



**American
Accounting
Association**

**Thought Leaders in
Accounting**

The American Accounting Association is the largest community of accountants in academia. Founded in 1916, we have a rich and reputable history built on leading-edge research and publications. The diversity of our membership creates a fertile environment for collaboration and innovation. Collectively, we shape the future of accounting through teaching, research and a powerful network, ensuring our position as thought leaders in accounting.

The Accounting Review

Vol. 86, No. 6

November 2011

pp. 2155–2183

Disclosure Tone and Shareholder Litigation

American Accounting Association | Publications

The American Accounting Association is the copyright holder of this article and retains the worldwide rights to publish, reproduce, distribute, publicly display and/or license the Material in this article for any future editions and versions of this Work, derivative works based on this article (including translations and adaptations), related ancillaries and supplements, and in promotional materials in all print, digital and wireless and/or electronic formats.

Further distribution of this article is strictly prohibited. Written application must be made to the American Accounting Association, 5717 Bessie Drive, Sarasota, FL 34233-2399, for permission to reproduce any of the contents of this article, other than for use in courses of instruction. For additional information about the AAA, please visit <http://aaahq.org> where you can also browse the abstracts of AAA journal articles.

Disclosure Tone and Shareholder Litigation

Jonathan L. Rogers
The University of Chicago

Andrew Van Buskirk
The Ohio State University

Sarah L. C. Zechman
The University of Chicago

ABSTRACT: We examine the relation between disclosure tone and shareholder litigation to determine whether managers' use of optimistic language increases litigation risk. Using both general-purpose and context-specific text dictionaries to quantify tone, we find that plaintiffs target more optimistic statements in their lawsuits and that sued firms' earnings announcements are *unusually* optimistic relative to other firms experiencing similar economic circumstances. These findings are consistent with optimistic language increasing litigation risk. In addition, we find incrementally greater litigation risk when managers are both unusually optimistic and engage in abnormal selling. This finding suggests that firms can mitigate litigation risk by ensuring that optimistic statements are not contradicted by insider selling. Finally, we find that insider selling is associated with litigation risk only when contemporaneous disclosures are unusually optimistic.

Keywords: *securities litigation; disclosure; tone; earnings announcements; insider trading.*

JEL Classifications: *G38; K22; M41; M48.*

Data Availability: *Data are available from sources indicated in the text.*

We had helpful discussions with Phil Berger, John Core, Karen Nelson, Joshua Ronen, and Doug Skinner and benefitted from comments of Steven Kachelmeier (editor), two anonymous referees, workshop participants at The University of Arizona, Boston College, The University of Chicago, Duke University, Emory University, University of Illinois at Chicago, Indiana University, University of Maryland, University of Melbourne, University of Minnesota, The University of New South Wales, The Ohio State University, University of Oregon, The Pennsylvania State University, Purdue University, Rice University, University of Western Australia, and conference participants at the Tilburg University Accountancy Spring Camp, the Conference on Financial Economics and Accounting, 2010 EAA Annual Congress, 2010 FARS Meeting, and the Nick Dopuch Accounting Conference. We thank an anonymous partner at a leading securities litigation firm for providing background information. We thank Woodruff-Sawyer for providing litigation data, Craig Carroll for assistance with Diction software, Burch Kealey for assistance with the directEDGAR program, and Andy Leone for assistance with Perl programming. We gratefully acknowledge the financial support of The University of Chicago Booth School of Business.

Editor's note: Accepted by Steven Kachelmeier.

Submitted: June 2010
Accepted: May 2011
Published Online: July 2011

I. INTRODUCTION

This study examines the relation between disclosure tone and shareholder litigation. Our goal is to determine whether managers' use of soft information (i.e., use of qualitative statements to present the firm in a more or less favorable light) contributes to the likelihood of being sued by shareholders. Our interest in disclosure tone, specifically optimism, arises from the nature of plaintiff allegations in a typical disclosure-related securities lawsuit. Although the particular allegations vary from case to case, they share a common underlying theme: Investors allege that their prior expectations regarding firm value were too high, and that those expectations were based on the firm's unduly optimistic disclosures.

How disclosure tone affects litigation is an open question for several reasons. First, although firms employ a variety of tools in attempts to avoid the high costs associated with securities lawsuits, executives continue to express uncertainty about the causes of litigation and what they can do to avoid being sued.¹ For example, survey evidence reveals that executives view the U.S. legal environment as significantly more unpredictable than that of the United Kingdom.² Rogers and Van Buskirk (2009) support this evidence—firms make significant changes to their disclosure policies after being sued, consistent with managers gaining a better understanding of the link between disclosure and litigation after going through the litigation process.

Second, whether managers should be held legally accountable for qualitative disclosures is a hotly debated topic (e.g., Brudney 1989; O'Hare 1998; Roussel 1998; Huang 2005; Hoffman 2006) that has yet to be resolved in the legal community. The debate centers on the question of whether a qualitative statement can ever be considered material, or whether, by its very nature, such language is puffery (e.g., hype or exaggerated promotional language) and thus fails to constitute a material statement of fact. As we discuss later, courts have ruled on both sides of this issue. In some cases, statements such as "demand has been strong" survived the motion to dismiss (*In re Smith & Wesson Holding Corp.*, 604 F. Supp. 2d 332 (Mass. 2009)). In other cases, statements such as "revenue and earnings growth outlook remains positive" were deemed immaterial puffery (*Ind. State Dist. Council of Laborers v. Omnicare, Inc.*, 583 F.3d 935 (6th Cir. 2009)). We expect the lack of consensus regarding the materiality of qualitative language leads to management uncertainty about whether disclosure tone influences litigation risk.

Finally, to the best of our knowledge, the findings of Francis et al. (1994) represent the current state of knowledge about the relation between disclosure tone and litigation risk. Although not the primary focus of their study, they examine whether their subjective assessment of disclosure tone influences the probability of being sued. Their study was implemented during a different regulatory environment (prior to the Private Securities Litigation Reform Act of 1995 [PSLRA]) and, importantly, finds no relation between tone and litigation.

Motivated by these factors, our study examines the extent to which differences in qualitative language are systematically related to differences in litigation risk. We begin our analysis by investigating the disclosure channels likely to affect the probability of litigation. This investigation takes two forms. The first analyzes specific statements cited as misleading in the plaintiffs' complaints. Our review of a random subsample of complaints reveals that earnings announcements are the most consistently cited type of communication. The second examines the alignment between damage periods and earnings announcements. For our full sample of lawsuits, we find that the

¹ Examples of these tools include insider trading blackout windows (Bettis et al. 2000; Roulstone 2003) and 10b5-1 trading plans (Jagolinzer 2009) to reduce litigation risks.

² "Sustaining New York's and the US' Global Financial Services Leadership" is found at http://www.nyc.gov/html/om/pdf/ny_report_final.pdf

majority of damage periods begin on an earnings announcement date, indicating that the earliest alleged misstatement was likely part of an earnings announcement. Collectively, this evidence suggests that earnings announcements play a central role in shareholder litigation.

Next, we return to the random subsample of complaints to determine whether plaintiffs focus on optimistic language. Using three different dictionary-based measures of optimism (as well as a factor score that combines the three measures), we compare the tone of the quoted portion of each earnings announcement to the tone of the remainder of the earnings announcement (i.e., the non-quoted portion of the cited earnings announcement). For each optimism proxy, we find that the particular statements plaintiffs choose to quote in their class action complaints are measurably more optimistic than the remainder of the document. This result bolsters the view that plaintiffs target optimistic language in their lawsuits. Furthermore, this result helps validate our method of quantifying optimistic language and provides assurance that our results do not depend upon a particular dictionary choice.

Showing that plaintiffs target optimistic statements is necessary, but not sufficient, to establish a more general link between optimistic language and increased litigation risk. After all, every firm is likely to make *some* optimistic statements (even if the aggregate tone of their disclosures is neutral or even negative). To learn whether sued firms' disclosures are *unusually* optimistic, our main analysis compares the tone of the sued firms' earnings announcements during the damage period to the tone of disclosures made by non-sued firms at the same time, in the same industry, and experiencing similar economic circumstances (i.e., similar size and performance).

Our primary result is that sued firms use substantially more optimistic language in their earnings announcements than do non-sued firms. We find that, after controlling for a host of performance-related and other firm characteristics, a change of one standard deviation in the aggregate optimism factor score is associated with a 75.9 percent increase in the likelihood of being sued. Collectively, these results indicate a strong link between disclosure tone and litigation. The difference in tone between sued and non-sued firms' disclosures is consistent with plaintiff allegations that managers issue overly optimistic disclosures during the damage period.

We then examine the combined effect of optimistic language and insider trading. A successful securities complaint requires plaintiffs to not only document a material misstatement, but also provide evidence that the manager acted with the requisite intent to deceive when s/he made that statement (i.e., scienter). Because courts recognize unusual and substantial insider selling as one way of demonstrating scienter, many lawsuits include insider selling allegations (Johnson et al. 2007; Rogers 2008), especially after the enactment of the PSLRA. Our evidence is consistent with optimism and insider selling jointly affecting litigation risk. Specifically, in addition to finding a significant main effect for optimism, we find that the interaction between optimism and abnormal insider selling is associated with an increased probability of being sued. This finding suggests that firms can mitigate litigation risk by ensuring that optimistic statements are not contradicted by insider selling. On the other hand, we find no evidence that insider selling, on its own, exposes the firm to increased litigation risk; insider selling is only associated with litigation when firm disclosures are optimistic.

Although our results are both statistically and economically meaningful, we share the sentiment of Loughran and McDonald (2011, 53) that “[t]extual analysis is not the ultimate key to the returns cipher.” That is, disclosure tone is certainly not the sole determinant of litigation risk, nor is litigation risk the only cost or benefit relevant in the choice of disclosure tone. What we view as important, however, is that disclosure tone is both associated with litigation risk and under the discretion of management. In contrast to variables that are correlated with litigation risk but

inflexible (e.g., firm size or industry membership), monitoring and adjusting disclosure tone could provide a straightforward means of reducing litigation risk.³

We also acknowledge the potential that environmental factors contribute to a firm's disclosure choices and can also lead to a greater risk of litigation (see, for example, Bloomfield [2008] for a discussion of this ontological explanation). While we include control variables to minimize this possibility, it nevertheless remains a limitation of our study. Finally, our use of a matched-sample design provides for a more direct examination of the relation between tone and litigation, although it limits our ability to generalize results. Subject to these caveats, our findings suggest that managers can reduce litigation risk by dampening the tone of disclosure.

While we do not provide a general examination of the costs and benefits of disclosure tone, our analysis of a single and substantial cost (i.e., expected litigation cost) helps to inform managers and audit committees about the trade-offs involved in setting disclosure tone. In addition, a link between discretionary disclosure behavior and litigation suggests that managers can influence the likelihood of being sued, a matter of great importance to those who view deterrence as the primary benefit of securities litigation.⁴ Finally, our results shed light on a question prompted by prior studies of disclosure tone: Why would investors respond to an optimistic tone if there are no enforcement mechanisms to lend credibility to tone? Our results indicate that shareholder litigation could be an effective *ex post* mechanism to assure investors that managers are not simply engaging in cheap talk when they use optimistic language.

