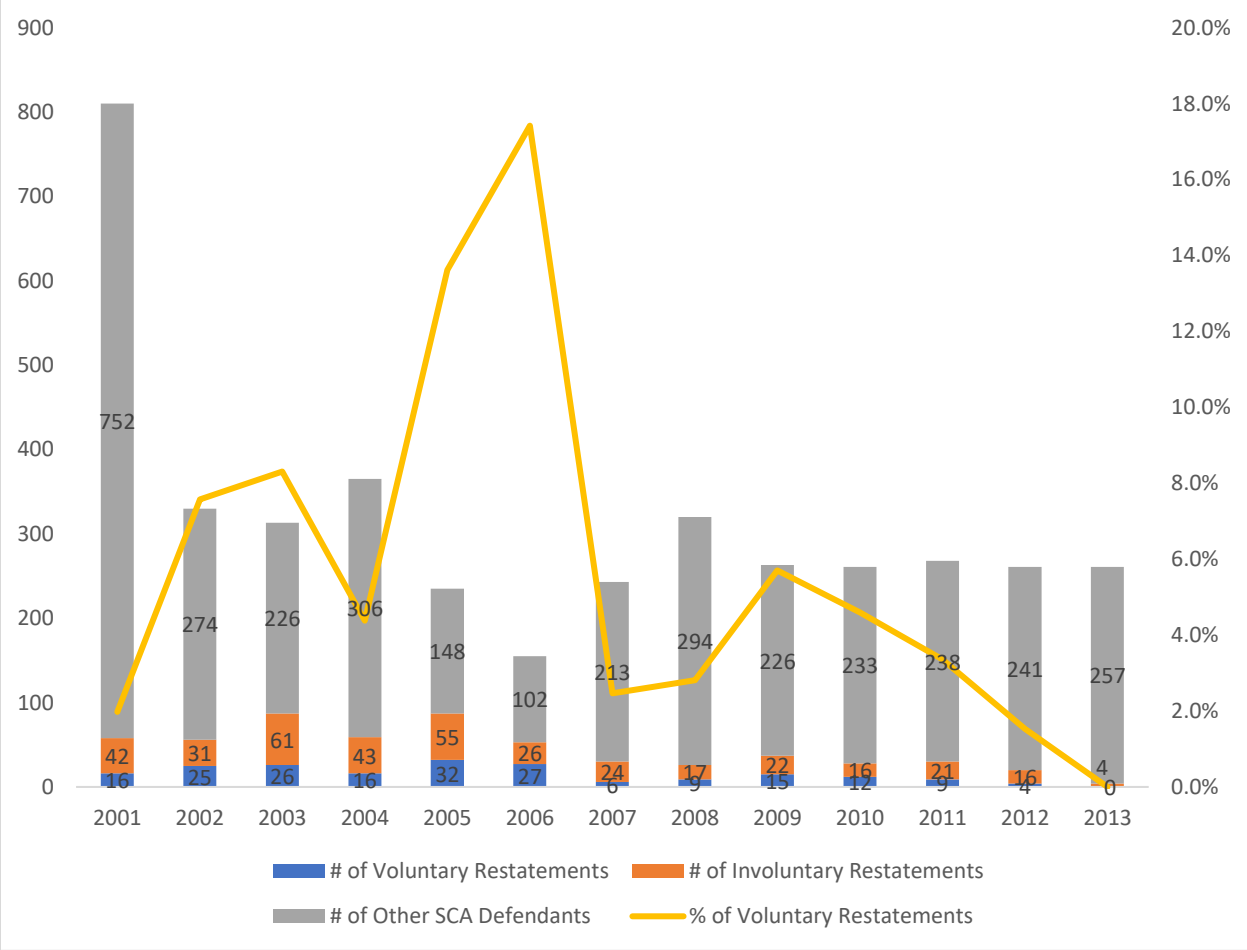

Figure 6 Event Window in the Tellabs Case

This figure displays the event window of 2006 Tellabs case, which harmonized court stringency during 2006 and 2007, and increases stringency of district courts under pre-event lenient circuits relative to that of district courts under pre-event middle-stringency circuits. We exploit this homogenizing effect on the likelihood of making voluntary restatement in a diff-in-differences test. The first difference is between the post-event period and pre-event period. The diff-in-diff is between the pre-event lenient circuit courts and pre-event middle stringency circuit courts. Following Choi and Pritchard (2011), we categorize district courts under the 1st, 4th, 6th, and 9th circuit as "pre-event lenient circuit" (treatment observations), and district courts under other circuits as control observations. We choose the 6-year window (3-year pre- and 3-year post-Tellabs), taking into account the fact that it takes time for managers of the misreporting firms to know about their accounting mistakes and to deliberate on their restatement decision in response to altered pleading standard. As the Tellabs decision spans 2006 through 2007, these two years are excluded from our event window. Thus, the pre-event period for the 6-year window is from January 2003 to December 2005; and the post-event period for the 6-year window is from January 2008 to December 2010.

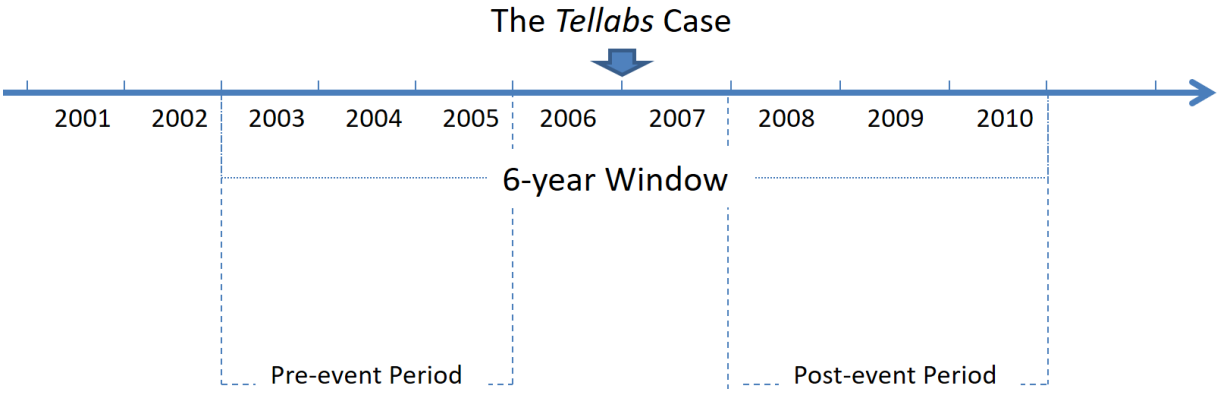

Table 1 Summary Statistics of Court Dismissal Rates by Federal Court and by Year

This table reports the summary statistics of court dismissal rates (CDR) by Federal Court (Panel A) and by year (Panel B) for our court dismissal rate constructed between December 31, 2000 and December 31, 2013.

Panel A Summary Statistics of Court Dismissal Rate by Federal Court

	CDR (5-Year)			CDR (3-Year)		
FederalCourt	No. of Obs.	Mean	Std. Dev	No. of Obs.	Mean	Std. Dev
Alabama (Middle)	11	45.5%	52.2%	7	42.9%	53.5%
Alabama (Northern)	14	37.7%	25.5%	12	38.9%	35.8%
Alabama (Southern)	2	0.0%	0.0%	0	.	.
Alaska	8	100.0%	53.5%	7	85.7%	37.8%
Arizona	14	32.0%	7.7%	14	42.3%	27.7%
Arkansas (Eastern)	11	107.6%	77.5%	9	137.0%	91.6%
Arkansas (Western)	8	62.5%	51.8%	6	50.0%	54.8%
California (Central)	14	38.1%	9.8%	14	40.3%	9.3%
California (Eastern)	10	31.7%	43.4%	8	68.8%	88.4%
California (Northern)	14	52.1%	10.0%	14	55.8%	11.2%
California (Southern)	14	42.0%	13.3%	14	44.3%	17.7%
Colorado	14	23.7%	14.2%	14	28.9%	19.2%
Connecticut	14	43.6%	33.6%	14	52.3%	44.4%
Delaware	14	43.0%	17.5%	14	49.1%	23.5%
District of Columbia	14	25.2%	27.2%	14	29.4%	31.8%
Florida (Middle)	14	41.2%	25.8%	14	49.4%	40.3%
Florida (Northern)	9	72.2%	44.1%	7	71.4%	48.8%
Florida (Southern)	14	51.1%	9.6%	14	56.4%	17.0%
Georgia (Middle)	5	80.0%	27.4%	3	100.0%	0.0%
Georgia (Northern)	14	53.8%	20.3%	14	66.7%	40.1%
Georgia (Southern)	8	56.3%	49.6%	6	50.0%	54.8%
Idaho	14	43.8%	17.7%	14	59.6%	48.1%
Illinois (Central)	4	0.0%	0.0%	2	0.0%	0.0%
Illinois (Northern)	14	30.8%	14.4%	14	34.1%	17.2%
Illinois (Southern)	14	73.2%	44.4%	11	72.0%	54.0%
Indiana (Northern)	13	61.3%	42.0%	11	72.7%	48.0%
Indiana (Southern)	14	51.7%	34.1%	14	60.3%	43.2%
Iowa (Northern)	9	0.0%	0.0%	6	0.0%	0.0%
Iowa (Southern)	13	52.6%	46.1%	11	68.2%	60.3%
Kansas	13	10.3%	19.9%	11	15.2%	26.3%
Kentucky (Eastern)	12	71.5%	51.5%	12	50.0%	48.2%
Kentucky (Western)	14	95.9%	103.0%	13	101.4%	117.9%
Louisiana (Eastern)	14	77.0%	36.9%	14	85.7%	57.3%
Louisiana (Middle)	10	5.0%	15.8%	8	6.3%	17.7%
Louisiana (Western)	9	13.0%	20.0%	7	19.0%	24.4%

