The Effect of Security Class Action Lawsuits on the Behavior of Sell-side Analysts and the Informativeness of Their Reports

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Abstract:

Shareholder security class action lawsuits are notable firm events in which a group of shareholders allege the intentional misrepresentation or omission of management disclosure. Rogers and Van Buskirk (2009) provide evidence consistent with management disclosure deteriorating after the filing of a lawsuit. In response to the lawsuit and changes in firm disclosure, investors likely demand additional information from other market participants to assess the impact of the lawsuit on the firm as well as to substitute for or validate management disclosure. In this paper, I argue that sell-side equity analysts have a comparative advantage in providing a portion of the additional information demanded by investors after the filing of a lawsuit. Using 653 security class action lawsuits obtained from the Stanford Securities Class Action Clearinghouse, I find evidence consistent with sell-side analysts providing more services, using more private information during the forecasting process, and having more informative reports after the filing of a lawsuit.

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1. INTRODUCTION

Security class action lawsuits are notable firm events in which a group of shareholders allege that management has intentionally misrepresented or withheld information from investors. Security class action lawsuits provide several benefits to shareholders, including the reduction of aggregate litigation costs, the deterrence of aggressive accounting behavior, and the improvement of management incentive alignment.[1] Despite these benefits, one potential drawback is the deterioration of management disclosure after the filing of a lawsuit (Rogers and Van Buskirk 2009). In response to the lawsuit and changes in firm disclosure, investors likely demand additional information from other market participants to assess the impact of the lawsuit on the firm as well as to substitute for or validate management disclosure. In this paper, I argue that sell-side equity analysts provide a portion of the additional information demanded by investors after the filing of a lawsuit. I specifically examine how the filing of a security class action lawsuit changes the behavior of sell-side analysts and the informativeness of their reports.

The filing of a lawsuit, per se, does not validate the allegations described by the lawsuit. Approximately 38% of all shareholder class action lawsuits filed in the United States are dismissed prior to judgment or settlement, suggesting that the plaintiffs are not always able to provide sufficient evidence that the manager intentionally misled investors (Cornerstone 2009). The impact of the lawsuit on firm value and firm performance also varies based on the gravity of the allegations described by the lawsuit. As a result, investors likely demand additional information to assess the validity and severity of the lawsuit allegations.

[1] Rickard (2009) suggests that class action lawsuits are "intended to enhance the judicial efficiency in adjudicating claims involving large numbers of people and was intended to grant access to compensation of individuals whose claims, when taken individually, would not be sufficiently profitable to persuade a lawyer to take the case." Jennings et al. (2011) provides evidence consistent with security class action lawsuits deterring aggressive accounting behavior. Rogers and Van Buskirk (2009) suggest that one benefit of class action lawsuits is to temper "managers' inclination to violate securities laws for personal enrichment." Romano (1991) argues that shareholder litigation is "thought to align managers' incentives with shareholders' interests."

Managers likely have private information useful to investors in assessing the merit of the allegations and impact of the allegations on the firm. However, Rogers and Van Buskirk (2009) find "consistent evidence that firms reduce the amount of information provided to investors after being subject to disclosure-related litigation" (pg. 137). Managers reduce the amount of information provided to investors for a number of reasons. First, management's credibility deteriorates after the filing of a lawsuit, causing management signaling costs to increase. Second, the expected litigation costs associated with providing management disclosure increase after the filing of the lawsuit. Third, management likely eliminates any non-essential disclosure to avoid the possibility that the disclosure is used against the firm during the legal proceedings. Therefore, investors likely demand additional information from other market participants not only to assess the validity and gravity of the lawsuit but also to substitute for the deterioration of management disclosure and credibility after the filing of the lawsuit.

In this study, I argue that sell-side equity analysts have a comparative advantage, relative to other market participants, in providing a portion of the additional information demanded by investors after the filing of a lawsuit. Sell-side analysts aggregate data from firm disclosures, customers, competitors, suppliers, macroeconomic factors, and other industry publications to produce information relevant to investors' decision process (Bradshaw 2011; Piotroski and Roulstone 2004). Thus, as management disclosure and credibility deteriorate, investors look to analysts to provide additional analyses on the firm's financial performance and condition to either substitute for or validate management disclosure. In the context of lawsuits, sell-side analysts use firm, industry, and market data to provide qualitative and quantitative analyses to assess the validity and gravity of the lawsuit. Specifically, analysts have the ability to assess the impact of the lawsuit on the firm's market value, financial performance, and reputation.

Using a sample of 653 security class action lawsuits obtained from the Stanford Securities Class Action Clearinghouse occurring between 2001 and 2009, I examine how security class action

lawsuits change analyst behavior and the informativeness of their reports. I first examine whether analysts respond to investors' increased demand for information by providing more analyst services after the filing of a lawsuit. After controlling for firm and macroeconomic factors, I find evidence consistent with analysts providing more services during the filing and post-filing periods relative to the pre-litigation period.[2] Second, I investigate whether analysts use more private information after the filing of a security class action lawsuit. If management disclosure and credibility deteriorate after the filing of a lawsuit, I would expect sell-side analysts to place less weight on information provided by management during the forecasting process. After controlling for other factors affecting analysts' use of private information, I find evidence consistent with analysts using more private information after the filing of a lawsuit. Finally, I predict and find evidence consistent with the informativeness of analyst reports increasing from the pre-litigation period to the filing and post-filing periods. These results hold after controlling for other factors influencing the informativeness of analyst reports.

In additional tests, I find that the increase in the informativeness of analyst reports from the pre-litigation period to the filing and post-filing periods is greater if the filing of the lawsuit is more of a surprise to the market. I also find evidence consistent with the informativeness of analyst reports increasing more from the pre-litigation period to the filing and post-filing periods when the lawsuit alleges non-GAAP violations (i.e. allegations of misrepresentations or omissions of voluntary disclosure). Finally, I find that the increase in analyst services, the use of private information during the forecasting process by analysts, and the average informativeness of individual analyst reports is primarily concentrated among more visible firms in the marketplace.

This study contributes to the literature in three ways. First, this paper examines how the information environment develops to reduce information asymmetries and agency costs between

[2] I define the periods surrounding the filing of the lawsuit as follows: the pre-litigation period is the four quarters prior to the class period (i.e. the period the manager allegedly misled or withheld disclosure from investors), the filing period is the quarter in which the lawsuit is filed, and the post-filing period is the four quarters following the filing of the lawsuit. See Section 3 for more detail.

investors and managers.[3] Specifically, my findings are consistent with analysts providing more information after the filing of a lawsuit in response to a change in investors' information demands. The prior literature has primarily focused on how security class action lawsuits affect management behavior. However, we have little evidence on the effect of lawsuits on the behavior and the amount of information produced by other market participants. Beyer et al. (2011) suggest that "it is necessary to consider multiple aspects of the corporate information environment to conclude whether it becomes more or less informative in response to an exogenous change."

Second, this paper provides additional evidence to regulators and lawmakers describing the impact of security class action lawsuits on the firm's information environment. As reported in The Economist (2007), several European governments (e.g. U.K. and Germany) have begun to allow some form of class action lawsuits, while others have debated the effects and usefulness of these lawsuits. Several studies document the benefits of security class action lawsuits (e.g. Jennings et al. 2011; Niehaus and Roth 1999) while others document significant drawbacks, including the deterioration of management disclosure after the filing of a lawsuit (Rogers and Van Buskirk 2009).[4] I provide evidence that the decrease in management-provided information after the filing of a lawsuit is at least partially offset by the production of information by sell-side analysts.

Third, I contribute to the accounting literature that documents the relation between the amount of information produced by analysts and managers. The prior literature has primarily documented a positive association between the number of analysts following a firm and management disclosure quality, suggesting that analyst-provided information complements management-provided information (e.g. Lang and Lundholm 1996). However, one must be careful how the association

[3] The information environment is comprised of the accumulation of information generated by various market participants; including managers, equity analysts, debt analysts, short-sellers, and the financial press.
[4] Jennings et al. (2011) provide evidence consistent with the filing of a security class action lawsuit and the initiation of a SEC enforcement action reducing the level of aggressive accounting behavior among peer firms (i.e. firms not targeted by the lawsuit or investigation but in the same four-digit SIC code as the targeted firm). Niehaus and Roth (1999) provide evidence consistent with class action lawsuits increasing the likelihood of management turnover.

described above is interpreted. An increase in investors' demand for information could cause an increase in the amount of information produced by both analysts and managers, resulting in a perceived complementary relation. Security class action lawsuits provide a setting where managers are unlikely to increase the amount of information they provide despite an increase in investors' demand for information. This study provides evidence that analyst-provided information can substitute for management-provided information.[5]

The rest of the paper is organized as follows. In Section 2, I discuss the prior literature and develop my hypotheses. In Section 3, I outline the empirical models used to test each hypothesis. In Section 4, I describe the sample and discuss the results. I describe additional cross-sectional tests with the associated results in Section 5. I conclude this study in Section 6.

2. HYPOTHESIS DEVELOPMENT

2.1 SECURITY CLASS ACTION LAWSUITS

Security class action lawsuits filed under SEC Rule 10(b)-5 are notable firm events that suggest management has intentionally either misrepresented their financial statements or withheld information from investors.[6] To obtain a favorable settlement or judgment, the plaintiffs must prove that the misrepresentation or omission of firm disclosure was "a material fact made with intent that the plaintiff justifiably relied on causing injury in connection with the purchase or sale of a security" (Skinner 1994).

The prior literature provides evidence that the filing of a security class action lawsuit is associated with negative stock returns, increased management turnover, and increased board turnover. Gande and Lewis (2009) find that the average firm experiences a 4.66% decrease in market

[5] I acknowledge the possibility that the results in this study are not generalizable to other settings, given the unique setting created by a security class action lawsuit.

[6] Skinner (1997) suggests that case law has given parameters to the type of disclosure that must be disclosed to avoid a successful security class action lawsuit. Rule 10(b)-5 does not impose a general affirmative disclosure obligation outside of the following three situations. First, managers are required to provide disclosure when the SEC mandates disclosure (e.g. 10-K, 10-Q). Second, managers are required to disclose any trades made by insiders or the corporation. Third, managers are required to disclose when prior disclosure becomes inaccurate, incomplete, or misleading.

value, representing an average loss of $355.65 million in shareholder wealth, during the three-day window surrounding the filing of the lawsuit. Niehaus and Roth (1999) provide evidence consistent with lawsuits increasing the likelihood of CEO turnover, and Romano (1991) provides evidence consistent with litigation increasing board turnover.

The filing of a security class action lawsuit, per se, does not validate the allegations of management misconduct. Cornerstone (2009) reports that approximately 38% of lawsuits filed between 1996 and 2006 were dismissed, suggesting that the evidence was insufficient to prove that management intentionally misled investors or that shareholders were injured as a result of management's disclosure decisions. As a result, investors demand information from market participants to assess the validity of the allegations described by the lawsuit. Investors also demand additional information to assess the impact of the allegations on the firm's market value and performance. The gravity of the allegations varies by lawsuit and becomes clearer as more information about the lawsuit and firm is released during the litigation proceedings.[7]

2.2 MANAGEMENT DISCLOSURE

The managers of the litigated firm likely have private information useful to investors in assessing the validity and gravity of the allegations described by the lawsuit. However, Rogers and Van Buskirk (2009) find evidence consistent with management reducing the amount of information provided to investors after the filing of the lawsuit. They specifically document that the likelihood of conference calls and management forecasts decreases during the one year following the class action lawsuit. They also provide evidence consistent with management disclosure becoming less precise and less timely during the one year following the filing of the lawsuit.

Management disclosure likely deteriorates after the filing of a security class action lawsuit for three reasons. First, management credibility is questioned after the filing of the lawsuit, causing

[7] According to the data obtained from the Stanford Clearinghouse Class Action Securities database, the median duration of a security class action lawsuit is approximately 2.5 years.

disclosure costs to increase. The filing of a lawsuit represents an accusation that management intentionally misled investors. As a result, investors place less weight on management disclosure when evaluating their investment positions. To provide the same level of information to investors after the filing of a lawsuit, management must incur additional costs to validate its disclosure (e.g. voluntary audit of voluntary management disclosures).

Second, managers revise their beliefs on the expected litigation costs of providing management disclosure upward after the filing of a lawsuit (Rogers and Van Buskirk 2009). Management disclosure that is unbiased and accurate at issuance can be subsequently judged as misleading if followed by a negative price reaction, resulting in the potential filing of a security class action lawsuit. Therefore, providing voluntary management disclosure can be perceived as more costly to the firm and its managers. Even forward-looking disclosures are not completely protected by the Safe Harbor provisions of the 1995 Private Securities Litigation Reform Act (PSLRA). Lawyers frequently include boilerplate arguments in the lawsuit allegations describing why forward-looking statements are not protected by the PSLRA (Rogers and Van Buskirk 2009).

Third, managers become less certain how investors interpret and use management disclosure after the filing of a security class action lawsuit. Suijs (2007) provides a model in which managers do not disclose information when they are uncertain about investors' response to disclosure. The firm's legal counsel likely encourages management to reduce any unessential disclosure to avoid the possibility that the disclosure is used against the firm during the legal proceedings. After the lawsuit is concluded, managers likely continue withholding certain types of information that they may have disclosed in the past to avoid the possibility of investors misinterpreting a similar disclosure in the future.

The general deterioration of management disclosure after the filing of a security class action lawsuit decreases the likelihood of management providing sufficient information to assess (1) the validity and gravity of the lawsuit allegations as well as (2) the firm's financial performance and

condition. Beyer et al. (2011) suggest that other market participants exist to improve the firm's information environment by providing information that managers cannot cost effectively disclose to investors. Therefore, investors likely demand additional information from other market participants to assess the validity and gravity of the lawsuit as well as to substitute for or validate management disclosure. Market participants provide the demanded information to investors as long as the marginal costs are less than or equal to the marginal benefits.