Section II discusses related research. Section III details our research design, while Section IV describes our sample data. Sections V and VI report the empirical results related to disclosure tone and the role of insider trading with respect to tone, respectively. Section VII concludes.

II. PRIOR RESEARCH

Disclosure Tone

Managers frequently use discretion to describe their firms' results in a favorable light. Lang and Lundholm (2000) study disclosure behavior before seasoned equity offerings, concluding that managers "hype" their stock by increasing discretionary disclosure, particularly optimistic disclosures. Rogers and Stocken (2005) show that managers are more likely to bias their earnings forecasts in situations where the market has greater difficulty detecting misrepresentation. Zechman (2010) provides evidence that firms strategically avoid disclosing information about off-balance sheet activity when the activity was done to enhance the appearance of financial reports, but not otherwise. Li (2008) finds support for the hypothesis that managers obfuscate poor results by issuing less readable disclosures.

Evidence reveals that these discretionary disclosure choices affect the perception of investors and analysts. For example, the increase in optimistic disclosures identified by Lang and Lundholm (2000) is associated with increased stock prices leading up to the equity offerings. Similarly, the level of optimism in an earnings announcement is positively associated with the market's short-term response to the announcement (Henry 2008; Demers and Vega 2008; Davis et al. 2008). The same relation holds for firm-generated SEC filings (Loughran and McDonald 2011), as well as

³ We interviewed a partner at one of the top plaintiffs' law firms (Cornerstone Research 2010), who agreed to provide anonymous background information. This partner read a draft of this paper and confirmed the accuracy of our discussion of the legal environment and plausibility of our findings.

⁴ Coffee (2006) notes the current regulatory system provides very little compensation to injured shareholders, leaving deterrence as the primary benefit. But in order for litigation to be an effective deterrent to undesirable managerial behavior, managers must believe that their actions influence the likelihood of being sued.

information generated outside the firm—[Tetlock et al. \(2008\)](#) and [Tetlock \(2007\)](#) find that returns are correlated with the tone of firm-specific and more general news stories, respectively.

One question that arises from prior research is why investors respond to variation in tone, rather than simply viewing it as puffery. While there are many forces to constrain the manipulation of quantitative disclosures (e.g., Generally Accepted Accounting Principles enforced by independent auditors; SEC monitoring of periodic filings), those mechanisms are not designed to provide credibility to qualitative statements. In the next section, we discuss an alternative monitoring mechanism: private securities litigation.

Shareholder Litigation

An important mechanism limiting managers' opportunistic disclosures is shareholder litigation, generally taking place under Rule 10b-5 of the Securities Exchange Act of 1934.⁵ Rule 10b-5 makes it unlawful to "make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made . . . not misleading."⁶ Under this rule, investors can initiate legal action after being harmed by a defendant's misrepresentations. These actions typically consist of complaints against the firm and its managers for providing misleading information that results in shareholder losses. Technically, complaints can arise from either purchasers (alleging share prices were too high when they purchased) or sellers (alleging share prices were too low when they sold). The vast majority of cases, however, involve purchasers alleging that the firm's misrepresentations led to stock prices that were too high ([Francis et al. 1994](#)).⁷

Evidence of a link between optimistic disclosure and litigation can be found in class action complaints. For example, the plaintiffs in *In re VoiceFlash Networks, Inc. Securities Litigation* (Second Amended Complaint, May 31, 2005, p. 2) allege that "The news that VoiceFlash would liquidate came on the heels of numerous highly optimistic announcements by the defendants touting the success of the Company's business condition and financial performance." As another example, a 2002 complaint against Metris Companies (*Hack, et al. v. Metris Companies, Inc., et al.*, U.S. District Court, District of Minnesota, p. 43) includes the allegation that the CEO "offered a hopelessly positive spin on his Company's capital plan."

Although plaintiffs often cite qualitative statements in their complaints, a recurring legal question is whether qualitative statements are material—only material misstatements are actionable under Rule 10b-5 ([O'Hare 1998](#)). The assessment of materiality hinges on whether disclosure of the omitted fact or correction of the misstated fact would have affected a reasonable investor's judgment by altering the "total mix" of available information.⁸

In their motions to dismiss security complaints, corporate defendants frequently characterize qualitative statements as "puffery," arguing that particular statements were simply promotional in nature and unlikely to influence reasonable investors' opinions regarding the firm.⁹ While the SEC and legal academics have expressed skepticism that the puffery defense is appropriate in a securities regulation context,¹⁰ courts have often granted motions to dismiss securities complaints on the

⁵ 15 U.S.C. 78a *et seq.*

⁶ 17 CFR §240.10b-5.

⁷ One recent counterexample is that of Tyco (*Stevenson v. Tyco International*, filed April 29, 2005) which was sued by sellers of stock for allegedly providing overly pessimistic statements during the damage period.

⁸ *TSC Industries, Inc. v. Northway, Inc.* 426 U.S. 438 (1970). The Supreme Court affirmed this standard with regard to 10b-5 cases in *Basic Inc. v. Levinson*, 485 U.S. 224, 232 (1988).

⁹ A similar defense exists in common law actions, such as false advertising claims brought under the Lanham Act.

¹⁰ Academic arguments against the puffery defense in a securities setting include [Roussel \(1998\)](#), [O'Hare \(1998\)](#), [Huang \(2005\)](#), and [Padfield \(2008\)](#).

grounds that the particular qualitative statements were mere puffery and, thus, immaterial as a matter of law.

In practice, the treatment of qualitative statements varies from case to case; one can find numerous examples of both successful and unsuccessful attempts to label qualitative statements as puffery.¹¹ The current state of affairs can perhaps be best summarized by *Brumbaugh et al v. Wave Systems Corporation* (416 F. Supp. 2d 239, 2006), in which the court wrote:

“The corporate puffery rule applies to loose optimism about both a company’s current state of affairs and its future prospects” (*Fitzer*, 119 F. Supp. 2d at 23). While courts continue “to find immaterial as a matter of law a certain kind of rosy affirmation commonly heard from corporate managers and numbingly familiar to the marketplace,” (*Shaw v. Digital Equip. Corp.*, 82 F.3d 1194, 1217 (1st Cir. 1996)), [...] the recent trend is to consider expressions of corporate optimism carefully.

The court goes on (in footnote 11) to note that “dismissals on this ground [puffery] are increasingly rare.”

The idiosyncratic treatment of qualitative statements likely contributes to managers’ uncertainty about the role of qualitative language in litigation proceedings. Furthermore, we expect this uncertainty to extend to the more primitive question of whether qualitative statements expose firms to being sued, which is itself a very costly event. Our study is aimed at formally testing the relationship between the filing of lawsuits and the tone of qualitative statements.

Relation between Disclosure and Shareholder Litigation

Much of the existing literature on the link between disclosure and litigation is concerned with a firm’s ability to avert litigation via timely disclosure of bad news.¹² *Skinner (1994)* notes that firms tend to preempt bad earnings news more frequently than good earnings news, conjecturing that they do so in order to avoid litigation, which is consistent with survey evidence in *Graham et al. (2005)*. *Francis et al. (1994)* sample a group of firms in high litigation risk industries and point out that sued firms tend to issue forecasts more frequently than firms that are not sued, casting doubt on the notion that prompt disclosure deters litigation. *Skinner (1997)* examines a broader sample of firm-quarters that led to shareholder litigation and finds results consistent with *Francis et al. (1994)*, but argues that forecast issuance could limit the costs of litigation even if it does not prevent a suit. He finds some evidence that early disclosure can reduce expected litigation costs by reducing settlement amounts, but notes that this relation is endogenous, as both the incentive to disclose early and the expected settlement amount are increasing in the damages suffered by shareholders. *Field et*

¹¹ For examples of unsuccessful attempts to characterize qualitative statements as puffery, see *McCarthy v. C-COR Electronics, Inc.*, 929 F. Supp. 199 (E.D. Pa. 1996); *Rosenbaum Capital LLC v. Boston Comm. Group, Inc.*, 445 F. Supp. 2d 170 (Mass. 2006); *In re Smith & Wesson Holding Corp.*, 604 F. Supp. 2d 332 (Mass. 2009); *Desai v. General Growth Props, Inc.*, No. 09 C 487, 2009 U.S. Dist. LEXIS 85271 (N.D. Ill. Sept. 17, 2009); *Billhoefer v. Flamel Technologies, SA*, No. 1:07-cv-09920, 2009 U.S. Dist. LEXIS 97287 (S.D. N.Y. Oct. 5, 2009); and *Arkansas Public Employee Retirement Systems v. GT Solar Int’l Inc.*, No. 08-cv-312-JL, 2009 U.S. Dist. LEXIS 93820 (N.H. Oct. 7, 2009). For cases of qualitative statements being dismissed based on lack of materiality, see *Lasker v. N. Y. State Electric & Gas Corp.*, 85 F.3d 55 (2d Cir. 1996); *Zerger v. Midway Games, Inc.*, No. 07 C 3797, U.S. Dist. LEXIS 96872 (N.D. Ill. Oct. 19, 2009); and *Ind. State Dist. Council of Laborers v. Omnicare, Inc.*, 583 F.3d 935 (6th Cir. 2009).

¹² Two exceptions are *Johnson et al. (2007)* and *Nelson and Pritchard (2007)*. *Johnson et al. (2007)* compare the pre-PSLRA period to the post-PSLRA period and find that restatements and insider trading play a larger role in explaining litigation in the post-PSLRA period, while allegations related to forecasts play a smaller role. *Nelson and Pritchard (2007)* investigate the disclosures of “cautionary language,” and find that firms facing greater litigation risk disclose more cautionary language, consistent with managers attempting to reduce expected litigation costs by altering their disclosure choices.

al. (2005) explicitly model the endogeneity and conclude that disclosure potentially deters litigation.

Most prior studies concentrate on firms about to experience negative earnings news, and then examine whether timely disclosure of the negative news deters litigation. Few investigate the allegedly misleading disclosures made in the damage period, or how those disclosures compare to disclosures issued by non-sued firms. Two exceptions are Francis et al. (1994) and Loughran and McDonald (2011), although the link between tone and litigation is not a central issue in either study. Francis et al. (1994) focus on pre-PSLRA disclosures that reveal adverse earnings news. They also study disclosures in the year prior to the adverse earnings news for both sued and non-sued firms, some portion of which would have been disclosed in the damage period. They read disclosures and manually code them as being optimistic, pessimistic, or neutral, finding no statistically significant differences in the proportions of optimistic/pessimistic/neutral disclosures between sued and non-sued firms. Loughran and McDonald (2011) develop a context-specific negative word list and explore the relation between their word list and a variety of capital market phenomena, including 10-K filing returns, trading volume, fraud, and material weaknesses. While aspects of both studies are in the spirit of our study, the combination of our sample construction (restricting our analysis to primarily disclosure-based lawsuits) and our empirical design (discussed in the next section) should allow for more powerful tests of the relation between tone and litigation.

III. EMPIRICAL DESIGN

Effectively measuring the relation between disclosure tone and litigation risk requires: (1) identifying which disclosures to examine, (2) quantifying disclosure tone, (3) choosing an appropriate benchmark for tone, and (4) controlling for factors correlated with both tone and litigation risk. This section discusses how our study addresses each of these items.

