

SHAREHOLDER LITIGATION AND
THE INFORMATION ROLE OF ACCOUNTING CONSERVATISM

By

Zhefeng Frank Liu

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Abstract

The purpose of this study is to investigate the impact of litigiousness on the information role of accounting conservatism. Prior literature documents the information role of accounting conservatism, measured by the positive association between earnings conservatism and information asymmetry between inside managers and outside investors. Prior literature also demonstrates that shareholder litigation concerns motivate managers and auditors to be conservative in preparing financial statements because conservatism shields managers and auditors from allegations that they overstated earnings and net assets. In a more litigious environment, both managers and auditors have incentives to be more sensitive to expected litigation costs, which increase with the level of information asymmetry. I hypothesize that higher levels of litigiousness enhance the information role of accounting conservatism. Overall empirical results are generally consistent with the hypothesis.

Key words: Information Asymmetry, Conservatism, Litigation, information role of conservatism

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Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Table of Contents.....	v
List of Tables.....	vii
List of Figures.....	ix
Chapter 1: Introduction	1
Chapter 2: Prior literature, Institutional Background and Hypothesis.....	8
2.1 Contribution, prior literature and motivation.....	8
2.1.1 Contribution and theoretical hypothesis.....	8
2.1.2 Extant research on conservatism.....	9
2.1.3 Extant research on information asymmetry.....	21
2.1.4 The information role of conservatism.....	29
2.1.5 Extant research on the measurement of litigation risk...	34
2.2 Institutional background.....	36
2.2.1 Litigiousness in the early 1990s.....	36
2.2.2 The 1994 Supreme Court decision.....	37
2.2.3 The 1995 Private Securities Litigation Reform Act...	38
2.2.4 Other legal developments.....	44
2.3 Empirical hypotheses.....	44
Chapter 3: Data, Sample Selection, and Research Design.....	48
3.1 Data and sample selection.....	48
3.2 Empirical models.....	52

3.2.1 Empirical specifications using the Basu model.....	52
3.2.2 Empirical specifications using the C_score measure...	54
3.2.3 The Shu (2000) model.....	55
Chapter 4: Results	58
4.1 Descriptive statistics and correlation matrix.....	58
4.2 Regression results.....	61
4.3 Robustness tests.....	76
4.3.1 Regulated industries dropped.....	76
4.3.2 Alternative firm-year observations.....	78
4.3.3 Alternative measure of information asymmetry.....	79
4.3.4 Alternative measures of earnings and returns.....	80
4.3.5 Comparing observations with no changes in litigiousness	81
4.3.6 Industry level analysis.....	84
4.3.7 Complete results for all coefficients.....	84
4.3.8 Firm-year measure of conservatism (C_score).....	89
4.3.9 Basu-measure using constant samples.....	94
4.3.10 H2 using Shu (2000) model.....	98
4.4 Additional controls.....	101
4.4.1 Controls for ending M/B and LEV.....	102
4.4.2 Additional control for SIZE.....	105
4.4.3 Additional controls for SIZE and beginning M/B...	106
Chapter 5: Summary and Conclusions.....	109
Bibliography.....	114

List of Tables

Table 1: Panel A: Sample and descriptive statistics.....	59
Table 1: Panel B: Correlation matrix.....	60
Table 2: Litigiousness and the information role of conservatism (H1)	
Panel A Good news samples.....	63
Table 2: Litigiousness and the information role of conservatism (H1)	
Panel B Bad news samples.....	65
Table 2: Litigiousness and the information role of conservatism (H1)	
Panel C Combined samples.....	67
Table 3: Cross-sectional & difference-in-differences analysis (H2)	
Panel A Summary results.....	70
Table 3: Cross-sectional & difference-in-differences analysis (H2)	
Panel B Complete results.....	72
Table 4: Cross-sectional & difference-in-differences analysis (H3)	
Panel A Summary results.....	73
Table 4: Cross-sectional & difference-in-differences analysis (H3)	
Panel B Complete results.....	75
Table 5: Robustness tests Panel A.....	77
Table 5: Robustness tests Panel B.....	79
Table 5: Robustness tests Panel C.....	80
Table 5: Robustness tests Panel D.....	81
Table 5: Robustness tests Panel E.....	82
Table 5: Robustness tests Panel F.....	83

Table 5: Robustness tests Panel G.....	85
Table 5: Robustness tests Panel H.....	85
Table 5: Robustness tests Panel I.....	86
Table 5: Robustness tests Panel J.....	87
Table 5: Robustness tests Panel K.....	88
Table 5: Robustness tests Panel L.....	89
Table 6: Litigiousness & information role of conservatism (C_score) Panel A..	90
Table 6: Litigiousness & information role of conservatism (C_score) Panel B..	91
Table 6: Litigiousness & information role of conservatism (C_score) Panel C..	92
Table 6: Litigiousness & information role of conservatism (C_score) Panel D..	93
Table 6: Litigiousness & information role of conservatism (C_score) Panel E..	93
Table 7: Basu model using full vs. constant samples Panel A.....	95
Table 7: Basu model using full vs. constant samples Panel B.....	96
Table 7: Basu model using full vs. constant samples Panel C.....	98
Table 8: H2a results using Shu (2000) model.....	100
Table 9: Controls for M/B and LEV Panel A.....	103
Table 9: Controls for M/B and LEV Panel B.....	105

List of Figures

Figure 1: Tree diagram of the trading process.....	27
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Chapter 1

Introduction

I hypothesize and find that higher levels of litigiousness enhance the information role of accounting conservatism. The information role of accounting conservatism, denoted as γ , is measured by the positive association between earnings conservatism and information asymmetry between inside managers and outside parties to the firm (LaFond & Watts, 2008; Khan & Watts, 2009). Consistent with prior literature (Basu, 1997), earnings conservatism is defined as asymmetric timeliness (AT) of accounting earnings in reflecting good vs. bad news, i.e., the incremental timeliness with which accounting earnings reflect bad news (for which negative stock market returns serve as a proxy) compared with good news (for which positive stock market returns serve as a proxy). For example, the application of the lower-of-cost-or-market (LCM) rule for inventory requires that market price declines below recorded cost be recognized immediately as write-down losses, whereas price increases above recorded cost await additional verification through sales transactions before being recognized in earnings. “Litigiousness” refers to the economy-wide propensity of investors to file class action lawsuits against managers, auditors, and others to recoup alleged investment losses. Litigiousness varies both over time and across legal jurisdictions due to differences in laws, regulations, and social mores.

I use two alternative measures of earnings conservatism and two alternative measures of information asymmetry. Like Basu (1997), I measure earnings conservatism for a portfolio of firms in a given year as the difference between the cross-sectional regression coefficient of earnings on stock returns for firms with negative annual returns

(“bad news”) and the regression coefficient of earnings on stock returns for firms with positive annual returns (“good news”). I also use a firm-year measure of conservatism (C_score) recently developed by Khan and Watts (2009). Following LaFond and Watts (2008), I use the PIN scores (Easley, Hvidkjaer, & O'Hara, 2005) and bid-ask spread (Welker, 1995) as alternative proxies for information asymmetry between insiders and outside parties to the firm.¹ The PIN scores are computed as the arrival rate of information-based orders divided by the arrival rate of all orders (Easley, Hvidkjaer, & O'Hara, 2005). Bid-ask spread is computed as the average of daily closing spreads divided by daily mid-point prices over the fiscal year. The information role of conservatism (γ) is measured by the coefficient from the regression of earnings conservatism on the proxies for information asymmetry.

Information asymmetries between inside managers and outside parties create a demand for internally generated measures of firm performance to be reported over an accounting period (Dechow, 1994). Earnings conservatism is an equilibrium mechanism for addressing moral hazard, adverse selection, and other agency problems stemming from information asymmetry (Watts, 2003a; Holthausen & Watts, 2001; LaFond & Watts, 2008). Consistent with this conjecture, recent studies find that earnings conservatism increases in the level of information asymmetry (LaFond & Watts, 2008; Khan & Watts, 2009). Prior literature also suggests that shareholder litigation concerns motivate managers and auditors to be more conservative in preparing financial statements because conservatism shields managers and auditors from allegations that they overstated

¹ PIN is the probability of an information-based trade derived from a structural market microstructure model.

earnings and net assets (e.g., Watts, 2003a; DeFond & Subramanyam, 1998). In a more litigious environment, both managers and auditors are more sensitive to expected litigation costs; expected litigation costs, in turn, increase with the elevated risks and higher probabilities of shareholder losses arising from higher levels of information asymmetries (LaFond & Watts, 2008).

A qualitative characteristic of financial reporting for at least five centuries (Basu, 1997), conservatism has been the subject of considerable research (Watts, 2003a, 2003b) and plays a prominent role in accounting theory and practice (Givoly, Hayn, & Natarajan, 2007). Information asymmetry and agency problems explain the existence of the accounting profession (Watts & Zimmerman, 1986). Information asymmetry affects capital markets and economic development, as evidenced in the objectives of the US Federal Securities Acts and the mission of the US Securities and Exchange Commission (SEC), both of which are intended to promote transparency and integrity of financial information to facilitate efficient capital formation.

Recently there has been debate on the role of conservatism in financial reporting. Proposals to reform Financial Accounting' Conceptual Framework assume that conservatism introduces an unacceptable degree of bias in accounting information; US and international standard setters are evidently prepared to purge conservatism from accounting's conceptual framework in the interest of neutrality:

Neutrality is incompatible with conservatism, which implies a bias in financial reporting information. Neutral information does not color the image it communicates to influence behavior in a particular direction. For example, automobiles might be produced with speedometers that indicate a higher speed than the automobile actually is travelling at to influence drivers to obey the speed limit. But those "conservative" speedometers would be unacceptable to drivers who expect them to faithfully represent the speed of the automobile. Conservatism or otherwise biased financial reporting information is equally unacceptable. [FASB, 2006, page 29]

Empirical evidence, in contrast, suggests that conservatism is useful because it reduces, rather than increasing, information asymmetry between inside managers and outside investors (LaFond & Watts, 2008; Khan & Watts, 2009). Conservatism is seen as an efficient response to agency problems arising from information asymmetries because it constrains managers' opportunistic inflation of earnings and reduces expected shareholder litigation costs (Watts, 2003a; LaFond & Watts, 2008).

Khan and Watts (2009) find that earnings conservatism peaks in years following increases in information asymmetry. LaFond and Watts (2008) document that earnings conservatism is positively associated with the information asymmetry between informed insiders and outside equity investors. The information role of conservatism (γ) documented by LaFond and Watts (2008) over 1983-2001 is consistent with shareholder litigation motivating conservatism and with the highly litigious environment in the US during that period. However there were variations in litigiousness during that period. I am interested in testing whether the information role of conservatism (γ) is positively associated with litigiousness.

My hypothesis is that γ is positively related to the level of litigiousness. I test this hypothesis in three ways. First I compare γ before and after a legal regime change that greatly reduced litigiousness in the US. Second I compare γ for firms exposed to high vs. low ex ante shareholder litigation risk as well as the change in γ for high- vs. low-shareholder litigation risk firms following the legal regime change (a difference-in-differences design). Third, I measure the differences in γ between the US and non-US companies, before and after the legal regime change. Empirical results are consistent with the hypothesis that higher levels of litigiousness enhance γ , the information role of

accounting conservatism. This result is consistent with shareholder litigation being one of the major sources of conservatism (Watts, 2003a; Holthausen & Watts, 2001) and with the notion that auditor and manager incentives affect accounting choices (Watts & Zimmerman, 1986).

By documenting a direct, causal relationship, via an exogenous shock to the legal regime, between shareholder litigation and the information role of conservatism, this study contributes to the understanding of the information asymmetry explanation for conservatism. While LaFond and Watts (2008) document a positive relationship between earnings conservatism and information asymmetry on *average* from 1983 to 2001, this study examines the *variation* in that relationship with levels of litigiousness.

This study also highlights the public policy significance of securities class action lawsuits by differentiating the role of public enforcement by the SEC from the role of private enforcement via class action lawsuits in financial reporting. Prior literature (e.g., Huijgen & Lubberink, 2005; Thornton, 2002) argue that the SEC is more rigorous than its counterparts in other countries in enforcing accounting standards. However, private enforcement in the US dwarfs public enforcement through the SEC (Coffee, 2006). Securities class action settlements in the US reached an average of \$1.9 billion annually during 2000-2002, far exceeding the sum of all public monetary sanctions (Jackson, 2007). Former SEC chairman Richard Breeden states, “Private securities litigation has long been recognized as an important tool for helping to achieve the enforcement of the federal securities laws,...and in supplementing the efforts of the SEC” (Dutta & Nelson, 1997). Since the SEC has limited resources, private litigation is thought to be a more effective deterrent preventing security fraud (Seligman, 1994b; Cartwright, et al., 2007).

My study sheds some light on that assertion by documenting variations in earnings conservatism as an equilibrium response to agency problems stemming from information asymmetry for firms exposed to high vs. low ex ante litigation risk while subject to the same SEC enforcement environment.

The study also contributes to the debate on whether shareholder litigation is an effective governance mechanism (Rogers & Buskirk, 2009) by documenting the impact of alternative legal regimes on reporting incentives and earnings properties. The study adds to the literature on the consequences of the controversial US Private Securities Litigation Reform Act enacted in 1995. The study provides empirical evidence relevant to the on-going Joint and Several Liability reform that accounting firms have been advocating in Ontario, by suggesting that eliminating Joint and Several Liability would weaken the information role of conservatism.²

Given the role of conservatism in reducing information asymmetry, this result has implications for accounting standard-setters who are contemplating removing conservatism from accounting's conceptual framework. Given the already compromised information role of conservatism in a less litigious environment, the evidence suggests that removing conservatism from the conceptual framework will further weaken the information role of conservatism, potentially increasing information asymmetry between inside managers and outside investors. This raises the question of whether removing conservatism from the conceptual framework is premature.

² Under Joint and Several Liability, auditors could be named to lawsuits because of their deep pockets rather than culpability.

The study continues as follows. The next chapter reviews prior research motivating the study, summarizes a 1994 Supreme Court decision and a 1995 Act that reduce litigiousness, and develops the hypothesis that the information role of conservatism (γ) is positively associated with the level of litigiousness. Remaining chapters discuss research design, describe the samples, and present the results and robustness checks. I conclude with a summary of the findings, limitations, and suggestions for future research.

Chapter 2

Prior Literature, Institutional Background and Hypothesis

2.1 Contribution, prior literature and motivation

2.1.1 Contribution and theoretical hypothesis

The intended contribution of this study comes from tying together two strands of research to be reviewed next (i.e., shareholder litigation being a major determinant of earnings conservatism and the information role of conservatism γ) and generating the hypothesis that γ is positively related to the level of litigiousness. To develop my theoretical hypothesis, I begin by decomposing the information role of conservatism (γ) into two factors in equation (1) below:

$$\gamma \equiv \frac{\partial C}{\partial IA} = \frac{\partial C}{\partial ELC} \times \frac{\partial ELC}{\partial IA} \quad (1)$$

In equation (1), C denotes the degree of earnings conservatism, IA denotes information asymmetry, and ELC denotes expected litigation cost.

According to prior research to be reviewed in 2.1.2, $\frac{\partial C}{\partial ELC}$ is positive because firms have incentives to use more conservative accounting as expected litigation costs increase. Prior literature to be reviewed in 2.1.2 suggests that the second factor $\frac{\partial ELC}{\partial IA}$ is also positive because greater information asymmetry increases investment risks likely leading to shareholder losses triggering lawsuits. This explains the positive relationship between earnings conservatism and information asymmetry (γ), $\frac{\partial C}{\partial IA}$.

As the level of litigiousness increases, that positive relationship $\frac{\partial C}{\partial IA}$ will strengthen because $\frac{\partial ELC}{\partial IA}$ increases with the level of litigiousness while $\frac{\partial C}{\partial ELC}$ is assumed to

remain at substantially the same as the level of litigiousness changes. $\frac{\partial ELC}{\partial IA}$ increases with the level of litigiousness because, in a highly litigious environment that provides strong investor protection, shareholders who suffer investment losses stemming from greater information asymmetry are much more likely to take legal actions and more likely to receive significant compensations from successful lawsuits. The assumption that $\frac{\partial c}{\partial ELC}$ does not change with the level of litigiousness is plausible if conservatism is an endogenous response to increases in expected litigation costs. Prior literature reviewed in section 2.1.2 demonstrates that earnings conservatism increases in expected litigation cost both over time and cross-sectionally. Hence my theoretical hypothesis is as follows: *The information role of conservatism (γ) is positively related to the level of litigiousness.*

Next I review prior literature on conservatism, information asymmetry, the information role of conservatism (γ), and measurement of shareholder litigation risk.

2.1.2 Extant research on conservatism

Definitions and forms of conservatism

Accounting conservatism dates back to medieval Europe in the 15th century when tax-payers endeavored to pay the lowest possible amount in taxes by deflating property values on their balance sheets (Penndorf, 1930). At that time taxation was not based on income or proceeds but on net assets.

Feltham and Ohlson (1995) characterize conservatism as the expected long-run understatement of the book value of a company's net assets relative to their market value. Feltham and Ohlson (1996) attribute this understatement to the use of accelerated accounting depreciation relative to economic depreciation and the delayed accounting

recognition of investments' positive net present values.³ This refers to balance sheet conservatism, empirically measured by the market-to-book ratio (Pae, Thornton & Welker, 2005; Beaver & Ryan, 2005).⁴

Basu (1997, p. 7) interprets conservatism as “the accountant’s tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses” in financial statements. Watts (2003a, p. 208) characterizes conservatism as “...the asymmetrical verification requirements for gains and losses,” which results in an understatement of net assets on the balance sheet and in asymmetric timeliness (AT) of earnings with respect to good vs. bad news on the income statement. AT measures earnings conservatism, the focus of this study.⁵ Several studies document AT using cross-sectional regressions of annual earnings on stock returns for the same year (Basu, 1997; Ball & Shivakumar, 2005; Pope & Walker, 1999; Ball, Kothari, & Robin, 2000; Ball, Robin & Wu, 2003; Givoly & Hayn, 2000; Pae, Thornton, & Welker, 2005; Watts, 2003a, 2003b; Ryan, 2006; Bushman & Piotroski, 2006). AT is manifest in higher positive associations of earnings with stock returns for portfolios of firms with negative returns (“bad news firms”) than for portfolios of firms with non-negative returns (“good news firms”).

³ For instance, in accounting, R & D expenditures are immediately expensed but profit from R & D investments is not recognized until realized through sales transactions.

⁴ Balance sheet conservatism is also referred to as “unconditional conservatism” (Ball & Shivakumar, 2005; Beaver & Ryan, 2005), as ex ante conservatism (Pope & Walker, 2003), or as news-independent conservatism (Chandra, Wasley, & Waymire, 2004) in the accounting literature.

⁵ Earnings conservatism is also referred to as income statement conservatism (Pae, Thornton, & Welker, 2005), as “conditional conservatism” (Ball & Shivakumar, 2005; Beaver & Ryan, 2005), as ex post conservatism (Pope & Walker, 2003), or as news-dependent conservatism (Chandra, Wasley, & Waymire, 2004) in the accounting literature.

Prior research has documented a negative association between balance sheet conservatism and earnings conservatism (Pae, Thornton, & Welker, 2005; Beaver & Ryan, 2005; Roychowdhury & Watts, 2007; Liu & Thornton, 2008). While Beaver and Ryan (2005) and Roychowdhury and Watts (2007) offer mechanical explanations for that negative association, Liu and Thornton (2008) argue that higher ex ante litigation risk motivates managers and auditors to be more conservative as the market-to-book ratio decreases. Qiang (2007) reports that shareholder litigation affects both earnings conservatism and balance sheet conservatism. As a result, it is important to control for the market-to-book ratio when testing for the impact of shareholder litigation on the information role of earnings conservatism (γ).

Five alternative explanations for conservatism

Accounting literature proposes five explanations for conservatism, namely contracting, shareholder litigation, regulation, taxation and information asymmetry (LaFond & Watts, 2008; Watts, 2003a, 2003b; Holthausen & Watts, 2001; Khan & Watts, 2009). Watts (2003a) sees contracting and shareholder litigation being the most important determinants of conservatism. Bushman and Piotroski (2006) argue that reporting incentives shape the properties of accounting numbers through a complex interplay of accounting standards, legal, market, regulatory, and political pressures and discretion exercised by managers. It follows that observed conservatism is a net result of not only those individual explanations but also the interactions among those individual explanations.

Extant research is silent on the effects of potential interactions of those individual explanations on the degree of earnings conservatism. LaFond and Watts (2008) control

for shareholder litigation in examining the information role of conservatism (γ) but do not explicitly investigate the interaction effects of information asymmetry and shareholder litigation on conservatism. This study augments the literature by investigating whether shareholder litigation moderates the information role of conservatism (γ).