2.3 ANALYST SERVICES

I argue that sell-side equity analysts have a comparative advantage, relative to other market participants, in providing the additional information demanded by investors after the filing of a security class action lawsuit.[8] Sell-side analysts have the ability to aggregate data from many different informational sources to provide both qualitative and quantitative analyses of the firm to investors (Bradshaw 2011; Piotroski and Roulstone 2004; Ramnath 2002). Furthermore, sell-side analysts tend to concentrate on a small number of firms in a specific industry, allowing them to become experts in that industry (Fisch and Sale 2003). As management disclosure and credibility deteriorate, investors likely look to sell-side analysts to provide additional information on the firm's relative financial performance and condition to either substitute for or validate management disclosure. In addition, analysts have the ability to estimate and analyze the firm's litigation exposure to provide insights on the validity and gravity of the lawsuit. Analysts assess the impact of the lawsuit on the firm's market value, financial performance, and reputation.[9]

[8] Examples of market participants, other than firm managers, who provide information to investors include debt analysts, buy-side equity analysts, and the financial press.

[9] There are several examples of how analysts provide additional information to assess the impact of the lawsuit on the firm. For example, an analyst following the BISYS group used industry, firm, and market data to provide an in depth discussion of the firm's litigation expenses, reflecting the validity and gravity of the lawsuit. An excerpt from this analyst report is provided in Appendix A. Another analyst following Bank of America suggested that the filing of the lawsuit played a significant role in her analysis. Analysts following China Valves Technology and Kenexa Corporation lower their target value after the revelation of the lawsuit. Therefore, anecdotal evidence suggests that analysts provide additional analyses associated with security class action lawsuits.

Based on the above arguments, I expect analysts to change their behavior after the filing of a security class action lawsuit in response to an increase in investors' demand for information. I specifically predict that sell-side analysts provide more services after the filing of a security class action lawsuit.[10] I state the following hypothesis in alternative form.

H1 - Sell-side analysts provide more services after the filing of a security class action lawsuit.

Despite my prediction above, it is possible that sell-side analysts provide fewer services after the filing of the lawsuit. Lang and Lundholm (1996) find evidence consistent with sell-side analysts relying on management disclosure to process and transmit information to investors. As a result, the deterioration of management disclosure could cause analysts to provide fewer services after the filing of the lawsuit. Nevertheless, I anticipate that analysts have the ability and incentive to aggregate data from other information sources to provide the information demanded by investors after the lawsuit's filing.

2.4 ANALYSTS' USE OF PRIVATE INFORMATION

In addition to sell-side analysts providing more services after the filing of a security class action lawsuit, I also expect analysts to change what information they rely on during the forecasting process. As management's credibility and disclosure deteriorate, sell-side analysts likely place less weight on management disclosure and rely on more private information (i.e. information specific to the individual analyst) during the forecasting process. Sell-side analysts produce private information by performing independent analyses of firm, industry, and market data. Therefore, I predict that the deterioration of management's credibility and disclosure after the filing of the security class action lawsuit causes sell-side analysts to place less weight on management disclosure and rely on more

[10] As previously suggested, investors could demand additional services from analysts for any one of the following reasons: (1) to substitute for the deterioration of management disclosure, (2) to validate management disclosure, and/or (3) to assess the impact of the lawsuit on the firm. I anticipate that the increased demand for analyst services is largely determined by the unique combination of firm and lawsuit characteristics.

private information during the forecasting process. I formally state my hypothesis in alternative form below.

H2 - After the filing of a security class action lawsuit, sell-side analysts use more private information during the forecasting process.

On the other hand, it is possible that sell-side analysts use less private information after the filing of a lawsuit. Reputation and career concerns might cause an analyst to herd on common information and discount his or her private information. Stickel (1992) provides evidence that an analyst's reputation is positively associated with the analyst's accuracy. The filing of a lawsuit and the deterioration of management disclosure likely increase the probability of analyst estimates deviating substantially from actuals, causing a possible decline in the analyst's reputation among investors. Mikhail et al. (1999) also provide evidence consistent with analyst turnover increasing for an analyst who has lower forecast accuracy than his/her peers. Therefore, if the private information generated by analysts after the filing of a lawsuit is insufficiently accurate, an analyst could be less likely to rely on his or her private information during the forecasting process.

2.5 INFORMATIVENESS OF ANALYST REPORTS

Finally, I expect the informativeness of individual analyst reports to increase after the filing of a security class action lawsuit. Analyst reports routinely include recommendations, forecasts, target prices, and other quantitative and qualitative analyses that can be used by investors to evaluate the validity and gravity of the lawsuit as well as to substitute for or validate management disclosure. Asquith et al. (2005) provides empirical evidence that both the quantitative and qualitative components of analyst reports provide information useful to investors. I anticipate that the informativeness of analyst reports varies based on investors' demand for information and analysts' ability to provide the additional information. If investors demand additional information after the filing of the lawsuit and sell-side analysts are able to provide it, I predict that the average analyst

report becomes more informative after the filing of a security class action lawsuit to substitute for the deterioration of management disclosure, to validate management disclosure, and/or to assess the impact of the lawsuit on the firm.[11] I formally state my hypothesis in alternative form below.

H3 - The average sell-side analyst report becomes more informative after the filing of a security class action lawsuit.

It is important to note that finding evidence consistent with H1 and H2 does not imply that I will find evidence consistent with H3. First, analyst herding and competition increase the number of analyst services provided but decrease the informativeness of the average analyst report. Analyst herding occurs when analysts mimic other analysts' forecasts, recommendations, or analyses that have been previously issued, resulting in little to no additional information produced by the herding analysts.[12] Competition among analysts likely increases as more analysts provide services for a particular firm. If analysts, in aggregate, have the ability to produce a finite amount of information, the average information content of each analyst report diminishes as competition increases. Sell-side analysts may also issue a higher frequency of reports with lower information content to avoid being preempted by other analysts following the firm.

Second, as sell-side analysts use more private information during the forecasting process, the likelihood of sell-side analysts' estimates deviating from actuals increases. Investors have the ability to observe historical trends in analyst estimates. Therefore, if analyst estimates are more likely to deviate from actuals after the filing of the lawsuit, investors will likely discount the analyses,

[11] Similar to H1, the informativeness of analyst reports could increase for any one of the following reasons: (1) to substitute for the reduction of management-provide information, (2) to validate management disclosure, or (3) to assess the impact of the lawsuit on the firm. I expect that the reason for the change in the informativeness of analyst reports is largely determined by the unique combination of firm and lawsuit characteristics.

[12] Theoretical and empirical evidence in the accounting and finance literature have documented herding behavior among sell-side analysts. Trueman (1994) provides a model that suggests analyst following is not an unbiased estimate of information produced by analysts but could be a result of analyst herding behavior. Hong, Kubik, and Solomon (2000) provide empirical evidence that herding behavior exists among inexperienced analysts.

forecasts, and recommendations contained in the analyst report, possibly decreasing the informativeness of the report to investors.

Nevertheless, I do not anticipate herding behavior or competition to increase substantially in the short-run after the filing of the lawsuit. Analysts' knowledge of the industry is one of the analysts' most important attributes to institutional investors (Institutional Investor Magazine 2011).[13] Sell-side analysts likely incur substantial start-up costs when beginning to follow a particular industry and only begin following another firm if the marginal costs are less than or equal to the marginal benefits. Investors are likely aware of these start-up costs and evaluate the expertise of the analyst when deciding how much to rely on the analyst's report. Therefore, I do not expect investors to have a high demand for analyst reports generated by inexperienced analysts, reducing the likelihood of substantial short-run increases in herding and competition after the filing of a lawsuit.

3. RESEARCH DESIGN

3.1 TEST OF HYPOTHESIS 1

To test whether sell-side analysts provide more services after the filing of a security class action lawsuit (*H1*), I use the following model.

$$\#ANALYST\ REP_{i,q} = \alpha_0 + \alpha_1 CLASS_{i,q} + \alpha_2 INTERIM_{i,q} + \alpha_3 FILING_{i,q} + \alpha_4 POST\text{-}FILING_{i,q} + \alpha_5 SIZE_{i,q} + \alpha_6 SALES\ GROWTH_{i,q} + \alpha_7 BK/MKT_{i,q} + \alpha_8 \%INST_{i,q} + \alpha_9 ROA_{i,q} + \alpha_{10} MGMT\ FOR_{i,q} + \Sigma_q QTR/YEAR_q + \Sigma_j INDUSTRY_j + \varepsilon_{i,q} \quad (1)$$

I proxy for the aggregate demand for analyst services using the number of analyst reports (*#ANALYST REP*$_{i,q}$) issued for firm *i* during quarter *q*.[14] Analyst reports are one of the key

[13] The Institutional Investor Magazine surveys institutional investors on the importance of research attributes in sell-side analysts. The 2010 survey ranked industry expertise as the most desirable sell-side analyst attribute while the 2011 survey ranked industry expertise second, behind analyst integrity and professionalism.

[14] As an additional robustness check, I proxy for the aggregate demand for analyst services using the number of analysts following the firm, similar to Bhushan (1989) and Lang and Lundholm (1996). All results using the number of analysts following the firm as the dependent variable are qualitatively similar to those results reported in Table 4. In an additional test, I examine and find evidence that the number of reports issued per analyst increases from the pre-class to the filing and post-filing periods.

communication tools that analysts use to communicate useful information to investors.[15] Similar to Frankel et al. (2006), I use IBES to calculate the $\#ANALYST\ REP_{i,q}$ variable by summing the number of analyst forecasts issued during quarter q for firm i. Since analyst reports generally contain multiple forecasts in each report, I assume that all analyst forecasts that are issued on the same date by the same analyst and for the same firm are included in the same analyst report. Asquith et al. (2005) provides evidence that 99.1% of analyst reports in their sample include an analyst forecast. I define quarter q to be the time period between the earnings announcement of quarter q-*1* and the earnings announcement of quarter q.

To test my hypothesis, I identify five litigation periods for each class action lawsuit, similar to Rogers and Van Buskirk (2009). Figure 1 illustrates the litigation periods and the median number of days for each period in my sample. The pre-class period is the four quarters prior to the class period, which is the period in which managers allegedly misled investors. In my analysis, I only include firm-quarter observations that are part of one of the five litigation periods; therefore, the intercept represents the average number of analyst reports issued for the firm during the pre-class period after controlling for other firm characteristics included in Equation 1.[16] The $CLASS_{i,q}$ variable is an indicator variable set to one for all firm-quarters that are between the start and end date of the class period. The $FILING_{i,q}$ variable is an indicator variable set to one in the quarter the lawsuit is filed. The $INTERIM_{i,q}$ variable is an indicator variable set to one for each quarter between the end of

[15] Bradshaw (2011) partitions analyst communication into formal and informal communication to investors. Analyst reports are the primary form of formal communication. Communication with brokerage clients and comments to the press are examples of informal communication. Maber et al. (2011) finds that the change in the number of analyst notes and reports is positively correlated with the change in the number of client calls and presentations in morning meetings. As a result, I argue that the issuance of analyst reports is representative of the aggregate demand for analyst services.

[16] I include only firm-quarter observations that are part of one of the five litigation periods to increase the power of my analysis. Identifying a matched sample based on the litigated firms characteristics likely reduces the power of my tests in two ways. First, sell-side analysts may follow other firms with similar characteristics more closely to produce relevant information about the litigated firm. Second, sell-side analysts may follow other firms with similar firm characteristics more closely to determine whether or not the other firms have engaged in similar misconduct. Firms with similar characteristics to the litigated firm may have similar disclosure or accounting procedures.

the class period and the quarter of the lawsuit's filing. The $POST\text{-}FILING_{i,q}$ variable is an indicator variable set to one for each of the four quarters following the quarter in which the lawsuit is filed.

Each of the coefficients on the $CLASS_{i,q}$, $INTERIM_{i,q}$, $FILING_{i,q}$, and $POST\text{-}FILING_{i,q}$ variables represents the average difference in the number of analyst reports issued for the firm during each litigation period relative to the pre-class period. If investors demand additional analyst services after the filing of a security class action lawsuit, I expect to find significantly positive coefficients on the $FILING_{i,q}$ and $POST\text{-}FILING_{i,q}$ variables. I do not compare the filing and post-filing periods to the interim or class periods for two reasons. First, the interim period is an information-gathering period in which sell-side analysts gather information to assess the likelihood of a class action lawsuit being filed. Second, sell-side analysts likely identify firm characteristics during the class period that increase the likelihood of misconduct, resulting in a potential increase in analyst services. Kim and Skinner (2010) identify several observable firm characteristics during the class period that increase the likelihood of a class action lawsuit. Dyck et al. (2010) also provide evidence that sell-side analysts are instrumental in detecting firm misconduct, suggesting that sell-side analysts are potentially more active during the class period.[17] Therefore, I compare the pre-class period (i.e. the period prior to the firm's alleged misconduct) to the filing and post-filing periods to increase the power of my tests.[18]

To mitigate the possibility of correlated omitted variables and increase the power of my tests, I include several control variables, as discussed in the prior literature (e.g. Bhushan 1989; Lang and Lundholm 1996), in Equation 1. The $SIZE_{i,q-1}$ variable represents the natural log of firm *i*'s market value in quarter *q-1* and is included to control for differences in firm size. I anticipate that more analyst reports are issued for larger firms. The $SALES\ GROWTH_{i,q-1}$ variable represents the

[17] Dyck et al. (2010) provide evidence that the firm's employees are the only group that consistently identifies a higher percentage of firm frauds than sell-side analysts. See Table 2 of Dyck et al. (2010).
[18] In an additional robustness test, I compare the class period to the filing and post-filing periods to test H1, H2, and H3. Using a multivariate regression, I get qualitatively similar results to those reported in Table 4, 5, and 6.

percentage change in sales for firm *i* from quarter *q-5* to quarter *q-1* and controls for growth. I predict that analysts issue more reports for high growth firms. The $BK/MKT_{i,q-1}$ variable represents the book-to-market ratio for firm *i* in quarter *q-1* and controls for differences between value and glamour firms. The $\%INST_{i,q-1}$ variable is equal to the percentage of shares owned by institutional owners. I anticipate that higher institutional ownership is associated with a higher issuance of analyst reports. The $ROA_{i,q-1}$ variable represents the return on assets for firm *i* in quarter *q-1* and helps control for firm performance. Hayes (1998) suggests that analysts are more likely to follow firms that are performing well; therefore, I predict a positive coefficient on the $ROA_{i,q}$ variable. I include the lagged values of the previously mentioned variables since analysts do not likely have the firm's current quarter financial information until the earnings announcement for quarter *q*. I also include the number of management forecasts ($\#MGMT\ FOR_{i,q}$) issued for firm *i* in quarter *q* to control for management-produced information. I anticipate that firms with more voluntary disclosure will have a higher number of analyst reports (Lang and Lundholm 1996). I include year-quarter dummy variables ($QTR/YEAR_q$) to control for macroeconomic factors that could influence the number of analyst reports issued over time. I include industry dummy variables ($INDUSTRY_j$), defined by four-digit SIC code, to control for fundamental differences between industries. I also cluster the standard errors by firm to correct for potential serial-correlation (Petersen 2009).[19]