Identifying the Disclosures to Examine

In a securities complaint, plaintiffs must specify the damage period, or the window during which a company allegedly engaged in improper conduct. Within that period, a firm provides a variety of disclosures, including press releases, earnings announcements, interviews, conference presentations, and SEC filings. While prior studies have examined a variety of disclosures in the litigation context, including 10-Ks (e.g., Loughran and McDonald 2011; Nelson and Pritchard 2007) and other firm disclosures (e.g., Field et al. 2005; Francis et al. 1994), we are unaware of any empirical evidence documenting which disclosures are most frequently cited in complaints.

To determine which communications are important in terms of litigation risk, we use plaintiff complaints to identify commonly cited disclosures. Specifically, for a sample of 20 randomly selected lawsuits citing 294 unique communications, we identify the source for each alleged misstatement cited in the complaint and assume that the consistently cited documents in plaintiffs' complaints are those most likely to expose firms to litigation risk. By analyzing the most commonly cited documents, issued in the relevant time period (i.e., the damage period), we focus on the particular disclosures likely to put the firm at risk.¹³

Quantifying Disclosure Tone

We define optimistic tone as the extent to which managers frame their firms' results and/or outlook in a favorable manner. Consistent with Henry (2008), our definition of tone is influenced by

¹³ In contrast, Francis et al. (1994) analyze disclosures in the year prior to an adverse earnings event, regardless of whether those disclosures occurred in the damage period.

the choice of which outcomes to emphasize, as well as the manner in which management describes those outcomes. For example, managers could choose to emphasize that “customer satisfaction scores are better than competitors’ levels” (a favorable outcome) or that they were “very pleased” with their historical results (describing an outcome positively); both would be categorized as favorable tone. See [Henry \(2008\)](#) for a variety of ways in which firms can be more or less positive for a given set of outcomes.

To quantify optimistic tone in firms’ disclosures, we use a form of content analysis that relies on pre-specified word lists. There is a rich history of academic research using content analysis in linguistics, where “*content analysis* may be briefly defined as the systematic, objective and quantitative analysis of message characteristics” ([Neuendorff 2002](#), 1; emphasis in the original). The type of content analysis that we apply counts words characterized as optimistic and pessimistic based on either prior research in applied economics ([Henry 2008](#); [Loughran and McDonald 2011](#)) or linguistics theory ([Hart 1984, 1987](#)). The general concept of using computer content analysis has been justified on a theoretical basis by establishing that “a set of words has a generally agreed upon effect upon readers” ([West and Fuller 2001](#), 86). [Neuendorff \(2002\)](#) and [Pennebaker et al. \(2003\)](#) provide detailed reviews of this literature.

This method of quantifying disclosure language has become increasingly popular in recent years, and has several advantages over a subjective categorization. First, our proxies for optimistic tone are continuous rather than categorical, such as the measure used by [Francis et al. \(1994\)](#), which increases the power of our analysis. Second, the measure is normalized by word count, which allows for comparisons between disclosures of vastly different lengths. Finally, the process is objective, can be applied to large quantities of text, and provides results that are replicable by other researchers.

Rather than relying upon a single categorization scheme, we use three different “libraries” of words, each of which has been used to study firm disclosures. The first is obtained from Diction, a dictionary-based text analysis program that incorporates general context dictionaries designed to capture tone within a document. The second and third are designed specifically for use in the financial domain by [Henry \(2008\)](#) and [Loughran and McDonald \(2011\)](#), respectively.

Our choice to use multiple measures arises from the lack of clarity as to which is the most appropriate dictionary to address our research question. On one hand, dictionaries specific to the financial domain seem appropriate when studying investor responses to firm disclosures ([Henry 2008](#); [Loughran and McDonald 2011](#)). However, a general dictionary may be more appropriate when studying how nonfinancial individuals (e.g., attorneys) assess these disclosures.¹⁴ Additionally, the general context dictionary has the advantage of prior use in a variety of settings, which provides comfort that it captures meaningful semantic variation.¹⁵ For these reasons, we use a combination of both general and context-specific dictionaries in our analysis.

Diction defines optimism as “language endorsing some person, group, concept, or event or highlighting their positive entailments.” The Diction variable (*Optimism-Diction*) is calculated as the sum of three positive components (praise, satisfaction, and inspiration) minus the sum of three negative components (blame, hardship, and denial). For the second measure, we use the combination of positive and negative word lists from [Henry \(2008\)](#) to compute a similar optimism

¹⁴ The interview with the previously mentioned securities litigation partner confirmed that it is the attorneys (and not hired linguistic or financial experts) who read firm disclosures to identify which statements to cite in their complaints. The partner was not aware of any firms that use linguistic software to aid in this process.

¹⁵ The Diction word list, in particular, provides a general measure of tone and has been used in many contexts, including presidential speeches ([Bligh et al. 2004](#)); television versus newspaper coverage of major events ([Cho et al. 2003](#)); corporate annual reports ([Yuthas et al. 2002](#)); earnings announcements ([Davis et al. 2008](#); [Demers and Vega 2008](#)); and other business communications ([Ober et al. 1999](#)), providing comfort that the quantitative measures capture semantic distinctions similar to those that motivate our study.

variable (*Optimism-Henry*). Finally, we use the negative word list developed by Loughran and McDonald (2011) as a third measure of tone (*Optimism-LM*). For our research question, we expect dictionaries that incorporate both positive and negative language (e.g., *Optimism-Diction* and *Optimism-Henry*) to be more powerful than dictionaries based strictly on negative language (e.g., *Optimism-LM*).

Each of these measures is constructed such that it is increasing in optimism (decreasing in pessimism), scaled by the word count of the document, and multiplied by 100 to obtain an optimism percent for each document.¹⁶ Each list contains words that overlap with other lists, but the overlap is far from complete. With respect to the Henry wordlist, 25 percent of the words are contained in the Diction list (21 percent of the optimistic words overlap and 29 percent of the pessimistic words overlap). With respect to the LM list, there is a 59 percent overlap with the Henry pessimistic words and a 30 percent overlap with the Diction pessimistic words. Appendix A provides examples of the overlapping and non-overlapping words.

The measures of optimism based on these lists are significantly positively correlated but not perfectly correlated. (*Optimism-Diction* has positive correlations of approximately 0.55 with both *Optimism-Henry* and *Optimism-LM*, while *Optimism-Henry* and *Optimism-LM* have a correlation of 0.32.) This correlation structure is consistent with each measure capturing the underlying construct of optimistic tone plus idiosyncratic error. As a result, we use principal component factor analysis to construct a single factor from the three individual proxies as an alternative measure of disclosure tone. As expected, all three individual optimism variables load positively on one factor, which we label the *Optimism-Factor* score.¹⁷ While we present all four measures in the tables, we focus our discussion on the *Optimism-Factor* results. This focus is driven by the expectation that the measurement errors in the individual dictionary scores are unlikely to be perfectly correlated, such that the combined measure should result in a better measure of optimism. At any rate, our results are substantially consistent across all four measures.

Choosing a Benchmark

Our principal analysis focuses on the overall optimism in the sued firms' disclosures during the damage period. This analysis requires a base level of optimism to use as a benchmark when evaluating the optimism of the sued firms' disclosures. We select a control group of non-sued firms and use the measured optimism from their disclosures as that benchmark. As discussed below, our matching procedure enables us to compare disclosures issued by firms experiencing comparable economic performance. Our goal, like that of Rogers and Van Buskirk (2009), is to compare two groups of firms whose underlying economic circumstances yield a similar ability to speak favorably, but whose discretionary disclosure choices vary.

Because discretionary disclosure is correlated with economic performance (Miller 2002), it is reasonable to expect that disclosure tone would also vary with performance. Given that firms are typically sued after a period of poor performance, a comparison of sued firms' disclosures to disclosures made by random firms would likely be biased in favor of finding differences across the two groups. To generate a more appropriate benchmark, we implement a modified version of the matching algorithm used in Rogers and Van Buskirk (2009).

¹⁶ To illustrate the types of words identified as increasing or decreasing optimism, Appendix A lists a subset of the terms in each of the three libraries that are unique to that library as well as a subset of words that overlap multiple libraries. Refer to Henry (2008) for her complete word lists. The word list developed by Loughran and McDonald (2011) can be found at http://www.nd.edu/~mcdonald/Word_Lists.html

¹⁷ Our results are also robust to an alternative combined score that combines equally weighted standardized values of each dictionary measure.

For each sued firm, we use I/B/E/S data to identify the last earnings announcement prior to the beginning of the damage period and the first earnings announcement after the end of the damage period, and measure the stock return during that window (i.e., the return window fully encompasses the lawsuit's damage period).¹⁸ Because the beginning and ending dates of the return measurement window are outside of the class action damage period, the stock prices can reasonably be assumed to reflect an unbiased measure of firm value. This implies that the return over that period is an unbiased measure of the firm's performance, even if the stock price within the damage period was (allegedly) inflated. Given that plaintiff attorneys have an incentive to identify as many potentially misleading statements as possible, we expect that this window provides conservative bounds for capturing unbiased prices.¹⁹ From the population of all firms in the same two-digit SIC code and the same size decile, we select the non-sued firm having the closest stock return, measured over a period encompassing the same number of earnings announcements.²⁰

This matching process is similar to that used by Rogers and Van Buskirk (2009), but it differs in two ways. First, we require industry matching, based on the expectation that disclosure content is likely to be similar within industries (e.g., pharmaceutical firms discussing clinical trials) as well as the observation that litigation risk appears to be clustered in certain industries in a given time period (Cornerstone Research 2009).²¹ Matching on industry also addresses a concern raised by Loughran and McDonald (2011)—in some circumstances, measurement error could result from certain words reflecting industry membership rather than tone. Second, our windows span from earnings announcement to earnings announcement, rather than a strict calendar matching based on the sued firm's damage period. The centrality of earnings announcement dates is based on the frequency with which earnings announcements are cited in the class actions complaints, as we discuss in detail in Section V.

Controlling for Factors Correlated with Disclosure Tone and Litigation Risk

Just as a firm's discretionary disclosure behavior is influenced by its economic performance (Miller 2002), we expect disclosure tone to be correlated with performance; a firm that is performing very well and has a positive outlook will naturally have more favorable things to disclose than a firm in poor financial condition. The correlation tables in Henry (2008) and Davis et al. (2008) support this reasoning. Both studies document that measures of optimism are positively correlated with a variety of economic attributes, including contemporaneous returns, unexpected earnings, size, positive earnings, return on assets, and market-to-book ratios.

To account for the fact that firms with more positive performance tend to speak with more optimism, we include concurrent *Earnings Surprise*, *Return on Assets*, *Earnings Growth*, *Sales Growth*, an indicator variable for reporting a net loss (*Loss Indicator*), and the firm's economic

¹⁸ If the damage period begins on an earnings announcement date, the starting date for measuring returns is three trading days prior to that earnings announcement. Similarly, if the damage period ends on an earnings announcement date, the ending date is three trading days after the earnings announcement.

¹⁹ Nevertheless, it is possible that plaintiff attorneys are not fully successful at capturing the entire period of misvaluation within the damage window. Due to this possibility, we expand the window for measuring returns to begin 30 days prior to the damage period and end 30 days after the damage period. Our regression results are robust to including this alternative control variable.