The role of reporting incentives — shareholder litigation

Financial reporting incentives, shaped by capital market forces and institutional factors, strongly influence financial reporting because the application of accounting standards involves discretion and judgment and underlying measurements are often based on private information (Daske, Hail, Leuz, & Verdi, 2008; Burgstahler, Hail, & Leuz, 2006; Ball, Robin, & Wu, 2003; Watts & Zimmerman, 1986). Reporting incentives and accounting discretion influence accounting choices and facilitate earnings management (Daske, Hail, Leuz, & Verdi, 2008), subject to regulatory constraints (Ball, Robin, & Wu, 2003). The incentives to follow accounting standards and provide transparent earnings numbers are positively associated with penalties under enforcement mechanisms (Ball, Kothari, & Robin, 2000). This study focuses on the disciplinary effects of shareholder litigation-related incentives.

Legal enforcement mechanisms have a central role to play in the properties of earnings (Burgstahler, Hail, & Leuz, 2006; Daske, Hail, Leuz, & Verdi, 2008). A primary role of securities class action lawsuits is to deter fraudulent earnings inflation in financial reporting (Coffee, 2006). Watts (2003a) considers shareholder litigation to be a major driver of earnings conservatism. Watts (1993, 2003a, 2003b), Kothari et al. (1988), and Beaver (1993) maintain that accounting conservatism reduces expected shareholder litigation costs because shareholders are much more likely to litigate when earnings or

net assets are overstated than when earnings or net assets are understated. Overstatement facilitates shareholder litigation because plaintiffs can point to the overstatement of earnings or overvaluation of firms' net assets as a pretext for suing the firm, the firm's auditors, and management to recoup their alleged losses.

Consistent with that conjecture, aggressive financial reporting leads to greater litigation costs for auditors (Lys & Watts, 1994; Bonner, Palmrose, & Young, 1998) and firms (Gong, Louis, & Sun, 2008). DuCharme, Malatesta, and Sefcik (2004) report that allegations of earnings inflation are highly correlated with the incidence of lawsuits naming auditors as codefendants: 92.5% of the suits naming auditors as codefendants allege some form of earnings inflation. Thus, managers and auditors have incentives to report conservative values for earnings and net assets, thereby mitigating expected litigation costs.

Prior research has documented a positive association between ex ante shareholder litigation risk and earnings conservatism (Watts, 2003a, 2003b) both across countries and over time within the US. For example, Ball, Kothari, and Robin (2000) find that the degree of conservatism is greater in more litigious so-called "common-law" countries like the US, where litigators tend to rely on publicly disclosed accounting information to mediate contract disputes, than in "code-law" countries like France or Germany, where litigators tend to rely on other sources of information to mediate legal disputes. Lang, Raedy, and Yetman (2003) and Huijgen and Lubberink (2005) report that international firms exhibit greater earnings conservatism on cross-listing in a much more litigious US environment. DeFond and Subramanyam (1998) document that income-decreasing discretionary accruals are concentrated among firms exposed to greater litigation risk,

suggesting that litigation risk motivates managers and auditors to prefer conservative accounting choices. Chan and Pae (1998) analytically show that replacing Joint and Several Liability with proportionate liability, which significantly reduces ex ante litigation risk for auditors, can decrease audit effort and quality and lead to less conservative auditing procedures. Basu (1997) finds that the degree of earnings conservatism is positively associated with ex ante litigation risk for auditors in the US. Chung and Wynn (2008) find that higher managerial liability insurance coverage, which reduces expected legal liability for managers, results in reduced earnings conservatism.

Recently, Khan and Watts (2009, Table 10) empirically show that shareholder litigation dominates information asymmetry as an explanation for conservatism. The increase in C_score, a firm-year measure of incremental timeliness for bad news over good news, is immediate in response to increases in the probability of litigation but delayed with a lag in response to increases in information asymmetry or idiosyncratic uncertainty. Also C_score rises by 0.233 over a two-year period in response to increases in the probability of litigation, compared with 0.056 and 0.053 in response to increases in information asymmetry and idiosyncratic uncertainty, respectively.

In conclusion, this line of research indicates that higher ex ante litigation risk induces greater earnings conservatism as managers and auditors take asset write-downs or recognize other losses as a defensive strategy to reduce ex ante shareholder litigation cost. Whereas prior research has focused on the association between the degree of earnings conservatism and expected litigation cost, I focus on the link between the level of litigiousness and the information role of conservatism (γ).

I choose to focus on the impact of shareholder litigation on the information role of conservatism (γ) for three reasons. First, shareholder litigation is an important manifestation of information asymmetry between informed insiders and uninformed equity investors. Second, ex ante shareholder litigation risks increase in the level of information asymmetry. LaFond and Watts (2008) maintain that information asymmetry increases the variance of prior information and stock prices. The increase in the volatility of stock prices is likely to result in shareholder losses and shareholder lawsuits (Jones & Weingram, 1996; Lys & Watts, 1994; Shu, 2000). LaFond and Watts (2008) maintain that, as information asymmetry increases, more of the projects companies invest in are likely to exhibit losses from outside investors' and auditor's perspectives. Greater information asymmetry also enhances managers' opportunities to inflate earnings and maximize their personal wealth via insider trading and excessive equity compensation (LaFond & Watts, 2008; Kothari, Shu, & Wysocki, 2009). Moral hazard and adverse selection incentives motivate managers to seize the opportunities to inflate earnings in the presence of greater information asymmetry, subject to external constraints. It follows that as information asymmetry increases, shareholders are much more likely to suffer significant financial losses, potentially aggravated by fraudulent earnings inflation. Kellogg (1984) finds that shareholders are much more likely to assert lawsuits to recover actual losses (due to overstatement of earnings) than opportunity costs related to unanticipated gains (due to understatement of earnings). Investment losses and earnings inflation form the legal bases for shareholders to file lawsuits because US federal securities laws require investors to demonstrate harm in the form of wealth declines caused by material misrepresentation (Chandra, Wasley, & Waymire, 2004). Hence

expected litigation costs are likely to increase as the level of information asymmetry increases.

Finally, an exogenous legal regime change provides an unprecedented, quasi-experimental setting to test my hypothesis. This is important for two reasons. First, expected litigation costs are unobservable. By identifying a regime change that clearly lowers expected litigation costs, I can examine the degree to which conservatism is associated with information asymmetry in periods of high vs. low litigation. Second, expected litigation costs are likely to be endogenous with the degree of earnings conservatism if firms with higher levels of information asymmetry tend to ward off litigation by exercising more conservative accounting. The use of an exogenous shock to the legal regime addresses the endogeneity issue and provides a test of a causal link, as opposed to an empirical association, between expected litigation costs and the information role of conservatism (γ).

Measures of earnings conservatism

Despite its long history and central role in accounting theory and practice, conservatism has neither an authoritative definition nor a non-controversial empirical measure (Givoly, Hayn, & Natarajan, 2007; Chandra, Wasley, & Waymire, 2004). This study uses two measures, namely the Basu (1997) model and C_score (Khan & Watts, 2009). Both measures are based on the notion of asymmetric timeliness (AT), which is a direct implication of earnings conservatism.

The Basu model

Basu (1997) develops a measure of asymmetric timeliness (AT) to measure earnings conservatism at the portfolio level. The Basu model has been widely used in the literature. As in prior literature, I estimate the Basu (1997) regression model as follows:

$$NI_{i,t} = \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 (R_{it} \times D_{it}) + \varepsilon_{it} \quad (2)$$

In equation (2), i indexes the firm, t indexes time; NI is net income before extraordinary items (Compustat #18) reported in period t divided by market value of common equity (Compustat #25 \times Compustat#199) at the beginning of fiscal year; R is the buy-and-hold stock return over the fiscal year as a proxy for news, where positive annual returns proxy for good news and negative annual returns proxy for bad news; D is an indicator variable equal to one for bad news firms (those with negative fiscal year stock returns), and zero for good news firms (those with non-negative fiscal year stock returns). Consistent with Khan and Watts' (2009) terminology, β_2 is an estimate of good-news timeliness and β_3 is an estimate of earnings conservatism or asymmetric timeliness (AT). A positive value for β_3 implies that accounting earnings are more timely in recognizing bad news as losses than good news as gains.

Recent studies (e.g., Dietrich, Muller, & Riedl, 2007; Givoly, Hayn, & Natarajan, 2007) have raised questions regarding the validity of the Basu (1997) model in gauging the degree of earnings conservatism. Givoly, Hayn and Natarajan (2007) show that the Basu measure β_3 suffers from measurement errors. Givoly et al. (2007) and Chandra et al. (2004) demonstrate that the Basu (1997) model is unstable over time and fails to yield consistent measures of earnings conservatism from year to year.

Givoly, Hayn, and Natarajan (2007) have raised three major potential concerns regarding the Basu measure —aggregation, nature of economic events and disclosure policy effects. In particular, the Basu measure of AT (β_3) is designed to capture earnings conservatism via the differential incremental effect of *individual* economic shocks on current earnings as a function of good vs. bad news. Empirically, the use of *aggregate* earnings and *cumulative* returns to estimate AT dampens β_3 as the measure of earnings conservatism. The reason is that individual economic shocks in opposite directions partially offset each other. The aggregation effects deteriorate with the degree of offsetting news events, as more shocks are aggregated over a longer period of time, leading to an understatement of asymmetric timeliness. In contrast, Roychowdhury and Watts (2007) argue that the understatement measurement error inherent in the Basu model improves over two-year or three-year time periods compared with one-year periods.

Givoly et al. (2007) also demonstrate that companies' disclosure policies bias the Basu measure of conservatism. A highly litigious environment prompts management to preempt the negative impact of bad news on litigation risk by disclosing bad news early (Skinner, 1994; Skinner, 1997; Brown, Hillegeist, & Lo, 2005; Cao & Narayanamoorthy, 2005; Field, Lowry, & Shu, 2005). But earnings remain the same. Thus, the Basu measure will underestimate (overestimate) the degree of conservatism in a more (less) litigious environment (Givoly, Hayn, & Natarajan, 2007). This works against supporting my hypothesis based on a decrease in the level of litigiousness following a legal regime change.

Ryan (2006) maintains that asymmetric timeliness (AT) is the most direct implication of earnings conservatism. The Basu (1997) model, despite its share of limitations, is conceptually superior to other models and remains a premier measure of earnings conservatism (Ryan, 2006; Ball, Kothari & Nikolaev, 2010). Other measures (e.g., negative operating accruals, the market-to-book ratio, variability and skewness of earnings relative to operating cash flow and persistence of positive vs. negative earnings changes) proposed in the literature need not capture any type of conservatism and have their own limitations and measurement error issues (Ryan, 2006; Ball, Kothari, & Nikolaev, 2010; Ball & Shivakumar, 2005). As of July 28, 2010, Basu (1997) has 1,220 citations in Google Scholar. Basu (1997) is one of the most highly referenced papers in the modern accounting literature (Ball, Kothari, & Nikolaev, 2010). Ball, Kothari and Nikolaev (2010) demonstrate through formal econometric analysis that the asymmetric timeliness coefficient of the Basu model is a function of earnings conservatism. Prior empirical studies (Ball, Kothari, & Nikolaev, 2010; Garcia Lara, Garcia Osma, & Penalva, 2009) show that alternative measures of earnings conservatism produce results similar to those of the Basu model. Garcia Lara et al. (2009) conclude that the Basu model does not seriously affect the inferences about earnings conservatism and the measurement error of the Basu model seems to be minor, as predicted by Ryan (2006).

Givoly, Hayn and Natarajan (2007) argue that controls for the limitations of the Basu (1997) model are not easy to implement. Industry level analysis is one feasible way to address some of the concerns with the Basu measure (Givoly, Hayn, & Natarajan, 2007; Ryan, 2006). I conduct my analysis at the industry level as a robustness test. Given

the limitations of the Basu (1997) model, I repeat my analysis using an alternative measure of earnings conservatism that is also built on the asymmetric timeliness notion.

C_score measure

Recently Khan and Watts (2009) have developed a firm-year measure of earnings conservatism called *C_score*. Unlike the Basu (1997) measure, which measures conservatism for an industry or a portfolio of firms, *C_score* does not assume that all firms in an industry are homogeneous or that there is no change in conservatism over time for individual firms. Khan and Watts (2009) verify the validity of *C_score* as a firm-year measure of conservatism by showing that firms with longer investment cycles, higher idiosyncratic uncertainty, and higher information asymmetry exhibit greater conservatism and that increased conservatism is a response to increases in information asymmetry, idiosyncratic uncertainty, and expected litigation costs. They report that *C_score* can predict AT for up to three years.

As in Khan and Watts (2009), I calculate the *C_score* using a two-stage procedure. In the first stage, I estimate the following cross-sectional regression for each year.

$$NI_i = \alpha + \beta_1 D_i + R_i (\mu_1 + \mu_2 SIZE_i + \mu_3 M/B_i + \mu_4 LEV_i) + D_i R_i (\lambda_1 + \lambda_2 SIZE_i + \lambda_3 M/B_i + \lambda_4 LEV_i) + \varepsilon_i \quad (3)$$

In equation (3), *SIZE* is the natural logarithm of market value of common equity (Compustat data #199 × Compustat data #25); *M/B*, the Market-to-Book ratio, is defined as the market value of common equity (Compustat data #199 × Compustat data #25) divided by the book value of common equity (Compustat data #60) at the end of the year; *LEV* is leverage measured by the sum of long term debt (Compustat data #9) and short

term debt (Compustat data #34) deflated by market value of common equity at the end of the year. All other variables are as previously defined.

In the second stage, I calculate a firm-year measure of earnings conservatism (C_score) using the coefficient estimates from the first stage regression (3).

$$C_score = \lambda_{1,t} + \lambda_{2,t}SIZE_{i,t} + \lambda_{3,t}M/B_{i,t} + \lambda_{4,t}LEV_{i,t} \quad (4)$$

In equation (4), λ_i , $i=1$ to 4, are constant across firms, but vary over time. C_score varies across firms through cross-sectional variations in the firm-year characteristics ($SIZE$, M/B and LEV) related to earnings conservatism, and over time through inter-temporal variations in λ_i and firm-year characteristics. The degree of conservatism is increasing in C_score .

2.1.3 Extant research on information asymmetry

Information asymmetry occurs when one or more parties possess private information that is not available to other parties. For instance, information asymmetry can exist between inside managers and all other parties who do not have access to the private information of insiders. Information asymmetry can also exist between different groups of outside investors. Information asymmetries between inside managers and outside parties create a demand for an internally generated measure of firm performance to be reported over an accounting period (Dechow, 1994) that will be useful to outside users in their economic decisions facilitating an efficient allocation of financial resources for the welfare of the economy. Capital market regulators and accounting standard-setters are concerned with mitigating the information asymmetry between insiders and outside investors, which is the focus of this study.

Following LaFond and Watts (2008), I use PIN as the primary measure of information asymmetry and bid-ask spread as an alternative measure of information asymmetry.⁶ PIN, the probability of private information-based trade, is designed by Easley and O'Hara (1992) to measure information asymmetry between informed insiders and uninformed outside investors in equity markets and fits the purpose of this study. The intuition behind PIN is as follows. Public information is directly incorporated in asset prices at the time the information is released, without triggering any trading activities. In contrast, good (bad) private information generates excess buying (selling) activities, producing an abnormal order flow. Large deviations from their normal level of order flow signal higher levels of trading based on private information (LaFond & Watts, 2008; Easley & O'Hara, 1992). PIN is a function of the abnormal order flow driven by the arrival of private information and thus measures information asymmetry.

There has been a slow shift in the accounting literature from the use of bid-ask spread to PIN as a measure of information asymmetry (Ertimur, 2007). Ertimur (2007) argues that PIN is a better proxy for information asymmetry than bid-ask spread because the latter reflects not only adverse selection costs but also order processing costs and inventory holding costs. Empirical bid-ask spread decomposition studies show that the adverse selection component of the spread ranges anywhere from zero percent to 84%, depending on the sample size, the stock exchange on which the sample stocks are listed, the methodology used, or the absence/presence of option trading (Dolgoplov, 2004). Also market makers protect themselves from information asymmetry by simultaneously

⁶ I thank Professor Soeren Hvidkjaer for making the PIN scores available on his website,

manipulating both the quoted bid and ask prices and the quoted depths associated with those prices (Brown & Hillegeist, 2007; Lee, Mucklow, & Ready, 1994). In contrast, Easley, Hvidkjaer, and O'Hara (2002) argue, PIN is not related to market maker inventory and represents a pure measure of the risk of private information because these factors do not enter into the model.

PIN has been developed and implemented by a series of papers as a measure of information asymmetry (Easley, Hvidkjaer, & O'Hara, 2002; Easley, Kiefer, & O'Hara, 1996, 1997a, 1997b; Easley, O'Hara, & Paperman, 1998; Easley & O'Hara, 1992; LaFond & Watts, 2008). I draw on these studies, primarily Easley, Kiefer, and O'Hara (1997a) and Easley, Hvidkjaer, and O'Hara (2002) to elaborate on the PIN measure below.

PIN is the unconditional probability that a randomly selected trade originates from an informed trader and is the arrival rate of information-based orders divided by the arrival rate of all orders, as follows:

$$\text{PIN} = \frac{\alpha\mu}{\alpha\mu + \varepsilon_b + \varepsilon_s} \quad (5)$$

In equation (5), $\alpha\mu$ is the arrival rate for information-based orders, ε_b is the arrival rate of uninformed buy orders, ε_s is the arrival rate of uninformed sell orders. Higher PIN scores represent higher probabilities of private information-based trading and thus represent greater information asymmetry.

Easley et al. (2002) give a numerical example to illustrate how the PIN score is obtained. Suppose that a model is used to examine the trade information of a stock and generate the parameter estimates of $\varepsilon_b = \varepsilon_s = 40$, $\mu = 50$, $\alpha = 0.4$. Plugging these estimated parameters into the PIN equation (5) generates a PIN score of 0.20, meaning that the

market maker believes that 20 percent of the trades for this stock comes from informed traders. I will discuss the intuition behind the model next.

The theoretical PIN model

Because private information is not directly observable, a market microstructure model is needed to infer the presence of private information from market data. Microstructure models can be viewed as learning models in which market makers watch trades, update their beliefs about private information, estimate the probability of trade based on private information about the stock, and set trading prices. Over time, the process of trading and learning from trading results in prices converging to full information levels. Viewed from this perspective, the trading process reflects the information that subsequently appears in prices.

As seen in Figure 1 (Easley, Kiefer, & O'Hara, 1997a), the trading process is depicted as a game between market makers and traders. Nature determines whether there is new information at the beginning of the trading day.⁷ Information events occur (do not occur) with a probability of α ($1 - \alpha$). In case there is an information event, bad (good) news occurs with a probability of δ ($1 - \delta$). The asset is worth V_g (V_b) if the information event is good (bad) news. If no information event occurs, the value of the asset remains at its unconditional level $V = \delta \times V_b + (1 - \delta) \times V_g$. Informed traders are assumed to be risk neutral and take prices as given so that an informed trader who has access to good (bad) private news will buy (sell) the stock if the current quote is below V_g (above V_b).

⁷ The model assumes that information events occur only between trading days.

If an information event has occurred, we are on the upper portion of the tree. The probability of private information-based trade is μ ; the probability of non-information-based trade is $1 - \mu$. An uninformed trader is equally likely to buy or sell. An uninformed trader will trade with probability ε ; an uninformed trader will choose not to trade with a probability $(1 - \varepsilon)$.

If no information event has occurred, we are on the lower part of the tree and all traders are uninformed. A trader may buy, sell, or not trade with the indicated probabilities. The buy and sell arrival rate will be the same, ε_b (uninformed buy arrival rate) and ε_s (uninformed sell arrival rate). If an order arrives (or does not arrive at all), the Bayesian market maker observes the trade outcome (a buy, a sell or no-trade) and uses this information to update his/her beliefs.

The market maker is assumed to know the trade process depicted in Figure 1 and knows the parameter values α , δ , μ , and ε . However the market maker does not know whether an information event has occurred, or whether it is good or bad news given that an information event has occurred, or whether any particular trader is informed or not.

The probabilistic structure of the tree is completely described by information event parameters (α, δ) and trade selection parameters (μ, ε) that will allow the calculation of the probability of any trade outcome. Computing PIN entails estimating those parameters.

The estimation of the trade process

The theoretical model tells us how to use trades to estimate the parameter structure depicted in the tree diagram in Figure 1. Information events (i.e., good news, bad news or no news) involving α and δ are assumed to occur only once a day while the

trader selection that depends on μ and ε occurs many times throughout the day. Hence trade parameters (μ and ε) can be estimated from a single day's trade outcomes, whereas information event parameters (α and δ) must be estimated using multiple days of data.