3.2 TEST OF HYPOTHESIS 2

I use equation 2 to examine whether sell-side analysts use more private information (i.e. information specific to the individual analyst) during the forecasting process after the filing of a security class action lawsuit (*H2*).

$$\boldsymbol{ANALYST\ DISP_{i,q} = \alpha_0 + \alpha_1\ CLASS_{i,q} + \alpha_2\ INTERIM_{i,q} + \alpha_3\ FILING_{i,q} + \alpha_4\ POST\text{-}FILING_{i,q} + \alpha_5\ SIZE_{i,q} + \alpha_6\ SALES\ GROWTH_{i,q} + \alpha_7\ BK/MKT_{i,q} + \alpha_8} \quad \textbf{(2)}$$

[19] As an additional robustness check, I cluster the standard errors by firm and calendar quarter to ensure that neither cross-sectional nor serial correlation is artificially deflating the standard errors in Table 4, 5, and 6. All results are qualitatively similar to those reported in Table 4, 5, and 6.

$$\%INST_{i,q} + \alpha_9 ROA_{i,q} + \alpha_{10} MGMT\ FOR_{i,q} + \alpha_{11} \#ANALYSTS_{i,q} + \Sigma_q QTR/YEAR_q + \Sigma_j INDUSTRY_j + \varepsilon_{i,q}$$

I proxy for the amount of private information used by sell-side analysts during the forecasting process with the standard deviation of analyst forecasts scaled by the absolute value of the mean analyst forecast for firm *i* during quarter *q*. Lang and Lundholm (1996) argue that analyst forecast dispersion reflects the use of private information used by analysts during the forecasting process. They argue that analysts are more likely to deviate from the consensus forecast as they use more private information to forecast firm performance. Barron et al. (1998) also mathematically separate analyst forecast errors into errors resulting from analysts' use of common and private information. They find that analyst dispersion reflects analysts' idiosyncratic forecast errors, resulting from analysts' use of private information.

Similar to how I test my first hypothesis, I identify the five litigation periods and test whether the coefficients on the $FILING_{i,q}$ and $POST\text{-}FILING_{i,q}$ variables are significantly positive, suggesting that analysts use more private information during the forecasting process after the filing of the security class action lawsuit. I anticipate that firm size ($SIZE_{i,q-1}$), firm growth ($SALES\ GROWTH_{i,q-1}$), institutional ownership ($\%INST_{i,q-1}$), firm performance ($ROA_{i,q-1}$), and the number of management forecasts ($\#MGMT\ FOR_{i,q-1}$) are negatively association with analyst dispersion ($ANALYST\ DISP_{i,q}$). I also include the number of analysts following the firm ($\#ANALYSTS_{i,q}$) as an additional control variable. I do not have a prediction as to whether the number of analysts following the firm is positively or negatively associated with analyst forecast dispersion. I expect that the sign of the coefficient is a function of how much sell-side analysts rely on other sell-side analysts during the forecasting process. I expect a negative (positive) coefficient if sell-side analysts rely heavily (little) on other sell-side analysts when forecasting firm performance. I include industry (4-digit SIC codes) dummy variables ($INDUSTRY_j$) to control for industry differences and year/quarter dummy variables

($QTR/YEAR_q$) to control for macroeconomic factors that could potentially influence the inferences. I also cluster the standard errors by firm to correct for potential serial correlation (Petersen 2009).

3.3 TEST OF HYPOTHESIS 3

To examine the change in the informativeness of individual analyst reports after the filing of the security class action lawsuit (*H3*), I use the following model.

$$\begin{aligned} VOLUME_{i,q} = {} & \alpha_0 + \alpha_1 CLASS_{i,q} + \alpha_2 INTERIM_{i,q} + \alpha_3 FILING_{i,q} + \alpha_4 POST\text{-}FILING_{i,q} + \alpha_5 \\ & SIZE_{i,q} + \alpha_6 SALES\ GROWTH_{i,q} + \alpha_7 BK/MKT_{i,q} + \alpha_8 \%INST_{i,q} + \alpha_9 ROA_{i,q} \\ & + \alpha_{10} MGMT\ FOR_{i,q} + \alpha_{11} \#ANALYSTS_{i,q} + \Sigma_q QTR/YEAR_q + \Sigma_j \\ & INDUSTRY_j + \varepsilon_{i,q} \end{aligned} \quad (3)$$

I proxy for the informativeness of analyst reports using the average abnormal stock turnover around the issuance date of the analyst report.[20] Bamber et al. (2010) suggest that changes in stock turnover reflect differential belief revisions of investors. Cready and Hurtt (2002) argue that a change in stock turnover is a powerful indicator of information content. Several studies in the prior accounting literature have used abnormal trading volume as a proxy for information content.[21]

To calculate the abnormal stock turnover variable, I first calculate the daily stock turnover for each of the three days (i.e. day *d-1*, day *d*, and day *d+1*) surrounding each analyst forecast issued for firm *i* during quarter *q*. Similar to Frankel et al. (2006), I use the analyst forecast date in IBES to proxy for the issuance date of the analyst report. Daily stock turnover is calculated as the number of shares traded for each day divided by the total number of shares outstanding. I market-adjust the

[20] As an additional robustness check, I also proxy for the informativeness of analyst reports using an abnormal return variable. Bamber, Barron, and Stevens (2010) identify a distinct informational difference between changes in price and changes in stock turnover. They suggest that "price reactions primarily reflect the change in the aggregate market's expectation of firm value, whereas volume reactions also reflect differential belief revisions." The abnormal return proxy is calculated identically to the abnormal stock turnover proxy with the following exception. Instead of using daily stock turnover, I use the absolute value of market-adjusted daily return to calculate the proxy measuring the informativeness of analyst reports. Using the same model specification detailed in Equation 3, I include the abnormal returns proxy as the dependent variable and find qualitatively similar results. I do not report the results using the abnormal returns proxy with my main results for brevity and because of the difficulty in interpreting the economic magnitude of changes in the abnormal return proxy.

[21] Beaver (1968) is among the first to use abnormal trading volume to capture the information content of earnings announcements. Landsman and Maydew (2002), Kiger (1972), and Morse (1981) all use trading volume reactions to measure the information content of earnings announcements.

daily stock turnover by subtracting the average daily stock turnover for the exchange on which the stock is listed.[22] The $ADJ\ TURN_{a,d}$ variable represents the market-adjusted daily stock turnover for analyst report a on day d. Similar to Frankel et al. (2006), I sum the adjusted daily stock turnovers for all analyst reports (denoted as A) issued during quarter q for firm i, divide by the total number of analyst reports issued for firm i during quarter q, and multiply the variable by 100. The $VOLUME_{i,q}$ variable, described in Equation 4, represents the average abnormal percentage of shares traded during the three-day window surrounding the average analyst report for firm i in quarter q.

$$VOLUME_{i,q} = \left(\frac{\sum_{a}^{A} \sum_{d=-1}^{1} ADJ\_TURN_{a,d}}{\#ANALYST\_REP_{i,q}} \right) * 100 \tag{4}$$

I make several adjustments before summing the daily abnormal stock turnover described in the numerator of Equation 4. The issuance of an analyst report possibly coincides with other significant information releases. Similar to Asquith et al. (2005), I delete various days included in the numerator of Equation 4 that coincide with other significant information events to avoid attributing the information produced by other information providers to sell-side analysts. First, the issuance of analyst reports may cluster in time; therefore, I delete all duplicate days to avoid double counting days that exist in the three-day window surrounding more than one analyst report. Second, I delete days that overlap with the three-day window surrounding management forecasts and earnings announcements to avoid attributing management-produced information to analysts. Third, I delete those days that overlap with the three-day window surrounding the filing of the lawsuit. As mentioned earlier, the lawsuit filing date is a notable event that causes many market participants to

[22] Because the average daily market turnover likely fluctuates by exchange, I adjust the firm's daily turnover by the exchange on which the firm's stock is listed. In an additional robustness check, I follow Garfinkel (2009) and also adjust the daily stock turnover by the average abnormal stock turnover for firm i in quarter q and find qualitatively similar results as those presented in Table 6.

reassess their position in the stock, making it difficult to determine whether the abnormal stock turnover is due to information produced by the sell-side analyst or another market participant.

To examine whether the average sell-side analyst report is more informative after the filing of the security class action lawsuit, I test whether the coefficient on the $FILING_{i,q}$ and $POST\text{-}FILING_{i,q}$ variables are significantly positive. Similar to Equation 2, I include several control variables, as previously described. I expect sell-side analyst reports to be more informative for high growth firms ($SALES\ GROWTH_{i,q-1}$). I expect larger firms ($SIZE_{i,q-1}$) to have better information environments, which improves the timeliness of information revealed to investors and results in less informative analyst reports for larger firms. I expect institutional ownership ($\%INST_{i,q-1}$) to be positively associated with the $VOLUME_{i,q}$ variable. Institutional investors are more likely to use analyst reports to reassess their position in the stock. Similar to Frankel et al. (2006), I expect a negative coefficient on the $\#ANALYSTS_{i,q}$ variable. I do not have a directional prediction for the $\#MGMT\ FOR_{i,q}$ variable. To the extent that management forecasts and analyst reports are substitutes, I expect management forecasts ($\#MGMT\ FOR_{i,q}$) to reduce the informativeness of analyst reports. However, Lang and Lundholm (1996) suggest that analyst-produced information is a complement to management-produced information, suggesting a positive coefficient on the $MGMT\ FOR_{i,q}$ variable. I do not have a directional prediction for the $ROA_{i,q-1}$ or $BK/MKT_{i,q-1}$ variables; however, I include them in the model for completeness.

In addition to the control variables discussed above, I include industry (four-digit SIC code) dummy variables to control for fundamental information content differences among industries. I include year-quarter dummy variables to control for differences in the informativeness of analyst reports over time. Garfinkel (2009) suggests that some stocks have consistently high trading volume due to liquidity trading, suggesting serial correlation in the abnormal stock turnover proxy ($VOLUME_{i,q}$); therefore, I cluster the standard errors by firm to correct for serial correlation (Petersen 2009).

4. MAIN RESULTS

4.1 SAMPLE

I start my sample after the passage of Regulation FD because sell-side equity analysts are restricted from obtaining private information from management that is not timely disclosed to all other market participants. By starting my sample after Regulation FD, I reduce the likelihood of the alternative explanation that management simply uses sell-side analysts as an alternative information conduit to communicate management-produced information to investors after the filing of the class action lawsuit. Post-Regulation FD, the information content of analyst reports is more likely to be based on the analyst's ability to assimilate firm, industry, and market data to produce information useful to investors. Mohanram and Sunder (2006) provide evidence consistent with analysts generating more private information after the passage of Regulation FD.

I obtain a sample of security class action lawsuits from the Stanford Securities Class Actions Clearinghouse. Similar to Kim and Skinner (2010), I exclude all IPO and analyst lawsuits that are common around 2001.[23] My final sample consists of 653 security class action lawsuits that were filed between 2001 and 2009. Panel A of Table 1 provides descriptive statistics on the number of lawsuits filed in each year. The number of lawsuits appears to be fairly well distributed across years. Panel B of Table 1 provides descriptive statistics on the number of firms subject to litigation by industry, defined by two-digit SIC code. Similar to Rogers and Van Buskirk (2009), the lawsuits in my sample tend to be concentrated in SIC code 73, 28, and 36.

I only include firm-quarter observations that are part of one of the litigation time periods described in Section 3.1. All financial statement data are obtained from COMPUSTAT and all stock

[23] I exclude all IPO and analyst lawsuits around 2001 given the unique type of lawsuit brought during these time periods. These firms likely have significantly different firm characteristics and could influence the inferences of this study. As an additional robustness check, I eliminate 15 lawsuits related to mergers, changes in firm operations, and mutual funds and find qualitative similar results as those reported in Table 4, 5, and 6. Mergers and changes in firm operations likely increase investors' demand for information, possibility resulting in analysts changing their behavior and having more informative reports.

return data are obtained from CRSP. Institutional ownership data are obtained from Thomson Reuters. Following Piotroski and Roulstone (2004), I set the institutional ownership variable to zero if missing. All sell-side analyst data are obtained from I/B/E/S. To be included in the dataset, I require each firm-quarter observation to have an earnings announcement for quarter *q-1* and *q*. I delete all observations with insufficient data to calculate the independent and dependent variables. My final sample includes 9,423 firm-quarter observations. I include descriptive statistics in Table 2 and univariate correlations between the dependent and control variables in Table 3. All variable descriptive statistics appear to be reasonable and consistent with prior research.

4.2 H1 RESULTS

In Figure 2, I graph the mean number of analyst reports issued ($\#ANALYST\ REP_{i,q}$) in each of the five litigation periods (i.e. pre-class, class, interim, filing, and post-filing periods). The average number of analysts reports increases from 16.993 reports in the pre-class period to 21.928 (18.752) reports in the filing (post-filing) period. In Panel A of Table 4, I document that the changes from the pre-class period to the filing and post-filing periods are significant at the 1 percent level. This evidence suggests that analysts provide more services after the filing of a security class action lawsuit.

In Panel B of Table 4, I present the multivariate regression results. I find that the coefficient on the $FILING_{i,q}$ variable is equal to 3.553 and significant at the 1 percent level, suggesting that 3.553 more sell-side analysts reports are issued during the quarter in which the security class action lawsuit is filed with the courts relative to the average quarter in the pre-class period. I also find that the coefficient on the $POST\text{-}FILING_{i,q}$ variable is equal to 1.704 and significant at the 1 percent level, suggesting that 1.704 more analyst reports are issued during each of the four quarters following the filing of the security class action lawsuit relative to the pre-class period. After controlling for size,

growth, performance, and other firm characteristics, the evidence is consistent with sell-side analysts providing additional services after the filing of the security class action lawsuit.[24]

The majority of the coefficients on the control variables are consistent with the expectations. The coefficient on the $SIZE_{i,q-1}$ variable is positive and significant, suggesting that analysts issue more reports for larger firms. The coefficient on the $\#MGMT\ FOR_{i,q}$ variable is significantly positive and consistent with Lang and Lundholm (1996). The $BK/MKT_{i,q-1}$ variable is significantly positive, suggesting analysts issue more reports for value firms. The $\%INST_{i,q-1}$ variable is insignificant. The adjusted R^2 is equal to 0.644.