Maine	4	0.0%	0.0%	2	0.0%	0.0%
Maryland	14	51.1%	24.0%	14	60.1%	31.8%
Massachusetts	14	51.1%	20.9%	14	57.3%	23.6%
Michigan (Eastern)	14	39.3%	14.7%	14	48.8%	31.7%
Michigan (Western)	14	67.9%	52.9%	11	65.2%	63.4%
Minnesota	14	57.4%	23.9%	14	66.0%	33.6%
Mississippi (Northern)	0	.	.	0	.	.
Mississippi (Southern)	7	114.3%	85.2%	5	100.0%	70.7%
Missouri (Eastern)	14	29.1%	29.2%	14	31.6%	30.5%
Missouri (Western)	14	49.9%	29.1%	14	52.4%	54.6%
Montana	6	0.0%	0.0%	4	0.0%	0.0%
Nebraska	14	41.9%	38.8%	14	47.6%	59.1%
Nevada	14	51.1%	37.1%	14	68.4%	67.8%
New Hampshire	14	26.8%	24.0%	14	27.9%	32.6%
New Jersey	14	42.2%	18.5%	14	47.2%	18.8%
New Mexico	13	23.8%	30.8%	11	29.7%	38.1%
New York (Eastern)	14	36.4%	8.7%	14	39.8%	10.3%
New York (Northern)	3	0.0%	0.0%	1	0.0%	.
New York (Southern)	14	30.4%	19.7%	14	36.9%	22.0%
New York (Western)	14	60.7%	44.0%	13	65.4%	47.4%
North Carolina (Eastern)	13	57.3%	43.0%	9	52.2%	44.7%
North Carolina (Middle)	14	57.3%	29.2%	14	61.3%	45.4%
North Carolina (Western)	14	68.8%	65.5%	14	60.4%	58.9%
Ohio (Northern)	14	34.5%	19.8%	14	40.2%	23.2%
Ohio (Southern)	14	44.3%	24.7%	14	46.7%	36.1%
Oklahoma (Northern)	14	64.9%	40.1%	11	72.7%	41.7%
Oklahoma (Western)	14	32.5%	29.3%	14	39.3%	43.7%
Oregon	14	62.7%	106.2%	14	49.9%	81.1%
Pennsylvania (Eastern)	14	39.4%	22.5%	14	42.1%	29.6%
Pennsylvania (Middle)	3	0.0%	0.0%	3	0.0%	0.0%
Pennsylvania (Western)	14	32.9%	20.4%	14	38.9%	36.9%
Puerto Rico	10	2.5%	7.9%	9	11.1%	33.3%
Rhode Island	14	3.6%	13.4%	12	8.3%	28.9%
South Carolina	14	0.0%	0.0%	13	0.0%	0.0%
South Dakota	14	35.7%	49.7%	10	30.0%	48.3%
Tennessee (Eastern)	14	31.8%	41.0%	10	40.0%	45.9%
Tennessee (Middle)	14	15.1%	10.8%	14	14.5%	15.0%
Tennessee (Western)	14	26.5%	24.0%	14	47.7%	59.1%
Texas (Eastern)	14	31.5%	19.4%	14	46.1%	39.5%
Texas (Northern)	14	42.5%	13.7%	14	50.8%	21.5%
Texas (Southern)	14	45.7%	13.7%	14	53.2%	25.7%
Texas (Western)	14	36.4%	18.0%	14	51.3%	73.8%
Utah	14	42.4%	25.1%	14	43.7%	56.4%
Vermont	4	22.6%	19.2%	4	24.4%	21.9%

Virgin Islands	2	0.0%	0.0%	2	0.0%	0.0%
Virginia (Eastern)	14	44.9%	10.4%	14	48.1%	23.2%
Virginia (Western)	12	65.8%	58.1%	10	51.7%	47.4%
Washington (Eastern)	14	22.0%	23.9%	12	41.7%	63.4%
Washington (Western)	14	44.6%	14.8%	14	45.8%	20.6%
West Virginia (Northern)	4	75.0%	50.0%	4	75.0%	50.0%
West Virginia (Southern)	11	45.2%	45.7%	9	66.7%	64.6%
Wisconsin (Eastern)	14	44.2%	28.0%	14	45.5%	47.5%
Wisconsin (Western)	12	59.7%	29.7%	12	62.5%	43.3%
Wyoming	3	0.0%	0.0%	3	0.0%	0.0%
ALL COURTS	**1046**	**43.3%**	**40.7%**	**967**	**48.4%**	**47.5%**

Panel B Summary Statistics of Court Dismissal Rate by Year

	CDR (5-Year)			CDR (3-Year)		
Year	No. of Obs.	Mean	Std. Dev	No. of Obs.	Mean	Std. Dev
2000	75	22.90%	0.2829	69	25.91%	0.3650
2001	74	23.70%	0.2635	70	31.28%	0.3650
2002	78	32.80%	0.4325	71	44.93%	0.5580
2003	77	34.60%	0.3345	70	43.61%	0.5060
2004	73	41.80%	0.4501	68	38.65%	0.4630
2005	75	39.90%	0.3731	65	37.33%	0.4810
2006	73	42.80%	0.4636	62	49.76%	0.4320
2007	70	43.30%	0.4298	62	55.60%	0.4250
2008	67	49.80%	0.3998	62	56.49%	0.4180
2009	71	51.50%	0.3649	66	56.23%	0.5370
2010	75	57.20%	0.5460	72	50.70%	0.4150
2011	77	56.50%	0.4256	77	59.42%	0.4470
2012	79	52.90%	0.3351	78	62.28%	0.5300
2013	82	55.40%	0.3209	75	62.41%	0.4880
ALL YEARS	**1046**	**43.30%**	**0.4070**	**967**	**48.40%**	**0.4750**

Table 2 Predictability of Court Dismissal Rate and Court Filing Rate on Litigation Risk

This table reports the logistic regression results on the predictability of court dismissal rate on the likelihood of case filed in the next year being dismissed for sued firm-years between December 31, 2000 and December 31, 2013. All variables are defined in the appendix A. Numbers in parentheses represent t-values. The superscripts, ***, **, and * denote the 1%, 5%, and 10% levels of significance, respectively.

	Dismissed	
	3-Year	5-Year
Variables	(1)	(2)
Court Dismissal Rate	0.351	1.127
	(1.79)*	(3.70)***
Court Filing Rate	-0.375	-0.128
	(-1.17)	(-0.33)
Log Total Assets	-0.061	-0.06
	(-1.55)	(-1.51)
Leverage	-0.687	-0.646
	(-2.07)**	(-1.93)*
ROA	0.309	0.289
	(0.87)	(0.81)
Sales Growth	-0.027	-0.012
	(-0.18)	(-0.08)
Last Year Stock Return	-0.055	-0.075
	(-0.55)	(-0.76)
Beta	-0.157	-0.183
	(-1.89)*	(-2.18)**
Return Volatility	2.323	2.782
	(0.49)	(0.58)
Turnover (in 1000s)	0.011	-0.001
	(0.35)	(-0.03)
Skewness	-0.016	-0.034
	(-0.28)	(-0.61)
Book-to-Market	0.196	0.175
	(1.86)*	(1.64)
Big 4	0.387	0.396
	(2.66)***	(2.71)***
Constant	-0.177	-0.437
	(-0.31)	(-0.75)
No. of Obs	1,143	1,143
Industry F.E.	Yes	Yes
Pseudo R-squared	6%	6%

Table 3 Sample Distribution

This table reports the distributions of our two samples. Panel A display the distribution of our three samples by Federal Courts. Panel B exhibits the distribution of our three samples by year.

Panel A Distribution of Samples by Court

	Sample of Defendant Firms		Sample of Restating Firms		Sample of MW Firms	
Federal Court	N. of Obs.	%	N. of Obs.	%	N. of Obs.	%
Alabama (Middle)					5	0.08%
Alabama (Northern)	3	0.82%	2	0.71%	28	0.44%
Alaska					25	0.39%
Arizona	9	2.46%	9	3.20%	96	1.49%
Arkansas (Western)					15	0.23%
California (Central)	33	9.02%	29	10.32%	595	9.24%
California (Eastern)	1	0.27%	1	0.36%	18	0.28%
California (Northern)	43	11.75%	35	12.46%	637	9.90%
California (Southern)	12	3.28%	9	3.20%	177	2.75%
Colorado	7	1.91%	6	2.14%	124	1.93%
Connecticut	10	2.73%	9	3.20%	177	2.75%
Delaware	2	0.55%	0	0.00%	11	0.17%
District of Columbia	4	1.09%	2	0.71%	48	0.75%
Florida (Middle)	8	2.19%	3	1.07%	100	1.55%
Florida (Northern)					17	0.26%
Florida (Southern)	8	2.19%	6	2.14%	158	2.45%
Georgia (Northern)	10	2.73%	3	1.07%	189	2.94%
Idaho	2	0.55%	1	0.36%	13	0.20%
Illinois (Central)					1	0.02%
Illinois (Northern)	16	4.37%	16	5.69%	283	4.40%
Indiana (Northern)	1	0.27%	0	0.00%	33	0.51%
Indiana (Southern)	4	1.09%	7	2.49%	37	0.57%
Iowa (Northern)					6	0.09%
Iowa (Southern)					1	0.02%
Kansas					26	0.40%
Kentucky (Eastern)	1	0.27%	2	0.71%	27	0.42%
Kentucky (Western)					26	0.40%
Louisiana (Eastern)	2	0.55%	2	0.71%	20	0.31%
Louisiana (Middle)					3	0.05%
Louisiana (Western)					15	0.23%
Maryland	6	1.64%	1	0.36%	123	1.91%
Massachusetts	13	3.55%	17	6.05%	352	5.47%
Michigan (Eastern)	7	1.91%	5	1.78%	117	1.82%
Michigan (Western)	1	0.27%	0	0.00%	8	0.12%
Minnesota	8	2.19%	3	1.07%	104	1.62%