The structural model can be estimated via maximum likelihood methods to generate the parameters for determining the probability of information-based trading (PIN) in a given stock. To construct the likelihood function, the conditional likelihood of trades on a day of known type is developed first. Let B, S, and N denote the total number of buys, sells, and no-trades, respectively, throughout the trading day. The probability of a buy, sell, or no-trade any time during a good, bad, or no event day can be read off the good, bad, or no event branch of the tree in Figure 1. The probability of B buys, S sells, and N no-trades on a good, bad, or no event day is proportional to

$$\Pr\{B, S, N | \text{good event}\} = [\mu + (1 - \mu)\frac{1}{2}\varepsilon]^B [(1 - \mu)\frac{1}{2}\varepsilon]^S [(1 - \mu)(1 - \varepsilon)]^N \quad (6)$$

$$\Pr\{B, S, N | \text{bad event}\} = [(1 - \mu)\frac{1}{2}\varepsilon]^B [\mu + (1 - \mu)\frac{1}{2}\varepsilon]^S [(1 - \mu)(1 - \varepsilon)]^N \quad (7)$$

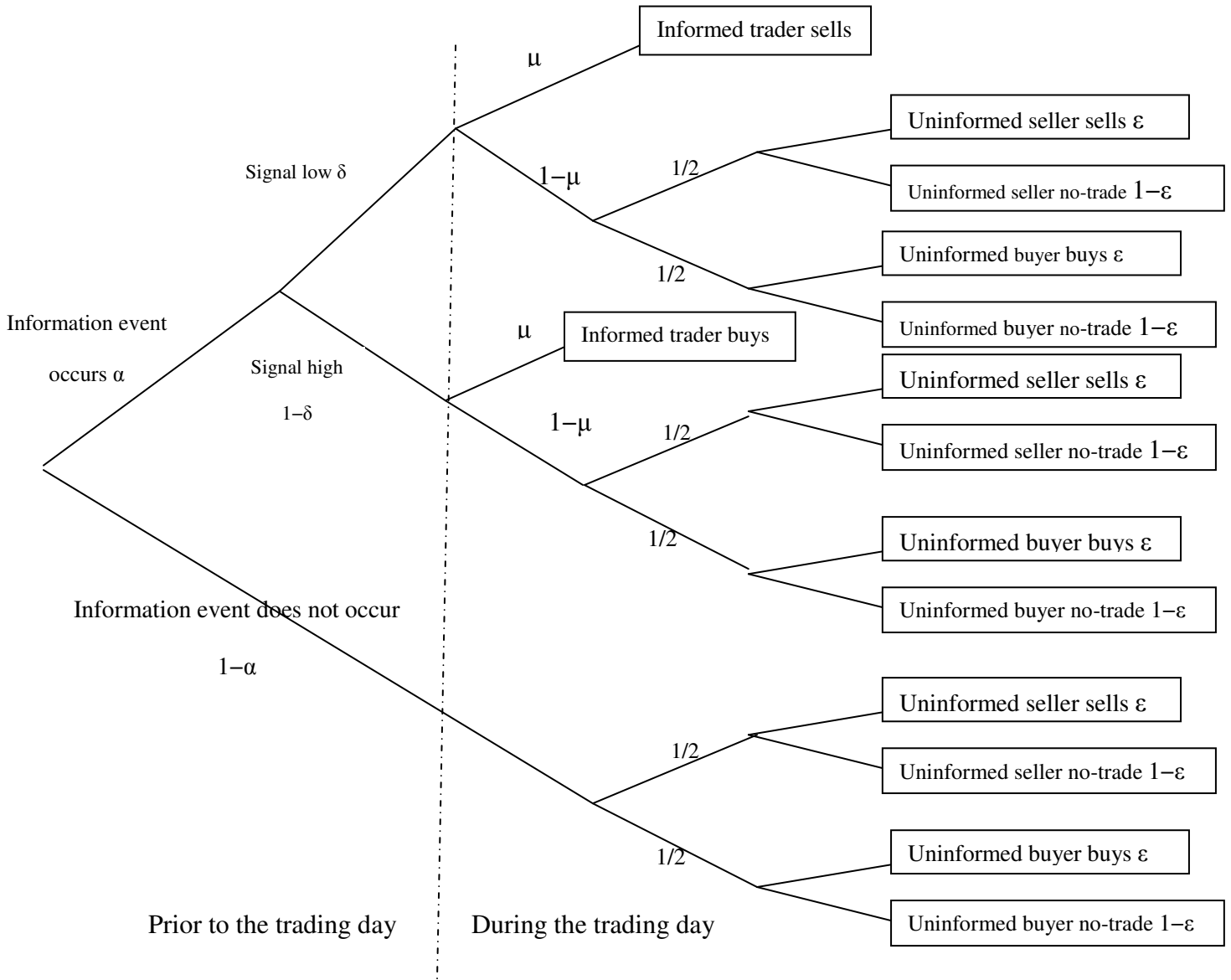
$$\Pr\{B, S, N | \text{no event}\} = [\frac{1}{2}\varepsilon]^{B+S} (1 - \varepsilon)^N \quad (8)$$

respectively. The probabilities of good, bad, and no event can be expressed as $\alpha(1 - \delta)$, $\alpha\delta$, and $1 - \alpha$, respectively. Hence the unconditional likelihood function for a given day is proportional to

$$\begin{aligned} & \Pr\{B, S, N | \alpha, \delta, \mu, \varepsilon\} \\ &= \alpha(1 - \delta) \left[[\mu + (1 - \mu)\frac{1}{2}\varepsilon]^B \cdot [(1 - \mu)\frac{1}{2}\varepsilon]^S \cdot [(1 - \mu)(1 - \varepsilon)]^N \right] + \\ & \quad \alpha\delta \left[[(1 - \mu)\frac{1}{2}\varepsilon]^B \cdot [\mu + (1 - \mu)\frac{1}{2}\varepsilon]^S \cdot [(1 - \mu)(1 - \varepsilon)]^N \right] + \\ & \quad (1 - \alpha) \left[[\frac{1}{2}\varepsilon]^{B+S} (1 - \varepsilon)^N \right] \end{aligned} \quad (9)$$

Figure 1

Tree Diagram of the Trading Process



(Figure 1 from Easley et al., 1997a)

α is the probability of an information event, δ is the probability of a low signal, μ is the probability that the trade comes from an informed trader, $1/2$ is the probability that an uninformed trader is a seller or buyer, and ϵ is the probability that the uninformed trader will actually trade. Nodes to the left of the dotted line occur only at the beginning of the trading day; nodes to the right are possible at each trading interval.

Given the assumption of independence of information events between trading days, the likelihood function over multiple days is

$$\Pr\{(B_d, S_d, N_d)_{d=1}^D | \alpha, \delta, \mu, \varepsilon\} = \prod_{d=1}^D \Pr\{(B_d, S_d, N_d) | \alpha, \delta, \mu, \varepsilon\} \quad (10)$$

where (B_d, S_d, N_d) is the outcome on day d , $d = 1, \dots, D$.

The likelihood function is an efficient description of all of the information about the parameters. The parameter values of α , δ , μ , and ε can be calculated by maximizing this likelihood function for a given stock. For tractability in the estimation, a log transformation of the likelihood function given below is used:

$$\begin{aligned} & \sum_{d=1}^D \log \left[\alpha(1 - \delta) \left(1 + \frac{\mu}{x}\right)^B + \alpha\delta \left(1 + \frac{\mu}{x}\right)^S + (1 - \alpha) \left(\frac{1}{1 - \mu}\right)^{S+B+N} \right] \\ & + \sum_{d=1}^D \log \left[((1 - \mu)(1 - \varepsilon))^N x^{S+B} \right] \end{aligned} \quad (11)$$

where $x = (1 - \mu) \frac{1}{2}(\varepsilon)$.

The log-likelihood function is then estimated using the daily numbers of buys, sells and no-trades for a given stock, generating maximum likelihood estimates of the parameters (α , δ , μ , and ε), which are then inserted in the PIN equation (5) to obtain the PIN scores.

PIN also is likely to be a noisy proxy. Assumptions regarding the independence of information events and the stability of parameters over the estimation period remain to be verified (Ertimur, 2007). Clarke and Shastri (2000) find no relation between PIN and insiders' trades and question the validity of PIN as a measure of information asymmetry. Mohanram and Rajgopal (2009) report that although PIN predicts future returns, the effect is not robust to alternative specifications and time periods. They find no association between PIN and imputed cost of capital, casting doubt on whether PIN reflects the

information risk systematically priced by investors. Huddart and Ke (2007) argue that PIN might capture information asymmetries between groups of outside investors rather than information asymmetries between insiders and outside investors because PIN is computed from all trades, the vast majority of which do not involve insiders. Easley, Hvidkjaer, and O'Hara (2005) report that the measurement error issues with PIN are likely to be more severe for larger firms because the assumption that information events occur only once per day seems plausible for smaller firms, but less so for large firms with thousands of trades per day. Caution is therefore warranted in interpreting the results relying on PIN only. Also PIN is computationally intensive to calculate and available for only a subset of NYSE-listed stocks (Ertimur, 2007; Huddart & Ke, 2007). An alternative proxy for information asymmetry is thus desirable.

Alternatively, bid-ask spread is a direct measure of price protection that uninformed market participants demand as compensation for their perceived information risk associated with equity trading (Welker, 1995). Bid-ask spread is a classical measure of information asymmetry (Lev, 2007) and provides results similar to those based on the PIN measure in LaFond and Watts (2008). I repeat my analysis using this proxy for information asymmetry.

2.1.4 The information role of conservatism

Agency costs from information asymmetry

Information asymmetry between informed insiders and uninformed equity investors generates a demand for conservatism even in the absence of accounting-based debt and compensation contracts, shareholder litigation, regulation and taxation (LaFond & Watts, 2008). Information asymmetry reduces firm value by creating deadweight

losses that reduce the firm's expected cash flows (Watts, 2003a) and increasing the cost of capital (Easley & O'Hara, 2004; Amihud & Mendelson, 1986; Easley, Hvidkjaer, & O'Hara, 2002). Greater information asymmetry gives managers more opportunities to report aggressively and expropriate wealth via insider trading and excess stock-price-based compensation (LaFond & Watts, 2008), potentially leading to significant financial losses for investors and higher likelihood of security lawsuits. Anticipating such manipulation and deadweight losses, investors strive to protect themselves by lowering their bid prices, resulting in higher expected return and lower stock prices (Easley, Hvidkjaer, & O'Hara, 2002). Hence the demand arises for mechanisms that reduce managers' private information relative to public information and curb such value-decreasing and wealth-transferring deadweight losses (LaFond & Watts, 2008).

Conservatism as an efficient response to agency costs

Earnings conservatism evolves as an efficient mechanism to deal with the agency costs arising from asymmetric information (LaFond & Watts, 2008; Watts, 2003a; Watts & Zimmerman, 1986). Earnings conservatism's stringent asymmetric verification standards limit managers' ability and incentives to introduce unverifiable gains into financial statements or to hide losses and or liabilities (Holthausen, 2009; LaFond & Watts, 2008; Watts, 2003a). It follows that earnings conservatism, in reducing information asymmetry, also reduces the probability of security fraud, managerial expropriation and expected litigation costs (Watts, 2003a). Earnings conservatism applies a uniform higher verification standard to each of the firm's gains enforced on the average by auditors, providing assurance that gains (losses) will not be overstated (understated) (LaFond & Watts, 2008). By providing verifiable summary information on firm

performance, conservative earnings serve as an indispensable benchmark allowing other sources of information (e.g., management and analyst forecasts) to exist and flourish (LaFond & Watts, 2008; Watts, 2006), highlighting the essential role of earnings conservatism in reducing information asymmetry.

Earnings conservatism plays an essential role in resolving information asymmetries and in communicating with outside parties in equity markets characterized by dispersed ownership structures (Watts & Zimmerman, 1986; Burgstahler, Hail, & Leuz, 2006). Absent conservatism, managers can circumvent debt covenant constraints by simply asserting more unverifiable gains (LaFond & Watts, 2008; Watts, 2003a). The lack of use of unverifiable information in debt covenants suggests that neither reputation nor signaling mechanisms can effectively reduce information asymmetry associated with the provision of unverifiable information due to the limited tenure of management and or end-game problem (retirement) (LaFond & Watts, 2008).

Earnings conservatism is thus an efficient response to the agency costs arising from information asymmetry. Khan and Watts (2009) find that firms' earnings conservatism peaks in the years following increases in information asymmetry. LaFond and Watts (2008) document a positive association between information asymmetry and earnings conservatism (γ) on the average during 1983-2001 in the US.

It is not clear, however, what is driving γ or how to explain any changes in γ . LaFond and Watts (2008) offer one explanation. When relatively more of a firm's gains are unverifiable due to information asymmetry associated with growth options, the application of the asymmetric verifiability standards will naturally generate more conservatism. Although that explanation is plausible, auditor and manager incentives also

affect accounting choices (Watts & Zimmerman, 1986; Daske, Hail, Leuz, & Verdi, 2008; Burgstahler, Hail, & Leuz, 2006; Ball, Robin, & Wu, 2003; Ball, Kothari, & Robin, 2000). For instance, moral hazard and adverse selection incentives explain the demand for auditing, why the federal securities laws are enacted, and why the US SEC was established to promote the transparency and integrity of financial information. Moral hazard and adverse selection incentives predict that managers will likely seize the opportunities furnished by greater information asymmetry to report earnings aggressively rather than conservatively, subject to external constraints (Watts, 2003a; LaFond & Watts, 2008; Watts & Zimmerman, 1986; Graham, Harvey, & Rajgopal, 2005).

Consistent with that agency-based prediction, managers, when given greater discretion, are much less likely to record goodwill impairment losses in accordance with SFAS 142 when the firm's market-to-book ratios fall below one over the 2003-2006 period (Ramanna & Watts, 2006) despite the public outcry over a series of corporate accounting scandals (e.g., Enron).⁸ The documented pervasiveness of earnings overstatements in the US (Palmrose & Scholz, 2004) and UK (Griffiths, 1986) is also consistent with moral hazard and adverse selection incentives. Recently, Kothari, Shu, and Wysocki (2009) document that managers' tendency to withhold bad news is exacerbated in the presence of high information asymmetry that gives managers more opportunities to do so. Therefore, moral hazard and adverse selection incentives suggest *negative* associations between information asymmetry and earnings conservatism,

⁸ Under SFAS 142, firms are no longer required to record annual amortization expenses for goodwill. Instead, firms are required to assess goodwill for impairment at least annually. If the goodwill is impaired, its carrying amount is reduced and an impairment loss is recognized. M/B less than one suggests goodwill impairment.

inconsistent with the *positive* associations documented by LaFond and Watts (2008) and Khan and Watts (2009). However, this posited negative association is unlikely to be observed if conservatism is an endogenous response to litigation risk.

One might argue that in efficient markets, market participants impose ex-ante costs on managers who do not credibly commit to conservatism, thus inducing positive associations between information asymmetry and earnings conservatism. Existing empirical evidence of earnings restatements / overstatements suggests that in practice, managers are still motivated to choose aggressive reporting despite any ex-ante costs imposed by market participants, since the benefits of aggressiveness can outweigh the ex-ante costs. For example, Graham et al. (2005) find that executives strive to meet or beat earnings benchmarks to boost stock price that is the No. 1 consideration for managers. Graham et al. state:

The severe stock market reactions to small EPS misses can be explained as evidence that the market believes that most firms can “find the money” to hit earnings targets. Not being able to find one or two cents to hit the target might be interpreted as evidence of hidden problems at the firm.

Although moral hazard and adverse selection incentives predict negative associations between information asymmetry and earnings conservatism, shareholder litigation plays a deterrent role and disciplines moral hazard and adverse selection incentives in equilibrium. Kothari, Shu and Wysocki (2009) document that managers’ incentives to withhold bad news are exacerbated in the presence of greater information asymmetry but subdued in the presence of greater litigation risk. Shareholder litigation is costly and firms have an interest in adopting policies that minimize expected litigation costs (Lowry, 2009 ; Xu, 2010; Skinner, 1994; Skinner, 1997). While managers might be tempted to prefer short-term gains via earnings inflation over long-term consequences of

litigation, auditors under Joint and Several Liability have strong incentives to reduce their expected litigation costs by constraining management incentives and requiring more conservative accounting (DeFond & Subramanyam, 1998; Francis & Krishnan, 2002; Krishnan & Krishnan, 1997; Chan & Pae, 1998; Lys & Watts, 1994; Basu, Hwang, & Jan, 2001). The major contribution of this study is to offer an alternative explanation and examine the possible role of reporting incentives in the information role of conservatism (γ). Specifically this study will investigate whether shareholder litigation is a determinant of the information role of conservatism (γ).

2.1.5 Extant research on the measurement of litigation risk

Ex ante litigation risk is an important determinant of managers' and auditors' financial reporting incentives (Romano, 1991; Seetharaman, Srinidhi, & Swanson, 2005). One way to identify variations in ex ante litigation risk in an empirical study is to take advantage of natural settings in which the level of ex ante litigation risk differs either over time (e.g., due to an exogenous shock to the legal regime) or cross-sectionally (e.g., across countries or across industries). Prior research (e.g., Francis, Philbrick & Schipper, 1994; Jones & Weingram, 1996; Grundfest & Perino, 1997) indicates that certain industries are more prone to shareholder lawsuits than others. However, classifying firms in terms of high vs. low shareholder litigation risks based solely on their industry membership provides only a crude proxy for ex ante litigation risk since some firms in the so-called low shareholder litigation risk industries can experience relatively high levels of litigation risk and many firms in the so-called high litigation risk industries may not face high levels of litigation risk at all. Moreover, other industry (or country) differences might also be responsible for the empirical results.

Accounting researchers (e.g., Shu, 2000; Jones & Weingram, 1996; Rogers & Stocken, 2005; Johnson, Kasznik, & Nelson, 2000, 2001) have developed empirical models aimed at capturing firm-specific probabilities of shareholder litigation risk. Empirical litigation prediction models have been used in many studies (e.g., Ali & Kallapur, 2001; Johnson, Kasznik, & Nelson, 2000, 2001; Chandra et al., 2004). Following LaFond and Watts (2008) and Khan and Watts (2009), I use the Shu (2000) model to identify firms exposed to high vs. low shareholder litigation risks in this study.

The use of the Shu (2000) model will provide an alternative, more refined approach that will boost confidence in my results, especially if I obtain consistent results from both the industry classification approach and the empirical model. Another advantage of using an empirical model is that I can further validate my hypothesized finding by examining the cross-sectional variation of the impact of a legal regime change across firms with different probabilities of shareholder litigation. Increasingly stronger results with increasingly greater differences in the probabilities of shareholder litigation between samples will boost confidence that shareholder litigation is the most plausible explanation for the results.

Empirical litigation prediction models, while designed to measure *ex ante* shareholder litigation risk, use *ex post*, actual lawsuits and consequently suffer from measurement errors in capturing *ex ante* litigation risk. Romano (1991) argues that actual lawsuits only marginally reflect the overall disciplining role of shareholder litigation. Managers and auditors are likely to be deterred by the prospect of shareholder litigation. This proposition cannot be tested because it is virtually impossible to identify a general deterrent effect when one cannot estimate the number of offenses, and thereby estimate

the probability of detection, which is essential for measuring such an effect. Most lawsuits settle (Romano, 1991) and data on those settlements are generally not accessible even to such authoritative parties as the SEC and the Dingle committee (Lys & Watts, 1994). Also the percentage of lawsuits being settled varies over time (Bajaj, Mazumdar, & Sarin, 2003). Therefore, the use of actual lawsuits in the model introduces noise in measuring the ex ante litigation risk that affects managers' and auditors' reporting incentives. Yet to the extent that those models can provide a workable ranking of the probabilities of being sued, I can use an empirical model to test the effects of shareholder litigation in this study. Chandra, Wasley and Waymire (2004) confirm that empirical models can distinguish those firms exposed to high vs. low shareholder litigation risks. Therefore I conduct my analysis using both ex ante (industry classification) and ex post (empirical model) measures of litigation risks.

2.2 Institutional background

The exogenous US legal developments in the 1990s provide a powerful quasi-experimental setting to test my hypothesis.