4.3 H2 RESULTS

In Figure 3, I provide graphical evidence on how the use of private information by sell-side analysts changes after the filing of a security class action lawsuit. Analyst forecast dispersion increases from 0.195 during the pre-class period to 0.403 (0.353) during the filing (post-filing) period. Panel A of Table 5 provides evidence that the changes in analyst dispersion from the pre-class period to the filing and post-filing periods is significant at the 1 percent level. This evidence suggests that sell-side analysts use more private information during the forecasting process after the filing of a security class actions lawsuit.

Panel B of Table 5 presents the multivariate regression results examining my second hypothesis. The number of observations decreases to 7,896 in Table 5 due to data restrictions when calculating the $ANALYST\ DISP_{i,q}$ variable.[25] I find that the coefficient on the $FILING_{i,q}$ variable is equal to 0.180 and significant at the 1 percent level. The change in analyst dispersion from the pre-

[24] The intercept in Table 4 represents the number of analyst reports issued for the litigated firm during the pre-class period after controlling for size, growth, value/glamour, institutional ownership, performance, and voluntary disclosure. The intercept in Table 4 is negative and significant at the 1 percent level. To evaluate the average number of analyst reports issued for the firm during the pre-class period, I first multiply the coefficients of each control variable by the average control variable values. I then sum the fitted control variables and the intercept to obtain the average number of analyst reports issued for the average quarter during the pre-class period, which is equal to 16.356. This suggests that 16.356 analyst reports are issued during the average firm-quarter included in the pre-class period.

[25] To calculate the $ANALYST\ DISP_{i,q}$ variable, I require that at least three analysts issue a forecast within 90 days of the fiscal quarter end date of quarter *q* for firm *i*.

class period to the filing period represents an increase of 63% (232%) relative to the mean (median) analyst dispersion variable, which is equal to 0.28 (0.077). I also find the coefficient on the *POST-FILING*$_{i,q}$ variable is equal to 0.108 and significant at the 1 percent level, suggesting a 38% (140%) change from the mean (median) analyst dispersion variable.

The majority of the control variables appear to have reasonable coefficients and signs. The coefficient on the *SIZE*$_{i,q-1}$ variable is negative and significant, suggesting that sell-side analysts use less private information when evaluating larger firms. This negative relation seems reasonable since larger firms have better information environments, making it more difficult for analysts to produce private information. The coefficient on the *#MGMT FOR*$_{i,q}$ variable is negative and significant at the 10 percent level, suggesting that additional management-provided information reduces the amount of private information used by sell-side analysts. The adjusted R^2 is equal to .126.

As an additional robustness check, I examine whether analysts' increased use of private information is due to the deterioration of common information available to analysts after the filing of a lawsuit. The common information available to analysts likely deteriorates as the frequency and precision of management disclosure decreases after the filing of the lawsuit. Therefore, in an unreported sensitivity analysis, I control for changes in common information using a proxy derived by Barron et al. (1998).[26] I find qualitatively similar results as those reported in Table 5.

4.4 H3 RESULTS

In Figure 4, I provide evidence that the *VOLUME*$_{i,q}$ variable increases from 0.824 in the pre-class period to 1.780 (0.948) in the filing (post-filing) period. Panel A of Table 6 provides statistical evidence that the changes from the pre-class period to the filing and post-filing periods are significant at the 5 percent level. These results provide preliminary evidence that the informativeness of analyst reports increases after the filing of the security class action lawsuit.

[26] Barron et al. (1998) mathmatically derives the errors in common information variable as follows: (Actual Earnings – Mean Forecast)^2 less Analyst Dispersion / Number of Analysts.

Using the multivariate regression analysis presented in Panel B of Table 6, I find that the coefficient on the $FILING_{i,q}$ variable is equal to 1.012 and significant at 1 percent level, suggesting that the average sell-side analyst report is more informative during the filing period. A coefficient of 1.012 suggests that approximately 1% more shares are traded during the three-day window surrounding the average analyst report during the filing period relative to the pre-class period and represents a 107% (318%) change relative to the mean (median) $VOLUME_{i,q}$ variable, which is equal to 0.95 (0.32). I also find that the coefficient on the $POST\text{-}FILING_{i,q}$ variable is equal to 0.279 and significant at the 1 percent level, suggesting that the average analyst report is more informative during each of the four quarters after the filing of the class action lawsuit. The coefficient of 0.279 suggests that approximately 0.279% more shares are traded during the post-filing period relative to the pre-class period and represents a 29% (88%) change relative to the mean (median) $VOLUME_{i,q}$ variable. The above results are consistent with the average sell-side analyst report becoming more informative after the filing of a security class action lawsuit.

The control variables appear to behave as expected. The $SALES\ GROWTH_{i,q-1}$ variable is significantly positive, suggesting that analyst reports are more informative for high growth firms. The coefficients on the $SIZE_{i,q-1}$ and $\#MGMT\ FOR_{i,q}$ variables are significantly negative, suggesting that better information environments reduce the informativeness of analyst reports. The coefficient on the $\%INST_{i,q-1}$ variable is positive and significant, suggesting that institutional investors are more likely to use analyst reports when reassessing their positions in the stock. The adjusted R^2 is equal to 0.218.

5. CROSS-SECTIONAL RESULTS

As I have previously argued, investors demand additional information from sell-side analysts after the filing of the security class action lawsuit to assess the validity and gravity of the lawsuit as well as to substitute for or validate management disclosure. I anticipate that the demand for analyst-produced information varies in the cross-section based on firm and lawsuit characteristics. I first examine whether investors demand more information if the lawsuit is more of a surprise to the

market. Second, I examine whether investors demand more information when the lawsuit alleges non-GAAP violations. Finally, I examine whether investors demand more information if the firm is more visible in the marketplace during the class period.

5.1 SURPRISE OF CLASS ACTION LAWSUIT

The magnitude of the lawsuit's surprise to the market is based on the expected likelihood and gravity of the allegations prior to the filing of the lawsuit. Gande and Lewis (2009) argue that an increased likelihood of litigation decreases the magnitude of shareholder losses around the lawsuit's filing date. If the likelihood and gravity of the allegations are largely unanticipated by investors, I expect investors to demand incrementally more information from sell-side analysts to assess the validity and gravity of the lawsuit after its filing.

I proxy for the surprise of the lawsuit's filing to the marketplace using the cumulative abnormal return (CAR) starting five days prior through five days following the filing of the lawsuit, allowing me to obtain both the immediate market reaction to the lawsuit as well as additional information produced during the week before and after the lawsuit's filing. Since the filing of a lawsuit is a negative event, I posit that a more negative CAR is more of a surprise to the market. I define a high (low) surprise lawsuit as an announcement CAR lower (higher) than the median announcement CAR of all class action lawsuits included in my sample. For each of my hypotheses, I examine whether the magnitude of the relation is stronger for the high surprise lawsuits relative to the low surprise lawsuits. I use the following model to perform the empirical analyses.

$$\begin{aligned} \textbf{DEP VAR}_{i,q} = \quad & \alpha_0 + \alpha_1 \textbf{CLASS}_{i,q} + \alpha_2 \textbf{INTERIM}_{i,q} + \alpha_3 \textbf{FILING}_{i,q} + \alpha_4 \textbf{POST-FILING}_{i,q} + \\ & \alpha_5 \textbf{HIGH SURP}_{i,q} + \alpha_6 \textbf{HIGH SURP}_{i,q} * \textbf{CLASS}_{i,q} + \alpha_7 \textbf{HIGH SURP}_{i,q} * \\ & \textbf{INTERIM}_{i,q} + \alpha_8 \textbf{HIGH SURP}_{i,q} * \textbf{FILING}_{i,q} + \alpha_9 \textbf{HIGH SURP}_{i,q} * \\ & \textbf{POST-FILING}_{i,q} + \lambda_j \textbf{CONTROLS}_{j,i,q} + \varepsilon_{i,q} \end{aligned} \qquad (5)$$

The $DEP\ VAR_{i,q}$ variable is equal to the $\#ANALYST\ REP_{i,q}$, $ANALYST\ DISP_{i,q}$, or $VOLUME_{i,q}$ variable, which proxies for the aggregate demand for analyst services, analysts' use of private information, and the informativeness of analyst reports, respectively. As previously described, I

include control variables and indicator variables for each litigation period. The $HIGH\ SURP_{i,q}$ variable is set to one for all firm-quarter observations that are associated with a high surprise lawsuit. I interact the $HIGH\ SURP_{i,q}$ variable with each of the litigation period variables to determine whether or not high surprise lawsuits are associated with a greater increase in analyst services, analysts' use of private information, and the informativeness of analyst reports.

The coefficients on the $FILING_{i,q}$ and $POST\text{-}FILING_{i,q}$ variables represent the change in the dependent variable from the pre-class period to filing and post-filing periods for the low surprise lawsuits. The sum of the coefficients on the $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable and the $HIGH\ SURP_{i,q}$ * $FILING_{i,q}$ ($HIGH\ SURP_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction represents the change in the dependent variable from the pre-class period to the filing (post-filing) period for the high surprise lawsuit.[27] The coefficients on the $HIGH\ SURP_{i,q}$ * $FILING_{i,q}$ and $HIGH\ SURP_{i,q}$ * $POST\text{-}FILING_{i,q}$ interactions represent the incremental difference in the change from the pre-class period to the filing and post-filing periods for the high surprise lawsuits relative to the low surprise lawsuits.

Table 7 presents the empirical results examining each of the three hypotheses previously discussed. In Panel A, the coefficient on the $FILING_{i,q}$ variable is significantly positive when $\#ANALYST\ REP_{i,q}$, $ANALYST\ DISP_{i,q}$, or $VOLUME_{i,q}$ is included as the dependent variable. This suggests that analyst services, analysts' use of private information, and the informativeness of analyst reports increase from the pre-class period to the filing period for low surprise lawsuits. The coefficient on the $POST\text{-}FILING_{i,q}$ variable is significantly positive for the $\#ANALYST\ REP_{i,q}$ and $ANALYST\ DISP_{i,q}$ regressions (Column 1 and 2), suggesting that analysts provide more services and

[27] The average $DEP\ VAR_{i,q}$ for low surprise lawsuits is equal to α_0 in the pre-class period, $\alpha_0 + \alpha_3$ in the filing period, and $\alpha_0 + \alpha_4$ in the post-filing period. The average $DEP\ VAR_{i,q}$ for the high surprise lawsuits is equal to $\alpha_0 + \alpha_5$ in the pre-class period, $\alpha_0 + \alpha_5 + \alpha_3 + \alpha_8$ in the filing period, and $\alpha_0 + \alpha_5 + \alpha_4 + \alpha_9$ in the post-filing period. To calculate the change in the $DEP\ VAR_{i,q}$ for the high surprise lawsuits from the pre-class to the filing period, I subtract the average $DEP\ VAR_{i,q}$ in the pre-class period ($\alpha_0 + \alpha_5$) from the average $DEP\ VAR_{i,q}$ in the filing period ($\alpha_0 + \alpha_5 + \alpha_3 + \alpha_8$). Therefore, the average change in the $DEP\ VAR_{i,q}$ for the high surprise lawsuits is represented by $\alpha_3 + \alpha_8$. A similar calculation can be performed to examine the change in the $DEP\ VAR_{i,q}$ from the pre-class period to the post-filing period.

use more private information in the post-filing period relative to the pre-class period for low surprise lawsuits.

In Panel B, I sum of the coefficients on the $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable and the $HIGH\ SURP_{i,q}$ * $FILING_{i,q}$ ($HIGH\ SURP_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction for each regression in Panel A. I then test whether the sum of the coefficients is positive and significant to evaluate whether analysts provide more services, use more private information, and have more informative analyst reports after the filing of a high surprise lawsuit. The evidence in Panel B is consistent with analyst services, analysts' use of private information, and the informativeness of analyst reports increasing from the pre-class period to the filing and post-filing periods for high surprise lawsuits.

When $VOLUME_{i,q}$ is the dependent variable, I find that the coefficient on the $HIGH\ SURP_{i,q}$ * $FILING_{i,q}$ ($HIGH\ SURP_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction is positive and significant, suggesting that the informativeness of analyst reports increases more from the pre-class period to the filing (post-filing) period for the high surprise lawsuits relative to the low surprise lawsuits. When $\#ANALYST\ REP_{i,q}$ and $ANALYST\ DISP_{i,q}$ is the dependent variable, the coefficient on the interaction between the $HIGH\ SURP_{i,q}$ and $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable is insignificant, suggesting no significant difference between the high and low surprise lawsuits.

5.2 GAAP VERSUS NON-GAAP ALLEGATIONS

The Stanford Securities Class Action Clearinghouse classifies lawsuits into lawsuits alleging GAAP (Generally Accepted Accounting Principle) and non-GAAP violations. GAAP lawsuits are defined as any lawsuit alleging a misrepresentation of the firm's financial statements. Non-GAAP lawsuits, on the other hand, allege that management provided false forward-looking information or misrepresented voluntary disclosure.

Lawsuits alleging GAAP violations have slightly different effects on the firm's information environment than those alleging non-GAAP violations. External monitors in the form of auditors evaluate and provide an opinion on the reasonableness of the alleged GAAP violations. Auditors

have access to private information used to attest that the financial statements are prepared in accordance with GAAP. Furthermore, auditors have an incentive to uncover any other financial statement misrepresentation to avoid becoming subject to an SEC investigation or lawsuit themselves. As a result, auditors likely increase their scrutiny of the financial statements after the filing of a lawsuit alleging GAAP violations to ensure that there are not other misrepresentations in the financial statements that could damage the auditor's reputation.