Mississippi (Southern)					2	0.03%
Missouri (Eastern)	0	0.00%	1	0.36%	9	0.14%
Missouri (Western)	4	1.09%	3	1.07%	20	0.31%
Montana					6	0.09%
Nebraska	1	0.27%	1	0.36%	34	0.53%
Nevada	3	0.82%	3	1.07%	51	0.79%
New Hampshire	1	0.27%	1	0.36%	21	0.33%
New Jersey	12	3.28%	8	2.85%	285	4.43%
New Mexico					10	0.16%
New York (Eastern)	9	2.46%	6	2.14%	101	1.57%
New York (Northern)					3	0.05%
New York (Southern)	30	8.20%	23	8.19%	334	5.19%
New York (Western)	3	0.82%	2	0.71%	43	0.67%
North Carolina (Eastern)					26	0.40%
North Carolina (Middle)	2	0.55%	1	0.36%	56	0.87%
North Carolina (Western)	3	0.82%	0	0.00%	41	0.64%
Ohio (Northern)	7	1.91%	6	2.14%	139	2.16%
Ohio (Southern)	8	2.19%	6	2.14%	100	1.55%
Oklahoma (Northern)	1	0.27%	0	0.00%	23	0.36%
Oklahoma (Western)	1	0.27%	1	0.36%	9	0.14%
Oregon	4	1.09%	3	1.07%	95	1.48%
Pennsylvania (Eastern)	9	2.46%	9	3.20%	131	2.04%
Pennsylvania (Middle)	1	0.27%	1	0.36%	12	0.19%
Pennsylvania (Western)	1	0.27%	1	0.36%	49	0.76%
Puerto Rico					21	0.33%
Rhode Island	1	0.27%	0	0.00%	5	0.08%
South Carolina	1	0.27%	0	0.00%	26	0.40%
South Dakota					6	0.09%
Tennessee (Eastern)	2	0.55%	1	0.36%	31	0.48%
Tennessee (Middle)	4	1.09%	1	0.36%	36	0.56%
Tennessee (Western)	2	0.55%	1	0.36%	10	0.16%
Texas (Eastern)	7	1.91%	6	2.14%	139	2.16%
Texas (Northern)	3	0.82%	1	0.36%	87	1.35%
Texas (Southern)	5	1.37%	8	2.85%	261	4.06%
Texas (Western)	6	1.64%	4	1.42%	69	1.07%
Utah	2	0.55%	3	1.07%	45	0.70%
Vermont					2	0.03%
Virginia (Eastern)	7	1.91%	5	1.78%	220	3.42%
Virginia (Western)					34	0.53%
Washington (Eastern)	2	0.55%	1	0.36%	10	0.16%
Washington (Western)	8	2.19%	4	1.42%	122	1.90%
Wisconsin (Eastern)	5	1.37%	2	0.71%	62	0.96%
Wisconsin (Western)					35	0.54%
Total	366		281		6436	

Panel B: Distribution of Samples by Year

	Sample of Defendant Firms		Sample of Restating Firms		Sample of MW Firms	
Year	N. of Obs.	%	N. of Obs.	%	N. of Obs.	%
2001	52	14.20%	44	15.70%		
2002	46	12.60%	40	14.20%		
2003	53	14.50%	45	16.00%	337	5.24%
2004	51	13.90%	31	11.00%	754	11.72%
2005	41	11.20%	28	10.00%	1038	16.13%
2006	24	6.60%	14	5.00%	939	14.59%
2007	26	7.10%	15	5.30%	715	11.11%
2008	24	6.60%	13	4.60%	581	9.03%
2009	17	4.60%	10	3.60%	453	7.04%
2010	15	4.10%	13	4.60%	416	6.46%
2011	11	3.00%	16	5.70%	370	5.75%
2012	5	1.40%	12	4.30%	395	6.14%
2013	1	0.30%	NA	NA	438	6.81%
Total	366		281		6436	

Table 4 Summary Statistics

This table reports the summary statistics of variables in the two samples and the univariate analysis between voluntary restating firms and control firms. Panel A and Panel B display the results of Sample of Defendant Firms and Sample of Restating Firms, respectively. All variables are as defined in the appendix A, and variables are winsorized at 1% level except for voluntary restating indicator, court dismissal rate and court filing rate. The superscripts, ***, **, and * denote the 1%, 5%, and 10% levels of significance, respectively.

Panel A: Summary Statistics of Sample of Defendant Firms

	Sample of Defendant Firms N=366 (1)			Non-Voluntary Restating Firms N=269 (2)		Voluntary Restating Firms N=97 (3)			
	Mean	Std Dev.	Median	Mean	Std Dev.	Mean	Std Dev.	(3) - (2)	T-stat
Voluntary restating	0.265	0.442	0.000						
Court Dismissal Rate	0.359	0.220	0.348	0.340	0.213	0.413	0.231	0.072	2.71***
Court Filing Rate	0.158	0.203	0.098	0.168	0.222	0.132	0.134	-0.036	-1.87*
Filing Date CAR (-1,+1)	-0.037	0.131	-0.011	-0.035	0.140	-0.042	0.104	-0.007	-0.48
Log Total Assets	7.490	2.198	7.382	7.549	2.265	7.327	2.001	-0.222	-0.90
Leverage	0.228	0.213	0.195	0.224	0.212	0.240	0.218	0.016	0.63
ROA	-0.020	0.196	0.023	-0.024	0.201	-0.009	0.182	0.014	0.65
Sales Growth	0.188	0.413	0.112	0.182	0.406	0.206	0.435	0.024	0.47
Last Year Stock Return	1.129	0.744	0.994	1.112	0.762	1.175	0.691	0.063	0.75
Beta	1.519	1.105	1.310	1.474	1.089	1.643	1.145	0.169	1.26
Return Volatility	0.035	0.019	0.031	0.036	0.020	0.033	0.019	-0.003	-1.28
Turnover (in 1000s)	2.979	2.518	2.262	3.008	2.572	2.897	2.373	-0.111	-0.39
Skewness	0.148	1.161	0.229	0.094	1.062	0.299	1.395	0.205	1.32
Book-to-Market	0.629	0.724	0.458	0.639	0.743	0.601	0.670	-0.038	-0.46
Big 4	0.721	0.449	1.000	0.714	0.453	0.742	0.440	0.029	0.54

Panel B: Summary Statistics of Sample of Restating Firms

	Sample of Restating Firms N=281 (1)			Forced Restating Firms N=184 (2)		Voluntary Restating Firms N=97 (3)			
	Mean	Std Dev.	Median	Mean	Std Dev.	Mean	Std Dev.	(3) - (2)	T-stat
Voluntary restating	0.345	0.476	0.000						
Court Dismissal Rate	0.366	0.208	0.353	0.342	0.192	0.413	0.231	0.071	2.58**
Court Filing Rate	0.160	0.207	0.096	0.174	0.235	0.132	0.134	-0.042	-2.12**
Filing Date CAR (-1,+1)	-0.039	0.142	-0.010	-0.038	0.158	-0.042	0.104	-0.004	-0.29
Log Total Assets	7.257	2.112	7.001	7.219	2.173	7.327	2.001	0.108	0.42
Leverage	0.252	0.226	0.223	0.258	0.231	0.240	0.218	-0.018	-0.63
ROA	-0.029	0.218	0.020	-0.040	0.235	-0.009	0.182	0.031	1.21
Sales Growth	0.234	0.476	0.105	0.249	0.497	0.206	0.435	-0.044	-0.76
Last Year Stock Return	1.166	0.760	1.014	1.161	0.796	1.175	0.691	0.014	0.15
Beta	1.508	1.069	1.306	1.437	1.023	1.643	1.145	0.207	1.49
Return Volatility	0.036	0.018	0.031	0.037	0.018	0.033	0.019	-0.004	-1.71*
Turnover (in 1000s)	3.080	2.597	2.330	3.177	2.709	2.897	2.373	-0.280	-0.89
Skewness	0.136	1.250	0.204	0.051	1.161	0.299	1.395	0.249	1.50
Book-to-Market	0.566	0.633	0.452	0.548	0.614	0.601	0.670	0.054	0.66
Big 4	0.769	0.422	1.000	0.783	0.414	0.742	0.440	-0.040	-0.75

Panel C: Summary Statistics of Material Weakness Sample

	Material Weakness Sample N=6436 (1)			Control Observations N=4845 (2)		Voluntary Restating Firms N=1591 (3)			
	Mean	Std Dev.	Median	Mean	Std Dev.	Mean	Std Dev.	(3) - (2)	T-stat
Voluntary Restating	0.247	0.431	0.000						
Court Dismissal Rate	0.457	0.265	0.444	0.458	0.269	0.455	0.255	-0.003	-0.38
Court Filing Rate	0.139	0.153	0.103	0.139	0.153	0.139	0.153	0.000	-0.06
Log Total Assets	5.958	1.889	5.854	5.826	1.869	6.363	1.892	0.537	9.85***
Leverage	0.209	0.228	0.147	0.205	0.227	0.222	0.230	0.016	2.45**
ROA	-0.068	0.249	0.006	-0.074	0.257	-0.049	0.223	0.025	3.69***
Sales Growth	0.113	0.389	0.062	0.111	0.396	0.119	0.366	0.008	0.76
Last Year Stock Return	1.094	0.664	0.990	1.069	0.663	1.170	0.662	0.100	5.24***
Beta	1.449	0.982	1.281	1.439	0.979	1.477	0.991	0.038	1.32
Return Volatility	0.036	0.021	0.030	0.037	0.021	0.033	0.019	-0.004	-7.58***
Turnover (in 1000s)	1.845	2.028	1.254	1.827	2.037	1.902	1.998	0.075	1.29
Skewness	0.439	1.370	0.332	0.463	1.401	0.363	1.271	-0.100	-2.65***
Book-to-Market	0.745	0.893	0.540	0.730	0.865	0.792	0.973	0.062	2.26**
Big 4	0.570	0.495	1.000	0.535	0.499	0.676	0.468	0.141	10.25***

Table 5 Impact of Court Dismissal Rate on Propensity of Voluntary Restatement

This table reports the probit regression results on the impact of court dismissal rate on the likelihood of headquartering firms making voluntary restatement. Column 1 and 2 display the results for defendant firms sample, Column 3 and 4 exhibits the results for restating firms sample, and Column 5 and 6 exhibits the results for MW firms sample. All variables are defined in the appendix A. Numbers in parentheses represent t-values. The superscripts, ***, **, and * denote the 1%, 5%, and 10% levels of significance, respectively.