2.2.1 Litigiousness in the early 1990s

The accounting profession was facing an unusually litigious environment in the early 1990s (AICPA, 1992; Gottlieb & Doroshov, 2002). Under Joint and Several Liability, claims against Big-6 accounting firms amounted to \$30 billion in 1992, which was in excess of their total partners' capital (Solomon & Berton, 1993). The gross legal costs as a percentage of revenues incurred by the Big-6 auditors rose from seven percent in 1990 to 19.4% in 1993 (Public Accounting Report, 1994). As a result of the explosion in litigation, Big-6 accounting firms experienced dramatic increases in insurance

premiums (Anderson et al., 1993). There was widespread belief that the litigation explosion had gotten out of hand by the early 1990s in the United States (Ali & Kallapur, 2001). This led to intensive lobbying by accounting firms (along with high technology firms, which were also frequently the targets of securities class action lawsuits) for significant legal reform. This lobbying eventually led to the passage of the Private Securities Litigation Reform Act (the Act hereafter) in December 1995. Along with a major Supreme Court decision in 1994, the Act significantly reduces the legal liability exposure for auditors and managers.

2.2.2 The 1994 Supreme Court decision

In response to perceived explosions of securities litigation in the early 1990s (Avery, 1996), the US Supreme Court acquitted the secondary defendant in *Central Bank of Denver, N.A. v. First Interstate Bank of Denver (114 S. Ct. 1439, 1994)* on April 19, 1994. The Court ruled that private plaintiffs may not maintain an aiding and abetting suit under Section 10(b) of the 1934 Securities Exchange Act.⁹ The Court established that "private civil liability under Rule 10b-5 does not extend to those who do not engage in a manipulative or deceptive practice but who aid and abet such a violation of 10(b)."¹⁰ This ruling distinguished between primary and secondary defendants with respect to Rule 10b-5. The ruling reversed a long history of court decisions and SEC enforcement actions where aiders and abettors, often banks, accountants, trustees, and attorneys, were found liable under Rule 10b-5.¹¹ The 1994 Supreme Court ruling was claimed to be "... the

⁹ 10b prohibits fraud, manipulation or insider trading in connection with purchases of securities.

¹⁰ 10b-5 prohibits fraud or deceit in connection with the purchase or sale of securities.

¹¹ http://en.wikipedia.org/wiki/Central_Bank_v._First_Interstate_Bank.

most important federal securities law decision in several years” (Seligman, 1994a, p. 1430). The 1994 US Supreme Court decision made it harder for shareholders to sue professional advisors (e.g., auditors and investment bankers) suspected of willfully aiding and abetting securities violations (Seligman, 1994a). This, in turn, resulted in a significant decrease in the legal liability exposure for auditors.

2.2.3 The 1995 Private Securities Litigation Reform Act

In response to perceived rampant litigation in the early 1990s, the US Congress enacted the Private Securities Litigation Reform Act (the Act) in December 1995, substantially revising the Securities Act of 1933 and the Securities Exchange Act of 1934 and increasing restrictions on private litigants’ ability to sue managers and professional advisors for investment losses allegedly stemming from securities fraud (Johnson, Kasznik, & Nelson, 2000; Ali & Kallapur, 2001). The Act is designed to reduce the number of lawsuits, stop the race to the courthouse, increase the number of cases dismissed, and reduce the settlement value (Quillen, Vick, & De Aguiar, 2000).¹² The Act effectively reduces the expected litigation cost for defendants (Johnson, Kasznik, & Nelson, 2000) by virtually eliminating Joint and Several Liability, by decreasing the expected benefits of filing such lawsuits, and by increasing the transaction costs of filing such lawsuits. These changes reduce the probability of lawsuits being asserted; they reduce the probability of asserted lawsuits being successful; they reduce the likely damages, conditional on a lawsuit being successful; and they reduce the transaction costs of fending off lawsuits which, even if unfounded, damage auditors’ and managers’

¹² “Race to the courthouse” describes the tendency of law firms to file class action suits within days or even hours of a dramatic drop in a company’s stock price, hoping to obtain the advantage of being the first to file (Roake and Davidson, 1996).

reputation capital. The Act, by weakening the disciplinary effects of shareholder litigation, even allegedly contributed to the corporate accounting scandals (e.g., Enron, Worldcom) and the US Congress held hearings for possible reversal of certain provisions of the Act (Greenberger, 2002).¹³

Virtual elimination of Joint and Several liability

The most significant reform of the Act is the replacement of Joint and Several liability with proportional liability (Lee & Mande, 2003). This change reduces litigiousness because it reduces investors' expected awards for damages if their suits are successful. Prior to the Act, auditors, legal counsel, and management are subject to Joint and Several Liability for investor losses. Under Joint and Several Liability, each defendant is liable for the entire amount of damages regardless of fault, i.e., a successful plaintiff can recover all damages against a single deep-pocket defendant even if other impecunious defendants are held to be more at fault than the deep-pocket defendant (Roake & Davidson, 1996). Thus, for example, if a class of investors sues a company's auditors, each audit firm partner is individually responsible to pay damages if a court finds anyone in the audit firm to be responsible for investors' losses. Moreover, even if it is only responsible for a minor percentage of investor losses, a deep-pocket audit firm is liable to reimburse 100% of investor losses if other culpable parties cannot afford to do so.¹⁴

¹³ In the end, the US congress did not respond to the calls of consumer groups in the wake of the Enron scandals. The Act remains in force.

¹⁴ H.R. Conf. Rep. No. 104-369 (1995)

The Act limits Joint and Several Liability to defendants who knowingly commit a violation of securities laws.¹⁵ Moreover, within the group of those who knowingly violate the laws, the defendants are only proportionately liable for investor losses, based on their percentage of responsibility for the damages.¹⁶ Thus, the Act significantly reduces the likely individual penalties for auditors who contemplate condoning an overstatement of earnings, decreasing the expected benefits for shareholders. Werder (1996) sees the accounting profession as the biggest beneficiary of the Act. By virtually eliminating Joint and Several Liability, the Act clearly decreases litigiousness.

Reduction in expected benefits of filing class action lawsuits

The Act limits investors' damage awards to the difference between the purchase (sale) price paid (received) for a stock and the mean trading price of the stock during a 90-day period starting on the date of a press release correcting the misstatement or omission that is the basis for the lawsuit.¹⁷ The Act eliminates special bonus payments that were previously available to plaintiffs serving as class representatives (Roake & Davidson, 1996). The Act also reduces expected attorney fees in two ways. 1. It limits plaintiff attorney fees and expenses to a certain percentage of the amount of any damages and prejudgment interest actually paid to the class (Roake & Davidson, 1996). 2. It imposes a mandatory sanction review procedure that threatens plaintiffs' counsel with up

15 15 US C. A. § 78u-4(g)(2)(A).

16 15 US C. A. § 78u-4(g) (2) (B) (i).

¹⁷ If the security is sold or repurchased before the 90-day period expires, damages are capped at the difference between the original price paid or received by the plaintiff and the mean trading price of the security during the period between the dissemination of the corrective information and the date on which the plaintiff sells or repurchases the security. (Private Securities Litigation Section 21D(e)(1), <http://www.law.uc.edu/CCL/34Act/sec21D.html>)

to 100% liability for defendants' fees in the event that the suit is not successful (Lerach, 1998). By reducing plaintiffs' and attorneys' likely litigation benefits, these provisions clearly decrease litigiousness.

Increase in transaction costs of filing class action lawsuits

The Act augments pleading and proof requirements, making it more costly for shareholders to file class action suits (Chitwood & Browning, 2000; Werder, 1996; France, 2001; Grundfest & Perino, 1997). Before the Act, plaintiffs' counsel often filed lawsuits and later tried to discover fraud through "fishing expedition discoveries," needing only to establish a good reason to suspect that wrongdoing had taken place (France, 2001). Post-Act plaintiffs, in contrast, must begin the litigation process by identifying each allegedly false or misleading statement and its speaker, and state why it is false or misleading (Roake & Davidson, 1996; Chitwood & Browning, 2000). The Act also requires plaintiffs to show that the misstatement caused the losses incurred (Werder, 1996). Thus, the Act makes it more costly for shareholders to recoup losses from companies that may have committed fraud (France, 2001).

The Act aims to discourage "entrepreneurial lawyer" incentives to be the first to file a class action complaint (Grundfest & Perino, 1997) by introducing procedural requirements such as the judicial selection of a lead plaintiff to represent the class of aggrieved investors.^{18,19} The Act also increases plaintiffs' legal costs by imposing a

¹⁸ Entrepreneurial lawyers" are criticized as ignoring any client relationship with the plaintiff class in an effort to wring fee-based settlements from defendant companies and from peripheral defendants such as law and accounting firms (<http://library.findlaw.com/1999/Sep/1/129878.html#classAction>)

¹⁹ The Act creates a procedure for a court to appoint as lead plaintiff the member or members of the purported plaintiff class that the court determines to be most capable of representing the interests of the class. The Act requires that a plaintiff filing a complaint must publish a notice, within 20 days of the filing

mandatory stay of discovery while a motion to dismiss is pending. This mandatory order prevents plaintiffs from building their case, at a relatively low cost, solely on information provided by defendants during discovery, as they were wont to do before the Act (Seetharaman, Srinidhi, & Swanson, 2005). By increasing plaintiffs' and attorneys' likely litigation costs, these provisions clearly decrease litigiousness.

Evidence of reduced litigiousness following the Act

Prior literature indicates a decrease in the level of litigiousness following the legal regime change. The 1994 US Supreme Court decision and the Act lead to a decline in the number of class action lawsuits (Holthausen, 2009; Mahoney, 2009). The “race to the courthouse” slows following the passage of the Act (Securities and Exchange Commission, 1997). Cases take longer to litigate, involve more pretrial motions (Grundfest & Perino, 1997), and are costlier to file (France, 2001). The number of federal lawsuits filed in 1996 declined 30% from the average annual rate experienced during 1991-1995 (Grundfest & Perino, 1997). France (2001) reports that the percentage of cases dismissed by judges increases from 12% before the Act to 28% after the Act despite the fact that cases are supported with more substantial evidence after the Act. Levine and Pritchard (1998) report that federal judges dismiss 60% of shareholder-fraud suits filed during 1996-1997, compared to 40% during 1990-1992. They attribute the sharp rise in dismissal to the Act's heightened pleading standards and stay of discovery.

of the complaint, advising members of the purported class that any class member has 60 days in which to ask the Court to serve as lead plaintiff. The Act creates a presumption that the class member with the largest financial interest in the relief sought by the class is the plaintiff best able to represent the class (<http://library.findlaw.com/1999/Sep/1/129878.html> #classAction).

There is also evidence of reduced litigation exposure for auditors following the Supreme Court decision and the Act. Ali and Kallapur (2001) document that equity markets reacted negatively to events indicating the passage of the Act, which restricts shareholders' ability to bring class-action lawsuits against secondary defendants (e.g., deep-pocket auditors) for securities fraud. As feared by the market, secondary defendants (e.g., auditors) are indeed named much less frequently in securities class action lawsuits after the Act (Securities and Exchange Commission, 1997). The combined impact of the Act and the 1994 Supreme Court decision caused litigation against secondary defendants (e.g., auditors) to drop off sharply despite allegations of accounting fraud in the majority of securities lawsuits (Coffee, 2006).

The decrease in legal liability exposure for auditors is confirmed by prior accounting research. Francis and Krishnan (2002) report that auditors' legal exposure is reduced under the Act; as a result, auditors relax their risk-management policies adopted in the highly litigious early 1990s, resulting in riskier clients and less conservative financial reporting strategies. Geiger and Raghunandan (2001) and Venuti (2004) report that auditors are less likely to issue going-concern audit qualifications for companies approaching bankruptcy than they were before the Act. Lee and Mande (2003) document a rise in income-increasing discretionary accruals after the Act for clients of deep pocket Big-6 accounting firms, who benefit the most from the elimination of Joint and Several Liability, but not for clients of non-Big-6 firms. Several studies (Pae, Thornton, & Welker, 2005; Seetharaman, Srinidhi, & Swanson, 2005) report a decrease in the degree of earnings conservatism in the late 1990s. This evidence is consistent with the Act lowering ex ante litigation risk for auditors, especially in the auditor/client size segment

where plaintiffs' expected benefits from suing auditors and their clients are likely to be the highest.

In summary, the 1994 Supreme Court decision, the provisions of the Act and empirical evidence cited above suggest that litigiousness falls dramatically in the late 1990s. However, the provisions of the Act apply to federal courts only. Shareholders can still file lawsuits in the same way as before the Act at State courts.

2.2.4 Other legal developments

As shareholders and plaintiff's lawyers manage to circumvent the Act and assert their claims at the State courts instead of federal courts, litigiousness bounces back moderately around late 1996. To close such a loophole, the Congress passed the Securities Litigation Uniform Standards Act (the Uniform Act) in October 1998, effectively eliminating the bounce-back in litigiousness. US Congress' stated rationale for the Uniform Act was that the shift from Federal to State courts prevented the Act from fully achieving its objectives:

[I]n order to prevent certain State private securities class action lawsuits alleging fraud from being used to frustrate the objectives of the Private Securities Litigation Reform Act of 1995, it is appropriate to enact national standards for securities class action lawsuits involving nationally traded securities...²⁰

2.3 Empirical hypotheses

My theoretical hypothesis is that γ is positively related to the level of litigiousness. The previous section demonstrates a significant decrease in the level of litigiousness following the 1994 Supreme Court decision and the Act. Hence my first empirical hypothesis is as follows:

²⁰ 105th Congress 2d Session, House of Representatives Report 105-803 (October, 1998): <http://securities.stanford.edu/research/reports/19981001slusa.html>

Hypothesis 1: *The information role of conservatism (γ) weakens as the level of litigiousness decreases following the 1994 Supreme Court decision and the Act.*

Following LaFond and Watts (2008), I test my first hypothesis in three parts:

Hypothesis 1a: *Following the 1994 Supreme Court decision and the Act, more gains are reflected in earnings given the level of information asymmetry;*

Hypothesis 1b: *Following the 1994 Supreme Court decision and the Act, fewer losses are reflected in earnings given the level of information asymmetry;*

Hypothesis 1c: *Following the 1994 Supreme Court decision and the Act, smaller asymmetric recognition of losses versus gains is reflected in earnings given the level of information asymmetry.*

If my theoretical hypothesis is true, one should observe a positive relationship between γ and the level of litigiousness both over time and cross-sectionally whenever there are variations in the level of litigiousness. Corroborating evidence from both cross-sectional and inter-temporal changes analysis will enhance confidence in the results.

Certain industries are more vulnerable to securities litigation than others at a given time. Francis, Philbrick and Schipper (1994) find that four industries experience relatively high incidences of shareholder litigation.²¹ Jones and Weingram (1996) find that high technology firms were twice as likely as other firms to be sued in the early 1990s. About one third of federal securities law class actions involve technology firms (Grundfest & Perino, 1997). High technology industries, along with the accounting profession, were particularly vocal about the detrimental effects of securities litigation

²¹ Computers (SIC codes 3570-3577 and 7370-7374), electronics (SIC Codes 3600-3674), retailing (SIC codes 5200-5961) and pharmaceuticals/biotechnology (SIC codes 2833-2836 and 8731-8734).

and actively lobbied for the litigation reform that culminated in the passage of the Act (Avery, 1996; Grundfest & Perino, 1997; Securities and Exchange Commission, 1997). This way of classifying high vs. low shareholder litigation risk industries has been validated and used in six studies (Ali & Kallapur, 2001; Johnston et al., 2000, 2001; Chandra et al., 2004; Rogers & Stocken, 2005; Shu, 2000; Field, Lowry & Shu, 2005). Those high-shareholder litigation risk industries are most likely to be affected by the 1994 Supreme Court decision and the Act (Ali & Kallapur, 2001; Johnson, Kasznik, & Nelson, 2000; Johnson, Kasznik, & Nelson, 2001).

Internationally, firms in the US face much higher levels of litigiousness than those in other countries such as the UK, Canada, and Australia (Khurana & Raman, 2004; Seetharaman, Gul, & Lynn, 2002; Baginski, Hassell, & Kimbrough, 2002). While firms in the US experience a major impact from the legal developments in the US, firms in other countries in general are likely to be impacted to a much lesser degree. Only those foreign firms cross-listed in the US are likely to be affected. Not excluding those cross-listed firms from the foreign sample works against supporting my hypothesis. In case some US firms are cross-listed on foreign markets, they are still subject to the litigious and regulatory US environment. In case foreign firms cross-listed in the US are included in the US sample, they are subject to the litigious and regulatory US environment as well as the legal regime change in the US.²² Hence, in accordance with my theoretical hypothesis, my second and third hypotheses are as follows, respectively:

²² In post-dissertation research, I could test to see how the results might differ if those cross-listed firms are eliminated from both the US and non-US samples.

Hypothesis 2a: *Prior to the 1994 Supreme Court decision and the Act, US firms operating in a more litigious environment exhibit greater γ than US firms operating in a less litigious environment.*

Hypothesis 2b: *Following the 1994 Supreme Court decision and the Act, US firms operating in a more litigious environment in the early 1990s experience a greater decrease in γ than US firms operating in a less litigious environment.*

Hypothesis 3a: *US firms exhibit greater γ than non-US firms.*

Hypothesis 3b: *Following the 1994 Supreme Court decision and the Act, US firms experience a greater decrease in γ than non-US firms.*

Chapter 3

Data, Sample Selection, and Research Design

3.1 Data and sample selection

Data on stock returns are obtained from Center for Research in Security Prices (CRSP). Accounting data are taken from Compustat. I delete firm-year observations that do not have all the required data items available for my analysis. I compute annual returns (R) by compounding CRSP monthly stock returns, requiring that all 12 monthly CRSP returns be available. I deflate annual earnings by the COMPUSTAT value of beginning-of-fiscal-year equity market value ($\#25 \times \#199$). I winsorize the top and bottom 1% observations of annual earnings (Data #18), annual returns, and market-to-book ratios ($\#25 \times \#199$ divided by #60) at the end of the year to mitigate the undue influence of outliers, as is common in prior studies (Khan & Watts, 2009; LaFond & Watts, 2008; Basu, 1997; Ball et al., 2000). I delete observations with negative book value of equity. A firm's limited liability structure means that shareholders cannot have negative values; negative values raise questions about the reliability of the data for those observations. PIN scores are downloaded from the website of Professor Soeren Hvidkjaer. Daily closing bid and ask prices are downloaded from I/B/E/S. I compute the bid-ask spread as the daily closing spread divided by daily mid-point price. The bid-ask spread for a firm-year is the average of the daily bid-ask spread for that firm-year. The resulting samples consist of 10,296 (23,684) firm-year observations drawn from the

intersections of the CRSP, Compustat databases and PIN scores (bid-ask spread) over the period 1991-96.²³

I use the firms in the UK as my proxy for non-US firms. In contrast to institutional similarities between the US and the UK in financial reporting and capital market environment (Ball, Kothari, & Robin, 2000; Seetharaman, Gul, & Lynn, 2002), the UK is far less litigious than the US (Seetharaman, Gul, & Lynn, 2002; Ball, Kothari, & Robin, 2000; Huijgen & Lubberink, 2005). This makes the UK the country of choice to test my third hypothesis because the results are less likely due to institutional differences other than the legal system differences.²⁴ Moreover, the UK has a reasonably large sample size and bid-ask spread data are readily available for the UK firms.

Prior literature (Ball, Kothari, & Robin, 2000; Seetharaman, Gul, & Lynn, 2002) lists several reasons why the US is far more litigious than the UK. First, the legal principle of “fraud on the market” is accepted in the US but not in the UK.^{25,26} Investors in the US can point to the inflation of earnings as the basis for launching lawsuits to recoup their investment losses especially prior to the Act. It was exactly on the basis of earnings inflation that the US accounting firms were frequently sued under Joint and Several Liability especially prior to the Act (Lys & Watts, 1994; DuCharme, Malatesta,

²³The Supreme Court decision was made in April 1994 that virtually stopped Joint and Several Liability. The legal regime change already started in 1994 in a significant way.

²⁴ This is important for H3a in particular although it doesn't matter for H3b using the difference in differences design as long as institutional features are stable over time but for the legal regime change in the US.

²⁵ “Fraud on the market” is a theory of liability in securities fraud cases. A defendant's material misrepresentation regarding a security traded in the open market that affects the price of the security is presumed to have been relied on by a plaintiff who purchased the security and suffered a loss.

²⁶ The Act moves the US legal system away from accepting the “fraud on the market” principle by requiring plaintiffs to show that misstatement caused the alleged losses.

& Sefcik, 2004). Second, the so-called “English Rule,” under which losing plaintiffs will pay the legal costs of the winner, reduces the chances of frivolous lawsuits in the UK.²⁷ The absence of that English Rule in the US reduces the expected costs of unsuccessful lawsuits for plaintiffs, making the US more litigious especially prior to the Act. Third, punitive damages that often cannot be insured against are rarely awarded in the UK but often constitute a large portion of total awards in the US. Punitive damages increase the expected benefits from successful lawsuits, giving investors more incentives to sue in the US. Fourth, class action lawsuits are far more common in the US than in the UK. Finally, plaintiffs have stronger financial incentives to sue in the US than in the UK because payoffs from successful lawsuits are far more lucrative in the US (Ball, Kothari, & Robin, 2000; Seetharaman, Gul, & Lynn, 2002).