In contrast, evaluating the misrepresentation and withholding of voluntary disclosure (e.g. management forecasts), as alleged by non-GAAP lawsuits, is not necessarily in the purview of the auditors. As a result, auditors are less likely to evaluate the allegations and increase scrutiny of the financial statements after the filing of a lawsuit alleging non-GAAP violations. A similar external and independent monitor with proprietary information does not necessarily exist to evaluate and increase scrutiny of non-GAAP disclosures. Therefore, I anticipate that analysts provide incrementally more information through their reports after the filing of a non-GAAP lawsuit relative to a GAAP lawsuit. In addition, I anticipate that the demand for analyst services and analysts' use of private information is higher for non-GAAP lawsuit relative to GAAP lawsuits.

Using the Stanford Clearinghouse database, I identify all security class action lawsuits alleging non-GAAP violations and create an indicator variable ($NON\text{-}GAAP_{i,q}$) equal to one for all non-GAAP lawsuits. Similar to Equations 5, I interact the $NON\text{-}GAAP_{i,q}$ indicator variable with each of the litigation period variables. The interpretations of the interactions between the $NON\text{-}GAAP_{i,q}$ variable and each of the litigation variables is similar to the interpretation of the interactions described in Section 5.1. See Equation 6 below.

$$\begin{aligned} DEP\ VAR_{i,q} = \quad & \alpha_0 + \alpha_1\, CLASS_{i,q} + \alpha_2\, INTERIM_{i,q} + \alpha_3\, FILING_{i,q} + \alpha_4\, POST\text{-}FILING_{i,q} \\ & + \alpha_5\, NON\text{-}GAAP_{i,q} + \alpha_6\, NON\text{-}GAAP_{i,q} * CLASS_{i,q} + \alpha_7\, NON\text{-}GAAP_{i,q} * \\ & INTERIM_{i,q} + \alpha_8\, NON\text{-}GAAP_{i,q} * FILING_{i,q} + \alpha_9\, NON\text{-}GAAP_{i,q} * POST\text{-} \\ & FILING_{i,q} + \lambda_j\, CONTROLS_{j,i,q} + \varepsilon_{i,q} \end{aligned} \qquad (6)$$

Table 8 presents the results examining whether there is an increase in analyst services, analysts' use of private information, and the informativeness of analyst reports after the filing of the lawsuit. In Panel A, the coefficient on the $FILING_{i,q}$ variable is positive and significant for each of the three regressions, suggesting that analysts provide more services, use more private information, and have more informative reports during the filing period relative to the pre-class period for GAAP-based lawsuits. I also find that the coefficient on the $POST\text{-}FILING_{i,q}$ variable is positive and significant for the regressions with $\#ANALYST\ REP_{i,q}$ and $ANALYST\ DISP_{i,q}$ as the dependent variable. This evidence suggests that analyst services and analysts' use of private information increases from the pre-class period to the post-filing period for GAAP-based lawsuits.

In Panel B, I sum the coefficients for the $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable and the $NON\text{-}GAAP_{i,q}$ * $FILING_{i,q}$ ($NON\text{-}GAAP_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction to aid the reader in assessing whether the demand for analyst services, analysts' use of private information, and the informativeness of analyst reports increase from the pre-class period to the filing and post-filing periods for non-GAAP lawsuits. The evidence is consistent with the demand for analyst services, analysts' use of private information, and the informativeness of analyst reports increasing from the pre-class period to the filing and post-filing periods for the non-GAAP lawsuits.

The coefficient on the interaction between the $NON\text{-}GAAP_{i,q}$ and $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variables is significant at the 5 (10) percent level when $VOLUME_{i,q}$ is the dependent variable, suggesting that analyst reports are more informative after the filing of a lawsuit alleging non-GAAP violations relative to GAAP lawsuits. When $\#ANALYST\ REP_{i,q}$ and $ANALYST\ DISP_{i,q}$ are the dependent variables, the coefficients on the interactions are insignificant. This evidence suggests that there is no difference between non-GAAP and GAAP lawsuits when evaluating the demand for analyst services and analysts' use of private information.

5.3 FIRM VISIBILITY

The visibility of the firm subject to litigation likely impacts investors' demand for additional information after the filing of the security class action lawsuit. Both institutional and retail investors are more likely to follow and invest in more visible firms (Bhushan 1989). Therefore, I anticipate that investors demand more information about more visible firms in the marketplace after the filing of the lawsuit. As a result, I expect that analysts provide more services, use more private information, and have more informative reports when more visible firms are targeted by a lawsuit.

I proxy for firm visibility using the average market value of the litigated firm during the class period. Bhushan (1989) provides evidence that the firm's market value is positively associated with the number of institutional investors invested in the firm. I define a more visible firm as having a market value during the class period above the median class period market value for all firms included in my sample. More visible firms are designated with the $VISIBLE_{i,q}$ indicator variable. For each of my hypotheses, I examine whether the magnitude of the prediction for each of my hypotheses is greater for more visible firms. I use the following equation to perform the empirical tests.

$$\begin{aligned} \textbf{DEP VAR}_{i,q} = \; & \alpha_0 + \alpha_1 \textbf{CLASS}_{i,q} + \alpha_2 \textbf{INTERIM}_{i,q} + \alpha_3 \textbf{FILING}_{i,q} + \alpha_4 \textbf{POST-FILING}_{i,q} \\ & + \alpha_5 \textbf{VISIBLE}_{i,q} + \alpha_6 \textbf{VISIBLE}_{i,q} * \textbf{CLASS}_{i,q} + \alpha_7 \textbf{VISIBLE}_{i,q} * \\ & \textbf{INTERIM}_{i,q} + \alpha_8 \textbf{VISIBLE}_{i,q} * \textbf{FILING}_{i,q} + \alpha_9 \textbf{VISIBLE}_{i,q} * \textbf{POST-} \\ & \textbf{FILING}_{i,q} + \lambda_j \textbf{CONTROLS}_{j,i,q} + \varepsilon_{i,q} \end{aligned} \qquad (7)$$

In Panel A of Table 9, the coefficient on the $FILING_{i,q}$ variable is positive and significant when the $VOLUME_{i,q}$ variable is the dependent variable, suggesting that the informativeness of analyst reports increases from the pre-class period to the filing period for less visible firms. None of the other coefficients on the $FILING_{i,q}$ and $POST\text{-}FILING_{i,q}$ variables are significant when $\#ANALYST\ REP_{i,q}$, $ANALYST\ DISP_{i,q}$, or $VOLUME_{i,q}$ is the dependent variable.

In Panel B of Table 9, I examine whether analyst services, analysts' use of private information, and the informativeness of analyst reports increase from the pre-class period to the filing and post-filing periods for more visible firms. I find that the sum of the coefficients on the $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable and the $VISIBLE_{i,q}$ * $FILING_{i,q}$ ($VISIBLE_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction

is significantly positive at the 1 percent level when $\#ANALYST\ REP_{i,q}$, $ANALYST\ DISP_{i,q}$, or $VOLUME_{i,q}$ is the dependent variable. This evidence suggests that analysts provide more services, use more private information, and have more informative reports during the filing and post-filing periods for more visible firms.

When the $\#ANALYST\ REP_{i,q}$ variable is the dependent variable, the coefficient on the $VISIBLE_{i,q}$ * $FILING_{i,q}$ interaction is significantly positive, suggesting that the increase in analyst services from the pre-class period to the filing period is greater for more visible firms. The coefficient on the $VISIBLE_{i,q}$ * $POST\text{-}FILING_{i,q}$ interaction is also positive and significant when $\#ANALYST\ REP_{i,q}$ and $VOLUME_{i,q}$ are the dependent variables, suggesting that analyst services and the informativeness of analyst reports increase more from the pre-class period to the post-filing period for more visible firms relative to less visible firms.

6. CONCLUSION

Security class action lawsuits are notable firm events that affect the firm's information environment. Rogers and Van Buskirk (2009) provide evidence consistent with security class action lawsuits decreasing the frequency, timeliness, and precision of management voluntary disclosure. Investors demand information from other information providers to assess the validity and gravity of the lawsuit allegations as well as to substitute for or validate management disclosure after the filing of a lawsuit. I argue that sell-side analysts are particularly well suited to provide a portion of the additional information demanded by investors after the lawsuit's filing.

In this paper, I examine whether security class action lawsuits affect analyst behavior and the informativeness of their reports. I find that sell-side analysts provide more services, use more private information during the forecasting process, and have more informative reports after the filing of the lawsuit. This paper provides additional insight on how the firm's information environment develops to reduce information asymmetries and agency costs between investors and managers. This evidence

suggests that sell-side analysts are able to provide at least a portion of the additional information demanded by investors after the filing of a lawsuit.

Regulators and lawmakers have debated the usefulness of class action lawsuits in their economies (The Economist 2007). Several academic studies have provided evidence on how the information environment is positively and negatively affected by security class action lawsuits (e.g. Jennings et al. 2011; Niehaus and Roth 1999; Rogers and Van Buskirk 2009). This study provides additional evidence on how the firm's information environment changes after the filing of the lawsuit. Beyer et al. (2011) suggests that it is important to understand how firm events affect all market participants when assessing the overall improvement or deterioration of the information environment.

While I provide evidence consistent with sell-side equity analysts becoming incrementally more important after the filing of a security class action lawsuit, I do not provide evidence on whether the firm's overall information environment improves or deteriorates after the filing of a lawsuit. Therefore, future research could investigate the effects of class action lawsuits on the firm's overall information environment. In addition, future research might consider investigating the effects of security class action lawsuits on the information environment of those firms not directly targeted by the lawsuit to better understand the effect of litigation on the information environment as a whole. The role of sell-side equity analysts and other market participants (e.g. the financial press, debt analysts, and short-sellers) likely changes as the threat of litigation varies by firm and industry.

REFERENCES

Asquith, P., Mikhail, M., A. Au. 2005. Information Content of Equity Analyst Reports. Journal of Financial Economics, 75, pg. 245-282

Bamber, L., Barron, O., D. Stevens. 2010. Trading Volume around Earnings Announcements and Other Financial Reports: Theory, Research Design, Empirical Evidence, and Directions for Future Research. Working Paper – University of Georgia

Barron, O., Kim, O., Lim, S., D. Stevens. 1998. Using Analysts' Forecasts to Measure Properties of Analysts' Information Environment. The Accounting Review, 73-4, pg. 421-433

Beaver, W. 1968. The Information Content of Annual Earnings Announcements. Journal of Accounting Research, 6, pg. 67-92

Beyer, A., Cohen, D., Lys, T., B. Walther. 2011. The Financial Reporting Environment: Review of the Recent Literature. Journal of Accounting and Economics, Forthcoming.

Bhushan, R. 1989. Firm Characteristics and Analyst Following. Journal of Accounting and Economics, 11, pg. 255-274

Bradshaw, M. 2011. What Do We Know After Decades of Work? Working Paper – Boston College

Cornerstone Research. 2009. http://securities.stanford.edu/clearinghouse_research/2009_YIR/Cornerstone_Research_Filings_2009_YIR.pdf

Cready, W., D. Hurtt. 2002. Assessing Investor Response to Information Events Using Return and Volume Metrics. The Accounting Review, 77-4, pg. 891-909

Dyck, A., Morse, A., L. Zingales. 2010. Who Blows the Whistle on Corporate Fraud? The Journal of Finance, 65-6, pg. 2213-2253

Fisch, J., H. Sale. 2003. The Security Analyst as Agent: Rethinking the Regulation of Analysts. Iowa Law Review, 88, pg. 1035-1098

Frankel, R., Kothari, S., J. Weber. 2006. Determinants of the Informativeness of Analyst Research. Journal of Accounting and Economics, 41, pg. 29-54

Gande, A., C. Lewis. 2009. Shareholder-Initiated Class Action Lawsuits: Shareholder Wealth Effects and Industry Spillovers. Journal of Financial and Quantitative Analysis, 44-4, pg. 823–850

Garfinkel, J. 2009. Measuring Investors' Opinion Divergence. Journal of Accounting Research, 47-5, pg. 1317-1348

Hayes, R. 1998. The Impact of Trading Commission Incentives on Analysts' Stock Coverage Decisions and Earnings Forecasts. Journal of Accounting Research, 36-2, pg. 299-320

Hong, H., Kubik, J., A. Soloman. 2000. Security analysts' career concerns and herding of earnings forecasts. RAND Journal of Economics, 31-1, pg. 121-144

Institutional Investors Magazine. 2011. http://www.institutionalinvestor.com/Research/961/What-Investors-Really-Want.html

Jennings, J., Kedia, S., S. Rajgopal. 2011. The Deterrence Effects of SEC Enforcement and Class Action Litigation Working Paper – University of Washington

Kiger, J. 1972. An Empirical Investigation of NYSE Volume and Price Reactions to the Announcement of Quarterly Earnings. Journal of Accounting Research, 10-1, pg. 113-128

Kim, I., D. Skinner. 2010. Measuring Securities Litigation Risk. Working Paper

Landsman, W., E. Maydew. 2002. Has the Information Content of Quarterly Earnings Announcements Declined in the Past Three Decades? Journal of Accounting Research, 40-3, pg. 797-808

Lang, M., R. Lundholm. 1996. Corporate Disclosure Policy and Analyst Behavior. The Accounting Review, 71-4, pg. 467-492

Maber, D., Groysberg, B., P. Healy. 2011. Sell-side Analysts' Informational Outputs and Commissions from Covered Stocks. Working paper – University of Southern California

Mikhail, M., Walther, B., R. Willis. 1999. Does Forecast Accuracy Matter to Security Analysts? The Accounting Review, 74-2, pg. 185-200

Mohanram, P., S. Sunder. 2006. How Has regulation FD Affected the Operations of Financial Analysts? Contemporary Accounting Research, 23-2, pg. 491-525

Morse, D. 1981. Price and trading volume reaction surrounding earnings announcements: A closer examination. Journal of Accounting Research, 19-2, 374-83

Niehaus, G., G. Roth. 1999. Insider Trading, Equity Issues, and CEO Turnover in Firms Subject to Securities Class Action. Financial Management, 28-4, pg. 52-72

Petersen, M. 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. Review of Financial Studies, 22-1, pg. 435-480

Piotroski, J., D. Roulstone. 2004. The Influence of Analysts, Institutional Investors, and Insiders on the Incorporation of Market, Industry, and Firm-Specific Information into Stock Prices. The Accounting Review, 79-4, pg. 1119-1151

Ramnath, S. 2002. Investor and Analyst Reactions to Earnings Announcements of Related Firms: An Empirical Analysis. Journal of Accounting Research, 40-5, pg. 1351-1376

Rickard, L. Jan 6, 2009. The Class Action Debate in Europe: Lessons From the U.S. Experience. The European Business Review.