²⁰ We require that the match firm's measurement window begins within 365 days of the beginning of the sued firm's measurement window, ensuring that the periods span similar calendar time. We further require the returns of the matched firm to be within 25 percent of the sued firm's returns to ensure a reasonable performance match.

²¹ We note that the industries subject to litigation are not constant over time—a Cornerstone Research report shows that from 2000–2008, the most frequently sued S&P sector in a calendar year included Technology (2000 and 2006), Communications (2001), Utilities (2002), Consumer Non-Cyclical (2003 and 2005), and Financial (2004, 2007, and 2008). Only the Basic Materials, Consumer Cyclical, Energy, and Industrial sectors failed to reach the highest place in any year (Cornerstone Research 2009).

performance during the class period (*Window Stock Return*) in all of our regressions. (All variables are defined in Appendix B.) Including these control variables helps to isolate the effect of the firm's optimism driven by management discretion, rather than by the firm's economic circumstances.

Another matter is that firms' disclosure choices tend to be correlated (Lang and Lundholm 1996; Botosan and Plumlee 2002). To isolate disclosure tone from other disclosure attributes, we include the number of management forecasts issued (*Log Forecasts*) and the length of the firm's earnings announcement (*Log Word Count*).

In addition to the factors previously mentioned, we expect other firm characteristics to be associated with the likelihood of being sued. Some of these are based on the necessary elements of a successful private action under SEC Rule 10b-5, while others relate to aspects of the firm's information environment. We discuss these factors below.

To prevail in the lawsuit, a plaintiff must demonstrate an economic loss and that the loss was caused by the defendant's misstatements.²² We include the minimum one-day stock return (*Minimum Daily Return*) because it has been used to show evidence of both economic loss and loss causation (Skinner 1994; Johnson et al. 2007). To account for possible nonlinearities in the relation between minimum one-day returns and litigation risk, we include a squared daily return variable. Firms with greater share *Turnover* are more likely to be sued, as greater turnover implies a potentially larger class of plaintiffs (Field et al. 2005). As previously mentioned, a private class action suit requires that the plaintiff demonstrate material misrepresentation and scienter. The primary focus of our study is whether optimistic tone can be used to claim material misrepresentation. We include *Abnormal Insider Trading* because plaintiffs often point to insider sales as evidence that managers acted with intent, or scienter (Johnson et al. 2007).

Finally, we control for firm characteristics leading up to the damage period that have been found to be associated with litigation in prior research. We include *Lag Size* because larger firms are more likely to be sued, perhaps because they are more likely to provide large settlements (Field et al. 2005). Because firms with better growth opportunities could have more favorable information to convey, we also control for *Lag Book-to-Market*. We include *Lag Log Analysts* and *Lag Volatility* (return volatility) to account for differences in information environment across firms. We control for firm performance leading up to the damage period by including *Lag Return on Assets*, *Lag Earnings Growth*, *Lag Sales Growth*, and an indicator for reporting a net loss (*Lag Loss Indicator*).

IV. SAMPLE DATA

We obtain litigation data from Woodruff-Sawyer, a San Francisco-based insurance brokerage firm.²³ The criteria for inclusion in this dataset are:

- The suit was filed in federal court against a corporation.
- The suit alleged fraud involving the price of the defendant's common stock.
- The case included allegations of material misrepresentations and omissions regarding the true health and potential of the defendant company.

²² *Dura Pharmaceuticals, Inc. v. Broudo*, 544 U.S. 336 (2005).

²³ Woodruff-Sawyer aggregates the data for its own uses, one of which is to advise its clients on D&O insurance coverage. Woodruff-Sawyer uses many sources to generate this data, including Stanford's Securities Class Action Clearinghouse (SCAC), Securities Class Action Services, SEC filings, and wire services. As discussed in Rogers and Van Buskirk (2009, fn 16), the cases within the SCAC database should also be contained in the Woodruff-Sawyer database, with the only exceptions being mutual fund cases and broker/dealer cases. Rogers and Van Buskirk (2009) provide some testing of this claim. For a further discussion, see Rogers and Van Buskirk (2009).

Our interest lies in the contribution of discretionary disclosure choices to litigation risk and so, like Rogers and Van Buskirk (2009) and Field et al. (2005), we do not include lawsuits related to IPO allocations, earnings restatements, mergers and acquisitions, or options backdating. For our initial analysis of 20 lawsuits, we focus on lawsuits with damage periods beginning after the enactment of Regulation Fair Disclosure (Reg FD). This restriction ensures that the disclosures in question were all in the public sphere (and available for us to examine).²⁴ For our full sample analysis, we further require CRSP, Compustat, First Call, and I/B/E/S coverage, as well as at least one earnings announcement within the damage window available on DirectEDGAR, for the sued firms as well as the matched firms. A total of 165 lawsuits meet all the requirements for our full sample analysis.²⁵ Table 1 summarizes the characteristics of these lawsuits.

The lawsuits target firms in multiple industries and vary in damage period length. The population of 165 lawsuits was filed from 2003–2008, with alleged periods of misconduct ranging from one month to five years (Table 1, Panels A and B). Just over 50 percent of the lawsuits fall in five industries: Chemicals and Allied Products (SIC 28) with 13 percent, Electronics and Other Electronic Equipment (SIC 36) with 13 percent, Business Services (SIC 73) with 11 percent, Insurance Carriers (SIC 63) with 9 percent, and Measurement, Analysis, and Control Instruments (SIC 38) with 8 percent (Panel C).

V. EMPIRICAL ANALYSIS

Analysis of Class Action Complaints

Securities lawsuits must contain the specific statements alleged to be false or misleading and the reasons why those statements are false or misleading. Our initial inquiry identifies the communication channels from which the alleged misstatements are drawn. From the population of lawsuits with available data on CRSP, Compustat, First Call, and I/B/E/S, we review a random sample of 20. The sample lawsuits were filed between 2001 and 2008, with damage periods ranging from less than one month up to five years.

For each of the 20 randomly selected lawsuits, we obtain the reference complaint from the Stanford Securities Class Action Website (<http://securities.stanford.edu/>) and review the substantive allegations made by the plaintiffs. We categorize each alleged misstatement based on the type of communication in which that statement appeared, and summarize this review in Table 2.

The 20 complaints that we review cite a total of 294 communications, comprising earnings announcements, conference calls (both earnings announcement-related and stand-alone), press releases, media interviews, investor conferences, and SEC filings. Earnings announcements were cited most consistently, appearing in 18 of the 20 lawsuits. The majority of lawsuits also cite non-earnings announcement press releases (75 percent), 10-Qs (70 percent), earnings-related conference calls (60 percent), and 10-Ks (55 percent). Of the 294 communications, 108 (37 percent) were earnings-related, either the press release itself (80) or the associated conference call (28). SEC filings accounted for 75 (26 percent) of the cited communications, most frequently 10-Qs (51) and

²⁴ For example, if pre-Reg FD claims rely on reports of private communications between analysts and the firm, we cannot characterize the type of information communicated, or the tone with which it was communicated. The consolidated amended class action complaint in *Rombach, et al. v. Family Golf Centers, Inc., et al.*, 355 F.3d 164 (2d Cir. 2004) features several pre-Reg FD claims of this type.

²⁵ The Woodruff-Sawyer database contains 877 lawsuits with damage periods beginning after the effective date of Reg FD. The SEC requirement that earnings announcements be filed on 8-Ks took effect on March 28, 2003. Therefore, 199 of these suits are excluded because the damage period ended prior to this requirement. An additional 330 lawsuits are eliminated based because they relate to excluded suit types (i.e., IPO allocations, earnings restatements, mergers and acquisitions, or options backdating). Our matching requirements combined with data availability constraints reduces the sample by exactly 50 percent, resulting in 165 lawsuits.

TABLE 1
Distribution of Lawsuits

Panel A: Distribution of Lawsuit Dates

<u>Year of Suit Filing</u>	<u>Lawsuits</u>	
2003	5	3%
2004	36	22%
2005	37	22%
2006	21	13%
2007	36	22%
2008	30	18%
Total	165	100%

Panel B: Distribution of the Length of the Damage Period (in six-month increments)

<u>Number of Months</u>	<u>Lawsuits</u>	
1–6	52	31%
7–12	44	27%
13–18	24	14%
19–24	16	10%
25–30	12	7%
31–36	0	0%
37–42	6	4%
43–48	1	1%
49–54	3	2%
55–60	7	4%
Total	165	100%

Panel C: Distribution of Lawsuits by Industry

<u>Two-Digit SIC Code</u>	<u>Lawsuits</u>	
28: Chemicals and Allied Products	22	13%
36: Electronics and Other Electronic Equipment	22	13%
73: Business Services	18	11%
63: Insurance Carriers	15	9%
38: Measurement, Analysis, and Control Instruments	14	8%
Industries representing less than 5 percent of lawsuits	74	45%
Total	165	100%

Panel A provides the distribution of the year in which the lawsuits were filed.

Panel B provides the distribution of the length of time (in months) that the damage periods extended.

Panel C provides a list of all industries, by two-digit SIC code, in which 5 percent or more of the lawsuits fall.

10-Ks (20). Of the remaining categories, non-earnings announcement press releases were by far the most frequent, accounting for 91 (31 percent) of the cited statements.

As noted in Table 2, 91 of the documents cited were press releases that were not earnings announcements, while 80 were earnings announcements. However, only 75 percent of the lawsuits cite at least one non-earnings press release, while 90 percent cite at least one earnings announcement. Three sued firms cause the distribution of non-earnings press releases to be skewed:

TABLE 2
Distribution of the Source Documents Cited in the Allegation Section of the Lawsuit

	Percent of Lawsuits Citing Document Category	Total Documents Cited	
Earnings Related			
Earnings announcement	90%	80	
Related conference call	60%	28	
Total EA		108	37%
SEC Filings			
10-Q	70%	51	
10-K	55%	20	
Other	20%	4	
Total SEC		75	26%
Other Cited Items			
Press release	75%	91	31%
Conference call	10%	3	1%
Investor conference	10%	2	<1%
Interview	35%	14	5%
Other	5%	1	<1%
Total Other		111	38%
Total Documents		294	100%

This table summarizes the documents cited in the allegations section of the lawsuit from the 20 lawsuits selected at random from all disclosure-related lawsuits with damage periods beginning after Regulation FD, excluding lawsuits related to IPO allocations, earnings restatements, mergers and acquisitions, or options backdating. The "Percent of Lawsuits" column indicates the percentage of the subsample that cited each document at least once. The "Total Documents Cited" columns tabulate the frequency with which each document category was cited.

EVCI Career Colleges, Pozen Inc., and Xethanol Corporation account for 42 percent (38/91) of the non-earnings press releases cited. Excluding these three lawsuits, earnings-related disclosures account for 41 percent of the cited statements, SEC filings account for 27 percent of the cited statements, and non-earnings press releases account for 23 percent of the cited statements.

Characteristics of the full sample substantiate the importance of earnings announcements in lawsuit filings. Over half of the lawsuits' damage periods begin on an earnings announcement date, suggesting that the earnings announcement (or earnings-related conference call) contained the first allegedly misleading statement in that complaint.

Overall, these analyses indicate that earnings announcements are an important (perhaps the most important) source of alleged misrepresentations. Based on the consistency and prevalence with which earnings announcements are cited in class action complaints, along with the availability of earnings announcements for potential control firms, we focus on earnings announcement disclosures in the remainder of our analyses.