Data for the UK sample are downloaded from Datastream. No PIN scores are available for UK firms; bid-ask spread is the only measure of information asymmetry used for UK firms. LaFond and Watts (2008) find consistent results for the use of PIN versus bid-ask spread in the context of US data. This suggests that both PIN and bid-ask spread are acceptable alternative proxies for information asymmetry. Bid-ask spread has been widely used as a proxy for information asymmetry in the literature.

To test H1, I use the 1991-93 firm-year observations as the sample prior to the legal regime change (hereafter the “pre-Act sample”); I use the 1994-96 firm-year observations as the sample after the legal regime change (hereafter the “post-Act sample”). If anything, including the 1994 and 1995 observations as part of my post-Act

²⁷ The Act makes the US closer to accepting the English Rule by imposing a mandatory sanction review procedure that threatens plaintiffs’ counsel with up to 100% liability for defendants’ fees in the event that the suit is not successful.

sample works against supporting my hypotheses if the level of litigiousness is not reduced until 1996. I also repeat the analysis using the 1996-98 firm-year observations as my post-Act sample. Using the 1996-98 firm-year observations as the post-Act sample works against supporting the hypothesis because there is a bounce-back in the level of litigiousness as shareholders and plaintiffs' lawyers shift their claims from federal courts to State courts.

To test H2a (H3a), I use the 1991-93 firm-year observations. To test H2b (H3b), I compare the 1991-93 firm-year observations with the 1994-96 firm-year observations. Because bid-ask spread is the only measure of information asymmetry for UK firms, I use bid-ask spread for US firms as well to test H3. Because utilities and financial service firms are exposed to unique institutional and regulatory factors, I perform a robustness test by excluding regulated industries as in prior literature.

To address the potential influences of sampling methods, I use both the full samples (i.e., all the firm-year observations with available data in the sampling period) and the constant samples (i.e., only those firms that have required data and exist throughout the sampling period) for my analysis (Givoly & Hayn, 2000). Each sampling method has its pros and cons. Survivorship bias is less of a concern for the full-sample method but the results from the use of full samples might be driven by the addition of new firms and the disappearance of old firms after mergers and bankruptcy. The use of constant samples ensures comparability of the results over time but it suffers from survivorship bias. Surviving firms are likely to be financially strong (Givoly & Hayn, 2000), possibly implying reduced probability of litigation that will work against supporting my hypothesis. On the other hand, surviving firms may have been among the

largest (Givoly & Hayn, 2000), possibly implying an elevated risk of litigation. Non-surviving firms could have been financially weak, demanding higher levels of conservatism to curb management incentives. Hence, I repeat my analysis using both the full and constant samples.

3.2 Empirical models

As discussed earlier, I use two alternative measures of earnings conservatism—the Basu model and *C_score*—and two alternative measures of information asymmetry for my investigation—*PIN* and bid-ask spread. I specify empirical models next.

3.2.1 Empirical specifications using the Basu model

To test H1a and H1b, I estimate equation (12) for the positive and negative return samples separately:

$$NI_{i,t} = \beta_0 + \beta_1 R_{it} + \beta_2 PIN_{it} + \beta_3 (R_{it} \times PIN_{it}) + \beta_4 AFT + \beta_5 AFT \times R_{it} + \beta_6 AFT \times PIN_{it} + \beta_7 (AFT \times R_{it} \times PIN_{it}) + \varepsilon_{it} \quad (12)$$

In equation (12) *PIN* is the probability of an information-based trade measured using the trading data over the fiscal year; *AFT* is equal to one for firm-year observations in the post-Act sample; zero otherwise. All other variables are as previously defined.

H1a predicts that β_7 will be positive for the positive return samples because more good news will be recognized as gains in earnings given the level of information asymmetry as the level of litigiousness decreases; H1b predicts that β_7 will be negative for the negative return samples because less bad news will be recognized as losses in earnings given the level of information asymmetry as the level of litigiousness decreases.

I estimate equation (13) to test H1c:

$$\begin{aligned}
NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
& \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times \\
& R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times PIN_{it} + \beta_{13} AFT \times PIN_{it} \times D_{it} + \\
& \beta_{14} AFT \times PIN_{it} \times R_{it} + \beta_{15} AFT \times PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (13)
\end{aligned}$$

where all variables are as previously defined. My hypotheses focus on the changes in γ measured by β_7 . H1c predicts that β_{15} will be negative, indicating a decrease in γ following the legal regime change.

To test H2, I estimate equation (13) for US firms exposed to high vs. low shareholder litigation risks separately. To test H2a, I compare β_7 for high vs. low litigation risk US firms. H2a predicts that high litigation risk firms will exhibit a bigger β_7 than low litigation risk firms. To test H2b, I compare the decrease in γ for high vs. low litigation risk US firms following the legal regime change. H2b predicts that the decrease in γ will be more pronounced for high litigation risk US firms than for low litigation risk US firms.

To test H3, I estimate equation (14) for US firm-year observations vs. UK firm-year observations separately.

$$\begin{aligned}
NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 spread_{it} + \beta_5 spread_{it} \times \\
& D_{it} + \beta_6 spread_{it} \times R_{it} + \beta_7 spread_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times \\
& D_{it} + \beta_{10} AFT \times R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times spread_{it} + \\
& \beta_{13} AFT \times spread_{it} \times D_{it} + \beta_{14} AFT \times spread_{it} \times R_{it} + \beta_{15} AFT \times \\
& spread_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (14)
\end{aligned}$$

where spread is the bid-ask spread. All other variables are as previously defined.

To test H3a, I compare β_7 for US vs. UK firm-year observations. H3a predicts that US firms will exhibit a bigger β_7 than UK firms. To test H3b, I compare the decrease in γ for

US firms vs. UK firms following the legal regime change. H3b predicts that the decrease in γ will be more pronounced for US firms than for UK firms.

3.2.2 Empirical specifications using the C_score measure

I estimate equation (15) to test H1 using C_score:

$$C_{score_{it}} = \beta_0 + \beta_1 PIN_{it} + \beta_2 AFT + \beta_3 AFT \times PIN_{it} + \varepsilon_{it} \quad (15)$$

where all variables are as previously defined. H1 predicts that β_3 will be negative, indicating a decrease in γ following the legal regime change.

To test H2, I estimate equation (15) for high vs. low litigation risk US firms separately. To test H2a, I compare β_1 for high vs. low litigation risk US samples. H2a predicts that high litigation risk firms will exhibit a bigger β_1 than low litigation risk firms. To test H2b, I compare the decrease in γ for high vs. low litigation risk US firms following the legal regime change. H2b predicts that the decrease in γ will be more pronounced for high litigation risk US firms than for low litigation risk US firms.

To test H3, I estimate equation (16) for US firm-year observations vs. UK firm-year observations separately.

$$C_{score_{it}} = \beta_0 + \beta_1 spread_{it} + \beta_2 AFT + \beta_3 AFT \times spread_{it} + \varepsilon_{it} \quad (16)$$

All variables are as previously defined.

To test H3a, I compare β_1 for US vs. UK firms. H3a predicts that US firms will exhibit a bigger β_1 than UK firms. To test H3b, I compare the decrease in γ for US firms vs. UK firms following the legal regime change. H3b predicts that the decrease in γ will be more pronounced for US firms than for UK firms.

3.2.3 The Shu (2000) model

Following LaFond and Watts (2008) and Khan and Watts (2009), I use the Shu (2000) model to measure firm-specific probability of shareholder litigation (PROBLIT) and identify firms exposed to high vs. low levels of ex ante shareholder litigation risk. Shu (2000) develops a model of shareholder litigation risk based on firm specific variables that are found to be associated with an increase in the likelihood of litigation against auditors in prior literature (Grundfest & Perino, 1997; Francis, Philbrick, & Schipper, 1994; Jones & Weingram, 1996; Lys & Watts, 1994; Gande & Lewis, 2009). These variables include client firm size, financial condition, growth rate, accounts receivable, inventories, membership in high-tech industry, stock volatility and stock turnover as well as qualified audit opinions for the lawsuit years.

Shu (2000) estimates a logit model using firm-years associated with auditor litigation and a control sample that does not experience lawsuits over the 1987-95 period. Her 1987-95 period overlaps nicely with the 1991-93 period for the pre-Act sample in this study so that I do not have to apply the Shu (2000) model in an out-of-sample period. The estimated coefficients are generally consistent with prior literature. The likelihood ratio index is 18.5%, indicating the model's explanatory power. LaFond and Watts (2008) report that the coefficient on PROBLIT×R×D is positive, consistent with shareholder litigation being a determinant of conservatism. Khan and Watts (2009) find that PROBLIT is positively related to firm size, consistent with the idea that larger firms are more likely to be sued because the expected recovery from them is high enough to offset the fixed costs of litigation. Grundfest and Perino (1997) report that large firms are frequently the targets of shareholder litigation. Khan and Watts (2009) find that

PROBLIT is positively related to *C_score*, consistent with conservatism being an equilibrium response to a heightened likelihood of litigation (Beaver, 1993; Watts, 1993; Basu, 1997; Watts, 2003a). In summary, PROBLIT seems to be a reasonable measure of shareholder litigation.

The probability of shareholder litigation, PROBLIT, is calculated using the parameters from Table 3 of Shu (2000) for each firm-year observation in my sample. Specifically, it is the inverse logit of

$$\begin{aligned}
 & -10.049 + 0.276 \times \text{SIZE} + 1.153 \times \frac{\text{Inventory}}{\text{lagged assets}} + 2.075 \times \frac{\text{receivables}}{\text{lagged assets}} + \\
 & 1.251 \times \text{ROA} - 0.088 \times \text{current ratio} + 1.501 \times \text{financial leverage} + 0.301 \times \\
 & \text{sales growth} - 0.371 \times \text{stock return} - 2.309 \times \text{stock volatility} + 0.235 \times \text{beta} + \\
 & 1.464 \times \text{stock turnover} + 1.060 \times \text{delist dummy} + 0.928 \times \text{hitech dummy} + 0.463 \times \\
 & \text{qualified opinion dummy} \tag{17}
 \end{aligned}$$

In equation (17), *SIZE* is the natural logarithm of total assets; *ROA*, return on assets, is computed as the ratio of net income to total assets; *current ratio* is the ratio of current assets to current liabilities; *financial leverage* is the ratio of liabilities to assets; *sales growth* is measured for the two-year period ending in the prior year; *stock return* is the compounded monthly return over the fiscal year; *stock volatility* is the standard deviation of daily stock returns over the fiscal year; *beta* is the slope coefficient of a regression of daily stock returns on equal-weighted market returns; *stock turnover* measures the proportion of shares that were traded at least once during the year, computed as $[1 - \prod_t(1 - \text{turnover at day } t)]$; *delist dummy* is one if a client firm is delisted because of financial difficulties within the next year, zero otherwise; *hitech dummy* is one if a firm's SIC code is in the 2830s, 3570s, 7370s, 8730s and between 3825 and 3839, zero

otherwise; *qualified opinion dummy* is equal to one for firms that receive qualified auditor opinions.

Chapter 4

Results

4.1 Descriptive statistics and correlation matrix

Table 1 displays descriptive statistics and a correlation matrix. Panel A reports sample descriptive statistics. The mean (median) PIN is consistent with the mean of 0.208 reported in (Easley, Hvidkjaer, & O'Hara, 2005). The post-Act sample PIN mean of 0.200 is smaller than the pre-Act sample PIN mean of 0.216; the difference is statistically significant ($t = 10.73$). The change in the information environment is not a concern for this study because I am focused on the positive association between information asymmetry and earnings conservatism, not the level of information asymmetry. Post-Act sample market-to-book (M/B) ratio has a mean of 2.548, greater than pre-Act sample M/B mean of 2.301, in line with LaFond and Watts (2008). Post-Act sample leverage (LEV) with a mean of 0.243 is slightly smaller than pre-Act sample leverage with a mean of 0.252. Post-Act sample firms with a mean market capitalization of \$1.9 billion are larger than pre-Act sample firms with a mean of \$1.5 billion, consistent with inflation and growth. Post-Act sample firms are more profitable (with mean deflated-earnings NI of 0.052) than pre-Act sample firms (with mean of 0.006). Pre-Act sample firms have more favorable stock return performance (average 25.6% annual return pre-Act vs. 16.1% post-Act). More favorable stock returns are associated with a reduced probability of shareholder litigation for average individual firms (Jones & Weingram, 1996; Gande & Lewis, 2009; Grundfest & Perino, 1997) in contrast to the highly litigious macro-environment prior to the Act. This works against my hypothesis based on the higher level of ex ante litigation risk in the economy prior to the Act.

Table 1**Sample and Descriptive Statistics**

Panel A: Descriptive statistics

	1991-1993 (4,891 observations)					
	Mean	Median	Std	Q1	Q3	
PIN	0.216	0.204	0.076	0.163	0.255	
M/B	2.301	1.699	2.343	1.166	2.580	
LEV	0.252	0.245	0.179	0.101	0.373	
MKTCAP	1,501	318	3,338	68	1,345	
NI	0.006	0.060	0.384	0.015	0.094	
R	0.256	0.162	0.547	-0.039	0.421	

	1994-1996 (5,398 observations)					
	Mean	Median	Std	Q1	Q3	
PIN	0.200	0.188	0.075	0.148	0.234	
M/B	2.548	1.836	2.663	1.278	2.860	
LEV	0.243	0.234	0.174	0.099	0.357	
MKTCAP	1,877	433	4,377	101	1,652	
NI	0.052	0.068	0.142	0.035	0.096	
R	0.161	0.108	0.430	-0.092	0.338	

Panel B of Table 1 reports pair-wise correlations, where the upper right hand portion displays the Pearson product-moment correlations, and the lower left hand portion displays the Spearman rank-order correlations. The correlations are similar to those reported in LaFond and Watts (2008). In particular, the PIN score is significantly negatively correlated with M/B, LEV, MKTCAP, and deflated earnings. The negative correlations confirm the validity of PIN as the measure of information asymmetry because larger firms with higher market-to-book ratios and more leverage are expected to

have lower information asymmetry (LaFond & Watts, 2008). As in LaFond and Watts (2008), scaled earnings and returns are positively correlated with each other, indicating that accounting earnings capture a portion of the information reflected in stock returns.

Table 1 Continued

Panel B: Correlations Pearson top (Spearman bottom)

1991-1993 (4,891 observations)						
	PIN	M/B	LEV	MKTCAP	NI	R
PIN		-0.133	<i>-0.016</i>	-0.411	-0.095	0.067
M/B	-0.297		<i>-0.013</i>	0.160	<i>0.012</i>	0.175
LEV	-0.036	-0.061		<i>0.004</i>	-0.096	-0.032
MKTCAP	-0.701	0.436	<i>0.000</i>		0.068	<i>-0.008</i>
NI	-0.045	0.039	-0.088	0.185		0.113
R	<i>0.017</i>	0.238	-0.044	0.139	0.492	

1994-1996 (5,398 observations)						
	PIN	M/B	LEV	MKTCAP	NI	R
PIN		-0.087	-0.044	-0.359	-0.076	0.044
M/B	-0.209		<i>0.012</i>	0.152	-0.109	0.236
LEV	-0.060	-0.059		<i>0.008</i>	-0.097	-0.082
MKTCAP	-0.647	0.386	<i>0.021</i>		0.059	0.089
NI	<i>-0.018</i>	-0.107	-0.084	0.145		0.268
R	<i>-0.006</i>	0.330	-0.098	0.232	0.437	

All correlations are significant at 0.05 or better, two tailed unless *italicized*.

PIN is the probability of an information based trade.

M/B, the Market to Book ratio, is defined as the market value of equity (Compustat #199 × Compustat #25) divided by the book value of equity (Compustat # 60) at the end of the fiscal year.

LEV, leverage, is defined as total debt (Compustat #9+Compustat #34) divided by total assets (Compustat #6) at the end of the year.

MKTCAP, market value of equity, is defined as (Compustat #199 × Compustat #25) at the end of the fiscal year, in millions.

NI is net income before extraordinary items (Compustat #18) divided by the beginning market value of equity.

R is the buy and hold return over the fiscal period.

P-values are one tailed when the sign of the coefficient is predicted, two-tailed otherwise.

4.2 Regression results

I hypothesize that higher levels of litigiousness enhance the information role of accounting conservatism (γ). Table 2 reports the regression results testing H1 over two alternative periods (i.e., one year and two year), as in LaFond and Watts (2008).²⁸ For one year tests, I measure earnings and returns over the fiscal year. In two year tests, I measure earnings and returns cumulatively over the current and previous fiscal years, consistent with LaFond and Watts (2008) and Roychowdhury and Watts (2007).

Panel A of Table 2 estimates Equation (12) for the positive return (good news) sample. The results from the two alternative periods present inconsistent conclusions regarding H1a. While one year period result is inconsistent with H1a, two year period result is consistent with H1a. LaFond and Watts (2008) also present similar mixed results for good news timeliness. The mixed results from this study help to explain the mixed results in LaFond and Watts (2008) by showing variations in good news timeliness over time.

²⁸ I choose not to report three year period results because those results are qualitatively the same as the two-year results yet the t-statistics are not significant probably due to severe aggregation effects (See Givoly et al., 2007).

This raises a question regarding which time period is appropriate to use. If Roychowdhury and Watts (2007) are correct in inferring that the Basu coefficient suffers less from the understatement problem over longer period, I should use two year period result that are consistent with H1a. If Givoly et al. (2007) are correct in inferring that aggregation problem exacerbates the understatement bias of the Basu coefficient, a quarterly time horizon will be preferred. But quarterly results are not audited and therefore are not appropriate for this study because the legal regime change affects the information role of conservatism at least partly through its impact on auditor incentives.

When we look at the positive coefficient on $AFT \times R_{it}$ for the one year estimation period, we observe an increase in good news timeliness. This is consistent with the shareholder litigation explanation for conservatism and the lower litigation risk following the legal regime change documented in prior literature. But the positive coefficient on $AFT \times R_{it}$ is in contrast with the negative coefficient on $AFT \times PIN_{it} \times R_{it}$. The two year period results show a similar contrast; the coefficient on $AFT \times R_{it}$ ($AFT \times PIN_{it} \times R_{it}$) turns negative (positive). The results are inconsistent for either period. It can also be interpreted as an illustration of the interaction effects of shareholder litigation and information asymmetry versus other factors (e.g., regulation, taxation, contracting) on conservatism. That is, the impact of shareholder litigation on conservatism depends on whether conservatism is related to information asymmetry or another factor. The measurement error with the Basu model is another potential explanation especially given the puzzling negative coefficient on R_{it} , which means that good news is recognized as negative earnings. It is possible that positive annual returns

are dominated by good news that affect stock returns but are not reportable in the earnings for that year. In short, results are mixed for H1a.

Table 2

Litigiousness and the Information Role of Conservatism (H1)

Panel A: Positive return (good news) samples

$$NI_{i,t} = \beta_0 + \beta_1 R_{it} + \beta_2 PIN_{it} + \beta_3 (R_{it} \times PIN_{it}) + \beta_4 AFT + \beta_5 AFT \times R_{it} + \beta_6 AFT \times PIN_{it} + \beta_7 (AFT \times R_{it} \times PIN_{it}) + \varepsilon_{it} \quad (12)$$

Estimation Period	One Year		Two Year	
	Parameter Estimate	t-value	Parameter Estimate	t-value
Intercept	0.083	4.54	0.050	2.07
R	-0.053	-1.83	0.266	8.95
PIN	-0.241	-3.12	0.015	0.14
PIN×R	0.284	2.57	-0.735	-6.10
AFT	-0.049	-1.87	0.031	0.92
AFT×R	0.204	4.29	-0.120	-2.87
AFT×PIN	0.324	2.82	0.040	0.26
AFT×PIN×R	-0.760	-4.01	0.450	2.55

Adjusted R ²	0.012	0.073
Number of observations	4,871	3,339

Panel B of Table 2 estimates Equation (12) for the negative return (bad news) sample. Consistent with H1b, the coefficients β_7 on $AFT \times PIN_{it} \times R_{it}$ are negative for both time periods; however, the statistical significance declines for two year period, probably due to aggregation effects. The coefficients on $PIN_{it} \times R_{it}$ in LaFond and

Watts (2008, Table 2 Panel B) also show some aggregation affects. The coefficients β_3 of this panel show similar aggregation affects. As in Panel A, the negative coefficients on $AFT \times PIN_{it} \times R_{it}$ are in contrast with the positive coefficients on $AFT \times R_{it}$ especially for one year period. As in Panel A, the negative coefficient on R_{it} is puzzling in that it implies that management may go so far as to commit fraud by recording bad news as positive earnings in a highly litigious environment. It is possible that negative annual returns are dominated by bad news that affect stock returns but are not reportable in the earnings for that year. In short, while the coefficients of interest on $AFT \times PIN_{it} \times R_{it}$ are consistent with H1b, the coefficients on $AFT \times R_{it}$ and R_{it} are puzzling as in Panel A.