Rogers, J., A. Van Buskirk. 2009. Shareholder litigation and changes in disclosure behavior. Journal of Accounting and Economics, 47, pg. 136– 156

Romano, R. 1991. The shareholder suit: litigation without foundation? The Journal of Law, Economics and Organizations 7, 55–87

Skinner, D. 1994. Why Firms Voluntarily Disclose Bad News. Journal of Accounting Research, 32-1, pg. 38-60

Skinner, D. 1997. Earnings Disclosures and Stockholder Lawsuits. Journal of Accounting and Economics, 23, pg. 249-282

Stickel, S. 1992. Reputation and Performance Among Security Analysts. The Journal of Finance, 47-5, pg. 1811-1836

Suijs, J. 2007. Voluntary Disclosure of Information when Firms are Uncertain of Investor Response. Journal of Accounting and Economics, 43, pg. 391-410

The Economist, 2007. If you can't beat them, join them—class actions. February 17.

Trueman, B. 1994. Analyst Forecasts and Herding Behavior. The Review of Financial Studies, 7-1. pg. 97-124

APPENDIX A

BISYS Analyst Report issued by Jeffries Business Services on June 7, 2004

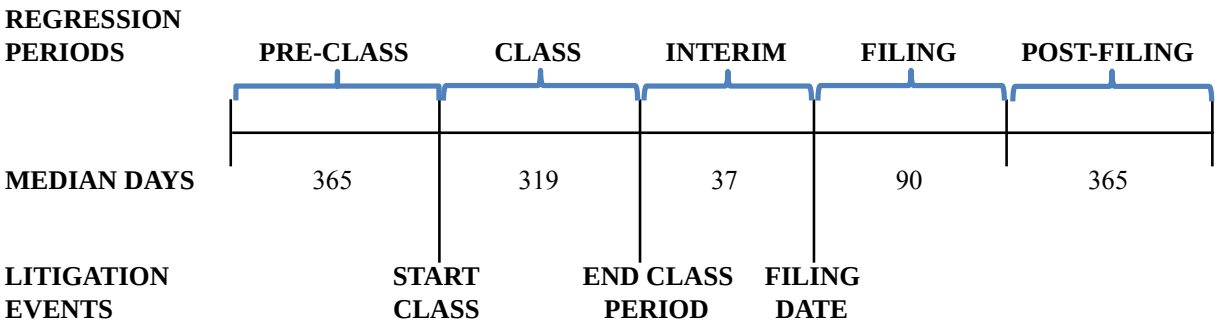
Potential Settlement Amount Appears Manageable... According to research from NERA Economic Consulting, fully 80% of class action lawsuits end in settlement, 19% are dismissed, and 1% end in judgments. What is more, of those that reach a settlement with the shareholders, 44% settle within three years, with just 62% settling within five years. Assuming a settlement, we estimate its value to be in a manageable $6-$9 million range, implying just $0.03-$0.05 per share impact on BSG's bottom line. To arrive at this estimated value, we used methodology outlined in a recent report by NERA Economic Consulting titled "Recent Trends in Securities Class Action Litigation: 2003 Update". First, we calculated $267 million in BISYS' "excess" investor losses, representing the dollar amount investors lost over the Class Period (October 23, 2000 through May 17, 2004) in excess of a hypothetical investment in the S&P 500. The Class Period commences on the day the company first makes an alleged misleading statement and concludes on the day the company discloses the error. NERA estimates investor losses explain approximately 50% of the final settlement value. Second, we applied the "excess" investor losses estimate to the 2.2% investor losses recovery rate seen in the May 13 Raytheon shareholder settlement, the sixth largest settlement in securities industry history. This equates to the $6 million low-end of our estimated settlement range. We used Raytheon for the low-end because it represents a very recent settlement with a below-average recovery rate. Next, our high-end estimate of $9 million is based on applying NERA's estimated 2003 median settlement recovery rate of 2.8% to the same "excess" investor losses estimate, and then boosting this amount by an additional 20% which NERA estimates is appropriate for lawsuits involving accounting issues, admitted accounting irregularities or restatements.

Exhibit 1: Estimated Class Action Settlement: Key Details

Class Period Start	October 23, 2000
BSG Price	$20.78
S&P 500	1,396
Class Period End	May 17, 2004
BSG Price	$14.10
S&P 500	1,084
Class Period Investment Return (Loss)	
BSG Shares	(32.2%)
S&P 500	(22.3%)
BSG "Excess" Investor Losses Relative to S&P 500 (MM)	$267
Estimated BSG Settlement Value (MM) assuming:	
2.2% Raytheon shareholder suit recovery rate	$6.0
2.8% median 2003 settlement recovery rate + 20% restatement adjustment	$9.0
EPS Impact (assumes 38% tax rate, 121.4 million shares outstanding)	**$0.03-$0.05**

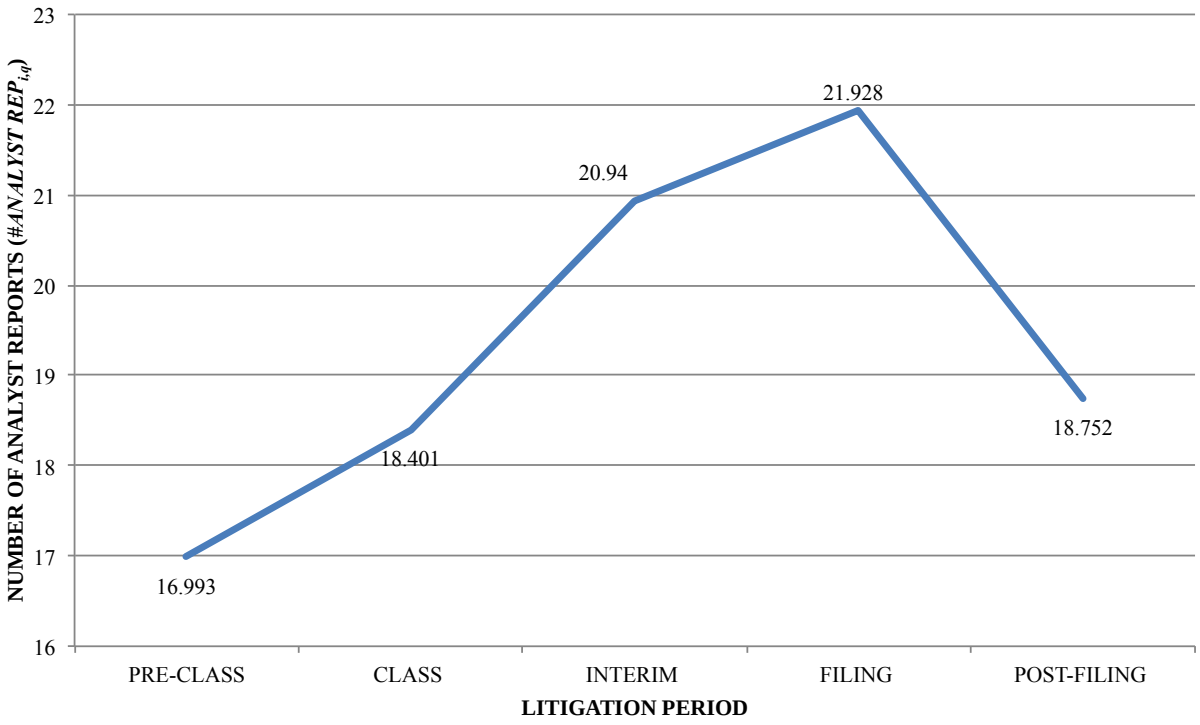
Source: NERA Economic Consulting; and Jefferies & Company, Inc.

FIGURE 1
LITIGATION TIMELINE



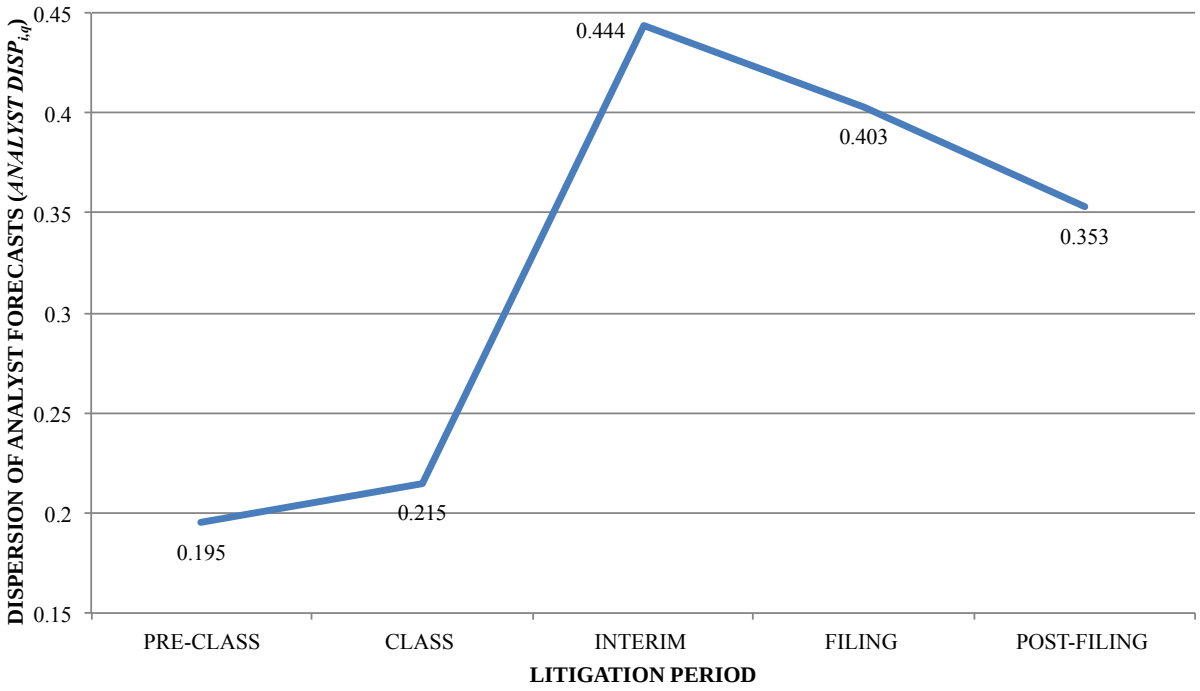
This figure is adapted from Rogers and Van Buskirk (2009). The "REGRESSION PERIODS" are the various periods specified in this study. The PRE-CLASS period represents the four quarters prior to the CLASS period, which is the period of the alleged misconduct. The INTERIM period is period in between the end of the class period and the filing of the lawsuit. The FILING period is the quarter of the lawsuit's filing. The POST-FILING period is the four quarters after the quarter in which the lawsuit is filed. The "MEDIAN DAYS" represents the median number of days for each "REGRESSION PERIOD". The "LITIGATION EVENTS" are identified using the Stanford Clearinghouse database.

FIGURE 2
NUMBER OF ANALYST REPORTS (*#ANALYST REP*$_{i,q}$) BY LITIGATION PERIOD



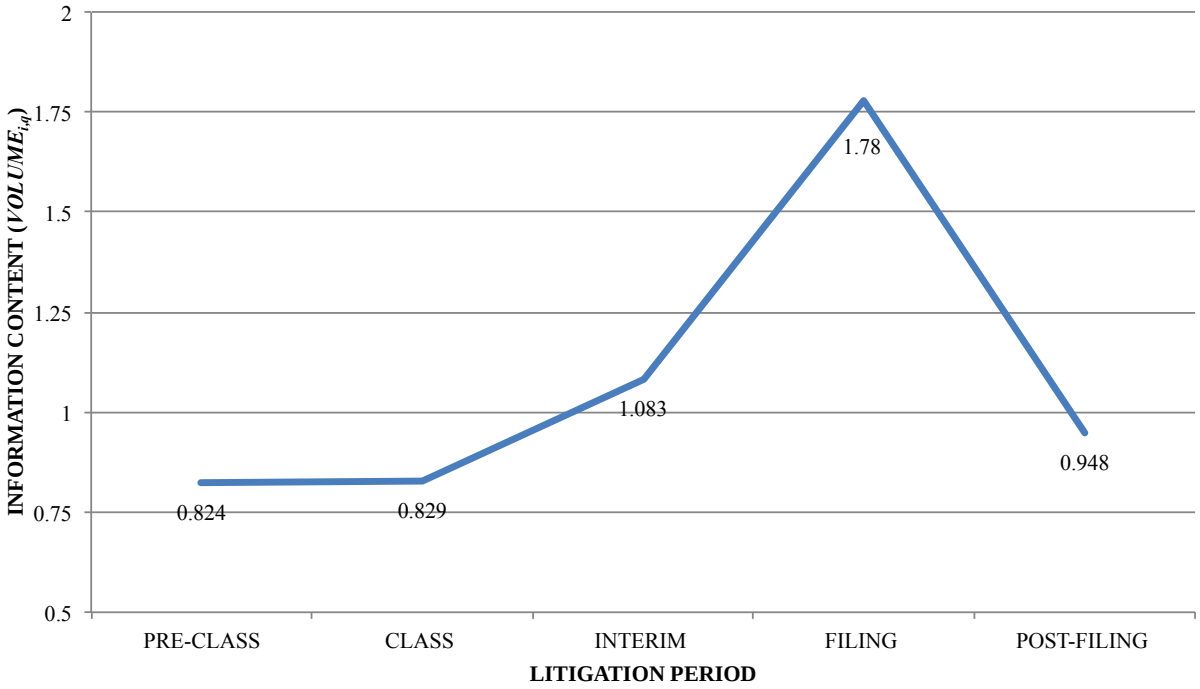
This figure graphs the average number of analyst reports issued (*#ANALYST REP*$_{i,q}$) for firm *i* during quarter *q* for each of the litigation periods, as defined in Table 1.

FIGURE 3
DISPERSION OF ANALYST FORECASTS (*ANALYST DISP*$_{i,q}$) BY LITIGATION PERIOD



This figure graphs the average analyst forecast dispersion (*ANALYST DISP*$_{i,q}$) for firm *i* during quarter *q* for each of the litigation periods, as defined in Table 1.