Analysis of Quoted Language

Plaintiffs reveal the particular statements they view to be misleading by quoting those statements in the text of the lawsuits. When presenting the alleged misstatements, plaintiffs typically quote only a small portion of the disclosure in which those misstatements were made. In

choosing to quote some statements, but not others, plaintiffs reveal the language they view as most favorable to their case. We use the plaintiffs' selections to infer the characteristics of the language that plaintiffs do (and do not) target. If plaintiffs target optimistic language and our dictionaries effectively capture optimism, then we expect *Optimism* to be significantly higher for the quoted portion than the non-quoted portion. This initial analysis is a joint test of the efficacy of the measures in our setting and the propensity for plaintiffs to cite optimistic language in their allegations.

For each of the 20 lawsuits comprising our initial analysis, we attempt to gather all of the earnings announcements that were specifically cited in the allegations section. We are able to obtain 78 of the 80 earnings announcements. We separately analyze the tone of the quoted statements and the tone of the remainder of the earnings announcements (i.e., the non-quoted portion of the disclosure). Table 3 presents the results of this analysis. The earnings announcements referenced in the complaints have a mean word count (excluding numerical terms) of 1,298 words. The allegations quote approximately one-quarter of the earnings announcement text.

Univariate tests reveal that statements quoted by plaintiffs in a class action complaint are significantly more optimistic than other language in the same document (i.e., the text not quoted in the complaint). Specifically, in Table 3, the quoted text has a mean and median *Optimism-Factor* greater than the non-quoted portion ($p < 0.01$). Moreover, the difference is pervasive—the quoted portion of the earnings announcement is more optimistic (based on *Optimism-Factor*) than the non-

TABLE 3
Lawsuit Subsample
Analysis of Quoted Language

	Components of Document			p-values for Matched Pair Test of Differences
	Full Document	Quoted	Non-Quoted	
n	78	78	78	
Word Count				
Mean	1,298	300	998	
Median	1,240	233	903	
<i>Optimism-Diction</i>				
Mean	0.11	1.34	-0.22	<0.01
Median	0.28	1.13	-0.13	<0.01
<i>Optimism-Henry</i>				
Mean	1.52	3.56	0.82	<0.01
Median	1.60	3.76	0.66	<0.01
<i>Optimism-LM</i>				
Mean	-1.38	-1.03	-1.48	0.06
Median	-1.24	-0.88	-1.34	<0.01
<i>Optimism-Factor</i>				
Mean	0.13	1.67	-0.35	<0.01
Median	0.15	1.90	-0.42	<0.01

This table shows the characteristics of all 78 earnings announcements cited in the subsample of 20 lawsuits summarized in Table 2. Optimism is measured separately for the full earnings announcement, the portion of the earnings announcement quoted in the lawsuit, and the text of the cited earnings announcement that was not quoted in the lawsuit. Variable definitions are in Appendix B. The p-values of the tests of differences in means are based on paired t-tests, clustered by firm. The p-values of tests of differences in the medians are for a matched-pair Wilcoxon signed-rank test.

quoted portion for 91 percent of the earnings announcements analyzed.²⁶ To our knowledge, this is the first concrete evidence for the intuition that plaintiffs target optimistic language when bringing actions against the firm.

Comparison of Sued and Non-Sued Firms

The prior analysis establishes that, conditional on bringing a lawsuit against the firm, the plaintiffs cite more optimistic language in their complaints. One plausible interpretation is that more optimistic disclosures lead to a higher probability of litigation. A more cynical view is that plaintiffs target any firm that experiences unexpectedly poor results and, with the benefit of hindsight, choose the most optimistic statements they can find and assert that the statements were misleading.

In order to distinguish between these two different perspectives, we incorporate a benchmark sample of similar firms that were not sued. As described earlier, each sued firm is matched to a non-sued firm in the same two-digit SIC code and size decile, with similar stock returns to the sued firm.

We obtain electronic copies of the earnings announcements falling within the sued firms' damage period (regardless of whether the announcement was cited in the lawsuit) and matched firms' pseudo-damage period. To facilitate the data collection process, we use directEDGAR to retrieve the earnings announcements from the SEC's EDGAR database, as filed on form 8-K.²⁷ This requirement limits our sample, as the SEC did not require firms to furnish a Form 8-K with their earnings announcements prior to 2003. After excluding firms due to poor matches and losing observations because of a lack of earnings announcements and other required data, our final sample includes 165 sued firms and their matches.

Table 4, Panel A provides univariate comparisons of the sued and matched firms' characteristics. Because we match firms on size prior to the damage period and returns across the damage period, it is not surprising that those variables (*Lag Size* and *Window Return*, respectively) are not significantly different across the sued and non-sued firms.

What is notable is that the two groups of firms are similar across many economic characteristics that are not part of our matching criteria. The two groups are statistically indistinguishable in terms of book-to-market ratios (*Lag Book-to-Market*), volatility (*Lag Volatility*), return on assets (*Lag Return on Assets*), earnings growth (*Lag Earnings Growth*), and the likelihood of incurring a loss (*Lag Loss Indicator*).²⁸ Sued firms experienced higher turnover (*Turnover*), had a more significant stock single-day price drop during the damage period (*Minimum Daily Return*), had higher sales growth (*Lag Sales Growth*) and moderately greater analyst following (*Lag Log Analysts*).

We obtain 628 earnings announcements for the 165 sued firms and 625 announcements for the 165 matched firms.²⁹ The characteristics of these earnings announcements are summarized in Panel B of Table 4. Again, the two groups of firms are similar across many economic attributes measured at the earnings-announcement level. They issue earnings announcement press releases of

²⁶ Across the individual dictionaries, the quoted portion of the earnings announcement is more optimistic than the non-quoted portion for 86 percent, 91 percent, and 65 percent of the documents using the libraries from Diction, Henry (2008), and Loughran and McDonald (2011), respectively.

²⁷ Our particular search criteria was "filereasons/10/operations and *ex*99*," which limits the 8-Ks to those reporting on the results of operations. If the firm filed multiple earnings-related 8-Ks on an earnings announcement date, then we measure the characteristics of that earnings announcement as the weighted (by word count) average of the characteristics of the individual documents.

²⁸ We have also examined measures of management disclosure practices in the pre-damage period and find that management forecasts do not differ at the 10 percent level between the sued and matched firms on dimensions of quantity, horizon, forecast error, or forecast news.

²⁹ Although we match on the number of earnings announcements (per I/B/E/S), the variation in sample sizes is due to an inability to obtain all of those announcements from the EDGAR database.

TABLE 4
Descriptive Statistics for Sued and Non-Sued Firms

Panel A: Firm-Level Characteristics

	Sued Firms			Non-Sued Match Firms			p-values for Tests of Differences	
	n	Mean	Median	n	Mean	Median	Mean	Median
Measured during the Damage Period								
<i>Window Return</i>	165	-0.2243	-0.2329	165	-0.2106	-0.2168	0.72	0.76
<i>Minimum Daily Return</i>	165	-0.2364	-0.2153	165	-0.1523	-0.1113	<0.01	<0.01
<i>Turnover</i>	165	0.9340	0.9936	165	0.8703	0.9647	<0.01	<0.01
<i>Abnormal Insider Trading</i>	165	158.4099	0.0000	165	-42.8958	0.0000	0.75	0.80
Measured Prior to Damage Period								
<i>Lag Size</i>	165	21.6981	21.3506	165	21.4024	21.4274	0.11	0.40
<i>Lag Book-to-Market</i>	165	0.3719	0.2863	165	0.3924	0.3085	0.55	0.25
<i>Lag Log Analysts</i>	165	2.2861	2.3979	165	2.1615	2.1972	0.11	0.07
<i>Lag Volatility</i>	165	0.0287	0.0237	165	0.0268	0.0233	0.28	0.43
<i>Lag Return on Assets</i>	165	0.0111	0.0165	165	0.0095	0.0136	0.71	0.17
<i>Lag Earnings Growth</i>	165	0.0095	0.0043	165	0.0068	0.0023	0.54	0.10
<i>Lag Sales Growth</i>	165	0.2979	0.1873	165	0.1716	0.1247	<0.01	<0.01
<i>Lag Loss Indicator</i>	165	0.1636	0.0000	165	0.1818	0.0000		0.66

Panel B: Earnings-Announcement-Level Characteristics

	Sued Firms			Non-Sued Match Firms			p-values for Tests of Differences	
	n	Mean	Median	n	Mean	Median	Mean	Median
<i>Log Forecasts</i>	628	0.5565	0.6931	625	0.3897	0.0000	<0.01	<0.01
<i>Log Word Count</i>	628	7.7056	7.6384	625	7.7436	7.7011	0.23	0.17
<i>Earnings Surprise</i>	628	-0.0021	0.0004	625	-0.0016	0.0003	0.65	0.40
<i>Return on Assets</i>	628	0.0064	0.0127	625	0.0074	0.0119	0.67	0.29
<i>Earnings Growth</i>	628	0.0021	0.0014	625	0.0019	0.0008	0.92	0.33
<i>Sales Growth</i>	628	0.3066	0.1715	625	0.1565	0.0994	<0.01	<0.01
<i>Loss Indicator</i>	628	0.1975	0.0000	625	0.1984	0.0000		0.97
<i>Optimism-Diction</i>	628	0.1607	0.2341	625	-0.0197	0.0431	<0.01	<0.01
<i>Optimism-Henry</i>	628	1.3435	1.2704	625	1.2839	1.1912	0.24	0.06
<i>Optimism-LM</i>	628	-1.3056	-1.0821	625	-1.5027	-1.3394	<0.01	<0.01
<i>Optimism-Factor</i>	628	0.0897	0.1647	625	-0.0987	-0.0362	<0.01	<0.01

This table shows means and medians of the independent variables for a sample of 165 sued and non-sued matched firms. Matched firms were chosen from the same two-digit SIC code and size decile based on stock performance. Stock performance was measured for sued firms from the earnings announcement immediately prior to the damage period to the earnings announcement immediately following the damage period, and for matched firms over the same number of earnings announcements in close calendar proximity. Variable definitions are in Appendix B. The p-values of the tests of differences in means are based on t-tests. The p-values of tests of differences in the medians are for a two-sided Wilcoxon rank-sum test. All firm-level tests are paired. For binary variables, p-values are for a χ^2 test.

approximately the same length (*Log Word Count*), and they experience similar earnings surprises (*Earnings Surprise*). They also exhibit comparable return on assets, earnings growth, and loss incidence (*Return on Assets*, *Earnings Growth*, and *Loss Indicator*, respectively). Sued firms issue more forecasts (*Log Forecasts*) and exhibit higher sales growth (*Sales Growth*) than their matched firms.

To quantify the level of optimism in each of the earnings announcements, we use scores based on the three libraries discussed earlier, as well as the composite factor score. For three of the four measures, sued firms' earnings announcements are more optimistic than non-sued firms during a comparable period (statistically significant at the 5 percent level), regardless of whether those earnings announcements were actually cited in the plaintiff complaint. The fourth measure, *Optimism-Henry*, is marginally higher for sued firms relative to matched firms ($p = 0.06$ for the difference in medians, 0.24 for the difference in means). Overall, the univariate comparisons suggest that sued firms issue more optimistic earnings announcements than do economically comparable non-sued firms.