TABLE 2**Litigiousness and the Information Role of Conservatism (H1)**

Panel B: Negative return (bad news) samples

$$NI_{i,t} = \beta_0 + \beta_1 R_{it} + \beta_2 PIN_{it} + \beta_3 (R_{it} \times PIN_{it}) + \beta_4 AFT + \beta_5 AFT \times R_{it} + \beta_6 AFT \times PIN_{it} + \beta_7 (AFT \times R_{it} \times PIN_{it}) + \varepsilon_{it} \quad (12)$$

Estimation Period	One Year		Two Year	
	Parameter Estimate	t-value	Parameter Estimate	t-value
Intercept	0.006	0.13	0.086	1.49
R	-0.531	-3.12	0.121	0.87
PIN	0.064	0.34	-0.104	-0.43
PIN×R	4.423	6.38	1.287	2.51
AFT	0.104	1.86	0.101	1.23
AFT×R	0.788	3.59	0.121	0.59
AFT×PIN	-0.346	-1.41	-0.459	-1.26
AFT×PIN×R	-4.420	-4.84	-1.036	-1.25

Adjusted R ²	0.098	0.128
Number of observations	2,633	1,381

Panel C of Table 2 contains estimates of Equation (13) for the combined good news and bad news sample. Consistent with LaFond and Watts (2008), the coefficients β_7 on $PIN_{it} \times D_{it} \times R_{it}$ are positive for both time periods. Consistent with H1c, the coefficients β_{15} on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ are negative for both periods. As in Panel B, statistical significance declines probably due to aggregation effects but is still significant for two year period.

As in Panel A and Panel B, the positive coefficients on $AFT \times D_{it} \times R_{it}$ are in contrast with the negative coefficients on $AFT \times PIN_{it} \times D_{it} \times R_{it}$. The coefficients on $D_{it} \times R_{it}$ and $AFT \times D_{it} \times R_{it}$ suggest negative conservatism before the legal regime change and an increase in conservatism following the legal regime. This is inconsistent with the shareholder litigation explanation for conservatism and the highly litigious environment prior to the legal regime change. Also the positive coefficient on $AFT \times R_{it}$, while consistent with the decrease in γ , is inconsistent with the positive coefficient on $AFT \times D_{it} \times R_{it}$ for one year period. Yet the coefficient on $AFT \times R_{it}$ is negative for two year period. The coefficient on $AFT \times PIN_{it} \times R_{it}$ is negative (positive) for one (two) year period as in Panel A, inconsistent (consistent) with H1a or H1c. Again, the negative coefficient on R_{it} for one year period is puzzling as in Panel A. Yet it is positive for two year period. Existing literature does not provide clear guidance on which time period to rely on.

In short, the results from the coefficients of interest (i.e., changes in γ) are generally consistent with H1. Focusing on the coefficients of interest is consistent with prior literature (e.g., Ball & Shivakumar, 2005, p. 105). Other coefficients produce some inconsistent results, possibly due to measurement error issues with the Basu model, giving mixed support to my first hypothesis.

TABLE 2**Litigiousness and the Information Role of Conservatism (H1)**

Panel C: Combined samples

$$\begin{aligned}
NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
& \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times \\
& R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times PIN_{it} + \beta_{13} AFT \times PIN_{it} \times D_{it} + \\
& \beta_{14} AFT \times PIN_{it} \times R_{it} + \beta_{15} AFT \times PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (13)
\end{aligned}$$

Estimation Period	One Year		Two Year	
	Parameter Estimate	t-value	Parameter Estimate	t-value
Intercept	0.083	4.01	0.050	1.81
D	-0.077	-1.86	0.036	0.67
R	-0.053	-1.61	0.266	7.85
D×R	-0.478	-3.25	-0.145	-1.25
PIN	-0.241	-2.76	0.015	0.12
PIN×D	0.305	1.70	-0.119	-0.52
PIN×R	0.284	2.27	-0.735	-5.35
PIN×D ×R	4.140	6.93	2.022	4.67
AFT	-0.049	-1.65	0.031	0.81
AFT×D	0.153	2.75	0.071	0.93
AFT×R	0.204	3.78	-0.120	-2.51
AFT×D×R	0.584	3.03	0.240	1.42
AFT×PIN	0.324	2.49	0.040	0.23
AFT×PIN×D	-0.670	-2.75	-0.499	-1.47
AFT×PIN×R	-0.760	-3.54	0.450	2.23
AFT×PIN×D ×R	-3.660	-4.58	-1.486	-2.14
Adjusted R ²	0.084		0.180	
Number of observations	7,504		4,720	

Notes:

In the one year specification, earnings and returns are measured over the fiscal year.

In the two year specification, earnings and returns are aggregated over the current and prior fiscal years.

NI is equal to cumulative net income before extraordinary items (Compustat #18) divided by beginning of aggregation period market value of equity.

R is the buy and hold return over the aggregation period.

D is equal to one if *R* is negative, zero otherwise.

PIN is the probability of an information based trade as of the end of the aggregation period.

M/B is the market to book ratio defined as market value of equity (Compustat #199 × Compustat #25) divided by book value of equity (Compustat # 60) at the end of the aggregation period.

LEV is defined as total debt (Compustat #9+Compustat #34) divided by total assets (Compustat #6) at the end of the aggregation period.

AFT is equal to one for firm-year observations after the legal regime change, zero for firm-year observations prior to the legal regime change.

Panel A of Table 3 presents summary results generally consistent with H2a and H2b using the variations in litigiousness across industries. Weakly consistent with H2a, high shareholder litigation risk industries exhibit a bigger β_7 (i.e., it has the right sign) although it is not significant at 0.05 α level or better. The pattern reverses with the decrease in litigiousness, consistent with the decline in ex ante shareholder litigation risks for the high litigation risk firms and the fact that high technology firms lobby hard for the legal reform. The fact that β_7 turns negative for the high litigation risk firms following the legal regime change is inconsistent with the information role of conservatism as

documented in LaFond and Watts (2008). The change of sign in β_7 is consistent with the argument that the legal regime change dampens the governance role of shareholder litigation in disciplining moral hazard and adverse selection incentives. This highlights the insight that can be gained by examining the explanations for γ and variations in γ .

Consistent with H2b, the decrease in γ is more pronounced for high shareholder litigation risk industries likely to benefit more from the legal relief than for low shareholder litigation risk industries that do not face as high levels of litigation risks in the early 1990s in the first place. The H2b results corroborate my H1 and H2a results and enhance confidence that γ is related to litigiousness.

Table 3**Cross-sectional & Difference-in-differences Analysis (H2)**

$$\begin{aligned}
NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
& \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times \\
& R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times PIN_{it} + \beta_{13} AFT \times PIN_{it} \times D_{it} + \\
& \beta_{14} AFT \times PIN_{it} \times R_{it} + \beta_{15} AFT \times PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (13)
\end{aligned}$$

Panel A: Summary results

Samples	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
High Litigation Risk Industries (n = 1,500)	5.691 (4.03)	-0.830 (-1.45)	-6.521 (-4.02)
Low Litigation Risk Industries (n = 8,796)	3.230 (5.10)	0.557 (1.93)	-2.673 (-3.00)
Differences (t-value)	2.461 (1.59)	-1.387 (-2.17)	-3.848 (-2.08)

Panel B of Table 3 presents complete results for all the coefficients. In particular, the positive coefficients on $PIN_{it} \times D_{it} \times R_{it}$ are consistent with the information asymmetry explanation for conservatism. The coefficients on R_{it} and $D_{it} \times R_{it}$ show that prior to the legal regime change, high litigation risk firms exhibit greater good news timeliness and less asymmetric timeliness than low litigation risk firms. This is inconsistent with the shareholder litigation explanation for conservatism. In contrast, the coefficients on $PIN_{it} \times R_{it}$ and $PIN_{it} \times D_{it} \times R_{it}$ indicate that high litigation risk firms

tend to show a somewhat stronger information role of conservatism prior to the legal regime change.

Following the legal regime change, high litigation risk firms become much more conservative than do low litigation risk firms. Again, this is hard to interpret using shareholder litigation alone. In contrast, high litigation risk firms exhibit a more pronounced decrease in the information role of conservatism than low litigation risk firms. This is consistent with shareholder litigation moderating the information role of conservatism. It is also difficult to reconcile the negative coefficient on $AFT \times PIN_{it} \times R_{it}$ with the negative coefficient on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ especially for low litigation risk firms. Taken together, while the coefficients of interest are generally consistent with H2, close examinations of other coefficients reveal some puzzling results, giving mixed support to my second hypothesis.

Table 3**Cross-sectional & Difference-in-differences Analysis (H2)**

Panel B: Complete results

	High Litigation Risk Firms (n = 1,500)		Low Litigation Risk Firms (n = 8,796)		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.083	2.09	0.089	4.34	-0.006	-0.13
D	-0.080	-0.88	-0.025	-0.58	-0.055	-0.55
R	0.088	1.51	-0.048	-1.36	0.136	1.99
D×R	-1.042	-3.20	-0.205	-1.30	-0.837	-2.31
PIN	-0.358	-2.15	-0.199	-2.20	-0.159	-0.84
PIN×D	0.245	0.62	0.038	0.21	0.207	0.48
PIN×R	-0.106	-0.49	0.190	1.38	-0.296	-1.15
PIN×D ×R	5.691	4.03	3.230	5.10	2.461	1.59
AFT	-0.033	-0.60	-0.050	-1.68	0.017	0.27
AFT×D	0.236	2.11	0.082	1.45	0.154	1.23
AFT×R	0.002	0.03	0.192	3.14	-0.190	-1.81
AFT×D×R	1.469	3.93	0.274	1.28	1.195	2.77
AFT×PIN	0.373	1.52	0.295	2.17	0.078	0.28
AFT×PIN×D	-1.058	-2.13	-0.303	-1.21	-0.755	-1.36
AFT×PIN×R	-0.158	-0.47	-0.588	-2.38	0.430	1.03
AFT×PIN×D ×R	-6.521	-4.02	-2.673	-3.00	-3.848	-2.08

Panel A of Table 4 presents summary results consistent with H3a and H3b using the cross-sectional variations in litigiousness between the US and the UK. The US firms display a stronger information role of conservatism than the UK firms. The information role of conservatism documented in LaFond and Watts (2008) does not appear applicable

to the UK firms operating in a less litigious environment. This highlights the importance of understanding γ . The fact that UK firms experience no change in γ following the legal regime change in the US corroborates my H1 results and enhances confidence that the decrease in γ in the US is attributed to the decrease in the level of litigiousness in the US.

Table 4

Cross-sectional & Difference-in-differences Analysis (H3)

Panel A: Summary results

$$NI_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 spread_{it} + \beta_5 spread_{it} \times D_{it} + \beta_6 spread_{it} \times R_{it} + \beta_7 spread_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times spread_{it} + \beta_{13} AFT \times spread_{it} \times D_{it} + \beta_{14} AFT \times spread_{it} \times R_{it} + \beta_{15} AFT \times spread_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (14)$$

Samples	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
US Firm-years (n = 23,684)	4.674 (10.60)	0.791 (3.57)	-3.883 (-6.95)
UK Firm-years (n = 7,329)	-0.035 (-0.77)	0.001 (1.00)	0.036 (0.38)
Differences (t-value)	4.709 (10.62)	0.790 (3.56)	-3.919 (-6.91)

spread, the bid-ask spread, is computed as the difference between the ask and the bid prices deflated by the mid-point price. The bid-ask spread for a firm-year is the average of the daily spreads for that firm-year.

All other variables are as previously defined.

Panel B of Table 4 presents complete results for all the coefficients. As in Panel B of Table 3, the positive coefficient on $spread_{it} \times D_{it} \times R_{it}$ for US firms are consistent

with the information asymmetry explanation for conservatism. As in Panel B of Table 3, following the US legal regime change, US firms become much more conservative than UK firms; in contrast, US firms show a much more pronounced decrease in γ than UK firms. As in Panel B of Table 3, it is also hard to reconcile the negative coefficient on $AFT \times spread_{it} \times R_{it}$ with the negative coefficient on $AFT \times spread_{it} \times D_{it} \times R_{it}$ for US firms. The consistent inconsistency of the results throughout several panels reminds us of the possible role of the measurement errors of the Basu model as demonstrated in Roychowdhury and Watts (2007) for annual coefficients vs. longer time period coefficients. Taken together, while the coefficients of interest are consistent with H3, close examinations of other coefficients reveal some inconsistent results, giving mixed support to my third hypothesis.

Table 4
Cross-sectional & Difference-in-differences Analysis (H3)

Panel B: Complete results

	US Firm-years (n = 23,684)		UK Firm-years (n = 7,329)		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.081	10.11	0.005	3.97	0.076	9.40
D	-0.058	-3.56	-0.005	-2.35	-0.053	-3.19
R	0.005	0.60	-0.004	-1.72	0.009	0.97
D×R	-0.066	-1.42	0.005	0.91	-0.071	-1.52
spread	-0.790	-7.21	-0.048	-2.46	-0.742	-6.67
spread×D	0.669	3.41	0.047	1.81	0.622	3.15
spread×R	0.311	3.12	0.037	1.13	0.274	2.61
spread×D ×R	4.674	10.60	-0.035	-0.77	4.709	10.62
AFT	0.004	0.41	-0.005	-2.69	0.009	0.90
AFT×D	0.043	2.21	0.005	1.72	0.038	1.93
AFT×R	0.000	0.01	0.004	0.97	-0.004	-0.30
AFT×D×R	0.230	4.21	-0.005	-0.55	0.235	4.26
AFT×spread	0.195	1.34	0.046	1.40	0.149	1.00
AFT×spread×D	-0.757	-3.01	-0.046	-1.08	-0.711	-2.78
AFT×spread×R	-0.430	-2.58	-0.036	-0.46	-0.394	-2.15
AFT×spread×D ×R	-3.883	-6.95	0.036	0.38	-3.919	-6.91

In summary, the three hypotheses are generally supported by the coefficients of interest although other coefficients produce some puzzling results. The results based on both the domestic and international control samples generally confirm the results from the inter-temporal changes analysis for H1, providing triangulated evidence on the positive link between ex ante litigation risk and γ . The *exogenous* shock to the legal

regime makes this positive link interpretable as a causal relationship as opposed to an empirical association. It seems that as litigiousness decreases, the disciplinary effects of shareholder litigation diminish, compromising the information role of conservatism. However, additional factors need to be considered before reaching a final conclusion. I present the results from robustness tests next.

4.3 Robustness tests

4.3.1 Regulated industries dropped

To eliminate the potential effects of the differences in firms' regulatory environments, I dropped utilities and financial service firms (Givoly & Hayn, 2000; LaFond & Watts, 2008). Investment banking firms as deep-pocket secondary defendants are also among the primary beneficiaries of the 1994 Supreme Court decision and the Act. Therefore I repeat my primary analysis by using the full sample, dropping utilities, and dropping both utilities and financial services firms. Panel A of Table 5 shows that results are robust to whether regulated firms are dropped or not.

Table 5 Robustness Tests

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
 & \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times \\
 & R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times PIN_{it} + \beta_{13} AFT \times PIN_{it} \times D_{it} + \\
 & \beta_{14} AFT \times PIN_{it} \times R_{it} + \beta_{15} AFT \times PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (13)
 \end{aligned}$$

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 spread_{it} + \beta_5 spread_{it} \times \\
 & D_{it} + \beta_6 spread_{it} \times R_{it} + \beta_7 sperad_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times \\
 & D_{it} + \beta_{10} AFT \times R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times spread_{it} + \\
 & \beta_{13} AFT \times spread_{it} \times D_{it} + \beta_{14} AFT \times spread_{it} \times R_{it} + \beta_{15} AFT \times \\
 & spread_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (14)
 \end{aligned}$$

Panel A: Regulated industries dropped

	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
Full Sample	3.580 (6.20)	0.285 (1.13)	-3.295 (-4.24)	10,296
Excluding Utilities	3.675 (5.92)	0.315 (1.17)	-3.360 (-4.02)	8,939
Excluding Utilities & Financial Services	4.140 (6.93)	0.480 (1.60)	-3.660 (-4.58)	7,504
Industry Level Analysis ²⁹	2.912 (4.40)	0.834 (2.18)	-2.078 (-2.41)	4,618

²⁹ Results are similar using manufacturing, trade, or services industry or a combination of these three biggest industries. I am reporting the results using the manufacturing industry, which accounts for about 50% of the sample.

4.3.2 Alternative firm-year observations

The 1994 Supreme Court decision was made on April 19. The legislation process of the Act went through ups and downs, back and forth for almost the entire year of 1995 before the US Congress overthrew former President Clinton's veto on December 22 1995 and finally enacted the new law. Although the 1994 Supreme Court decision marked a milestone in virtually eliminating the Joint and Several Liability for secondary defendants, there could have been some lingering uncertainty as to how the Act would ultimately affect the secondary defendants' legal liability exposure. Overstatement of earnings could be used as the legal basis for class action lawsuits several years down the road. Therefore I repeat my analysis using the 1996-98 as the sample after the legal regime change. Panel B of Table 5 shows the results for this sensitivity test. The results are consistent with my hypotheses despite the bounce-back in litigiousness as shareholders and plaintiffs' lawyers shift their claims to State courts.

When I compare 1992-93 vs. 1994-95, the decrease is -1.98 ($t = -2.23$); when I compare 1992-93 vs. 1996-97, the decrease is -1.23 ($t = -1.32$). The weaker result for the latter is consistent with the bounce-back in the level of litigiousness starting in late 1996 as shareholders and plaintiffs' lawyers shift to State courts. When I compare 1991-92 vs. 1994-95 or 1996-97, the results are similar.

Table 5**Robustness Tests**

Panel B: 1996-98 firm-year observations as the alternative sample

	1991-93 γ (t-value)	1996-98 γ (t-value)	Differences (t-value)	N
Full Sample	3.580 (6.23)	0.560 (2.69)	-3.020 (-4.25)	10,483
Excluding Utilities	3.675 (5.96)	0.542 (2.45)	-3.133 (-4.11)	9,140
Excluding Utilities & Financial Services	4.140 (6.93)	0.476 (1.86)	-3.664 (-4.95)	7,658
Industry Level Analysis	2.912 (4.34)	0.859 (2.64)	-2.053 (-2.54)	4,680

4.3.3 Alternative measure of information asymmetry

Neither PIN nor bid-ask spread are perfect proxies for information asymmetry (LaFond & Watts, 2008). I repeat my primary analysis using bid-ask spread as the alternative measure of information asymmetry. Consistent results from using both measures will enhance confidence in the results. Panel C of Table 5 presents the results for this sensitivity analysis. The results are consistent with my hypothesis. But the industry level analysis using this alternative measure of information asymmetry yields insignificant results. The positive associations between information asymmetry and earnings conservatism (γ) become insignificant either before or after the legal regime change. Both the information role of conservatism and changes in γ are sensitive to the

use of bid-ask spread as the alternative measure of information asymmetry when analysis is conducted at the industry level.

Table 5

Robustness Tests

Panel C: Bid-ask spread as the alternative measure of information asymmetry

	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
Full Sample	4.674 (10.60)	0.791 (3.57)	-3.883 (-6.95)	23,684
Excluding Utilities	5.229 (10.95)	0.830 (3.51)	-4.399 (-7.28)	21,646
Excluding Utilities & Financial Services	5.118 (9.37)	0.539 (1.96)	-4.579 (-6.55)	16,958
Industry Level Analysis ³⁰	0.509 (0.92)	0.306 (0.95)	-0.203 (-0.29)	9,766

4.3.4 Alternative measures of earnings and returns

Accounting literature has used both income before extraordinary items (Compustat #18) and bottom line net income (Compustat #172) as measures of earnings. Accounting literature has used both the fiscal year returns and the returns ending three months after the fiscal end to proxy for news.³¹ I repeat my analysis using these

³⁰ The coefficients before and after the Act and the difference all become statistically significant when the combined biggest three industries are used.

³¹ The purpose of using the annual returns ending three months after the fiscal year end is to ensure that the market response to the previous year's earnings is excluded (see Basu, 1997).

alternative measures of earnings and returns but only report the results for the samples excluding regulated utilities and financial services firms. Panel D of Table 5 shows the results for this sensitivity analysis. The results are robust to alternative measures of earnings or returns as in prior literature.