FIGURE 4
INFORMATION CONTENT ($VOLUME_{i,q}$) OF ANALYST REPORTS BY LITIGATION PERIOD



This figure graphs the average information content of the average analyst report ($VOLUME_{i,q}$) in quarter q for firm i for each of the litigation periods, as defined in Table 1.

TABLE 1
LAWSUIT DESCRIPTIVES

PANEL A - NUMBER OF LAWSUITS BY YEAR

YEAR	# OF LAWSUITS	PERCENT
2001	53	8.12%
2002	97	14.85%
2003	78	11.94%
2004	104	15.93%
2005	81	12.40%
2006	39	5.97%
2007	70	10.72%
2008	77	11.79%
2009	54	8.27%
TOTAL	**653**	

PANEL B - NUMBER OF LAWSUITS BY INDUSTRY (TWO-DIGIT SIC CODE)

INDUSTRY (TWO-DIGIT SIC CODE)		# OF LAWSUITS	PERCENT
73	- Business Services	88	13.48%
28	- Chemicals and Allied Products	69	10.57%
36	- Electronic, Elctrcl Eqpmnt & Cmpnts	68	10.41%
38	- Mesr/Anlyz/Cntrl Inst; Photo/Med/Opt Gds	44	6.74%
60	- Depository Institutions	33	5.05%
35	- Ind and Commercial Machinery and Comp Equip	31	4.75%
63	- Insurance Carriers	31	4.75%
59	- Miscellaneous Retail	22	3.37%
48	- Communications	20	3.06%
49	- Electric, Gas and Sanitary Services	20	3.06%
80	- Health Services	18	2.76%
62	- Security & Comm Brokers, Dealers, Exch & Serv	17	2.60%
67	- Holding and Other Investment Offices	15	2.30%
OTHER INDUSTRIES (LESS THAN 2% OF THE SAMPLE)		177	27.11%
TOTAL		**653**	

The class-action lawsuit sample consists of all lawsuits that occur between 2001 and 2009. I exclude all IPO allocation and analyst lawsuits that are common around 2001.

TABLE 2
DESCRIPTIVE STATISTICS

VARIABLE	N	Mean	Std Dev	25th Pctl	50th Pctl	75th Pctl
$\#ANALYST\ REP_{i,q}$	9,423	18.684	15.840	7.000	14.000	27.000
$VOLUME_{i,q}$	9,423	0.950	2.161	-0.189	0.319	1.345
$ANALYST\ DISP_{i,q}$	7,896	0.284	0.687	0.033	0.077	0.211
$PRE\text{-}CLASS_{i,q}$	9,423	0.218	0.413	0.000	0.000	0.000
$CLASS_{i,q}$	9,423	0.352	0.478	0.000	0.000	1.000
$INTERIM_{i,q}$	9,423	0.100	0.300	0.000	0.000	0.000
$FILING_{i,q}$	9,423	0.069	0.254	0.000	0.000	0.000
$POST\text{-}FILING_{i,q}$	9,423	0.260	0.439	0.000	0.000	1.000
$ROA_{i,q-1}$	9,423	-0.001	0.066	-0.005	0.008	0.025
$SALES\ GROWTH_{i,q-1}$	9,423	1.214	0.545	0.973	1.110	1.312
$BK/MKT_{i,q-1}$	9,423	0.536	0.524	0.222	0.396	0.667
$SIZE_{i,q-1}$	9,423	7.405	1.891	5.962	7.147	8.658
$\%INST_{i,q-1}$	9,423	0.496	0.367	0.000	0.581	0.826
$\#MGMT\ FOR_{i,q}$	9,423	0.836	1.272	0.000	0.000	1.000
$\#ANALYSTS_{i,q}$	9,423	10.058	7.170	4.000	8.000	15.000

All variables in this table are defined as follows. $\#ANALYST\ REP_{i,q}$ equals the number of analysts reports issued during quarter q for firm i. $VOLUME_{i,q}$ equals the sum of the three-day cumulative abnormal stock turnover for all analyst forecasts for firm i in quarter q divided by the total number of analyst forecasts for firm i in quarter q. All daily turnovers that overlap with the three-day period surrounding the lawsuit-filing date, management forecasts, and earnings announcements are deleted. All duplicate daily returns are deleted. $ANALYST\ DISP_{i,q}$ equals the standard deviation of analyst forecasts scaled by the absolute value of the mean analyst forecast for firm i in quarter q. The $PRE\text{-}CLASS_{i,q}$ variable is equal to one if quarter q for firm i occurs during the 4 quarters prior to the start of the class period and zero otherwise. The $CLASS_{i,q}$ variable is equal to one if quarter q for firm i is part of class period and zero otherwise. The $INTERIM_{i,q}$ variable is equal to one if quarter q for firm i is neither part of the class period nor the litigation period but between the two periods and zero otherwise. The $FILING_{i,q}$ variable is equal to one if the filing date occurs in quarter q for firm i and zero otherwise. The $POST\text{-}FILING_{i,q}$ variable is equal to one if quarter q for firm i occurs during the 4 quarters subsequent to the quarter of the filing date. $ROA_{i,q-1}$ is equal to net income before extraordinary items for firm i in quarter $q\text{-}1$ scaled by total assets at quarter $q\text{-}5$. $SALES\ GROWTH_{i,q-1}$ is equal to sales for firm i in quarter $q\text{-}1$ divided by sales in quarter $q\text{-}5$. $BK/MKT_{i,q-1}$ is equal to the book value of equity divided by market value for firm i in quarter $q\text{-}1$. $SIZE_{i,q-1}$ is equal to the natural log of market value for firm i in quarter $q\text{-}1$. $\%INST_{i,q-1}$ is equal to the total shares owned by institutions divided by total shares outstanding for firm i in quarter $q\text{-}1$. $MGMT\ FOR_{i,q}$ is equal to the number of management forecasts issued for firm i in quarter q. $\#ANALYSTS_{i,q}$ equals the number of analysts issuing a forecast for firm i in quarter q. All continuous variables are winsorized at the 1% and 99% levels.

TABLE 3
CORRELATION TABLE

VARIABLES	$\#ANALYSTS_{i,q}$	$\#ANALYST\ REP_{i,q}$	$VOLUME_{i,q}$	$ANALYST\ DISP_{i,q}$	$ROA_{i,q-1}$	$SALES\ GROWTH_{i,q-1}$	$BK/MKT_{i,q-1}$	$SIZE_{i,q-1}$	$\%INST_{i,q-1}$	$\#MGMT\ FOR_{i,q}$
$\#ANALYSTS_{i,q}$	1.000	0.911	-0.374	-0.079	-0.052	0.103	-0.022	-0.153	0.702	0.132
		<.0001	<.0001	<.0001	<.0001	<.0001	0.036	<.0001	<.0001	<.0001
$\#ANALYST\ REP_{i,q}$	0.950	1.000	-0.062	-0.016	0.108	-0.019	-0.130	0.685	0.088	0.209
	<.0001		<.0001	0.167	<.0001	0.064	<.0001	<.0001	<.0001	<.0001
$VOLUME_{i,q}$	0.023	0.045	1.000	0.106	-0.018	0.179	-0.015	-0.149	0.019	-0.044
	0.026	<.0001		<.0001	0.082	<.0001	0.152	<.0001	0.070	<.0001
$ANALYST\ DISP_{i,q}$	-0.147	-0.102	0.257	1.000	-0.089	-0.024	0.149	-0.137	-0.036	-0.070
	<.0001	<.0001	<.0001		<.0001	0.031	<.0001	<.0001	0.001	<.0001
$ROA_{i,q-1}$	0.167	0.175	0.014	-0.373	1.000	0.017	-0.141	0.240	0.081	0.177
	<.0001	<.0001	0.170	<.0001		0.092	<.0001	<.0001	<.0001	<.0001
$SALES\ GROWTH_{i,q-1}$	0.019	0.017	0.187	-0.116	0.278	1.000	-0.174	-0.014	0.000	-0.002
	0.069	0.108	<.0001	<.0001	<.0001		<.0001	0.171	0.974	0.870
$BK/MKT_{i,q-1}$	-0.160	-0.148	-0.113	0.225	-0.327	-0.267	1.000	-0.288	-0.052	-0.131
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001
$SIZE_{i,q-1}$	0.711	0.717	-0.127	-0.356	0.299	0.030	-0.247	1.000	0.100	0.148
	<.0001	<.0001	<.0001	<.0001	<.0001	0.004	<.0001		<.0001	<.0001
$\%INST_{i,q-1}$	0.170	0.147	0.098	-0.099	0.086	0.040	-0.067	0.119	1.000	0.193
	<.0001	<.0001	<.0001	<.0001	<.0001	0.000	<.0001	<.0001		<.0001
$\#MGMT\ FOR_{i,q}$	0.211	0.236	0.006	-0.231	0.258	0.059	-0.123	0.171	0.237	1.000
	<.0001	<.0001	0.541	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	

Pearson correlations are in the upper triangle and Spearman correlations are in the lower triangle. All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels.

TABLE 4

ANALYSIS OF NUMBER OF ANALYST REPORTS (#*ANALYST REP*$_{i,q}$)

PANEL A - DIFFERENCE IN MEANS (#*ANALYST REP*$_{i,q}$)

PERIOD	#*ANALYST REP*$_{i,q}$	CHG FROM *PRE-CLASS*$_{i,q}$	T-STAT	
PRE-CLASS$_{i,q}$	16.993			
CLASS$_{i,q}$	18.401	1.408	3.340	***
INTERIM$_{i,q}$	20.940	3.947	6.580	***
***FILING*$_{i,q}$**	**21.928**	**4.935**	**7.140**	*******
***POST-FILING*$_{i,q}$**	**18.752**	**1.759**	**3.820**	*******

PANEL B - OLS REGRESSION RESULTS

VARIABLES	PRED	#*ANALYST REP*$_{i,q}$	
LITIGATION VARIABLES:			
INTERCEPT	+/-	-34.338	***
		-18.988	
CLASS$_{i,q}$	+/-	0.269	
		0.764	
INTERIM$_{i,q}$	+	2.539	***
		4.045	
FILING$_{i,q}$	**+**	**3.553**	*******
		7.061	
POST-FILING$_{i,q}$	**+**	**1.704**	*******
		3.548	
CONTROL VARIABLES:			
ROA$_{i,q-1}$	+	-6.945	**
		-2.197	
SALES GROWTH$_{i,q-1}$	+	0.414	
		1.536	
BK/MKT$_{i,q-1}$	+/-	2.641	***
		5.616	
SIZE$_{i,q-1}$	+	6.314	***
		26.898	
% INST$_{i,q-1}$	+	1.397	
		1.599	
#MGMT FOR$_{i,q}$	+	1.572	***
		9.202	
#OBSERVATIONS		9,423	
R^2		0.644	

TABLE 4 (continued)
ANALYSIS OF NUMBER OF ANALYST REPORTS (#*ANALYST REP*$_{i,q}$)

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides descriptive statistics for the *#ANALYST REP*$_{i,q}$ variable for each of the litigation periods. Panel B provides the multivariate regression results.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 5
ANALYSIS OF ANALYST FORECAST DISPERSION (*ANALYST DISP$_{i,q}$*)

PANEL A - DIFFERENCE IN MEANS

PERIOD	***ANALYST DISP$_{i,q}$***	**CHG FROM *PRE-CLASS$_{i,q}$***	**T-STAT**	
PRE-CLASS$_{i,q}$	0.195			
CLASS$_{i,q}$	0.215	0.020	1.130	
INTERIM$_{i,q}$	0.444	0.249	8.390	***
FILING$_{i,q}$	**0.403**	**0.208**	**6.900**	***
POST-FILING$_{i,q}$	**0.353**	**0.158**	**7.180**	***

PANEL B - OLS REGRESSION RESULTS

VARIABLES	**PRED**	***ANALYST DISP$_{i,q}$***	
LITIGATION VARIABLES:			
INTERCEPT	+/-	0.579	***
		5.392	
CLASS$_{i,q}$	+/-	0.015	
		0.682	
INTERIM$_{i,q}$	+	0.214	***
		5.353	
FILING$_{i,q}$	**+**	**0.180**	***
		4.958	
POST-FILING$_{i,q}$	**+**	**0.108**	***
		4.238	
CONTROL VARIABLES:			
ROA$_{i,q-1}$	-	-0.051	
		-0.257	
SALES GROWTH$_{i,q-1}$	-	-0.014	
		-0.757	
BK/MKT$_{i,q-1}$	-	0.120	***
		3.466	
SIZE$_{i,q-1}$	-	-0.047	***
		-3.856	
% INST$_{i,q-1}$	-	-0.047	
		-1.435	
#MGMT FOR$_{i,q}$	-	-0.014	*
		-1.840	
#ANALYSTS$_{i,q}$	+/-	0.004	
		1.383	
#OBSERVATIONS		7,896	
R^2		0.126	

TABLE 5 (continued)
ANALYSIS OF ANALYST FORECAST DISPERSION (*ANALYST DISP$_{i,q}$*)

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides descriptive statistics for the *ANALYST DISP$_{i,q}$* variable for each of the litigation periods. Panel B provides the multivariate regression results.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 6
ANALYSIS OF ANALYST REPORT INFORMATION CONTENT ($VOLUME_{i,q}$)

PANEL A - DIFFERENCE IN MEANS

PERIOD	$VOLUME_{i,q}$	CHG FROM *PRE-CLASS*$_{i,q}$	T-STAT	
PRE-CLASS$_{i,q}$	0.824			
CLASS$_{i,q}$	0.829	0.005	2.750	***
INTERIM$_{i,q}$	1.083	0.259	3.310	***
FILING$_{i,q}$	**1.780**	**0.956**	**7.160**	****
POST-FILING$_{i,q}$	**0.948**	**0.124**	**1.980**	**