	Voluntary restatement					
	Sample of Defendant Firms		Sample of Restating Firms		Sample of MW Firms	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Court Dismissal Rate	2.07	1.168	1.761	1.738	0.179	0.183
	(2.78)***	(2.51)**	(2.18)**	(2.89)***	(2.03)**	(2.43)**
Court Filing Rate	-0.61	-0.382	-1.108	-0.835	-0.079	-0.168
	(-0.74)	(-0.69)	(-1.22)	(-1.38)	(-0.48)	(-1.39)
Filing Date CAR (-1,+1)	-0.585	-0.547	0.098	-0.199		
	(-0.74)	(-0.8)	(0.1)	(-0.23)		
Log Total Assets	-0.101	-0.071	0.013	0.008	0.064	0.067
	(-1.39)	(-1.19)	(0.15)	(0.12)	(4.12)***	(4.5)***
Leverage	0.828	1.042	0.483	0.389	0.108	0.078
	(1.51)	(2.23)**	(0.76)	(0.67)	(1.11)	(0.84)
ROA	0.622	0.71	0.856	0.829	-0.106	-0.152
	(1.04)	(1.3)	(1.33)	(1.44)	(-1.15)	(-1.66)*
Sales Growth	0.207	0.019	0.029	-0.053	0.023	0.014
	(0.82)	(0.08)	(0.1)	(-0.22)	(0.48)	(0.28)
Last Year Stock Return	-0.124	-0.143	-0.43	-0.355	0.101	0.097
	(-0.75)	(-0.96)	(-2.14)**	(-2.05)**	(3.16)***	(3.06)***
Beta	0.172	0.06	0.202	0.146	0.046	0.052
	(1.25)	(0.51)	(1.27)	(1.06)	(2.08)**	(2.39)**
Return Volatility	-15.248	-5.626	-4.88	-7.571	-2.537	-3.122
	(-1.49)	(-0.66)	(-0.44)	(-0.8)	(-1.65)*	(-2.07)**
Turnover (in 1000s)	0.041	-0.02	-0.105	-0.08	-0.007	-0.006
	(0.83)	(-0.48)	(-1.85)*	(-1.67)*	(-0.67)	(-0.53)
Skewness	0.12	0.123	0.159	0.142	-0.004	-0.001
	(1.27)	(1.6)	(1.32)	(1.46)	(-0.28)	(-0.05)
Book-to-Market	-0.082	-0.014	-0.105	-0.044	0.104	0.097
	(-0.41)	(-0.09)	(-0.4)	(-0.19)	(4.45)***	(4.27)***
Big 4	0.42	0.33	0.149	0.068	0.137	0.142
	(1.66)*	(1.59)	(0.48)	(0.26)	(3.12)***	(3.31)***
Constant	-8.331	-8.033	-3.15	-2.38	-1.747	-1.62
	(0)	(0)	(-1.98)**	(-2.01)**	(-7.37)***	(-9.46)***

No. of Obs	366	366	281	281	6,436	6,436
No. of Timely Restating Firms	97	97	97	97	1,591	1,591
No. of Culpable Firms	269	269	184	184	4,845	4,845
Pseudo R-sq.	33%	20%	37%	28%	8%	7%
Time F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
State F.E.	Yes	No	Yes	No	Yes	No

Table 6 The Tellabs Case: Difference-in-Difference Analysis

This table reports the results for the difference-in-difference tests for the Supreme Court's *Tellabs* case, which homogenizes federal courts' pleading standards for *Scienter* in 10b-5 lawsuits and increases the stringency of pre-Tellabs lenient circuit courts. Following Choi and Pritchard (2012), we categorize district courts under the 1st, 4th, 6th, and 9th circuit as "pre-event lenient circuits" (treatment observations), and district courts under other circuits as control observations. We choose the 6-year window (3-year pre- and 3-year post-Tellabs). As the Tellabs decision spans 2006 through 2007, these two years are excluded from our event window. Thus, the pre-event period is from 2003 to 2005; and the post-event period is from 2008 to 2010. Panel A displays the change in court dismissal rate right after the Tellabs case under different court stringency. Panel B presents the change in voluntary restatement likelihood after the Tellabs case under different court stringency. The superscripts, ***, **, and * denote the 1%, 5%, and 10% levels of significance, respectively.

Panel A: Change in Court Dismissal Rate after the Tellabs Case under Different Court Stringency

		Court Dismissal Rate		
	No. of Obs.	Mean	First-Order Diff.	Diff-in-Diff
USDCs under Lenient Circuits				
Pre-Tellabs	22	45.76%	-5.99%	-12.25%
		(5.13)	(-0.49)	(-0.78)
Post-Tellabs	20	39.78%		
		(4.76)		
USDCs under Non-Lenient Circuits				
Pre-Tellabs	30	30.06%	6.26%	
		(4.42)	(0. 63)	
Post-Tellabs	31	36.32%		
		(4.98)		

Panel B: Change in the Likelihood of Voluntary Restatement after the Tellabs Case under Different Court Stringency

	Voluntary restatement					
	Sample of Defendant Firms		Sample of Restating Firms		Sample of MW Firms	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Pre-Event Lenient Circuit Dummy	0.61	0.814	0.538	0.146	0.032	0.035
	(2.15)**	(2.16)**	(1.62)	(0.29)	(0.47)	(0.49)
Post-Event Dummy	-0.149	0	0.018	-1.242	-0.39	-0.208
	(-0.41)	(0)	(0.04)	(-1.48)	(-4.78)***	(-2.18)**
Pre-Event Lenient Circuit × Post-Event Dummy	-1	-1.366	-1.444	-2.239	-0.189	-0.215
	(-1.97)**	(-2.08)**	(-2.20)**	(-1.73)*	(-1.71)*	(-1.89)*
Court Filing Rate		-2.786		-5.009		-0.14
		(-1.81)*		(-2.36)**		(-0.98)
Filing Date CAR (-1,+1)		1.128		0.997		
		(0.73)		(0.46)		
Log Total Assets		-0.105		-0.075		0.091
		(-1.03)		(-0.52)		(4.21)***
Leverage		3.047		3.786		-0.191
		(3.43)***		(2.48)**		(-1.37)
ROA		3.969		4.475		-0.278
		(2.49)**		(1.98)*		(-1.93)*
Sales Growth		-0.419		0.176		0.015
		(-0.95)		(0.29)		(0.21)
Last Year Stock Return		-0.122		-0.496		0.107
		(-0.56)		(-1.58)		(2.73)***
Beta		0.17		0.329		0.074
		(0.96)		(1.51)		(2.34)**
Return Volatility		2.571		12.87		-3.864
		(0.21)		(0.69)		(-1.96)*
Turnover (in 1000s)		-0.047		-0.031		-0.002
		(-0.61)		(-0.29)		(-0.1)
Skewness		0.107		0.275		0.016
		(0.9)		(1.62)		(0.69)
Book-to-Market		-0.238		-0.521		0.079
		(-0.72)		(-1.05)		(2.39)**
Big 4		0.775		1.014		0.126
		(2.01)**		(1.66)		(1.97)*
Constant	-1.405	-2.362	-1.378	-2.255	-0.51	-1.315
	(-2.04)**	(-1.88)*	(-1.97)*	(-1.47)	(-3.95)***	(-6.22)***
No. of Obs	217	201	155	140	3,050	3,050

No. of Timely Restating Firms	61	51	61	51	788	788
No. of Culpable Firms	156	150	94	89	2,262	2,262
Pseudo R-sq.	53%	62%	62%	57%	5%	7%
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes

Table 7 Sample Distribution by Year and by Credit Rating

The sample contains loan facilities from 2001 to 2013.

Deal Year	Freq.	Percent
Panel A: Deal year		
2001	932	8.34
2002	1,084	9.7
2003	1,001	8.96
2004	1,091	9.76
2005	1,046	9.36
2006	938	8.39
2007	1,005	8.99
2008	547	4.89
2009	373	3.34
2010	659	5.9
2011	965	8.63
2012	721	6.45
2013	816	7.3
Panel B: Credit rating		
AAA	32	0.29
AA+	11	0.1
AA	48	0.43
AA-	86	0.77
A+	204	1.83
A	352	3.15
A-	363	3.25
BBB+	514	4.6
BBB	814	7.28
BBB-	515	4.61
BB+	401	3.59
BB	690	6.17
BB-	800	7.16
B+	750	6.71
B	464	4.15
B-	155	1.39
CCC+	36	0.32
CCC	17	0.15
CCC-	1	0.01
CC	16	0.14
D	1	0.01
Not rated	4,908	43.91
Total	11,178	100