Table 5

Robustness Tests

Panel D: Alternative measures of earnings and returns

		1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
NI (#18) & R3	Excluding Utilities & Financial Services	6.565 (10.95)	1.073 (3.57)	- 5.492 (-6.87)	7,495
	Industry Level Analysis	5.840 (8.60)	0.901 (2.32)	-4.939 (-5.62)	4,615
NI (#172) & R3	Excluding Utilities & Financial Services	6.211 (10.33)	0.732 (2.24)	- 5.479 (-6.83)	7,495
	Industry Level Analysis	5.155 (7.15)	0.928 (2.16)	-4.227 (-4.53)	4,615
NI (#172) & R	Excluding Utilities & Financial Services	4.639 (7.80)	0.523 (1.61)	- 4.116 (-5.18)	7,504
	Industry Level Analysis	2.887 (4.13)	0.755 (1.79)	-2.132 (-2.34)	4,618

4.3.5 Comparing observations with no changes in litigiousness

If shareholder litigation drives γ , one expects to observe a corresponding change in γ following and only following a change in the level of litigiousness. It follows that

one should not expect to see any significant change in γ when there is no significant change in the level of litigiousness. I compare γ for the 1990-91 vs. 1992-93 firm-year observations. If I do not observe any significant increases or decreases for this sensitivity analysis, this enhances confidence that the primary results are due to the significant decrease in litigiousness following the legal regime change. Panel E of Table 5 reports the results from this sensitivity analysis. We do not observe any change in γ when we do not observe any change in the level of litigiousness from 1990-91 to 1992-93. This sensitivity test result enhances confidence that primary results stem from the significant decrease in litigiousness following the legal regime change.

Table 5

Robustness Tests

Panel E: 1990-91 v 1992-93 with no change in litigiousness

	1990-91 γ (t-value)	1992-93 γ (t-value)	Differences (t-value)	N
Full Sample	1.059 (1.71)	2.159 (2.36)	1.100 (0.97)	6,381
Excluding Utilities	1.180 (1.72)	2.265 (2.33)	1.085 (0.88)	5,506
Excluding Utilities & Financial Services	1.881 (2.88)	1.358 (1.45)	-0.523 (-0.44)	4,673
Industry Level Analysis	1.164 (1.90)	0.940 (1.02)	-0.224 (-0.19)	2,924

In contrast, Panel F of Table 5 shows a consistent, positive relationship between changes in litigiousness and changes in γ for all three legal developments. That is, γ decreases as litigiousness decreases following the 1994 Supreme Court decision and the Act, goes up moderately as litigiousness bounces back with shareholders and plaintiff's lawyers shifting to State courts to circumvent the Act, and decreases again as litigiousness decreases following the 1998 Uniform Act that closes the loophole. The magnitude of changes in γ is also consistent with the magnitude of changes in the level of litigiousness, with the changes associated with the 1994 Supreme Court decision and the Act being the most significant.³² These results are consistent with shareholder litigation driving the information role of conservatism.

Table 5

Robustness Tests

Panel F: Summary of inter-temporal changes analysis

Legal Developments	Changes in Litigiousness	Changes in γ (t-value)
1994 Supreme Court Decision & the Act	Down	-3.660 (-4.58)
Shifting to State Courts	UP (moderately)	+1.562 (+2.05)
1998 Uniform Act	Down (moderately)	-0.875 (-1.43)

³² I compare γ for 1991-93 vs. 1994-96 for the Supreme Court decision and the Act; 1996 vs. 1997 for shifting to State courts; 1997 vs. 1999 for the 1998 Uniform Act.

4.3.6 Industry level analysis

Ryan (2006) stresses the importance of conducting analysis at the industry level to alleviate the measurement error concerns with the use of the Basu model. Table 5 shows that the results from the industry level analysis are generally consistent with my hypothesis.³³ But it is sensitive to the use of bid-ask spread as the alternative proxy for information asymmetry as discussed in Section 4.3.3.

4.3.7 Complete results for all coefficients

Panel G through Panel L of Table 5 present the complete results for all the coefficients. A common pattern across Panels G through K is the negative coefficients on $D_{it} \times R_{it}$ in contrast to the positive coefficients on $PIN_{it} \times D_{it} \times R_{it}$ in a highly litigious environment. This confirms the information asymmetry explanation for conservatism. However, following the legal regime change, the coefficients on $D_{it} \times R_{it}$ show increases in contrast to the decreases in the coefficients on $PIN_{it} \times D_{it} \times R_{it}$. This is puzzling and hard to interpret as discussed above. So is the negative coefficient on $D_{it} \times R_{it}$ in the highly litigious environment prior to the legal regime change. It is possible that annual returns are dominated by news that affect stock prices but are not reportable in earnings for that year. Also, following the legal regime change, the coefficients on $PIN_{it} \times R_{it}$ show decreases although the change is insignificant when analysis is conducted at the industry level. This is inconsistent with H1a or H1c. It is also difficult to reconcile the increases in good news timeliness (i.e., coefficients on R_{it}) with the increases in asymmetric timeliness (i.e., coefficients on $D_{it} \times R_{it}$) following the legal regime change.

³³ I use the manufacturing industry that accounts for about half of the observations.

Table 5**Robustness Tests**

Panel G: Complete results —Industry level analysis

	1991-93 γ		1994-96 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.024	1.23	0.042	3.09	0.018	0.67
D	-0.006	-0.16	0.046	1.85	0.052	0.97
R	0.059	1.85	0.126	4.02	0.067	1.21
D×R	-0.336	-2.10	0.044	0.50	0.380	1.85
PIN	0.020	0.24	0.054	0.86	0.034	0.28
PIN×D	-0.080	-0.47	-0.170	-1.54	-0.090	-0.38
PIN×R	-0.076	-0.65	-0.291	-2.27	-0.215	-0.98
PIN×D ×R	2.912	4.40	0.834	2.18	-2.078	-2.41

Panel H: Complete results —1996-98 as the alternative sample

	1991-93 γ		1996-98 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.083	4.01	0.045	3.80	-0.038	-1.29
D	-0.077	-1.86	0.028	1.38	0.105	1.95
R	-0.053	-1.61	0.032	1.32	0.085	1.62
D×R	-0.478	-3.24	0.076	1.37	0.554	3.17
PIN	-0.241	-2.76	0.028	0.49	0.269	2.03
PIN×D	0.305	1.70	-0.154	-1.59	-0.459	-1.89
PIN×R	0.284	2.27	0.036	0.35	-0.248	-1.15
PIN×D ×R	4.140	6.93	0.476	1.86	-3.664	-4.95

Table 5**Robustness Tests**

Panel I: Complete results —Alternative measures of earnings and returns

	1991-93 γ		1994-96 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.083	3.79	0.040	3.66	-0.043	-1.47
D	-0.136	-3.39	0.062	2.96	0.198	3.63
R	-0.056	-1.59	0.102	4.59	0.158	3.00
D×R	-0.876	-5.98	0.065	0.93	0.941	4.92
PIN	-0.253	-2.69	0.078	1.60	0.331	2.60
PIN×D	0.786	4.57	-0.242	-2.53	-1.028	-4.27
PIN×R	0.291	2.26	-0.337	-4.05	-0.628	-3.22
PIN×D ×R	6.565	10.95	1.073	3.57	-5.492	-6.87

Earnings is measured by Net Income before Extraordinary Items (Compustat #18) deflated by the beginning market value of equity.

Return is measured by the buy-and-hold return ending three months after the end of the fiscal year.

Table 5**Robustness Tests**

Panel J: Complete results —Alternative measures of earnings and returns

	1991-93 γ		1994-96 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.040	1.79	0.035	2.85	-0.005	-0.18
D	-0.095	-2.37	0.079	3.48	0.174	3.19
R	0.035	0.98	0.122	5.00	0.087	1.65
D×R	-0.837	-5.70	0.127	1.68	0.964	5.03
PIN	-0.131	-1.39	0.084	1.57	0.215	1.68
PIN×D	0.613	3.55	-0.314	-3.02	-0.927	-3.84
PIN×R	0.018	0.14	-0.386	-4.25	-0.404	-2.07
PIN×D ×R	6.211	10.33	0.732	2.24	-5.479	-6.83

Earnings is measured by Net Income (Compustat #172) deflated by the beginning market value of equity.

Return is measured by the buy-and-hold return ending three months after the end of the fiscal year.

Table 5**Robustness Tests**

Panel K: Complete results —Alternative measures of earnings and returns

	1991-93 γ		1994-96 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.016	0.77	0.035	2.74	0.019	0.66
D	-0.022	-0.54	0.067	2.95	0.089	1.60
R	0.067	2.03	0.157	6.03	0.090	1.68
D×R	-0.639	-4.36	0.101	1.33	0.740	3.86
PIN	-0.042	-0.49	0.053	0.90	0.095	0.74
PIN×D	0.090	0.50	-0.291	-2.87	-0.381	-1.57
PIN×R	-0.060	-0.49	-0.458	-4.30	-0.398	-1.87
PIN×D ×R	4.639	7.80	0.523	1.61	-4.116	-5.18

Earnings is measured by Net Income (Compustat #172) deflated by the beginning market value of equity.

Return is measured by the buy-and-hold return over the fiscal year.

Panel L of Table 5 provides indirect evidence generally consistent with the primary hypothesis. That is, we do not observe any meaningful changes in conservatism or the information role of conservatism when we do not expect any changes in litigiousness from 1990-91 to 1992-93.

Table 5**Robustness Tests**

Panel L: Complete results —1990-91 v 1992-93 with no change in litigiousness

	1990-91 γ		1992-93 γ		Differences	T-values
	Parameter Estimate	T-values	Parameter Estimate	T-values		
Intercept	0.125	3.43	0.047	1.61	-0.078	-1.63
D	-0.066	-1.02	0.021	0.36	0.087	0.98
R	-0.134	-2.43	0.048	0.91	0.182	2.30
D×R	-0.024	-0.14	-0.069	-0.32	-0.045	-0.16
PIN	-0.280	-1.83	-0.146	-1.19	0.134	0.66
PIN×D	0.258	0.96	-0.120	-0.47	-0.378	-1.00
PIN×R	0.462	2.15	0.013	0.07	-0.449	-1.50
PIN×D ×R	1.881	2.88	1.358	1.45	-0.523	-0.44

Notes

Spread is the bid-ask spread defined as the difference between the ask price and the bid price deflated by the mid-point price. The bid-ask spread for a firm-year is the average of the daily spreads for that firm-year.

NI(#18) is net income before extraordinary items in Compustat deflated by beginning market value of equity.

NI(#172) is the bottom line net income deflated by beginning market value of equity.

R3 is the buy-and- hold return ending three months after the fiscal year end.

All other variables are as previously defined.

4.3.8 Firm-year measure of conservatism (*C_score*)

Due to concerns with the measurement error issues for the Basu (1997) model, I repeat my analysis using the firm-year measure of conservatism, *C_score*. Panel A of Table 6 presents the results for this analysis. The results are consistent with H1. Panel B

of Table 6 presents results consistent with H2a but weakly consistent with H2b.³⁴ Panel C of Table 6 presents results consistent with H3. Thus, the results for all three hypotheses are generally robust to the use of C-score as the alternative measure of conservatism. Results are also robust to the use of full samples versus constant samples for C_score measure. The results using C_score as the alternative measure of conservatism are also robust to exclusions of regulated industries, industry level analysis, and alternative firm-year observations, as can be seen from Panels D and E of Table 6.

Table 6
Litigiousness & Information Role of Conservatism (C_Score)

$$C_{score_{it}} = \beta_0 + \beta_1 PIN_{it} + \beta_2 AFT + \beta_3 AFT \times PIN_{it} + \varepsilon_{it} \quad (15)$$

Panel A: Tests for H1 using C_score

Coefficients	Full Samples			Constant Samples	
	Parameter Estimate	t-value		Parameter Estimate	t-value
Intercept	-0.40	-40.09		-0.423	-36.22
<i>PIN</i>	1.914	43.06		1.871	35.49
<i>AFT</i>	0.168	12.39		0.156	9.76
<i>AFT</i> × <i>PIN</i>	-0.833	-13.45		-0.766	-10.18

Number of observations	8,341	4,865
Adjusted R ²	0.23	0.26

AFT is equal to one (zero) for 1991-1993 (1994-1996) firm year observations.

All other variables are as previously defined.

³⁴ Note that the results using the Basu model is weakly consistent with H2a but consistent with H2b.

Table 6**Litigiousness & Information Role of Conservatism (C_Score)**

Panel B: Tests for H2 using C_score

		1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
Full Samples	High Litigation Risk Industries (n = 1,184)	2.272 (19.45)	1.216 (11.47)	-1.056 (-6.31)
	Low Litigation Risk Industries (n = 7,157)	1.861 (38.75)	1.064 (29.29)	-0.796 (-11.95)
	Differences (t-value)	0.411 (2.64)	0.152 (1.43)	-0.260 (-1.44)
Constant Samples	High Litigation Risk Industries (n = 594)	2.219 (14.60)	1.200 (9.61)	-1.019 (-4.79)
	Low Litigation Risk Industries (n = 4,271)	1.830 (32.57)	1.092 (24.83)	-0.738 (-9.18)
	Differences (t-value)	0.389 (2.40)	0.11 (0.83)	-0.281 (-1.24)

hirsk is equal to one (zero) for high (low) shareholder litigation risk industries in the US.

All other variables are as previously defined.

Table 6**Litigiousness & Information Role of Conservatism (C_Score)**

Panel C: Tests for H3 using C_score

$$C_score_{it} = \beta_0 + \beta_1 spread_{it} + \beta_2 AFT + \beta_3 AFT \times spread_{it} + \varepsilon_{it} \quad (16)$$

		1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
Full Samples	US Firms (n = 16,890)	3.783 (71.67)	3.198 (77.57)	-0.585 (-8.53)
	UK Firms (n = 6,444)	0.003 (33.83)	0.001 (24.47)	-0.002 (-11.47)
	Differences (t-value)	3.780 (71.61)	3.197 (77.55)	-0.583 (-8.50)
Constant Samples	US Firms (n = 3,246)	3.987 (42.38)	3.116 (34.56)	-0.871 (-5.79)
	UK Firms (n = 4,915)	0.003 (28.39)	0.001 (21.72)	-0.002 (-9.85)
	Differences (t-value)	3.984 (42.35)	3.115 (34.55)	-0.869 (-5.77)

*hirs*k equals one (zero) for US firm-year observations (UK firm-year observations).

All other variables are as previously defined.

Table 6**Litigiousness & Information Role of Conservatism (C_Score)**

Panel D: Dropping regulated industries and industry level analysis

	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
Full Samples	1.914 (43.06)	1.081 (31.63)	-0.833 (-13.45)	8,341
Excluding Utilities	1.946 (40.09)	1.078 (28.94)	-0.868 (-12.85)	7,160
Excluding Utilities & Financial Services	2.061 (39.77)	1.128 (27.08)	-0.933 (-12.75)	6,075
Industry Level Analysis	2.029 (30.68)	1.122 (21.07)	-0.907 (-9.73)	3,772

Panel E: Alternative firm-year observations

	1991-93 γ (t-value)	1996-98 γ (t-value)	Differences (t-value)	N
Full Samples	1.914 (44.39)	0.976 (34.04)	-0.938 (-16.32)	8,523
Constant Samples	1.774 (31.83)	0.931 (23.40)	-0.843 (-10.87)	3,886

4.3.9 Basu measure using constant samples

Panel A and Panel B of Table 7 show that the results using the constant US samples for the Basu model has the right sign but the results are not significant for H1 and H2. Survivorship bias is a plausible explanation because many more high litigation risk firms did not survive compared with low litigation risk firms. High litigation risk sample size decreases to 888 from 1,500 versus the decrease to 5,802 from 8,796 for low litigation risk samples. Non-surviving firms that went bankrupt or were delisted due to financial distress are likely to have faced higher probabilities of litigation and stronger γ prior to the legal regime change. Consistent with that conjecture, β_7 , the measure of γ , becomes insignificant using the constant samples in Panel B for high litigation risk firms but not so for low litigation risk firms. Also γ generally becomes much weaker from full samples to constant samples in Panel A and Panel B. That is exactly what will happen according to the shareholder litigation explanation for conservatism when high litigation risk firms are dropped. Misclassification of non-surviving high litigation risk firms as part of the low litigation risk sample using the crude industry method makes survivorship bias a plausible explanation for the significant weakening in γ (from 3.230 to 0.894) from full samples to constant samples for low litigation risk firms in Panel B. This conjecture can also be verified by the use of the Shu (2000) model as a measure of litigation risk.

Table 7

Basu Model using Full vs. Constant Samples

Panel A: Tests for H1

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
 & \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times D_{it} + \beta_{10} AFT \times \\
 & R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times PIN_{it} + \beta_{13} AFT \times PIN_{it} \times D_{it} + \\
 & \beta_{14} AFT \times PIN_{it} \times R_{it} + \beta_{15} AFT \times PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it} \quad (13)
 \end{aligned}$$

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 spread_{it} + \beta_5 spread_{it} \times \\
 & D_{it} + \beta_6 spread_{it} \times R_{it} + \beta_7 spread_{it} \times D_{it} \times R_{it} + \beta_8 AFT + \beta_9 AFT \times \\
 & D_{it} + \beta_{10} AFT \times R_{it} + \beta_{11} AFT \times D_{it} \times R_{it} + \beta_{12} AFT \times spread_{it} + \\
 & \beta_{13} AFT \times spread_{it} \times D_{it} + \beta_{14} AFT \times spread_{it} \times R_{it} + \beta_{15} AFT \times \\
 & spread_{it} \times D_{it} \times R_{it} \quad \varepsilon_{it} \quad (14)
 \end{aligned}$$

	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
Full Samples	3.580 (6.20)	0.285 (1.13)	-3.295 (-4.24)	10,296
Constant Samples	0.963 (2.05)	0.789 (2.07)	-0.174 (-0.27)	6,690

Table 7**Basu Model using Full vs. Constant Samples**

Panel B: Tests for H2

		1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
Full Samples	High Litigation Risk Industries (n = 1,500)	5.691 (4.03)	-0.830 (-1.45)	-6.521 (-4.02)
	Low Litigation Risk Industries (n = 8,796)	3.230 (5.10)	0.557 (1.93)	-2.673 (-3.00)
	Differences (t-value)	2.461 (1.59)	-1.387 (-2.17)	-3.848 (-2.08)
Constant Samples	High Litigation Risk Industries (n = 888)	1.266 (1.02)	-0.210 (-0.16)	-1.476 (-0.86)
	Low Litigation Risk Industries (n = 5,802)	0.894 (1.74)	1.085 (2.74)	0.191 (0.27)
	Differences (t-value)	0.372 (0.28)	-1.295 (-0.94)	-1.667 (-0.89)

For H3, Panel C of Table 7 shows that the results using the US vs. the UK samples give the wrong sign although it is not statistically significant at conventional levels. Again, Panel C resembles Panel B in supporting the survivorship bias explanation for the much weaker results. Another explanation could be the more severe measurement error issues with the Basu model in an international setting (Givoly, Hayn, & Natarajan, 2007). Another possibility is that the results using the Basu model are not robust to the use of both constant samples and bid-ask spread as the measure of information asymmetry. The industry level results using bid-ask spread from Panel C of Table 5 are also insignificant. Also, by construction, the Basu model can discern changes in earnings conservatism only for firms with negative annual stock returns prior to the legal regime change as firms with positive stock returns are used as the benchmark. For firms with negative annual stock returns, higher (lower) levels of litigiousness, which affect disclosure policies, cause the Basu model to underestimate (overestimate) the degree of conservatism prior to (after) the legal regime change, thus working against my hypothesis.

Table 7**Basu Model using Full vs. Constant Samples**

Panel C: Tests for H3

		1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)
Full Samples	US Firms (n = 23,684)	4.674 (10.60)	0.791 (3.57)	-3.883 (-6.95)
	UK Firms (n = 7,329)	-0.035 (-0.77)	0.001 (1.00)	0.036 (0.38)
	Differences (t-value)	4.709 (10.62)	0.790 (3.56)	-3.919 (-6.91)
Constant Samples	US Firms (n = 6,054)	-0.480 (-0.52)	1.089 (1.81)	1.569 (1.22)
	UK Firms (n = 5,488)	0.003 (3.33)	0.003 (2.91)	0.000 (0.09)
	Differences (t-value)	-0.483 (-0.52)	1.086 (1.80)	1.569 (1.22)

All variables are as previously defined.

4.3.10 H2 using the Shu (2000) model

I use the parameters from Table 3 of Shu (2000) to compute the predicted probability of litigation, PROBLIT, for each firm-year. First I repeat the analysis with controls for ending M/B, LEV, and PROBLIT as in Panel B of Table 3 in LaFond and Watts (2008). Consistent LaFond and Watts (2008), the coefficient on $\text{PROBLIT} \times D \times R$

is marginally significant ($t = 1.46$); the coefficient on $PIN \times D \times R$ decreases from 1.67 to 1.22 when PROBLIT is added to the model in addition to M/B and LEV, consistent with the impact of shareholder litigation on the information role of conservatism.