For our multivariate analysis, we use a conditional maximum likelihood model with a dependent variable equal to 1 for sued firms and 0 for matched firms. Specifically, we use the conditional logistic regression model, which takes into account pair-matching to provide consistent coefficients for a sample matched on the dependent variable (i.e., the initiation of a class action lawsuit).³⁰ The conditional logit calculates likelihood relative to each group (i.e., within each sued firm and its matched firm) and avoids the problem of disproportionate sampling that occurs when a sample is matched based on the dependent variable. In our case, disproportionate sampling occurs because our sample rate of litigation incidence is far higher than the rate we observe for the global population of firms.

Our particular regression models the dichotomous variable (sued/not sued) as a function of optimistic tone and the control variables mentioned earlier. Table 5 documents the regression results. We find that the tone of the document is a significant predictor of class action litigation, in both a statistical and an economic sense. Specifically, *Optimism-Factor* has a significantly positive coefficient of 0.5646 ($p < 0.01$). In terms of economic magnitude, a one standard deviation increase in *Optimism-Factor* increases the odds of being sued by a factor of 1.759.³¹ These results are in accord with the univariate results presented earlier.

We also find that firms issuing more discretionary disclosure in the form of management forecasts have a greater propensity to be sued—the coefficient on *Log Forecasts* is positive and significant ($p < 0.01$).³² This result is consistent with Rogers and Van Buskirk (2009). Specifically, they show that managers reduce their level of disclosure (including forecasts) after being sued, presumably after gaining a better understanding of the particular disclosure behavior that puts them at risk.

Several of the remaining control variables are significantly related to litigation. In particular, sales growth (*Sales Growth*), which is measured at the earnings-announcement level, is significantly associated with the likelihood of being sued. Consistent with expectations,

³⁰ For further discussion of the conditional logistic model, see Hosmer and Lemeshow (2000) or Cram et al. (2009).

³¹ Across the individual dictionaries, a one standard deviation increase in *Optimism* increases the odds of being sued by a factor of 1.676, 1.325, and 1.644 using the libraries from Diction, Henry (2008), and Loughran and McDonald (2011), respectively.

³² To ensure that our results are not driven by forecast characteristics, we repeat our analysis including forecast news (i.e., manager's forecasted earnings minus consensus analyst expectation, scaled by stock price) and forecast error (i.e., actual earnings minus manager's forecasted earnings, scaled by stock price). The variables are set equal to 0 for firms without forecasts in a given period. Our results are unaffected by the inclusion of these two variables.

TABLE 5
Litigation Conditional Logit

	Diction		Henry		LM		Factor	
	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
<i>Optimism</i>	0.5164***	3.61	0.2817**	2.18	0.4973***	3.30	0.5646***	3.95
<i>Log Forecasts</i>	0.9344***	4.56	0.8930***	4.42	0.9348***	4.56	0.9196***	4.49
<i>Log Word Count</i>	-0.2560	-1.04	-0.1893	-0.76	-0.1591	-0.64	-0.1799	-0.73
<i>Earnings Surprise</i>	-6.1670	-1.24	-5.7586	-1.14	-6.7487	-1.38	-6.5756	-1.34
<i>Return on Assets</i>	3.1236	0.61	3.8405	0.76	3.2969	0.63	3.2835	0.64
<i>Earnings Growth</i>	-6.9888*	-1.86	-8.3502**	-2.25	-6.8065*	-1.79	-7.5527**	-2.02
<i>Sales Growth</i>	0.6957***	2.87	0.7302***	2.99	0.7430***	2.98	0.6606***	2.74
<i>Loss Indicator</i>	0.4652	1.29	0.2502	0.72	0.4922	1.35	0.5220	1.44
<i>Window Return</i>	-33.0750***	-5.35	-33.2661***	-5.51	-30.9787***	-5.02	-32.8220***	-5.33
<i>Minimum Daily Return</i>	-40.1783***	-8.66	-38.4807***	-8.45	-38.1368***	-8.21	-40.0135***	-8.58
<i>Minimum Daily Return²</i>	-41.4873***	-6.17	-38.8847***	-5.85	-39.5293***	-5.77	-41.1961***	-6.06
<i>Turnover</i>	15.2550***	5.74	15.4560***	5.84	15.1002***	5.89	15.6432***	5.82
<i>Abnormal Insider Trading^a</i>	0.0257	1.60	0.0261*	1.65	0.0240	1.53	0.0254	1.60
<i>Lag Size</i>	2.7085***	11.23	2.7074***	11.33	2.7508***	11.37	2.7638***	11.30
<i>Lag Book-to-Market</i>	0.3308	0.73	0.4071	0.91	0.6229	1.38	0.4378	0.97
<i>Lag Log Analysts</i>	-0.1962	-0.72	-0.2290	-0.85	-0.3280	-1.19	-0.1971	-0.72
<i>Lag Volatility</i>	26.2511**	2.09	17.8098	1.46	22.7690*	1.86	24.2596**	1.95
<i>Lag Return on Assets</i>	-19.5828***	-3.28	-19.8218***	-3.27	-18.5749***	-3.07	-19.9993***	-3.32
<i>Lag Earnings Growth</i>	8.8551**	2.40	7.6370**	2.08	7.9606**	2.19	9.1197***	2.47
<i>Lag Sales Growth</i>	1.5199***	2.61	1.6023***	2.88	1.6829***	2.96	1.5506***	2.72
<i>Lag Loss Indicator</i>	-0.6540	-1.25	-0.7669	-1.46	-0.7570	-1.44	-0.6930	-1.31
No. Observations	1,253		1,253		1,253		1,253	
Likelihood Ratio	659.07		650.57		656.91		661.91	
McFadden's R ²	50.7%		50.1%		50.6%		51.0%	

*, **, *** Indicate significance at the 10 percent, 5 percent, and 1 percent levels, respectively (two-tailed).
^a Indicates coefficients have been multiplied by 10³ for expositional purposes.

This conditional logit of the propensity for being sued is measured over a pool of 628 observations from 165 sued firms and 625 observations from 165 matched firms, each observation representing an individual earnings announcement. *Optimism* is based on the word lists obtained from Diction 6.0 in the first column, *Henry* (2008) in the second, LM (Loughran and McDonald 2011) in the third, and the Factor score of all three in the final column. Variable definitions are in Appendix B.

poorer stock performance (*Window Return*) during the damage period (or pseudo-damage period), the largest one-day price decline (*Minimum Daily Return*), and share turnover (*Turnover*) are significantly associated with the likelihood of being sued. Finally, larger firms (*Lag Size*) and firms with greater share price volatility (*Lag Volatility*) have a greater propensity to be sued.

Additional Analysis—Influence of Large One-Day Stock Price Drops

As discussed earlier, large one-day stock price drops help to establish two components of litigation: materiality and loss causation. The univariate statistics in Table 4 demonstrate that the sample of sued firms, on average, have larger one-day stock price drops than the non-sued firms. In addition to including both a linear and a squared term in the primary regression analysis, we take an additional step to ensure that our results are not driven by differences in the distribution of this variable.

Specifically, Table 6 documents the results from layering on an additional constraint to our matching criteria by eliminating from our analysis any pair (sued firm and its non-sued counterpart) for which the *Minimum Daily Return* differs by more than 10 percent.³³ Despite the substantial decline from 165 firm-pairs to 85 and from 1,253 observations to 684, *Optimism-Factor* remains significantly associated with the likelihood of being sued ($p < 0.01$).

VI. THE ROLE OF INSIDER TRADING

Abnormally high insider sales increase the risk of being sued, as documented in prior studies (e.g., Johnson et al. 2007). This relation is not because plaintiffs are pleading a claim for “insider trading,” but rather because insider sales are typically used to show managerial intent to mislead (see Eth and Dicke 1994, 103–107). To assess the joint effect of insider sales and optimistic disclosures, we perform two sets of analyses. First, we interact these two variables and add the interaction to the main regression shown in Table 5. Table 7, Panel A shows the results of this regression.

In each of the four regression specifications in Table 7, Panel A, the *Optimism* main effect remains significant at $p < 0.01$. In three of the four regression specifications, including the optimism factor score, the newly introduced interaction term is positively associated with litigation risk. Using the LM dictionary yields an interaction term that is positive, but only weakly statistically significant ($p = 0.11$). (As we mentioned earlier, since Loughran and McDonald [2011] focus on negative words, it is not surprising that we obtain weaker results using this dictionary.)

To further assess the joint effect of insider sales and optimistic disclosure, Table 7, Panel B presents an alternative specification in which we allow the optimism and insider trading metrics to vary with one another. In the first column, we create two variables based on our original *Optimism* variable: *Optimism (Abnormal Insider Sell)* for firms experiencing negative abnormal insider trading during the period, and *Optimism (Abnormal Insider Buy or Hold)* for firms experiencing either zero or positive abnormal insider trading during the period. In the second column, we create two variables based on our original *Abnormal Insider Trading* variable: *Abnormal Insider Trading (High Optimism)* for firms with above-median measured optimism, and *Abnormal Insider Trading (Low Optimism)* for firms with below-median optimism. For brevity, we present only the results using the optimism factor score.

The results in the first column of Table 7, Panel B indicate that *Optimism* is positively and significantly associated with lawsuit incidence, regardless of whether the firm’s managers engaged

³³ After this restriction, the sued and non-sued firms’ *Minimum Daily Return* are not statistically different at the 5 percent level for either the mean or the median.

TABLE 6
Sample Limited to Pairs Where Sued and Matched Minimum Daily Returns Are Within 10 Percent

	Diction		Henry		LM		Factor	
	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
<i>Optimism</i>	0.8233***	4.22	0.1964	1.23	0.8510***	3.94	0.8031***	4.11
<i>Log Forecasts</i>	0.8527***	3.45	0.7769***	3.19	0.8851***	3.58	0.8030***	3.27
<i>Log Word Count</i>	-0.4529	-1.52	-0.4675	-1.51	-0.2809	-0.92	-0.3272	-1.09
<i>Earnings Surprise</i>	-9.8371	-1.37	-8.0299	-1.04	-12.9060*	-1.73	-10.5799	-1.45
<i>Return on Assets</i>	8.8003	1.16	6.7751	0.90	9.5178	1.22	9.0355	1.19
<i>Earnings Growth</i>	-6.5987	-1.18	-7.8995	-1.44	-6.5648	-1.16	-8.6377	-1.55
<i>Sales Growth</i>	0.4304	0.88	0.4125	0.88	0.3401	0.70	0.2465	0.51
<i>Loss Indicator</i>	1.6921***	3.25	1.2015**	2.41	1.6830***	3.20	1.6450***	3.18
<i>Window Return</i>	-44.2432***	-5.97	-41.3129***	-6.10	-39.0460***	-5.55	-43.1108***	-6.06
<i>Minimum Daily Return</i>	-21.7447*	-1.80	-26.4677**	-2.20	-27.4430**	-2.31	-22.7508*	-1.92
<i>Minimum Daily Return²</i>	20.4535	0.62	2.8362	0.09	7.1922	0.22	22.6688	0.70
<i>Turnover</i>	15.2195***	4.82	14.5749***	4.82	13.8625***	4.64	15.2160***	4.97
<i>Abnormal Insider Trading^a</i>	0.0005	0.03	-0.0001	-0.01	-0.0047	-0.24	0.0000	0.00
<i>Lag Size</i>	2.3114***	7.51	2.2364***	7.42	2.3834***	7.80	2.3319***	7.51
<i>Lag Book-to-Market</i>	0.8611	1.37	0.9076	1.46	1.6361***	2.56	1.1263*	1.79
<i>Lag Log Analysts</i>	0.4998	1.42	0.3981	1.16	0.2335	0.67	0.4684	1.35
<i>Lag Volatility</i>	-7.9684	-0.43	-26.1506	-1.48	-15.5486	-0.87	-14.3800	-0.79
<i>Lag Return on Assets</i>	0.2525	0.02	6.1160	0.60	2.1283	0.20	-1.9450	-0.19
<i>Lag Earnings Growth</i>	7.8994	1.56	1.8626	0.38	4.3839	0.90	8.0289	1.57
<i>Lag Sales Growth</i>	2.1108***	2.82	2.4719***	3.39	2.5754***	3.40	2.2417***	2.98
<i>Lag Loss Indicator</i>	1.1542	1.46	1.0929	1.38	1.0703	1.33	0.9411	1.18
No. Observations	684		684		684		684	
Likelihood Ratio	278.11		260.60		275.39		276.99	
McFadden's R ²	38.8%		36.4%		38.5%		38.7%	

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively (two-tailed).