Panel C: Sample Distribution by USDC

Federal court	No. of loans	Avg. No. of firms	Court filing rate		Court Dismissal rate	
			Mean	Std Dev	Mean	Std Dev
Alabama (Middle)	5	13.6	0.055	0.031	0.000	0.000
Alabama (Northern)	44	45.8	0.069	0.023	0.367	0.307
Alabama (Southern)	4	6.3	0.071	0.082		
Alaska	10	4.0	0.050	0.105		
Arizona	128	116.9	0.132	0.029	0.397	0.286
Arkansas (Eastern)	7	12.7	0.202	0.150	1.750	0.957
Arkansas (Western)	62	18.1	0.034	0.031	0.478	0.511
California (Central)	590	668.5	0.126	0.033	0.403	0.086
California (Eastern)	33	41.2	0.016	0.021	0.364	0.452
California (Northern)	433	755.7	0.168	0.023	0.530	0.088
California (Southern)	149	230.5	0.120	0.016	0.436	0.166
Colorado	236	220.4	0.128	0.050	0.260	0.149
Connecticut	378	200.5	0.090	0.018	0.413	0.371
Delaware	35	120.7	0.118	0.037	0.445	0.207
District of Columbia	70	34.9	0.356	0.237	0.292	0.356
Florida (Middle)	189	194.0	0.145	0.026	0.573	0.549
Florida (Northern)	6	10.0	0.100	0.000	1.000	0.000
Florida (Southern)	210	225.6	0.216	0.023	0.568	0.168
Georgia (Middle)	30	15.8	0.030	0.043	1.000	0.000
Georgia (Northern)	429	221.5	0.153	0.031	0.635	0.389
Georgia (Southern)	2	7.0	0.056	0.079	1.000	
Idaho	36	18.5	0.218	0.089	0.543	0.470
Illinois (Central)	42	29.8	0.064	0.079	0.000	0.000
Illinois (Northern)	581	516.6	0.086	0.015	0.318	0.168
Indiana (Northern)	77	35.0	0.094	0.084	0.803	0.308
Indiana (Southern)	97	83.4	0.109	0.035	0.534	0.462
Iowa (Northern)	19	22.6	0.025	0.029	0.000	0.000
Iowa (Southern)	32	22.8	0.054	0.058	0.300	0.497
Kansas	94	58.6	0.048	0.032	0.248	0.374
Kentucky (Eastern)	36	24.7	0.063	0.048	0.190	0.402
Kentucky (Western)	61	33.3	0.137	0.069	0.954	0.937
Louisiana (Eastern)	87	25.5	0.162	0.075	0.902	0.509
Louisiana (Middle)	30	9.1	0.139	0.096	0.125	0.224
Maine	14	16.9	0.039	0.066		
Maryland	202	222.6	0.144	0.076	0.503	0.256
Massachusetts	444	550.6	0.107	0.019	0.547	0.202
Michigan (Eastern)	180	110.9	0.121	0.029	0.419	0.282
Michigan (Western)	84	36.2	0.043	0.040	0.411	0.633
Minnesota	240	164.5	0.159	0.040	0.585	0.319
Mississippi (Northern)	3	10.0	0.000	0.000		
Mississippi (Southern)	12	20.2	0.031	0.047	1.333	0.577
Missouri (Eastern)	16	20.5	0.400	0.315	0.245	0.321
Missouri (Western)	85	48.8	0.080	0.034	0.546	0.562

Montana	5	11.0	0.196	0.193	0.000	0.000
Nebraska	60	38.1	0.085	0.020	0.650	0.562
Nevada	150	134.4	0.083	0.038	0.665	0.535
New Hampshire	46	32.1	0.197	0.062	0.318	0.261
New Jersey	383	391.6	0.152	0.031	0.408	0.173
New Mexico	14	17.6	0.233	0.254	0.111	0.167
New York (Eastern)	150	171.1	0.176	0.037	0.408	0.129
New York (Northern)	34	53.9	0.009	0.014	0.000	0.000
New York (Southern)	595	804.5	0.661	0.394	0.354	0.208
New York (Western)	112	59.2	0.061	0.019	0.473	0.524
North Carolina (Eastern)	70	46.6	0.046	0.046	0.569	0.445
North Carolina (Middle)	63	53.6	0.091	0.027	0.647	0.349
North Carolina (Western)	143	62.4	0.045	0.029	0.321	0.552
Ohio (Northern)	321	123.7	0.107	0.022	0.331	0.225
Ohio (Southern)	202	135.8	0.105	0.033	0.392	0.279
Oklahoma (Northern)	79	38.6	0.070	0.027	0.586	0.390
Oklahoma (Western)	72	41.0	0.081	0.063	0.406	0.459
Oregon	117	80.8	0.073	0.028	0.302	0.549
Pennsylvania (Eastern)	182	192.9	0.152	0.019	0.369	0.297
Pennsylvania (Middle)	185	110.6	0.002	0.006	0.000	0.000
Pennsylvania (Western)	128	103.1	0.104	0.030	0.306	0.269
Rhode Island	28	23.9	0.127	0.051	0.000	0.000
South Carolina	54	51.8	0.082	0.037	0.000	0.000
South Dakota	8	10.0	0.103	0.071	0.000	0.000
Tennessee (Eastern)	63	36.3	0.079	0.058	0.157	0.295
Tennessee (Middle)	138	52.3	0.171	0.062	0.185	0.149
Tennessee (Western)	54	28.4	0.199	0.138	0.195	0.330
Texas (Eastern)	254	228.5	0.031	0.013	0.391	0.350
Texas (Northern)	189	127.9	0.278	0.028	0.497	0.186
Texas (Southern)	786	333.0	0.089	0.021	0.510	0.235
Texas (Western)	157	126.0	0.070	0.019	0.533	0.746
Utah	61	90.6	0.082	0.020	0.487	0.495
Vermont	39	12.4	0.053	0.105	0.000	0.000
Virginia (Eastern)	289	205.8	0.077	0.019	0.479	0.303
Virginia (Western)	33	27.2	0.077	0.056	0.365	0.351
Washington (Eastern)	43	24.2	0.088	0.032	0.250	0.363
Washington (Western)	133	158.0	0.109	0.032	0.429	0.177
West Virginia (Northern)	17	13.4	0.000	0.000		
West Virginia (Southern)	4	7.5	0.099	0.135	0.500	0.707
Wisconsin (Eastern)	160	79.7	0.106	0.050	0.495	0.453
Wisconsin (Western)	29	25.3	0.082	0.035	0.615	0.431
Wyoming	6	9.7	0.000	0.000		

Table 8 Summary Statistics of Loan Terms, Court Jurisdictions, and Firm Characteristics

The sample contains loan facilities from 2001 to 2013. See Appendix A for variable definitions. The number of observations is in general 11,178 except for analyst and auditor related characteristics, such as earnings forecast dispersion, which has the lowest number of observations of 8,367.

	Mean	SD	Min	Max
Panel A: Loan terms				
Loan spread (basis point)	208.50	148.00	-95.00	1655.0
Facility amount in MM	413.30	749.70	0.40	24000.0
Facility amount/TA (%)	20.29	26.37	0.02	656.5
Loan maturity in months	48.26	20.88	1.00	240.0
Ln(syndicate size)	1.76	0.94	0.01	4.8
Prior lenders/syndicate size (%)	43.70	39.27	0.00	100.0
=1 if having dividend restriction	0.54	0.50	0.00	1.0
=1 if secured	0.36	0.48	0.00	1.0
=1 if having net worth covenant	0.15	0.36	0.00	1.0
=1 if having performance pricing	0.49	0.50	0.00	1.0
Covenants index	2.20	2.39	0.00	8.0
No. of Sweeps	0.92	1.48	0.00	4.0
No. of financial covenants	1.52	1.36	0.00	7.0
=1 if line of credit	0.11	0.31	0.00	1.0
=1 if revolver	0.62	0.49	0.00	1.0
=1 if traditional term loan	0.16	0.37	0.00	1.0
=1 if institutional term loan	0.11	0.32	0.00	1.0
Panel B: USDC characteristics				
Court dismissal rate (3-year)	0.45	0.34	0.00	3.0
Court filing rate (3-rear)	0.14	0.17	0.00	1.3
=1 if dismissal rate above median	0.50	0.50	0.00	1.0
=1 if filing rate above median	0.50	0.50	0.00	1.0
No. of firms in district	277.90	242.10	4.00	911.0
District unemployment rate (%)	6.01	1.89	2.58	14.4
Panel C: Firm characteristics				
Audit fees (MM)	2.60	4.37	0.00	83.3
Years in district since 1996	8.94	4.03	1.00	18.0
Years in the address since 1996	8.29	4.14	1.00	18.0
Log total assets	7.24	1.74	1.40	12.7
Tobin's q	1.72	1.02	0.39	13.7
Cash holdings (%)	9.62	12.49	0.00	99.8
Operating income/TA (%)	12.71	11.01	-223.20	86.8
Tangible Assets/TA (%)	42.75	25.18	0.00	97.9
Total debt/TA (%)	59.25	24.38	1.51	404.9
Interest expenses/operating profit (%)	32.32	114.10	0.00	5527.0

=1 if pay dividends	0.52	0.50	0.00	1.0
Capital expenditure/TA (%)	5.82	6.98	0.00	92.6
R&D scaled by sales (%)	0.09	6.46	0.00	679.9
=1 if R&D missing	0.53	0.50	0.00	1.0
Current ratio	1.91	2.24	0.02	66.3
=1 if no credit rating	0.44	0.50	0.00	1.0
One-year abnormal stock returns	0.07	0.47	-3.01	5.1
Beta (Lead)	1.00	0.54	-0.68	3.9
Residual risk (%)	2.56	1.76	0.55	37.7
Total risk (%)	2.86	1.79	0.60	37.6
No. of analysts	12.14	8.65	1.00	67.0
Earnings forecast dispersion	0.02	0.23	0.00	19.1
Panel D: Interest rate environments				
Credit spread: Baa-Aaa	1.06	0.37	0.62	3.4
Term yield: 10-1 year	1.76	1.10	-0.41	3.4

Table 9 Univariate Tests by Dismissal Rate

The sample contains loan facilities from 2001 to 2013. See Appendix A for variable definitions. USDC's with below median dismissal rate are classified as low dismissal courts. In general, the number of observations for high dismissal courts is 5221 and that for low dismissal courts is 5159 with the exception for analyst related variables. Earnings forecast dispersion has the lowest number of observations, which is 4081 (3708) for high (low) district courts. P-values are for two-tailed tests.