To repeat my H2a analysis using PROBLIT, I use the 1991-93 firm-year observations. I use four alternative PROBLIT cutoffs to gauge the cross-sectional variation of the impact of the legal regime change on γ across firms with high vs. low probabilities of shareholder litigation. When the median PROBLIT is used as the cutoff, a large number of firms that are not facing high shareholder litigation risks are misclassified as high litigation risk firms, resulting in a small difference in shareholder litigation risk between high and low litigation risk samples. When the 75th percentile PROBLIT is used as the cutoff, fewer firms are misclassified as high shareholder litigation firms, resulting in a larger difference in shareholder litigation risk between high and low litigation risk samples. When the 90th and 95th percentile PROBLIT are used as cutoffs, there will be increasingly larger differences in shareholder litigation risk between high and low litigation risk samples.³⁵ Table 8 demonstrates increasingly stronger monotonic impacts of shareholder litigation on γ with increasingly larger differences in PROBLIT, further boosting our confidence that the primary results stem from changes in the level of litigiousness. β_7 measures γ for low shareholder litigation risk firms; β_{15} measures incremental γ for high shareholder litigation risk firms. β_7 increases with the rise in PROBLIT; β_{15} increases with the rise in differences in PROBLIT, consistent with shareholder litigation driving the information role of conservatism.

³⁵ Note that when the 90th and 95th percentile PROBLIT cutoffs are used, some firms that are facing elevated risks of litigation are misclassified as “low” shareholder litigation risk, limiting the rise in PROBLIT differences and working against supporting my hypothesis.

Table 8

H2a Results using Shu (2000) Model

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 PIN_{it} + \beta_5 PIN_{it} \times D_{it} + \\
 & \beta_6 PIN_{it} \times R_{it} + \beta_7 PIN_{it} \times D_{it} \times R_{it} + \beta_8 PROBLIT + \beta_9 PROBLIT \times D_{it} + \\
 & \beta_{10} PROBLIT \times R_{it} + \beta_{11} PROBLIT \times D_{it} \times R_{it} + \beta_{12} PROBLIT \times PIN_{it} + \\
 & \beta_{13} PROBLIT \times PIN_{it} \times D_{it} + \beta_{14} PROBLIT \times PIN_{it} \times R_{it} + \beta_{15} PROBLIT \times \\
 & PIN_{it} \times D_{it} \times R_{it} + \varepsilon_{it}
 \end{aligned}$$

PROBLIT Cutoffs	β_7 (t-value)	β_{15} (t-value)
Median	2.203 (1.90)	2.907 (1.79)
75th Percentile	2.193 (2.19)	4.477 (2.66)
90th Percentile	2.349 (2.57)	5.240 (2.92)
95th Percentile	2.345 (2.65)	5.754 (3.08)

Notes

PROBLIT is a firm-specific measure of the probability of litigation using the Shu(2000) model.

All other variables are as previously defined.

To repeat my H2b analysis using PROBLIT, I compare the 1991-93 firm-year observations with the 1994-96 observations. I use the 90th percentile PROBLIT as the cutoff. The decrease in γ for high shareholder litigation risk samples is -7.097 ($t = -3.46$); the decrease for low litigation risk samples is -2.184 ($t = -2.91$). The difference in the differences is -4.913 ($t = -2.247$), supporting H2b. As in the case of H2a analysis, results become increasingly stronger as the PROBLIT cutoff increases from median, to 75th percentile to 90th percentile, and to 95th percentile. The difference in differences increases from 3.196, to 4.448, to 4.913 and to 5.733, respectively. The associated t-statistics show the same increasingly stronger, monotonic impact of shareholder litigation on the information role of conservatism.

Descriptively, the positive association between information asymmetry and conservatism disappears in the post-Act samples as the disciplinary effects of shareholder litigation diminish following the legal regime change. The coefficient on $PIN \times D \times R$ is 0.45 (0.18) with a t-value of 0.96 (0.58) for the high (low) litigation risk 1994-96 firm-year observations.

In short, my second hypothesis receives consistent, strong support from the use of the Shu model as the measure of shareholder litigation risks. The increasingly stronger monotonic impact of shareholder litigation on γ with increasingly larger differences in PROBLIT supports the shareholder litigation explanation for the information role of accounting conservatism (γ).

4.4 Additional controls

Following LaFond and Watts (2008), I control for ending M/B, contracting (leverage), and firm size that also influence earnings conservatism. Because beginning

M/B is also correlated with earnings conservatism, I also control for beginning M/B. The controls for these factors associated with conservatism generate a stringent test since those factors are all theoretically and empirically associated with information asymmetry and growth options (LaFond & Watts, 2008).

4.4.1 Control for ending M/B and LEV

Panel A of Table 9 reports the results using the Basu model after controlling for both ending M/B and LEV. Consistent with LaFond and Watts (2008), the M/B ratio exhibits negative associations with earnings conservatism. Consistent with LaFond and Watts (2008), the coefficient on $D_{it} \times R_{it} \times LEV_{it}$ is positive and significant for the one year period but the coefficient from two year period does not provide such support. The coefficients on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ are negative as hypothesized for both periods. Again statistical significance declines over longer horizon, possibly due to aggregation effects. The same is true of the coefficients on $PIN_{it} \times D_{it} \times R_{it}$. The results for the good news timeliness are consistent with those from the primary analysis.

Panel B of Table 9 shows that the results are robust to the use of C_score as the alternative measure of earnings conservatism after controlling for ending M/B and LEV. In short, the results from the primary analysis are robust to controls for ending M/B and LEV although close examinations of other coefficients reveal consistent puzzles.

Table 9 Controls for M/B and LEV

Panel A: Basu measure

$$\begin{aligned}
 NI_{it} = & \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} \times R_{it} + \beta_4 MB_{it} + \beta_5 D_{it} \times MB_{it} + \beta_6 R_{it} \times \\
 & MB_{it} + \beta_7 D_{it} \times R_{it} \times MB_{it} + \beta_8 LEV_{it} + \beta_9 D_{it} \times LEV_{it} + \beta_{10} R_{it} \times LEV_{it} + \\
 & \beta_{11} D_{it} \times R_{it} \times LEV_{it} + \beta_{12} PIN_{it} + \beta_{13} PIN_{it} * D_{it} + \beta_{14} PIN_{it} * R_{it} + \\
 & \beta_{15} PIN_{it} \times D_{it} \times R_{it} + \beta_{16} AFT + \beta_{17} AFT * D_{it} + \beta_{18} AFT * R_{it} + \beta_{19} AFT * \\
 & D_{it} * R_{it} + \beta_{20} AFT \times MB_{it} + \beta_{21} AFT \times D_{it} \times MB_{it} + \beta_{22} AFT \times R_{it} \times MB_{it} + \\
 & \beta_{23} AFT \times D_{it} \times R_{it} \times MB_{it} + \beta_{24} AFT \times LEV_{it} + \beta_{25} AFT \times D_{it} \times LEV_{it} + \\
 & \beta_{26} AFT \times R_{it} \times LEV_{it} + \beta_{27} AFT \times D_{it} \times R_{it} \times LEV_{it} + \beta_{28} AFT * PIN_{it} + \\
 & \beta_{29} AFT * PIN_{it} * D_{it} + \beta_{30} AFT * PIN_{it} * R_{it} + \beta_{31} AFT * PIN_{it} * D_{it} * R_{it} + \varepsilon_{it}
 \end{aligned}$$

Estimation period	One Year		Two Year	
	Parameter Estimate	t-value	Parameter Estimate	t-value
Intercept	0.101	4.12	0.125	3.78
D	-0.054	-1.07	0.081	1.29
R	0.006	0.17	0.335	8.90
D×R	-0.582	-3.62	-0.124	-1.01
M/B	-0.004	-1.38	-0.014	-3.45
D×M/B	0.008	1.29	-0.004	-0.51
R×M/B	-0.002	-0.80	-0.010	-3.71
D×R×M/B	-0.003	-0.21	-0.024	-2.26
LEV	-0.038	-0.94	-0.188	-3.29
D×LEV	-0.152	-1.97	-0.075	-0.75
R×LEV	-0.163	-3.65	0.088	1.60
D×R×LEV	0.686	3.09	-0.122	-0.70
PIN	-0.258	-2.95	-0.048	-0.41
D×PIN	0.280	1.53	-0.154	-0.68
R×PIN	0.262	2.11	-0.867	-6.39
D×R×PIN	3.570	5.88	1.983	4.56

Table 9 Continued

AFT	-0.031	-0.89	0.022	0.49
AFT×D	0.112	1.68	0.065	0.73
AFT×R	0.198	3.26	-0.137	-2.51
AFT×D×R	0.571	2.68	0.190	1.02
AFT×M/B	-0.000	-0.01	0.004	0.88
AFT×D×M/B	-0.007	-0.86	-0.005	-0.48
AFT×R×M/B	-0.008	-2.32	-0.001	-0.13
AFT×D×R×M/B	0.030	1.50	0.025	1.33
AFT×LEV	-0.080	-1.37	0.036	0.45
AFT×D×LEV	0.234	2.16	0.042	0.29
AFT×R×LEV	0.306	3.79	0.049	0.59
AFT×D×R×LEV	-0.684	-2.15	0.101	0.35
AFT×PIN	0.296	2.27	0.001	0.01
AFT×D×PIN	-0.623	-2.52	-0.460	-1.36
AFT×R×PIN	-0.815	-3.82	0.512	2.59
AFT×D×R×PIN	-3.126	-3.88	-1.635	-2.36

Adjusted R ²	0.102	0.218
Number of observations	7,499	4,717

Notes

Aft is equal to one (zero) for 1991-93 (1994-96) firm-year observations excluding regulated utilities and financials firms.

Two-year period analysis uses 1990-91 and 1992-93 aggregated vs. 1994-95 and 1996-97 aggregated.

All variables are as previously defined.

Table 9**Controls for M/B and LEV**

Panel B: C_score as the measure of conservatism

$$C_score_{it} = \beta_0 + \beta_1 PIN_{it} + \beta_2 \times MB_{it} + \beta_3 LEV_{it} + \beta_4 AFT + \beta_5 AFT \times PIN_{it} + \beta_6 AFT \times MB_{it} + \beta_7 AFT \times LEV_{it} + \varepsilon_{it}$$

	1991-93 γ (t-value)	1994-96 γ (t-value)	Differences (t-value)	N
Full Samples	1.744 (42.85)	1.160 (32.71)	-0.584 (-10.22)	6,075
Constant Samples	1.596 (32.17)	1.106 (25.22)	-0.490 (-6.96)	3,479

Aft is equal to one (zero) for 1991-93 (1994-96) firm-year observations excluding regulated utilities and financials firms.

All other variables are as previously defined.

4.4.2 Additional control for SIZE

Givoly, Hayn, and Natarajan (2007) find that aggregation-related measured errors are related to firm size. Firm size also affects earnings conservatism. I control for SIZE using the natural logarithm of market value of common equity (Compustat #199 \times Compustat #25). Because firm size affects so many aspects (e.g., information asymmetry) of a firm, including SIZE in the model makes the test remarkably stringent.

In untabulated one-year period analyses including SIZE in addition to the ending M/B and LEV, I find that ending M/B ratio again exhibits negative associations ($t =$

-1.26) with earnings conservatism, weakly consistent with LaFond and Watts (2008). I also find that firms with higher leverage report more conservative earnings ($t = 2.30$), consistent with LaFond and Watts (2008). I also find that larger firms are less conservative ($t = -4.88$), consistent with prior literature (LaFond & Watts, 2008; Givoly, Hayn, & Natarajan, 2007). The coefficient on $PIN_{it} \times D_{it} \times R_{it}$ is positive and significant ($t = 2.70$). Again, the coefficient on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ is negative but is marginally significant ($t = -1.49$). Including SIZE as the control variable weakens the results significantly. This is probably because SIZE is highly correlated with PIN and adding SIZE to the model is an over-control.

In untabulated two year period analysis that includes SIZE in addition to the ending M/B and LEV, results are similar except for weaker results on LEV. The coefficient on $PIN_{it} \times D_{it} \times R_{it}$ is positive but marginally significant ($t = 1.48$). The coefficient on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ is negative ($t = -1.87$), weakly consistent with my hypotheses. Aggregation effects explain some of the even weaker results for two year period.

4.4.3 Additional controls for SIZE and beginning M/B

In untabulated one year period analysis that includes both SIZE and beginning M/B in addition to the ending M/B and LEV, I find that beginning M/B is negatively associated with earnings conservatism ($t = -2.42$), consistent with prior literature. The coefficients on ending M/B, LEV, and SIZE are also consistent with prior literature. The coefficient on $PIN_{it} \times D_{it} \times R_{it}$ is positive and significant ($t = 2.25$). The coefficient on $AFT \times PIN_{it} \times D_{it} \times R_{it}$ is negative ($t = -1.38$) but not significant at 0.05 α level or better. This weak result is consistent with SIZE being an over-control. But SIZE is not a

fundamental economic variable. SIZE does not necessarily weaken the results in any economic sense. Ending and beginning M/Bs are also each related to information asymmetry, further weakening the results. In untabulated two year period analysis, the results are qualitatively the same as those after controlling for ending M/B, LEV and SIZE but yield even weaker results probably due to aggregation effects.

Finally, I repeat my analysis using the generalized least squares method (GLS) to control for potential heteroscedasticity and within-firm serial correlations in the data. Results are robust across the board. Then I repeat my regression analyses including controls for clustering at the firm-level. The t-value decreases to 2.34 from 4.24 using the Basu model for H1.³⁶ It is weaker but still significant and consistent with the notion of shareholder litigation driving the information role of conservatism. The t-value decreases to 1.02 from 1.59 using the Basu model for H2a. The t-value decreases to 1.50 from 2.08 using the Basu model for H2b. The t-value decreases to 1.46 from 10.62 using the Basu model for H3a. The t-value decreases to 1.21 from 6.91 using the Basu model for H3b.³⁷ Results are not robust to cluster analysis for H2 and H3. This is not surprising in the sense that the first hypothesis is based on a major legal regime change that lends more power but the second hypothesis is based on much smaller cross-sectional variations in litigiousness. The weak results for H3 might be related to the use of bid-ask spread as the measure of information asymmetry and the use of the Basu model in the international setting.

³⁶ Results are robust to whether regulated industries are excluded or not, whether the 1994-96 or 1996-98 firm-year observations are used as the post-Act sample.

³⁷ The t-value for the coefficient on $\text{spread} \times D \times R$ also becomes much smaller with cluster analysis. The t-values decrease significantly across the board using the Basu model AND bid-ask spread as the measure of information asymmetry when controlling for clusters at the firm-level.

Results from the cluster analysis using the C_score measure are as follows. T-value decreases to 11.65 from 13.45 for H1. T-value decreases to 2.07 from 2.64 for H2a; T-value decreases to 1.28 from 1.44 for H2b. T-value decreases to 41.89 from 71.61 for H3a; T-value decreases to 6.13 from 8.50 for H3b. C_score measure results are much less sensitive to cluster analysis than the Basu measure results.

In summary, the results generally confirm the information asymmetry explanation for conservatism documented in LaFond and Watts (2008) and Khan and Watts (2009). The overall results point to an overall weakening in γ as the disciplinary effects of shareholder litigation diminish following the legal regime change. It suggests that shareholder litigation exerts some impact on the information role of earnings conservatism.

Chapter 5

Summary and Conclusions

I investigate the impact of shareholder litigation-related incentives on the information role of accounting conservatism. Consistent with the theory that shareholder litigation is a major source of conservatism and using variations in litigiousness as proxies for changes in shareholder litigation-related reporting incentives, I hypothesize and find that as expected litigation costs decrease, managers and auditors are likely to incorporate more gains and fewer losses into earnings given the level of information asymmetry. This finding is consistent with the information role of conservatism declining as the disciplinary effects of shareholder litigation are offset by moral hazard and adverse selection incentives.

The results have implications for regulators, accounting standard-setters, and legislators attempting to improve financial reporting and address deadweight losses associated with information asymmetry. My findings highlight the fact that the use of conservatism as an equilibrium response to value reductions from information asymmetries depends on both firm- and country-specific factors that influence the level of conservatism. My results also have implications for accounting research involving the theory of conservatism. This study highlights the benefits of understanding the information role of conservatism and demonstrates the importance of investigating the interaction effects of individual explanations for conservatism. Firms subject to the same degree of SEC enforcement display differences in the information role of conservatism as expected litigation costs vary. These results suggest that private litigation is a necessary supplement to the SEC enforcement in deterring security fraud.

If conservatism is simply a rational response of economic actors in an agency setting, whether it is mentioned in the framework as a desirable qualitative characteristic of accounting information would not alter financial reporting behavior. This is especially likely in jurisdictions like the US, where the conceptual framework has virtually no standalone status under GAAP. In the long run, however, standard setting is built on the framework. The framework serves as a theoretical guidance for setting new standards and refining existing standards. It also assists preparers to apply existing standards and decide on the appropriate accounting treatments for topics not addressed by GAAP, especially in non-US jurisdictions where accounting is more principles-based, as opposed to rules-based. The conceptual framework also aids auditors in formulating their opinions as to the fairness of financial statement presentation. Therefore, the conceptual framework is one way in which regulation affects financial reporting.

The FASB and the IASB believe that conservatism introduces an unacceptable degree of bias and even augments information asymmetry. To address that undesirable bias, standard setters believe that it is appropriate to remove conservatism from the revised conceptual framework. LaFond and Watts (2008) and Khan and Watts (2009) document positive associations between information asymmetry and earnings conservatism. Their studies suggest that earnings conservatism is an equilibrium response to the agency costs arising from information asymmetry. These two studies speak directly to the reformulation of the conceptual framework in terms of where conservatism fits in with the revised conceptual framework.

The evidence regarding the impact of litigation on the information role of conservatism from this study speaks further to the reformulation of the conceptual

framework as follows. If LaFond and Watts (2008) and Khan and Watts (2009) successfully demonstrate the role of conservatism in financial reporting and in the framework, this study highlights the determinants of the information role of earnings conservatism. Like regulation (e.g., standard-setting), shareholder litigation is another force that influences the degree of earnings conservatism as an equilibrium response to the agency cost arising from information asymmetry. This evidence is particularly relevant for the IASB due to significant variations in shareholder litigation and regulation around the world. If the information role of earnings conservatism is already compromised by the weaker legal regimes in many parts of the world, further suppressing earnings conservatism by standard-setters via the framework has the potential to erode the information role of conservatism.

The study has several limitations. A change in litigiousness might affect the level of information asymmetry itself. This issue is minor since I am interested in the information role of conservatism. A more subtle issue is that conservatism also reduces information asymmetry (Khan & Watts, 2009; LaFond & Watts, 2008). The level of information asymmetry used in the regressions are not the level of information asymmetry that is theoretically related to conservatism but the level of information asymmetry remaining after the conservatism effects. There are two alternative solutions. One is based on the assumption that conservatism reduces information asymmetry proportionately (LaFond & Watts, 2008). The other is to specify a structural model to test the validity of the assumption. This is left to future research. This assumption is not critical in this study because the measurement error associated with conservatism effects is expected to be relatively small compared with the overall level of information

asymmetry. Another limitation is that there is no theory or evidence to support the assumption that the relation between conservatism and litigation risk is linear. Prior literature only documents positive associations between conservatism and litigation risk. Verifying this assumption is left to future research.

Theoretically, cross-listed firms should be eliminated from both the US and UK samples. If anything, not excluding those cross-listed firms from the samples works against supporting my hypothesis. In my follow-up research, I will test to see how the results might vary if those cross-listed firms are removed from the samples. In my post-dissertation research, I will also use the Shu (2000) model to test my conjecture regarding the survivorship bias as the explanation for the weak results using the constant samples for the Basu model.

Future research could take advantage of the greater variations in litigiousness across countries and conduct an international study to review the impact of incentives shaped by unique market factors and unique institutional factors on the information and contracting role of conservatism. Bid-ask spread is the only measure of information asymmetry for my third hypothesis. That is another limitation of the study. Future studies could also explore the use of other proxies for information asymmetry especially for international studies for which the PIN scores are not readily available and the availability of bid-ask spreads is limited. Future research could also explore the use of other proxies for changes in reporting incentives. Given the central role of auditors in the financial reporting process, future research could study the incentive structure of auditors with regard to shareholder litigation vs. other concerns (e.g., reputation, political costs).

Finally, future research could investigate the interactions effects of other individual explanations for conservatism.

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