^a Indicates coefficients have been multiplied by 10³ for expositional purposes.

This table includes the conditional logit of the propensity for being sued over only the 85 pairs of sued and matched firms for which the *Minimum Daily Return* of the matched firm is within 10 percent of the sued firm. This results in a pool of 345 observations from the 85 sued firms and 339 observations from the 85 matched firms, each observation representing an individual earnings announcement. *Optimism* is based on the word lists obtained from Diction 6.0 in the first column, Henry (2008) in the second, LM (Loughran and McDonald 2011) in the third, and the factor score of all three in the final column. Variable definitions are in Appendix B.

TABLE 7
Insider Trading and Disclosure Tone
Panel A: Conditional Logit Including the Interaction between Optimism and Abnormal Insider Trading

	Diction		Henry		LM		Factor	
	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat	Coefficient	z-stat
Optimism	0.5367***	3.72	0.3974***	2.92	0.4861***	3.21	0.6068***	4.14
Optimism * Abnormal Insider Trading ^a	0.0318**	2.02	0.0649***	3.23	0.0254	1.60	0.0459***	2.75
Log Forecasts	0.9297***	4.55	0.9781***	4.77	0.9683***	4.70	0.9657***	4.69
Log Word Count	-0.2807	-1.14	-0.2179	-0.86	-0.2040	-0.82	-0.2393	-0.97
Earnings Surprise	-6.1477	-1.23	-6.9141	-1.33	-7.2204	-1.45	-7.3077	-1.46
Return on Assets	3.7003	0.71	5.1157	1.00	3.8517	0.73	4.3204	0.83
Earnings Growth	-7.2922*	-1.92	-8.9843**	-2.41	-7.1565*	-1.87	-7.9988**	-2.11
Sales Growth	0.7111***	2.88	0.7420***	3.00	0.7610***	3.03	0.6840***	2.78
Loss Indicator	0.5002	1.37	0.3137	0.88	0.4786	1.30	0.5612	1.51
Window Return	-32.7314***	-5.30	-34.1404***	-5.61	-32.3332***	-5.20	-33.5111***	-5.47
Minimum Daily Return	-40.7226***	-8.70	-38.3444***	-8.48	-37.0198***	-7.90	-39.3597***	-8.44
Minimum Daily Return ²	-42.0611***	-6.22	-38.2436***	-5.79	-37.9039***	-5.47	-40.0845***	-5.88
Turnover	15.6284***	5.76	15.5100***	5.83	15.3102***	5.96	15.9631***	5.85
Abnormal Insider Trading ^a	0.0183	1.10	-0.0621**	1.98	0.0533*	2.20	0.0157	0.96
Lag Size	2.7472***	11.24	2.8082***	11.37	2.7971***	11.40	2.8415***	11.37
Lag Book-to-Market	0.3492	0.77	0.4927	1.09	0.6830	1.50	0.5440	1.18
Lag Log Analysts	-0.2327	-0.85	-0.2253	-0.83	-0.3649	-1.32	-0.2474	-0.90
Lag Volatility	22.7584*	1.80	18.4871	1.50	21.6140*	1.74	22.0701*	1.75
Lag Return on Assets	-20.7849***	-3.44	-22.7773***	-3.69	-19.4282***	-3.18	-22.1159***	-3.62
Lag Earnings Growth	8.4070**	2.29	7.9126**	2.16	8.0348**	2.20	9.0442***	2.45
Lag Sales Growth	1.5301***	2.61	1.6428***	2.97	1.5877***	2.79	1.5104***	2.65
Lag Loss Indicator	-0.7827	-1.48	-0.9076*	-1.71	-0.8934*	-1.67	-0.9133*	-1.70
No. Observations	1,253		1,253		1,253		1,253	
Likelihood Ratio	663.24		661.37		659.49		669.85	
McFadden's R ²	51.1%		50.9%		50.8%		51.6%	

(continued on next page)

TABLE 7 (continued)
Panel B: Conditional Logit Allowing Optimism and Abnormal Insider Trading to Vary with One Another

	Factor		Factor	
	Coefficient	z-stat	Coefficient	z-stat
Optimism			0.5740***	4.00
Optimism (Abnormal Insider Sell)	1.2612***	5.26		
Optimism (Abnormal Insider Buy or Hold)	0.2809*	1.74		
Log Forecasts	0.9816***	4.77	0.9241***	4.52
Log Word Count	-0.2535	-1.02	-0.2103	-0.85
Earnings Surprise	-6.4945	-1.28	-6.8427	-1.38
Return on Assets	3.8632	0.74	3.7354	0.72
Earnings Growth	-8.2183**	-2.16	-7.5840**	-2.03
Sales Growth	0.7292***	2.88	0.5388	1.48
Loss Indicator	0.4901	1.33	0.6566***	2.72
Window Return	-33.2777***	-5.49	-32.7122***	-5.33
Minimum Daily Return	-39.6883***	-8.57	-39.2794***	-8.37
Minimum Daily Return ²	-40.3836***	-5.96	-40.1191***	-5.85
Turnover	15.8915***	5.86	15.7002***	5.84
Abnormal Insider Trading ^a	0.0128	0.78		
Abnormal Insider Trading (High Optimism) ^a			0.0401**	1.97
Abnormal Insider Trading (Low Optimism) ^a			0.0060	0.26
Lag Size	2.9125***	11.55	2.8010***	11.29
Lag Book-to-Market	0.7276	1.59	0.5226	1.13
Lag Log Analysts	-0.2538	-0.92	-0.2178	-0.79
Lag Volatility	22.7995*	1.83	24.3421**	1.94
Lag Return on Assets	-22.3656***	-3.71	-20.9019***	-3.44
Lag Earnings Growth	8.8644**	2.44	9.4283***	2.54
Lag Sales Growth	1.6610***	2.83	1.5455***	2.72
Lag Loss Indicator	-0.8670*	-1.66	-0.7663	-1.43

(continued on next page)

TABLE 7 (continued)

	Factor		Factor	
	Coefficient	z-stat	Coefficient	z-stat
p-values from tests of Coefficients				
<i>Optimism (Abnormal Insider Sell versus Buy/Hold)</i>	0.00		0.25	
<i>Abnormal Insider Trading (High versus Low Optimism)</i>	1,253		663.26	
No. Observations	677.26		51.1%	
Likelihood Ratio	52.1%			
McFadden's R ²				

*, **, *** Indicates significance at the 10 percent, 5 percent, and 1 percent levels, respectively (two-tailed).
^a Indicates coefficients have been multiplied by 10³ for expositional purposes.
 This table provides evidence on the interaction between abnormal insider trading and disclosure tone. Panel A provides the conditional logit of the propensity for being sued on all variables from Table 5 plus the interaction between *Abnormal Insider Trading* and *Optimism*. Panel B provides the conditional logit from Table 5, but allows the *Optimism* and *Abnormal Insider Trading* variables to vary with one another. *Optimism* is based on the word lists obtained from Diction 6.0 in the first column, [Henry \(2008\)](#) in the second, LM ([Loughran and McDonald 2011](#)) in the third, and the factor score of all three in the final column. Variable definitions are in Appendix B.



in significant selling. That said, the relation between optimism and litigation is approximately four times larger for situations with abnormal insider sales than for those without (the coefficients are significantly different at $p < 0.01$). In contrast, the second column shows that insider trading is only associated with litigation for those firms issuing optimistic disclosures. These results indicate that optimistic language is associated with litigation risk, even in the absence of abnormal insider selling, while abnormal insider selling is a meaningful predictor of litigation only when that selling is accompanied by unusually optimistic disclosure tone.

VII. CONCLUSION

We study the tone of earnings announcements issued by firms sued in disclosure-related litigation, with the goal of identifying whether optimistic disclosures are associated with shareholder litigation. We contribute several findings to the existing literature. First, while class action complaints cite a broad variety of communications, earnings announcements appear to be the most consistently cited source of alleged misstatements. Second, the tone of the statements quoted in the class action complaints is significantly more optimistic than the tone of the non-quoted portion of the cited documents, suggesting that optimistic language is a target for plaintiff attorneys. Third, the tone of earnings announcements issued by sued firms during the damage period is more optimistic than the tone of earnings announcements issued during a comparable period by non-sued firms from the same industry and with similar economic performance. Finally, optimistic language is associated with greater litigation risk regardless of the level of insider selling; insider selling is associated with litigation risk only when the firm's disclosures are optimistic.

The implications of our results should be of interest to both managers and regulators. Because firms are unlikely to end the practice of issuing earnings announcements, managers will not be able to reduce litigation risk by eliminating this category of disclosure even though it tends to put the firm at risk—earnings announcements will continue to be scrutinized by potential plaintiffs. However, our evidence suggests that managers can reduce litigation risk by dampening the tone of their earnings announcements either by decreasing their use of positive language or by tempering their optimism with statements that are less favorable.³⁴ Our results also suggest that, in addition to employing restricted trading periods and 10b5-1 plans, firms could reduce litigation risk by ensuring that managers' trading actions are consistent with their public disclosures.

From a regulatory perspective, these results contribute to the longstanding debate about the merits of shareholder litigation. While our study is not aimed at showing whether managers of sued firms intentionally or recklessly mislead investors with overly optimistic statements, our results indicate that sued firms' disclosures are consistently *more* optimistic than those of non-sued firms in similar circumstances, in accord with the typical plaintiff allegation.

REFERENCES

- Bettis, J. C., J. L. Coles, and M. L. Lemmon. 2000. Corporate policies restricting trading by insiders. *Journal of Financial Economics* 57 (2): 191–220.
- Bligh, M. C., J. C. Kohles, and J. R. Meindl. 2004. Charting the language of leadership: A methodological investigation of President Bush and the crisis of 9/11. *Journal of Applied Psychology* 89 (3): 562–574.

³⁴ To be clear, we acknowledge that there are likely to be other costs and benefits to providing optimistic disclosure. However, our results suggest that if managers are interested in reducing litigation risk, then dampening the disclosure tone is one tool at their disposal.

- Bloomfield, R. 2008. Discussion of: Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics* 45 (2-3): 248–252.
- Botosan, C. A., and M. A. Plumlee. 2002. A re-examination of disclosure level and the expected cost of equity capital. *Journal of Accounting Research* 40 (1): 21–40.
- Brudney, V. 1989. A note on materiality and soft information under the federal securities laws. *Virginia Law Review* 75: 723–760.
- Cho, J., M. P. Boyle, H. Keum, M. D. Shevy, D. M. McLeod, D. V. Shah, and Z. Pan. 2003. Media, terrorism, and emotionality: Emotional differences in media context and public reactions to the September 11th terrorist attacks. *Journal of Broadcasting and Electronic Media* 47 (3): 309–327.
- Coffee, J. C., Jr. 2006. Reforming the Securities Class Action: An essay on deterrence and its implementation. *Columbia Law Review* 106 (7): 1534–1586.
- Cornerstone Research. 2009. *Securities Class Action Filings 2008: A Year in Review*. Boston, MA: Cornerstone Research, Inc.
- Cornerstone Research. 2010. *Securities Class Action Settlements: 2009 Review and Analysis*. Boston, MA: Cornerstone Research, Inc.
- Cram, D. P., V. Karan, and I. Stuart. 2009. Three threats to validity of choice-based and matched-sample studies in accounting research. *Contemporary Accounting Research* 26 (2): 477–516.
- Davis, A. K., J. Piger, and L. M. Sedor. 2008. Beyond the numbers: Managers' use of optimistic and pessimistic tone in earnings press releases. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=875399
- Demers, E. A., and C. Vega. 2008. Soft information in earnings announcements: News or noise? Available at: <http://www.federalreserve.gov/pubs/ifdp/2008/951/ifdp951.pdf>
- Eth, J., and M. Dicke. 1994. Insider stock sales in Rule 10b-5 corporate disclosure cases: Separating the innocent from the suspicious. *Stanford Journal of Law, Business and Finance* 1: 97–132.
- Field, L., M. Lowry, and S. Shu. 2005. Does disclosure deter or trigger litigation? *Journal of Accounting and Economics* 39 (3): 487–507.
- Francis, J., D. Philbrick, and K. Schipper. 1994. Shareholder litigation and corporate disclosures. *Journal of Accounting Research* 32 (2): 137–164.
- Graham, J. R., C. R. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40 (1-3): 3–73.
- Hart, R. P. 1984. *Verbal Style and the Presidency: A Computer-Based Analysis*. Orlando, FL: Academic Press, Inc.
- Hart, R. P. 1987. *The Sound of Leadership: Presidential Communication in the Modern Age*. Chicago, IL: University of Chicago Press.
- Henry, E. 2008. Are investors influenced by how earnings press releases are written? *Journal of Business Communication* 45 (4): 363–407.
- Hoffman, D. A. 2006. The best puffery article ever. *Iowa Law Review* 91.
- Hosmer, D. W., and S. Lemeshow. 2000. *Applied Logistic Regression*. New York, NY: Wiley-Interscience.
- Huang, P. H. 2005. Moody investing and the Supreme Court: Rethinking the materiality of information and the reasonableness of investors. *Supreme Court Economic Review* 13.
- Jagolinzer, A. D. 2009. SEC Rule 10b5-1 and insiders' strategic trade. *Management Science* 55 (2): 224–239.
- Johnson, M. F., K. K. Nelson, and A. C. Pritchard. 2007. Do the merits matter more? The impact of the Private Securities Litigation Reform Act. *Journal of Law, Economics, and Organization* 23 (3): 627–652.
- Lang, M. H., and R. J. Lundholm. 1996. Corporate disclosure policy and analyst behavior. *The Accounting Review* 71 (October): 467–492.
- Lang, M. H., and R. J. Lundholm. 2000. Voluntary disclosure and equity offerings: Reducing information asymmetry or hyping the stock? *Contemporary Accounting Research* 17 (4): 623–662.
- Li, F. 2008. Annual report readability, current earnings, and earnings persistence. *Journal of Accounting and Economics* 45 (2-3): 221–247.

- Loughran, T., and B. McDonald. 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *Journal of Finance* 66 (1): 35–65.
- Miller, G. S. 2002. Earnings performance and discretionary disclosure. *Journal of Accounting Research* 40 (1): 173–204.
- Nelson, K. K., and A. C. Pritchard. 2007. Litigation risk and voluntary disclosure: The use of meaningful cautionary language. Available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=998590
- Neuendorff, K. A. 2002. *The Content Analysis Guidebook*. Thousand Oaks, CA: Sage.
- Ober, S., J. J. J.J., Zhao, R. Davis, and M. W. Alexander, 1999. Telling it like it is: The use of certainty in public business discourse. *The Journal of Business Communication* 36 (3): 280–300.
- O'Hare, J. 1998. The resurrection of the dodo: The unfortunate re-emergence of the puffery defense in private securities fraud actions. *Ohio State Law Journal* 59: 1697–1740.
- Padfield, S. J. 2008. Is puffery material to investors? Maybe we should ask them. *University of Pennsylvania Journal of Business and Employment Law* 10: 339–381.
- Pennebaker, J. W., M. R. Mehl, and K. G. Niederhoffer. 2003. Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology* 54: 547–577.
- Rogers, J. L. 2008. Disclosure quality and management trading incentives. *Journal of Accounting Research* 46 (5): 1265–1296.
- Rogers, J. L., and P. C. Stocken. 2005. Credibility of management forecasts. *The Accounting Review* 80 (4): 1233–1260.
- Rogers, J. L., and A. Van Buskirk. 2009. Shareholder litigation and changes in disclosure behavior. *Journal of Accounting and Economics* 47 (1-2): 136–156.
- Roulstone, D. T. 2003. The relation between insider-trading restrictions and executive compensation. *Journal of Accounting Research* 41 (3): 525–551.
- Russel, R. G. 1998. Securities fraud or mere puffery: Refinement of the corporate puffery defense. *Vanderbilt Law Review* 51: 1049–1092.
- Skinner, D. J. 1994. Why firms voluntarily disclose bad news. *Journal of Accounting Research* 32 (1): 38–60.
- Skinner, D. J. 1997. Earnings disclosures and stockholder lawsuits. *Journal of Accounting and Economics* 23 (3): 249–282.
- Tetlock, P. C. 2007. Giving content to investor sentiment: The role of media in the stock market. *Journal of Finance* 62 (3): 1139–1168.
- Tetlock, P., M. Saar-Tsechansky, and S. Macskassy. 2008. More than words: Quantifying language to measure firms' fundamentals. *Journal of Finance* 63 (3): 1437–1467.
- West, M. D., and L. K. Fuller. 2001. Toward a typology and theoretical grounding for computer content analysis. In *Progress in Communication Sciences: Theory, Method and Practice in Computer Content Analysis*, Volume 16, edited by M. D. West, 77–94. Westport, CT: Ablex Publishing.
- Yuthas, K., R. Rogers, and J. F. Dillard. 2002. Communicative action and corporate annual reports. *Journal of Business Ethics* 41 (1): 141–157.
- Zechman, S. L. C. 2010. The relation between voluntary disclosure and financial reporting: Evidence from synthetic leases. *Journal of Accounting Research* 48 (3): 725–765.

APPENDIX A
Example Words from Each of the Linguistic Dictionaries
Panel A: Examples of *Optimistic* Words Contained in Individual Dictionaries and Common to All Dictionaries

Dictionary		
Diction Only	Henry Only	All
Excited	Accomplish	Better
Favorable	Achieve	Excellent
Impressive	Improved	Pleased
Superior	Strengthening	Strong
Thrilled	Successfully	Successful

Panel B: Examples of *Pessimistic* Words Contained in Individual Dictionaries and Common to All Dictionaries

Dictionary			
Diction Only	Henry Only	LM Only	All
Awful	Below	Damaging	Deteriorating
Dismayed	Down	Dismal	Disappointing
Pessimistic	Less	Flawed	Failure
Struggling	Shrinking	Underperforming	Weak
Terrible	Slump	Worsened	Worst

APPENDIX B
Variable Definitions

This appendix defines each variable and when it is measured, relative to the timing of the lawsuit's "damage period" and the "matching period" used to identify the non-sued firm for each sued firm in the sample. The lawsuit damage period is specified in the plaintiff's complaint and represents the period during which the firm is alleged to have misled investors. The matching period begins on the last earnings announcement prior to the beginning of the damage period and ends on the first earnings announcement following the damage period.

Earnings-Level Variables

Earnings-level variables are measured at each earnings announcement occurring during the sued firm's damage period or the matched firm's quasi-damage period. Each variable takes on a unique value for each earnings announcement during the damage period.

Optimism = a count of words, as defined by the respective dictionary, as a percent of total words, multiplied by 100;

Log Forecasts = natural logarithm of 1 plus the number of management forecasts issued during the period between the current and prior earnings announcement;

Log Word Count = natural logarithm of the earnings announcement word count;

Earnings Surprise = reported earnings minus the mean I/B/E/S estimate, scaled by stock price;

Return on Assets = quarterly income before extraordinary items, scaled by total assets;

Earnings Growth = change in quarterly income before extraordinary items relative to the same quarter of the previous year, scaled by total assets;

Sales Growth = percentage growth in quarterly sales revenue relative to the same quarter of the previous year; and

Loss Indicator = 1 if net income for the quarter is less than zero.

Window-Level Variables

Window-level variables are measured over the matching window for sued firms and quasi-matching period for the non-sued firms (i.e., the period beginning with the last earnings announcement prior to the start of the period and ending with the first earnings announcement after the end of the period). Each variable takes on a single value for all earnings announcements during the period.

Window Return = cumulative stock return during the window used to identify the matched firms (i.e., from the earnings announcement immediately prior to the beginning of the damage period to the earnings announcement ending or immediately following the end of the damage period);

Minimum Daily Return = smallest one-day return during the damage period;

Turnover = $1 - (1 - \text{average daily turnover})^X$. Average daily turnover equals the average daily trading volume divided by the number of shares outstanding. X is equal to the number of trading days in the damage window; and

Abnormal Insider Trading = sign-preserving square root of abnormal insider trading (in dollars). Abnormal insider trading equals shares purchased less shares sold during the damage period less the same measure for an equal length period prior to the damage period. We then take the square root of the absolute value of this net trading volume. For net purchases, we multiply this value by -1 so that positive values represent net selling and negative values represent net purchasing.

Firm-Level Variables

Firm-level variables are measured immediately prior to the matching and quasi-matching window. Each variable takes on a single value for the firm during the damage period.

Lag Size = natural logarithm of equity market value;

Lag Book-to-Market = ratio of book value of equity to market value of equity;

Lag Log Analysts = natural logarithm of 1 plus the number of analysts following the firm;

Lag Volatility = standard deviation of daily stock returns, measured over a 365-day period;

Lag Return on Assets = quarterly income before extraordinary items, scaled by total assets;

Lag Earnings Growth = change in quarterly income before extraordinary items relative to the same quarter of the previous year, scaled by total assets;

Lag Sales Growth = percentage growth in quarterly sales revenue relative to the same quarter of the previous year; and

Lag Loss Indicator = 1 if net income for the quarter is less than zero.