	High	Low	*t*-test	p-value
Panel A: Loan terms				
Loan spread (basis point)	217.24	201.21	-5.54	0.00
Facility amount in MM	452.12	384.39	-4.55	0.00
Facility amount/TA (%)	20.62	20.05	-1.11	0.27
Loan maturity in months	50.11	46.56	-8.76	0.00
ln(syndicate size)	1.74	1.80	3.07	0.00
Prior lenders/syndicate size (%)	43.18	44.04	1.11	0.27
=1 if having dividend restriction	0.51	0.55	4.14	0.00
=1 if secured	0.37	0.36	-1.30	0.19
=1 if having net worth covenant	0.12	0.18	9.22	0.00
=1 if having performance pricing	0.47	0.51	3.78	0.00
Covenants index	2.12	2.28	3.27	0.00
No. of Sweeps	0.92	0.92	0.28	0.78
No. of financial covenants	1.46	1.57	3.86	0.00
Panel B: USDC characteristics				
Court dismissal rate (3-year)	0.68	0.21	-96.68	0.00
Court filing rate (3-year)	0.14	0.16	6.07	0.00
=1 if filing rate above median	0.60	0.46	-14.73	0.00
No. of firms in district	299.48	291.26	-1.73	0.08
District unemployment rate (%)	6.34	5.77	-15.68	0.00
Panel C: Firm characteristics				
Audit fees (MM)	2.87	2.42	-4.55	0.00
Years in district since 1996	9.99	7.88	-27.36	0.00
Years in the address since 1996	9.22	7.30	-23.99	0.00
Log total assets	7.32	7.18	-4.16	0.00
Tobin's q	1.69	1.75	3.05	0.00
Cash holdings (%)	10.32	9.23	-4.44	0.00
Operating income/TA (%)	12.34	12.92	2.62	0.01
Tangible Assets/TA (%)	41.39	42.94	3.13	0.00
Total debt/TA (%)	58.33	59.86	3.17	0.00
Interest expenses/operating profit (%)	31.66	33.55	0.81	0.42
=1 if pay dividends	0.51	0.52	1.45	0.15
Capital expenditure/TA (%)	5.83	5.77	-0.43	0.66
R&D scaled by sales (%)	0.16	0.03	-0.96	0.34

=1 if R&D missing	0.52	0.54	2.14	0.03
Current ratio	1.98	1.84	-3.08	0.00
=1 if no credit rating	0.44	0.44	-0.47	0.64
One-year abnormal stock returns	0.06	0.07	1.44	0.15
Beta	1.07	0.93	-13.54	0.00
Residual risk (%)	2.48	2.60	3.34	0.00
Total risk (%)	2.84	2.85	0.32	0.75
No. of analysts	12.72	11.73	-5.07	0.00
Earnings forecast dispersion	0.01	0.02	0.90	0.37
Panel D: Interest rate environments				
Credit spread: Baa-Aaa	1.09	1.01	-11.40	0.00
Term yield: 10-1 year	1.82	1.73	-4.14	0.00

Table 10 Regressions of Loan Interest Spreads

The sample contains loan facilities from 2001 to 2013. The dependent variable is interest spreads in basis points of loan facilities. See Appendix A for variable definitions. Column (1) reports the main regression. Column (2) excludes the control of auditor fees. Columns (3) and (4) do not include court fixed effects and loan characteristics. In addition, Column (4) excludes auditor fees. The values of *t*-tests using clustered standard errors that allow correlation within a borrower are reported in parentheses. *, **, *** Significant at the 10, 5, and 1% levels, respectively, for a two-tailed test.

	(1)	(2)	(3)	(4)
Court dismissal rate	-12.03**	-11.37**	-9.00*	-10.66**
	(-2.21)	(-2.15)	(-1.75)	(-2.22)
Court filing rate	22.51	22.26	5.73	7.60
	(1.40)	(1.57)	(0.52)	(0.81)
Ln(Auditor fees)	9.99***		9.01***	
	(3.36)		(2.85)	
Log total assets	-11.96***	-8.05***	-14.44***	-11.00***
	(-4.51)	(-4.30)	(-5.55)	(-6.56)
Tobin's q	-11.23***	-11.58***	-13.09***	-13.04***
	(-5.13)	(-6.08)	(-5.90)	(-6.72)
Cash holdings (%)	0.33*	0.35*	0.53***	0.53***
	(1.66)	(1.94)	(2.66)	(2.99)
Current ratio	0.05	-0.92	-0.10	-0.91
	(0.06)	(-0.92)	(-0.13)	(-1.03)
Operating income/TA (%)	-0.79***	-0.77***	-0.97***	-0.99***
	(-3.18)	(-3.33)	(-3.73)	(-4.09)
Tangible Assets/TA (%)	-0.24***	-0.22***	-0.18**	-0.18**
	(-2.66)	(-2.66)	(-1.96)	(-2.17)
Total debt/TA (%)	0.80***	0.80***	0.81***	0.82***
	(7.01)	(7.64)	(6.86)	(7.56)
=1 if pay dividends	-5.74	-8.63***	-7.51**	-9.19***
	(-1.55)	(-2.59)	(-2.00)	(-2.76)
Interest expenses/operating profit (%)	0.02	0.03	0.03	0.04*
	(1.11)	(1.43)	(1.36)	(1.65)
Capital expenditure/TA (%)	1.21***	1.08***	1.59***	1.43***
	(2.89)	(2.86)	(2.99)	(3.03)
R&D scaled by sales (%)	-0.32***	-0.30***	-0.37***	-0.37***
	(-4.59)	(-4.50)	(-5.48)	(-5.87)
=1 if R&D missing	-8.24**	-9.84***	-6.96*	-8.74***
	(-2.26)	(-3.15)	(-1.87)	(-2.74)
One-year abnormal stock returns	-19.12***	-15.07***	-19.84***	-15.63***
	(-4.65)	(-4.14)	(-4.69)	(-4.20)
Beta (Lead)	-20.03***	-20.73***	-22.15***	-22.59***
	(-4.97)	(-5.86)	(-5.53)	(-6.42)
Residual risk (%)	18.02***	17.35***	20.58***	19.61***
	(6.02)	(7.05)	(6.58)	(7.74)

Facility amount/TA (%)	-0.08	-0.09		
	(-1.12)	(-1.36)		
Ln(Loan maturity in months)	2.27	0.95		
	(0.44)	(0.20)		
=1 if secured	23.73***	23.13***		
	(5.46)	(6.12)		
=1 if having performance pricing	-30.83***	-31.64***		
	(-9.26)	(-10.68)		
Prior lenders/syndicate size (%)	-0.25***	-0.26***	-0.24***	-0.24***
	(-6.60)	(-7.63)	(-5.99)	(-6.80)
Ln(Syndicate size)	-9.69***	-8.73***		
	(-3.71)	(-3.69)		
=1 if no credit rating	63.23***	62.39***	29.54***	31.35***
	(4.55)	(5.14)	(3.32)	(4.12)
Term yield: 10-1 year	4.09	2.53	4.54	3.52
	(1.11)	(0.79)	(1.19)	(1.06)
Credit spread: Baa-Aaa	23.37**	16.84**	22.83**	16.31**
	(2.41)	(2.05)	(2.34)	(1.96)
District unemployment rate (%)	0.77	0.73	1.72	1.75
	(0.52)	(0.56)	(1.21)	(1.39)
Constant	29.52	135.77***	-9.66	91.50***
	(0.60)	(4.02)	(-0.25)	(4.22)
Observations	7,855	9,851	7,967	9,984
R-squared	0.51	0.52	0.48	0.50
Year F.E.	Yes	Yes	Yes	Yes
Loan type F.E.	Yes	Yes	Yes	Yes
Credit rating F.E.	Yes	Yes	Yes	Yes
Court F.E.	Yes	Yes	No	No

Table 11 Regressions of Non-pricing Terms

The sample contains loan facilities from 2001 to 2013. The dependent variables are non-pricing terms of loans. See Appendix A for variable definitions. The values of *t*-tests or z-tests using clustered standard errors that allow correlation within a borrower are reported in parentheses. *, **, *** Significant at the 10, 5, and 1% levels, respectively, for a two-tailed test.

	OLS	OLS	Poisson	Probit	Probit	Probit	Probit
	(1)	(2)	(3)	(5)	(6)	(7)	(8)
Dependent variables:	Ln(Maturity)	Ln(Amount)	Covenant index	=1 if having performance pricing	=1 if having collateral	=1 if having dividend restriction	=1 if having net worth covenant
Court dismissal rate	-0.03	0.02	0.04	0.08	0.02	0.10	0.41***
	(-1.27)	(0.32)	(0.58)	(1.15)	(0.25)	(1.27)	(3.38)
Court filing rate	0.06	-0.07	0.14	-0.07	-0.31	0.11	0.78**
	(1.35)	(-0.61)	(0.72)	(-0.38)	(-1.48)	(0.51)	(2.47)
Ln(Auditor fees)	-0.02*	-0.00	0.01	0.01	0.03	-0.01	0.02
	(-1.93)	(-0.15)	(0.37)	(0.18)	(0.86)	(-0.23)	(0.48)
Log total assets	0.03***	0.59***	-0.11***	-0.02	-0.18***	-0.11***	-0.17***
	(3.33)	(29.60)	(-5.15)	(-0.92)	(-5.64)	(-3.79)	(-3.87)
Tobin's q	0.00	0.10***	-0.06***	-0.03	-0.08***	-0.01	-0.06
	(0.31)	(4.52)	(-3.19)	(-1.10)	(-2.84)	(-0.31)	(-1.47)
Cash holdings (%)	-0.00**	-0.01***	-0.00	-0.00**	0.01**	-0.00	0.00
	(-2.22)	(-5.49)	(-0.21)	(-1.96)	(2.35)	(-0.41)	(1.53)
Current ratio	0.01***	0.02**	-0.00	-0.01	-0.00	-0.01	-0.01
	(3.21)	(2.36)	(-0.33)	(-0.77)	(-0.68)	(-0.90)	(-1.32)
Operating income/TA (%)	0.00***	0.01***	0.00***	0.01***	-0.01***	0.00	-0.00
	(3.86)	(4.81)	(3.18)	(3.58)	(-2.94)	(0.32)	(-0.14)
Tangible Assets/TA (%)	-0.00**	-0.00***	-0.00***	-0.00***	0.00	-0.00**	0.00
	(-1.96)	(-3.59)	(-3.03)	(-2.61)	(0.81)	(-2.34)	(0.38)
Total debt/TA (%)	0.00	-0.00	0.00	-0.00***	0.00	-0.00	-0.01***
	(0.26)	(-0.54)	(1.11)	(-2.64)	(0.41)	(-0.22)	(-4.09)
=1 if pay dividends	0.01	0.03	-0.03	-0.03	-0.13***	-0.02	0.00
	(0.78)	(0.82)	(-0.69)	(-0.54)	(-2.62)	(-0.50)	(0.01)

Interest exp./operating profit (%)	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00	-0.00
	(-0.78)	(-0.11)	(-0.96)	(-1.08)	(-0.42)	(-0.83)	(-0.88)
Capital expenditure/TA (%)	0.00	0.01***	-0.00	0.00	0.00	0.00	-0.01**
	(0.14)	(5.01)	(-0.16)	(1.35)	(0.78)	(1.31)	(-2.20)
R&D scaled by sales (%)	0.00***	0.00***	-0.00	-0.99**	-0.00*	-0.09*	-1.50**
	(3.38)	(3.44)	(-1.47)	(-2.35)	(-1.84)	(-1.76)	(-2.43)
=1 if R&D missing	-0.00	-0.03	0.02	-0.07	0.02	0.03	0.10
	(-0.32)	(-0.96)	(0.60)	(-1.47)	(0.36)	(0.58)	(1.40)
One-year abnormal stock returns	0.06***	0.09***	0.01	0.03	-0.02	-0.01	-0.04
	(4.61)	(3.45)	(0.40)	(0.82)	(-0.39)	(-0.28)	(-0.80)
Beta (Lead)	0.03**	0.04	0.01	0.13***	0.05	0.10**	0.15**
	(2.49)	(1.36)	(0.27)	(3.06)	(1.16)	(2.11)	(2.58)
Residual risk (%)	-0.05***	-0.06***	0.01	-0.14***	0.05**	-0.01	-0.01
	(-5.71)	(-5.89)	(0.53)	(-7.47)	(2.56)	(-0.83)	(-0.49)
Prior lenders/syndicate size (%)	-0.00***	0.00***	-0.00***	-0.00***	-0.00***	-0.00**	0.00
	(-6.96)	(3.20)	(-3.89)	(-5.23)	(-3.95)	(-2.51)	(0.24)
=1 if no credit rating	-0.14***	-0.17**	-0.44***	0.11	-0.25	-0.59	1.17***
	(-4.59)	(-2.08)	(-4.10)	(0.22)	(-0.74)	(-1.39)	(2.81)
Term yield: 10-1 year	-0.04***	-0.09***	0.02	-0.05	0.05	-0.07	0.16***
	(-3.19)	(-3.33)	(0.47)	(-1.05)	(0.84)	(-1.38)	(2.66)
Credit spread: Baa-Aaa	-0.05*	-0.02	0.07	0.07	0.06	0.07	-0.02
	(-1.75)	(-0.36)	(1.19)	(0.98)	(0.74)	(0.88)	(-0.18)
District unemployment rate (%)	-0.00	-0.00	-0.01	-0.01	-0.02	-0.01	-0.03
	(-1.01)	(-0.30)	(-0.42)	(-0.34)	(-0.75)	(-0.32)	(-0.93)
Constant	2.89***	14.81***	1.60***	0.89	0.26	1.51**	-1.20
	(23.00)	(41.80)	(3.97)	(1.30)	(0.37)	(2.04)	(-1.35)
Observations	8,403	8,593	8,593	8,572	8,420	8,561	8,409
R-squared	0.65	0.68					
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan type F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Credit rating F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Court F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 12 Regressions of Interest Spreads: Subsample Tests by the Level of Information Asymmetry

The sample contains loan facilities from 2001 to 2013. The dependent variable is interest spreads in basis point of loan facilities. The first (second) column only contains loan facilities without (with) performance pricing provision. The third (fourth) column only contains borrowers filed form DEF 14A with the file size that is smaller (greater) than 1 MB. The fifth (sixth) column only contains borrowers with greater than (no more than) nine analysts following the firms. See Appendix A for variable definitions. The values of *t*-tests using clustered standard errors that allow correlation within a borrower are reported in parentheses. *, **, *** Significant at the 10, 5, and 1% levels, respectively, for a two-tailed test.

VARIABLES	(1) No performance pricing	(2) With performance pricing	(3) Form DEF 14A file size <MB	(4) Form DEF 14A file size >MB	(5) Number of analysts>9	(6) Number of analysts<=9
Court dismissal rate	-21.76**	-3.36	-18.21***	-4.22	-16.08**	-15.84*
	(-2.42)	(-0.59)	(-2.65)	(-0.49)	(-2.26)	(-1.77)
Court filing rate	43.33*	-1.75	23.21	41.52	35.88	2.73
	(1.66)	(-0.17)	(1.32)	(1.21)	(1.59)	(0.09)
Ln(auditor fees)	15.84***	3.89	12.95***	2.26	2.70	8.29*
	(3.45)	(1.48)	(3.68)	(0.47)	(0.79)	(1.68)
Log total assets	-14.39***	-8.41***	-12.32***	-11.26***	-0.74	-13.99***
	(-3.71)	(-3.60)	(-3.80)	(-2.74)	(-0.21)	(-2.98)
Tobin's q	-14.18***	-7.42***	-11.35***	-7.22	-7.36**	-11.49***
	(-4.12)	(-4.05)	(-4.95)	(-1.06)	(-2.40)	(-3.82)
Cash holdings (%)	0.40	0.00	0.37*	0.43	0.68***	0.45
	(1.25)	(0.01)	(1.76)	(0.99)	(2.64)	(1.23)
Current ratio	-0.36	0.90	-1.62	0.09	-3.07	-1.32
	(-0.40)	(0.71)	(-1.50)	(0.10)	(-0.98)	(-1.09)
Operating income/TA (%)	-0.88***	-0.30	-0.52**	-1.85**	-0.92***	-0.24
	(-2.64)	(-1.30)	(-2.22)	(-2.23)	(-2.66)	(-0.48)
Tangible Assets/TA (%)	-0.41***	-0.07	-0.24**	-0.09	0.07	-0.28*
	(-2.84)	(-0.78)	(-2.21)	(-0.53)	(0.55)	(-1.90)
Total debt/TA (%)	0.82***	0.70***	0.86***	0.56***	0.51***	0.89***
	(5.14)	(7.33)	(6.29)	(3.24)	(3.51)	(4.82)
=1 if pay dividends	-5.45	-4.62	-3.78	-9.39	-5.98	-9.07

	(-0.89)	(-1.24)	(-0.87)	(-1.45)	(-1.30)	(-1.50)
Interest expenses/operating profit (%)	0.00	0.13***	0.09***	-0.01	0.10	0.03
	(0.02)	(5.70)	(3.02)	(-0.77)	(1.14)	(0.93)
Capital expenditure/TA (%)	2.28***	0.01	1.11***	1.26	0.71	2.23***
	(3.44)	(0.02)	(2.95)	(1.33)	(1.58)	(3.42)
R&D scaled by sales (%)	-0.41***	113.81**	-0.28***	86.14	-26.07	-3.03***
	(-4.43)	(2.45)	(-4.00)	(1.01)	(-1.20)	(-2.79)
=1 if R&D missing	-15.94***	2.56	-11.14**	-3.68	-13.04***	-7.44
	(-2.64)	(0.75)	(-2.54)	(-0.59)	(-2.68)	(-1.29)
One-year abnormal stock returns	-24.07***	-11.88***	-21.70***	-7.93	-20.14**	-23.41***
	(-4.04)	(-3.10)	(-4.79)	(-0.86)	(-2.50)	(-4.21)
Beta (Lead)	-25.98***	-15.16***	-18.51***	-28.81***	-14.06**	-27.88***
	(-4.19)	(-4.20)	(-3.97)	(-3.61)	(-2.33)	(-4.54)
Residual risk (%)	16.16***	21.13***	16.16***	25.45***	29.87***	29.23***
	(4.64)	(9.07)	(5.24)	(4.29)	(6.55)	(7.96)
Earnings forecast dispersion					-2.66	-7.51
					(-1.41)	(-0.10)
Ln(No. of analysts)					-22.05***	12.04*
					(-3.54)	(1.76)
Facility amount/TA (%)	-0.02	-0.12	-0.14*	0.20	-0.17	-0.16
	(-0.23)	(-1.40)	(-1.90)	(1.18)	(-1.20)	(-1.34)
Ln(loan maturity in months)	4.83	-10.77**	5.23	0.53	14.39**	12.32
	(0.71)	(-2.08)	(0.97)	(0.06)	(2.26)	(1.40)
=1 if secured	17.20**	31.55***	28.89***	4.12	28.00***	26.16***
	(2.26)	(8.69)	(5.95)	(0.53)	(4.87)	(3.85)
=1 if having performance pricing			-37.69***	-15.16***	-17.92***	-34.31***
			(-9.25)	(-2.88)	(-4.28)	(-5.87)
Prior lenders/syndicate size (%)	-0.37***	-0.09**	-0.23***	-0.28***	-0.28***	-0.21***
	(-6.23)	(-2.26)	(-5.00)	(-4.37)	(-4.55)	(-3.44)
Ln(syndicate size)	-11.92***	-5.05*	-11.31***	-5.31	-15.85***	-6.27
	(-3.20)	(-1.85)	(-3.69)	(-1.06)	(-4.36)	(-1.38)
=1 if no credit rating	23.72	59.94***	75.16***	-0.81	45.73	22.15
	(0.62)	(6.33)	(4.47)	(-0.01)	(1.17)	(0.68)

Term yield: 10-1 year	3.63	6.08*	3.41	6.16	7.10*	13.75**
	(0.55)	(1.78)	(0.81)	(0.88)	(1.67)	(2.10)
Credit spread: Baa-Aaa	39.41**	8.44	12.80	27.46*	-1.07	52.19***
	(2.13)	(1.27)	(1.31)	(1.87)	(-0.10)	(3.23)
District unemployment rate (%)	1.99	-1.37	0.76	-0.06	1.18	-1.45
	(0.91)	(-1.08)	(0.40)	(-0.03)	(0.70)	(-0.60)
Constant	19.99	65.36	-19.41	186.50	67.36	22.74
	(0.23)	(1.62)	(-0.32)	(1.55)	(0.94)	(0.23)
Observations	4,078	3,777	5,468	2,387	3,313	2,729
R-squared	0.50	0.60	0.52	0.56	0.61	0.50
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Loan type F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Credit rating F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Court F.E.	Yes	Yes	Yes	Yes	Yes	Yes

Table 13 Tests of Interest Spreads: Tellabs Case

The sample contains loan facilities from 2001 to 2013. The dependent variable is interest spreads in basis points of loan facilities. See Appendix A for variable definitions. The values of *t*-tests using clustered standard errors that allow correlation within a borrower are reported in parentheses. *, **, *** Significant at the 10, 5, and 1% levels, respectively, for a two-tailed test.

VARIABLES	(1) Prior to Tellabs 2001-2005	(2) Including Tellabs 2001-2007	(3) Following Tellabs 2008-2013
Court dismissal rate	-19.56*	-18.12**	-5.61
	(-1.77)	(-2.12)	(-0.64)
Court filing rate	33.44	36.09*	50.12
	(1.52)	(1.88)	(0.56)
Ln(auditor fees)	10.61**	11.48***	8.10
	(2.43)	(3.21)	(1.63)
Log total assets	-10.24***	-11.47***	-17.30***
	(-2.64)	(-3.60)	(-3.60)
Tobin's q	-11.28***	-12.48***	-8.59
	(-4.80)	(-6.31)	(-1.57)
Cash holdings (%)	0.31	0.36*	0.37
	(1.20)	(1.71)	(0.94)
Current ratio	0.22	0.38	-1.25
	(0.20)	(0.47)	(-0.44)
Operating income/TA (%)	-0.51*	-0.49**	-1.09**
	(-1.85)	(-2.02)	(-2.16)
Tangible Assets/TA (%)	-0.16	-0.21*	-0.18
	(-1.23)	(-1.84)	(-1.22)
Total debt/TA (%)	1.02***	0.86***	0.61***
	(5.23)	(6.40)	(3.23)
=1 if pay dividends	-5.20	-1.93	-11.74**
	(-0.85)	(-0.40)	(-2.09)
Interest expenses/operating profit (%)	0.05**	0.03	0.06
	(2.06)	(1.24)	(0.82)
Capital expenditure/TA (%)	1.25*	1.32***	0.97
	(1.94)	(2.89)	(1.63)
R&D scaled by sales (%)	-4.47***	-0.25***	67.42
	(-3.09)	(-3.41)	(0.92)
=1 if R&D missing	-9.27*	-8.40*	-4.46
	(-1.78)	(-1.88)	(-0.71)
One-year abnormal stock returns	-23.31***	-19.99***	-19.21**
	(-4.29)	(-4.29)	(-2.43)
Beta (Lead)	-15.05***	-19.43***	-17.26**
	(-2.74)	(-4.20)	(-2.31)
Residual risk (%)	16.59***	18.43***	15.59***
	(5.13)	(6.37)	(2.78)

Facility amount/TA (%)	-0.22**	-0.16**	0.00
	(-2.15)	(-2.08)	(0.01)
Ln(loan maturity in months)	-2.28	5.63	-2.36
	(-0.35)	(1.04)	(-0.21)
=1 if secured	34.92***	30.62***	12.82*
	(5.48)	(5.93)	(1.89)
=1 if having performance pricing	-30.83***	-34.91***	-24.75***
	(-6.16)	(-8.03)	(-4.91)
Prior lenders/syndicate size (%)	-0.12**	-0.23***	-0.26***
	(-2.01)	(-4.76)	(-4.04)
Ln(syndicate size)	-11.59***	-13.74***	3.85
	(-3.34)	(-4.50)	(0.79)
=1 if no credit rating	94.35***	80.50***	-147.72***
	(5.27)	(5.29)	(-3.60)
Term yield: 10-1 year	-2.48	0.83	11.73*
	(-0.53)	(0.19)	(1.86)
Credit spread: Baa-Aaa	-11.97	5.74	28.19***
	(-0.53)	(0.26)	(2.72)
District unemployment rate (%)	0.69	-0.26	0.49
	(0.24)	(-0.10)	(0.24)
Constant	-34.23	3.26	305.18***
	(-0.52)	(0.05)	(3.82)
Observations	3,624	5,023	2,832
R-squared	0.55	0.54	0.48
Year F.E.	Yes	Yes	Yes
Loan type F.E.	Yes	Yes	Yes
Credit rating F.E.	Yes	Yes	Yes
Court F.E.	Yes	Yes	Yes

Table 14 Tests of Interest Spreads: SGI Case

The sample contains loan facilities from 1996 to 2002 during the *SGI* case. The dependent variable is interest spreads in basis points of loan facilities. See Appendix A for variable definitions. The treatment group is the loans borrowed by firms under the jurisdiction of the Ninth Circuit and the control group is those borrowed by firms under the jurisdiction of the First, Fourth and Sixth Circuits. There are two lengths of event windows, 2 years (Column 1) and 6 years (Column 2). In the 2-year event, the pre-event period is 1998 and the post-event period is 2000. In the 6-year event, the pre-event period is 1996 to 1998 and the post-event period is 2000 to 2002. I exclude the event year 1999 as it takes time for banks to respond to the change of legal environment. The values of *t*-tests are reported in parentheses. *, **, *** Significant at the 10, 5, and 1% levels, respectively, for a two-tailed test.

	Loan spread (basis point)	
	(-1,+1)	(-3,+3)
VARIABLES	(1)	(2)
Circuit 9 Dummy	16.859	17.642
	(2.64)***	(4.42)***
Post-Event Dummy	39.901	39.625
	(5.84)***	(8.36)***
Circuit 9 Dummy × Post-Event Dummy	-15.518	-10.508
	(-1.72)*	(-1.66)*
Constant	247.673	240.596
	(20.21)***	(27.49)***
No. of Obs	2781	6635
R-sq.	14%	12%
Industry F.E.	Yes	Yes

Table 15 Sample Distribution in Chapter 7

This table displays the yearly distribution of the sample in Chapter 7.

Year	Freq.	Percentage
2000	2728	8.07%
2001	3804	11.25%
2002	3880	11.48%
2003	3485	10.31%
2004	3384	10.01%
2005	3086	9.13%
2006	2559	7.57%
2007	2960	8.75%
2008	2687	7.95%
2009	2820	8.34%
2010	2417	7.15%

Table 16 Summary Statistics of Variables in Chapter 7

This table reports the summary statistics of variables in Chapter 7. All variables are as defined in the appendix A. Log total assets, special item, return volatility, sales growth, big4 and book-to-market ratio are winsorized at 1% level.

	Mean	Std. Dev.	P95	Median	P5
Fog	19.799	1.897	22.809	19.582	17.597
Flesch	22.243	5.527	29.275	22.634	13.925
Kincaid	15.744	1.886	18.869	15.450	13.592
Ln No. Words	10.121	0.921	11.267	10.215	8.683
Court Dismissal Rate	0.409	0.276	0.846	0.382	0.000
Court Filing Rate	0.135	0.157	0.339	0.097	0.034
Log Total Assets	6.198	2.021	9.772	6.159	3.050
Age	22.934	20.175	59.000	16.000	5.000
Special Item	-0.021	0.074	0.010	0.000	-0.130
No. of Business Seg.	5.661	4.774	15.000	3.000	1.000
No. of Geographic Seg.	6.100	6.202	18.000	3.000	1.000
Return Volatility	0.037	0.022	0.084	0.031	0.013
Sales Growth	0.151	0.551	0.778	0.067	-0.340
Big4	0.621	0.485	1.000	1.000	0.000
Book-to-Market	0.758	0.851	2.200	0.556	0.068

Table 17 Contemporary Impact of Court Stringency on Readability

This table displays the contemporary impact of court dismissal rate on readability. The dependent variables are the Fog index in Column (1), the Flesch Readability Ease in Column (2), the Flesch-Kincaid formula in Column (3) and the logarithm number of words in Column (4). The key explanatory variable, Court Dismissal Rate, is based on the previous five-year historical court dismissal rate. See Appendix A for variable definitions. The values of t-tests using clustered standard errors that allow correlation within a borrower are reported in parentheses.

	Fog	Flesch	Kincaid	Ln No. Words
	(1)	(2)	(3)	(4)
Court Dismissal Rate	0.1547***	-0.3849**	0.1524**	-0.0172
	(2.60)	(-2.19)	(2.46)	(-0.59)
Court Filing Rate	-0.1014	0.4210	-0.1114	0.0168
	(-0.85)	(1.24)	(-0.99)	(0.34)
Log Total Assets	0.0272**	-0.2884***	0.0729***	0.1546***
	(2.30)	(-8.15)	(6.07)	(32.28)
Age	-0.0013	0.0056*	-0.0017	-0.0018***
	(-1.18)	(1.80)	(-1.51)	(-2.84)
Special Item	-0.1424	0.5167	-0.1876	-0.4696***
	(-0.93)	(1.14)	(-1.22)	(-6.69)
No. of Business Seg.	0.0089**	-0.0233*	0.0062	0.0044**
	(2.08)	(-1.77)	(1.46)	(2.55)
No. of Geographic Seg.	-0.0127***	0.0178*	-0.0097***	0.0034***
	(-3.97)	(1.86)	(-2.96)	(2.61)
Return Volatility	2.9217***	-0.1471	3.4190***	4.2823***
	(3.61)	(-0.06)	(4.24)	(10.63)
Sales Growth	-0.0163	0.1252**	-0.0017	0.0149
	(-0.89)	(2.44)	(-0.10)	(1.48)
Big4	0.0097	-0.2680***	0.0332	0.0628***
	(0.30)	(-2.76)	(1.01)	(4.47)
Book-to-Market	0.0091	0.0149	-0.0115	-0.0413***
	(0.49)	(0.27)	(-0.62)	(-4.97)
Constant	19.5117***	24.1869***	15.1606***	8.9824***
	(213.03)	(89.91)	(161.60)	(221.37)
No. of Obs.	33145	33145	33145	33145
Adj. R-sq	0.060	0.114	0.074	0.129
Industry F.E.	YES	YES	YES	YES
Year F.E.	YES	YES	YES	YES
State F.E.	YES	YES	YES	YES