PANEL B - OLS REGRESSION RESULTS

VARIABLES	PRED	$VOLUME_{i,q}$	
LITIGATION VARIABLES:			
INTERCEPT	+/-	1.101	***
		3.209	
CLASS$_{i,q}$	+/-	0.075	
		1.024	
INTERIM$_{i,q}$	+	0.400	***
		3.721	
FILING$_{i,q}$	**+**	**1.012**	****
		8.801	
POST-FILING$_{i,q}$	**+**	**0.279**	****
		3.057	
CONTROL VARIABLES:			
ROA$_{i,q-1}$	+/-	1.156	
		1.615	
SALES GROWTH$_{i,q-1}$	+	0.606	***
		6.773	
BK/MKT$_{i,q-1}$	+/-	-0.124	
		-1.258	
SIZE$_{i,q-1}$	-	-0.151	***
		-3.493	
% INST$_{i,q-1}$	+	0.273	*
		1.946	
#MGMT FOR$_{i,q}$	+/-	-0.064	***
		-2.759	
#ANALYSTS$_{i,q}$	-	0.004	
		0.428	
#OBSERVATIONS		9,423	
R^2		0.218	

TABLE 6 (continued)
ANALYSIS OF ANALYST REPORT INFORMATION CONTENT ($VOLUME_{i,q}$)

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides descriptive statistics for the $VOLUME_{i,q}$ variable for each of the litigation periods. Panel B provides the multivariate regression results.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed for both Column 1 and 2. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 7
CROSS-SECTIONAL REGRESSION RESULTS - HIGH SURPRISE LAWSUITS

PANEL A - ORDINARY LEAST SQUARES REGRESSION RESULTS

	[1]		[2]		[3]	
VARIABLES	***#ANALYST REP$_{i,q}$***		***ANALYST DISP$_{i,q}$***		***VOLUME$_{i,q}$***	
LITIGATION VARIABLES:						
INTERCEPT	-35.933	***	0.554	***	0.891	**
	-18.499		4.818		2.524	
CLASS$_{i,q}$	0.738		0.024		0.014	
	1.481		0.768		0.139	
INTERIM$_{i,q}$	2.533	***	0.234	***	0.274	**
	3.447		4.555		2.188	
FILING$_{i,q}$	**3.413**	***	**0.139**	***	**0.611**	***
	5.195		2.938		4.638	
POST-FILING$_{i,q}$	**1.712**	***	**0.074**	**	**0.075**	
	2.757		2.397		0.746	
HIGH SURP$_{i,q}$	1.690	**	0.011		0.157	
	2.296		0.252		1.095	
*HIGH SURP$_{i,q}$ * CLASS$_{i,q}$*	-0.982		-0.030		0.194	
	-1.442		-0.641		1.270	
*HIGH SURP$_{i,q}$ * INTERIM$_{i,q}$*	0.809		-0.073		0.389	*
	0.650		-0.886		1.655	
*HIGH SURP$_{i,q}$ * FILING$_{i,q}$*	**0.490**		**0.093**		**0.928**	***
	0.516		1.242		3.804	
*HIGH SURP$_{i,q}$ * POST-FILING$_{i,q}$*	**0.066**		**0.067**		**0.444**	***
	0.079		1.220		2.599	
CONTROL VARIABLES:						
ROA$_{i,q-1}$	-7.276	**	-0.049		1.007	
	-2.246		-0.241		1.393	
SALES GROWTH$_{i,q-1}$	0.392		-0.008		0.646	***
	1.442		-0.439		6.999	
BK/MKT$_{i,q-1}$	2.679	***	0.127	***	-0.105	
	5.421		3.557		-1.037	
SIZE$_{i,q-1}$	6.413	***	-0.046	***	-0.139	***
	26.790		-3.603		-3.154	
% INST$_{i,q-1}$	1.171		-0.051		0.242	*
	1.317		-1.540		1.728	
#MGMT FOR$_{i,q}$	1.605	***	-0.015	*	-0.062	***
	9.275		-1.810		-2.648	
#ANALYSTS$_{i,q}$			0.003		0.002	
			1.212		0.245	
#OBSERVATIONS	9,146		7,704		9,146	
R^2	0.648		0.129		0.232	

TABLE 7 (continued)
CROSS-SECTIONAL REGRESSION RESULTS - HIGH SURPRISE LAWSUITS

PANEL B - CHANGES ANALYSIS FOR HIGH SURPRISE LAWSUITS

	[1] $\#ANALYST\ REP_{i,q}$	[2] $ANALYST\ DISP_{i,q}$	[3] $VOLUME_{i,q}$
$FILING_{i,q}$ + $HIGH\ SURP_{i,q}$*$FILING_{i,q}$	3.902	0.232	1.539
F-STAT	28.633	16.048	56.728
P-VALUE	0.000	0.000	0.000
$POST\text{-}FILING_{i,q}$ + $HIGH\ SURP_{i,q}$*$POST\text{-}FILING_{i,q}$	1.777	0.142	0.519
F-STAT	7.341	9.837	11.790
P-VALUE	0.007	0.002	0.001

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides the multivariate regression results for the $\#ANALYST\ REP_{i,q}$, $ANALYST\ DISP_{i,q}$, and $VOLUME_{i,q}$ variables; Column 1, 2, and 3, respectively.

Panel B provides the average change in the dependent variable from the pre-class period to the filing and post-filing periods for high surprise lawsuits, which are designated with the $HIGH\ SURP_{i,q}$ indicator variable. The sum of the coefficients on the $FILING_{i,q}$ ($POST\text{-}FILING_{i,q}$) variable and the $HIGH\ SURP_{i,q}$ * $FILING_{i,q}$ ($HIGH\ SURP_{i,q}$ * $POST\text{-}FILING_{i,q}$) interaction represents the change in the dependent variable from the pre-class period to the filing (post-filing) period for the high surprise lawsuits.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed for both Column 1 and 2. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 8
CROSS-SECTIONAL REGRESSION RESULTS - NON-GAAP VERSUS GAAP LAWSUITS

PANEL A - ORDINARY LEAST SQUARES REGRESSION RESULTS

VARIABLES	**[1]** ***#ANALYST REP$_{i,q}$***		**[2]** ***ANALYST DISP$_{i,q}$***		**[3]** ***VOLUME$_{i,q}$***	
LITIGATION VARIABLES:						
INTERCEPT	-34.790	***	0.629	***	1.114	***
	-19.000		5.697		3.121	
CLASS$_{i,q}$	0.341		-0.038		0.024	
	0.667		-1.060		0.241	
INTERIM$_{i,q}$	3.190	***	0.274	***	0.102	
	3.994		3.555		0.647	
FILING$_{i,q}$	3.399	***	0.161	***	0.742	***
	4.659		2.671		4.393	
POST-FILING$_{i,q}$	1.398	**	0.100	**	0.129	
	2.192		2.419		1.056	
NON-GAAP$_{i,q}$	0.951		-0.089	**	-0.036	
	1.361		-2.245		-0.260	
*NON-GAAP$_{i,q}$ * CLASS$_{i,q}$*	0.023		0.096	**	0.089	
	0.034		2.047		0.619	
*NON-GAAP$_{i,q}$ * INTERIM$_{i,q}$*	-1.093		-0.109		0.517	**
	-0.965		-1.205		2.403	
*NON-GAAP$_{i,q}$ * FILING$_{i,q}$*	0.348		0.027		0.496	**
	0.359		0.365		2.178	
*NON-GAAP$_{i,q}$ * POST-FILING$_{i,q}$*	0.638		0.007		0.273	*
	0.784		0.134		1.650	
CONTROL VARIABLES:						
ROA$_{i,q-1}$	-6.877	**	-0.039		1.135	
	-2.183		-0.193		1.587	
SALES GROWTH$_{i,q-1}$	0.414		-0.012		0.602	***
	1.534		-0.663		6.726	
BK/MKT$_{i,q-1}$	2.667	***	0.117	***	-0.117	
	5.682		3.395		-1.187	
SIZE$_{i,q-1}$	6.307	***	-0.048	***	-0.150	***
	27.025		-3.939		-3.460	
% INST$_{i,q-1}$	1.472	*	-0.054	*	0.289	**
	1.700		-1.659		2.046	
#MGMT FOR$_{i,q}$	1.576	***	-0.015	*	-0.063	***
	9.252		-1.853		-2.743	
#ANALYSTS$_{i,q}$			0.004		0.003	
			1.562		0.362	
#OBSERVATIONS	9,423		7,896		9,423	
R^2	0.645		0.129		0.220	

TABLE 8 (continued)
CROSS-SECTIONAL REGRESSION RESULTS - NON-GAAP VERSUS GAAP LAWSUITS

PANEL B - CHANGES ANALYSIS FOR NON-GAAP LAWSUITS

	[1] *#ANALYST REP$_{i,q}$*	[2] *ANALYST DISP$_{i,q}$*	[3] *VOLUME$_{i,q}$*
*FILING$_{i,q}$ + NON-GAAP$_{i,q}$ * FILING$_{i,q}$*	3.747	0.188	1.237
F-STAT	31.288	17.531	64.162
P-VALUE	0.000	0.000	0.000
*POST-FILING$_{i,q}$ +NON-GAAP$_{i,q}$*POST-FILING$_{i,q}$*	2.035	0.108	0.403
F-STAT	10.814	10.693	10.585
P-VALUE	0.001	0.001	0.001

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides the multivariate regression results for the *#ANALYST REP$_{i,q}$*, *ANALYST DISP$_{i,q}$*, and *VOLUME$_{i,q}$* variables; Column 1, 2, and 3, respectively.

Panel B provides the average change in the dependent variable from the pre-class period to the filing and post-filing periods for non-GAAP lawsuits, which are designated with the *NON-GAAP$_{i,q}$* indicator variable. The sum of the coefficients on the *FILING$_{i,q}$* (*POST-FILING$_{i,q}$*) variable and the *NON-GAAP$_{i,q}$ * FILING$_{i,q}$* (*NON-GAAP$_{i,q}$ * POST-FILING$_{i,q}$*) interaction represents the change in the dependent variable from the pre-class period to the filing (post-filing) period for non-GAAP lawsuits.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed for both Column 1 and 2. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.

TABLE 9
CROSS-SECTIONAL REGRESSION RESULTS – FIRM VISIBILITY

PANEL A - ORDINARY LEAST SQUARES REGRESSION RESULTS

	[1]		[2]		[3]	
VARIABLES	***#ANALYST REP$_{i,q}$***		***ANALYST DISP$_{i,q}$***		***VOLUME$_{i,q}$***	
LITIGATION VARIABLES:						
INTERCEPT	-32.981	***	0.562	***	1.256	***
	-15.331		4.680		3.652	
CLASS$_{i,q}$	-0.659		-0.032		0.341	***
	-1.592		-0.609		2.756	
INTERIM$_{i,q}$	1.226		0.160	**	0.614	***
	1.618		2.134		2.837	
FILING$_{i,q}$	**0.355**		**0.075**		**1.188**	***
	0.603		1.108		5.184	
POST-FILING$_{i,q}$	**-0.450**		**0.037**		**0.061**	
	-0.762		0.637		0.374	
VISIBLE$_{i,q}$	-1.442		-0.039		0.274	
	-1.486		-0.715		1.436	
*VISIBLE$_{i,q}$ * CLASS$_{i,q}$*	1.886	***	0.057		-0.358	**
	2.809		0.999		-2.463	
*VISIBLE$_{i,q}$ * INTERIM$_{i,q}$*	2.292	**	0.069		-0.314	
	1.988		0.734		-1.276	
*VISIBLE$_{i,q}$ * FILING$_{i,q}$*	**5.294**	***	**0.132**		**-0.264**	
	5.876		1.619		-0.997	
*VISIBLE$_{i,q}$ * POST-FILING$_{i,q}$*	**3.262**	***	**0.087**		**0.353**	**
	4.018		1.328		1.986	
CONTROL VARIABLES:						
ROA$_{i,q-1}$	-6.445	*	-0.068		0.859	
	-1.945		-0.318		1.151	
SALES GROWTH$_{i,q-1}$	0.248		-0.001		0.503	***
	0.901		-0.064		5.842	
BK/MKT$_{i,q-1}$	2.807	***	0.139	***	-0.109	
	5.561		3.860		-1.065	
SIZE$_{i,q-1}$	6.207	***	-0.047	***	-0.186	***
	19.111		-3.369		-3.925	
% INST$_{i,q-1}$	1.450		-0.066	*	0.244	*
	1.555		-1.896		1.687	
#MGMT FOR$_{i,q}$	1.506	***	-0.015	*	-0.062	***
	8.348		-1.799		-2.618	
#ANALYSTS$_{i,q}$			0.003		0.006	
			1.237		0.620	
#OBSERVATIONS	8,712		7,294		8,712	
R^2	0.650		0.126		0.219	

TABLE 9 (continued)
CROSS-SECTIONAL REGRESSION RESULTS – FIRM VISIBILITY

PANEL B - CHANGES ANALYSIS FOR VISIBLE FIRMS

	[1] *#ANALYST REP$_{i,q}$*	[2] *ANALYST DISP$_{i,q}$*	[3] *VOLUME$_{i,q}$*
*FILING$_{i,q}$ +VISIBLE$_{i,q}$ * FILING$_{i,q}$*	5.649	0.208	0.924
F-STAT	57.258	20.428	46.298
P-VALUE	0.000	0.000	0.000
*POST-FILING$_{i,q}$+VISIBLE$_{i,q}$*POST-FILING$_{i,q}$*	2.812	0.124	0.414
F-STAT	16.992	18.097	14.497
P-VALUE	0.000	0.000	0.000

This table includes all firm/quarter observations from 2001 to 2009 with sufficient data to calculate the dependent and independent variables. Firm/quarter observations are only included if part of one of the five litigation periods (i.e. pre-class, class, interim, filing, or post-filing periods). Panel A provides the multivariate regression results for the *#ANAL REPORTS$_{i,q}$*, *ANALYST DISP$_{i,q}$*, and *VOLUME$_{i,q}$* variables; Column 1, 2, and 3, respectively.

Panel B provides the average change in the dependent variable from the pre-class period to the filing and post-filing periods for more visible firms, which are designated with the *VISIBLE$_{i,q}$* indicator variable. The sum of the coefficients on the *FILING$_{i,q}$* (*POST-FILING$_{i,q}$*) variable and the *VISIBLE$_{i,q}$ * FILING$_{i,q}$* (*VISIBLE$_{i,q}$ * POST-FILING$_{i,q}$*) interaction represents the change in the dependent variable from the pre-class period to the filing (post-filing) period for more visible firms.

All variables are defined in Table 2. All continuous variables are winsorized at the 1% and 99% levels. Quarter-year and industry (defined as four-digit SIC code) fixed effects are included and results are suppressed for both Column 1 and 2. Standard errors are clustered by firm. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively.