SHAREHOLDER INITIATED CLASS ACTION LAWSUITS: SHAREHOLDER WEALTH EFFECTS AND INDUSTRY FEEDBACK

AMAR GANDE
Owen Graduate School of Management
Vanderbilt University
401 21st Avenue South
Nashville, TN 37203
amar.gande@owen.vanderbilt.edu

CRAIG M. LEWIS
Owen Graduate School of Management
Vanderbilt University
401 21st Avenue South
Nashville, TN 37203
craig.lewis@vanderbilt.edu

November 2004

Abstract. This paper documents significantly negative stock price reactions to shareholder initiated class action lawsuits. We find that shareholders partially anticipate these lawsuits and that filing date effects understate the magnitude of shareholder losses. We demonstrate that prior expectations about the likelihood of being sued are important determinants of the losses anticipated prior to filing an actual lawsuit, and on the lawsuit filing date.

SHAREHOLDER INITIATED CLASS ACTION LAWSUITS: SHAREHOLDER WEALTH EFFECTS AND INDUSTRY FEEDBACK

ABSTRACT. This paper documents significantly negative stock price reactions to shareholder initiated class action lawsuits. We find that shareholders partially anticipate these lawsuits and that filing date effects understate the magnitude of shareholder losses. We demonstrate that prior expectations about the likelihood of being sued are important determinants of the losses anticipated prior to filing an actual lawsuit, and on the lawsuit filing date.

1. INTRODUCTION

Shareholder rights are relatively limited. They include the right to receive dividends, vote the proxy, receive audited financial reports, sell their own shares of stock, and sue officers and directors in the event of a material misstatement or omission of fact. The decision to pursue this final right and initiate class action litigation is, to a large extent, only pursued when corporate governance mechanisms and other methods of redress have failed.

Despite the perception that class action lawsuits are stop-gap measures, this form of litigation is used on a regular basis. The Securities Class Action Lawsuit Clearinghouse (//securities.stanford.edu) at Stanford University reports that 1,915 class action lawsuits were filed over the period 1996 through 2003 with litigation peaking in 2001 when 493 suits were filed. Much of the activity in 2001 relates to the alleged improper behavior of underwriters in initial public offerings. In these suits, plaintiffs allege that a number of practices related to providing share allocations were not disclosed and harmed investors.

For example, a series of "IPO laddering" cases allege that underwriters provided initial share allocations to preferred customers with the understanding that they would sell them at excessively high prices in an attempt to provide "price support" following the offer. Since this activity was not disclosed in advance, post-IPO investors are damaged when they trade at these artificially high prices.

Surprisingly, analyses of corporate and shareholder lawsuits have received relatively little attention. Romano (1991) provides the first comprehensive analysis of shareholder class action suits. She examines share price reactions to the initiation of shareholder suits and the resulting changes in compensation and corporate governance structures as well as managerial turnover. Most importantly for our study,

Date: January 4, 2005.

Key words and phrases. Class action lawsuits, shareholder wealth effects, industry feedback, partial anticipation.

Owen Graduate School of Management, Vanderbilt University, 401 21st Avenue South, Nashville, TN 37203. Research supported by the Dean's Fund. We gratefully acknowledge financial support from the Dean's Fund for Faculty Research, the Financial Markets Research Center and the Vanderbilt Law and Business program. We thank Bill Christie, George Bittlingmayer, and seminar participants at the University of Alabama, the University of Kansas, and Vanderbilt University for helpful suggestions. *E-mail:* craig.lewis@vanderbilt.edu.

she finds little evidence of significant price reactions at the initiation of lawsuits (-0.0041%). Unfortunately, her sample size is rather small (66 observations) and the resultant lack of power likely limits her ability to draw meaningful inferences. Papers by Bhagat, Brickley, and Coles (1994) and Bhagat, Bizjak, and Coles (1998) examine the wealth effects of interfirm lawsuits and find statistically significant negative price reactions on the initiation date and partial reversals on the settlement date.

A related study by Francis, Philbrick, and Schipper (1994) examines a set of 44 firms in the biotech, computer, electronics, and retail industries that were subject to class action lawsuits where firms were alleged to have disclosed overly optimistic information or failed to disclose material adverse information. They document excess returns of -17.16% around the adverse earnings announcement event, which corresponds to a mean value loss of $140.68 million.

We revisit shareholder initiated class action lawsuits in this paper using a significantly larger sample than that employed in other studies. Not only do we reexamine price reactions on the lawsuit filing date, but we consider the possibility that these suits may signal that comparable firms are susceptible to similar lawsuits. If true, we expect these firms to have negative stock price reactions that are positively related to the probability of being sued.

We demonstrate that prior expectations about the likelihood of being sued are indeed significant determinants of investor reactions to the filing of class action lawsuits. This is an important consideration because current studies that focus on own-announcement effects underestimate the wealth effects of shareholder suits when investors partially anticipate them.

The remainder of the paper is organized as follows. Section 2 describes the data and the sample. Section 3 describes the estimation of economic effects. Section 4 describes the measurement of industry spillover effects of shareholder suits. Section 5 explains the estimation of cumulative shareholder losses associated with shareholder lawsuits. Section 6 presents a model of the propensity of a firm to be sued by shareholders. Sections 7 and 8 respectively present our results of investor reactions to the filing of a lawsuit on the sued firms and non-sued firms. Section 9 offers our conclusions.

2. Sample Selection and Data Description

Our initial sample is comprised of 1,915 securities class action lawsuits that are drawn from a chronological listing available at the Securities Class Action Clearinghouse website for the years 1996 through 2003.[1] The sample is then restricted to the 1,500 firms whose daily stock returns are included in the Center for Research in Security Prices (CRSP) Daily Returns file on the lawsuit filing date. We also require firms to be included in the Execucomp data base, which further reduces our sample to 605 filings. Requiring that firms also be available on Compustat reduces the final sample to 377 class action lawsuits against 328 different firms. The number of companies is lower than the number of filings because some firms are sued multiple times.

[1]We downloaded the data from http://securities.stanford.edu/comp-date.shtml on May 16, 2004.

The Securities Class Action Clearinghouse website also provides filing dates and "class period" start and end dates.[2] In legal disputes, the class period defines the window within which stock prices are overstated due to material misstatements. Investors that purchase stocks within the class period and then subsequently sell them after the alleged event is publicly disclosed are eligible to receive damage awards in class action lawsuits.

Table 1 provides information about the number of class action lawsuits across different industries.[3] Panel A shows that the lawsuit filing rate increased over the sample period. Interestingly, most of this increase is driven by litigation in the financial services industry. In particular, many of these suits were filed against underwriters for the role they played in taking firms public.

We also classify the lawsuit according to type. This determination is made by reading supporting documentation available on the Securities Class Action Clearinghouse website. Panel B of Table 1 shows the distribution of the most common types of lawsuits by year. Financial reporting irregularities and analyst conflict of interests lawsuits are the most common filings. Financial restatement, earnings estimates, and other accounting irregularities cases tend to increase over the sample period. By contrast, analyst conflict of interest cases had a large spike in 2002 but relatively little activity in other periods. The other cases that are not separately reported are reasonably stable over the sample period.

3. Calculation of Economic Effects

Investors file security class-action lawsuits following the disclosure of a material misstatement or omission of fact. Since these disclosures are invariably bad news, stock prices are expected decline. There are two components to this expected loss: 1) a response to the incremental information contained in the announcement that triggers the lawsuit and 2) the deadweight loss associated with the damage awards that are likely to be paid to impaired shareholders. Since it is difficult to decompose the stock price reaction into its separate components, our analysis reflects the combined effects of both components.[4]

3.1. Measurement of Abnormal Returns.

We follow standard event study methodology and measure the share price response to the lawsuit filing date over the event period using the market model as the pricing benchmark. Daily abnormal returns are computed as the actual return minus the market model predicted return:

$$AR_{jt} = R_{jt} - \alpha_j - \beta_j R_{mt}. \tag{1}$$

where R_{jt} is the rate of return on stock j over day t and R_{mt} is the corresponding rate of return on the value-weighted index of NYSE, AMEX, and NASDAQ companies on the CRSP tape over day t. The coefficients α_j and β_j are ordinary least

[2]The class period start and end dates are missing for 12 filings. We are able to identify 5 dates by searching the Lexis/Nexis database.

[3]We use the following industry definitions throughout the paper. Firms are classified as Financial Institutions if they have SIC codes between 6021 and 6999. Regulated Firms have SIC codes 4812-4813, 4833, 4841, 4811-4899, 4922-4924, 4931, and 4941. Firms are classified as Technology Firms if they have SIC codes 2833-2836, 3570-3577, 3600-3674, 7371-7379 or 8731-8734. Retail Firms have SIC codes between 5200 and 5961.

[4]We investigate this decomposition issue in greater depth in Section 8 where we describe a regression based approach that uses damage estimates from a proportional trader model.

squares estimates of firm j's market model parameters. Abnormal returns are based on market model parameter estimates over the 125 trading day period from day -135 to day -11 where day 0 is the filing date. For a given lawsuit i filed against firm j, we estimate the cumulative filing date effect by cumulating abnormal returns in the usual manner over the event window $[\tau_1, \tau_2]$, which we denote as $CAR_{ij}[\tau_1, \tau_2]$, i.e.,

$$CAR_{ij}[\tau_1, \tau_2] = \sum_{s=t_i+\tau_1}^{t_i+\tau_2} AR_{js}. \tag{2}$$

where t_i is the filing date for lawsuit i.[5]

The choice of an event window $[\tau_1, \tau_2]$ is an important estimation issue because the time between the lawsuit trigger date and the actual filing date depends on the nature of the disclosure event. In some cases, the trigger and filing dates are expected to be roughly coincident. For example, there is little reason to expect a long delay if a company issues a press release disclosing that significant improprieties have occurred. By contrast, it may take investors longer than a day or two to determine whether the trigger event contains sufficient evidence to warrant initiating litigation if the existence of an impropriety is harder to detect.

Since investors are likely to partially anticipate the economic effects of a potential lawsuit on the trigger date, the event window must be sufficiently long to capture both the trigger and filing dates. If not, $CAR_{ij}[\tau_1, \tau_2]$ estimates fail to capture this partial anticipation and, therefore, only reflect the resolution of residual uncertainty as investors adjust to the incremental information on the filing date. To compensate for cross-sectional variation in the time between trigger and filing dates, we use a $[-10, +1]$ event window rather than the standard $[-1, +1]$ window. We assume that this window is sufficiently long to capture almost all of the trigger and filing dates.[6]

3.2. **Measurement of Economic Effects in Dollars.** We also convert the daily abnormal returns into an estimate of the economic dollar effect for each event. The daily economic dollar effect for firm j at date t is computed as:

$$DE_{jt} = P_{jt-1} \times AR_{jt}. \tag{3}$$

where P_{jt-1} is the market capitalization of firm j's equity on date t. Daily economic effects are cumulated over the event window to determine the cumulative economic effect. For example, the cumulative economic effect CEE_{ij} for firm j and lawsuit i over $[\tau_1, \tau_2]$ is computed as:

$$CEE_{ij}[\tau_1, \tau_2] = \sum_{s=t_i+\tau_1}^{t_i+\tau_2} DE_{js}. \tag{4}$$

Table 2 presents filing date announcement effects and the estimates of the cumulative dollar effects. On the filing period announcement date, there is a significantly negative stock price reaction of -4.66%, which corresponds to an average loss of $355.65 million in shareholder wealth. In the two-week period preceding the filing

[5]Lawsuit i refers to the ith lawsuit in an industry (defined based on the four-digit SIC code) from the beginning of our sample period.

[6]We use a $[-10, +1]$ window because more distant dates relative to the filing date are insignificantly different from zero. Using a window that is longer than required adds noise to the economic effect estimates and represents a conservative bias against finding significant stock price responses.

date, stock prices decline -9.79%, which represents an additional loss of $727.01 million. The large losses preceding the filing date are likely due to the disclosure of material adverse information that actually serves as the event that triggers the filing of a lawsuit.[7] The market appears to process the incremental information in an efficient manner because cumulative abnormal returns are insignificantly different from zero in the two-week period immediately following the lawsuit filing date.

At some level, the magnitude of these losses may be somewhat surprising because firms carry insurance that is designed to defray the cost of class action lawsuits. This observation is reinforced by the fact that industry experts believe that settlement amounts are highly correlated with policy limits. In fact, there is a perception in the legal community that class action lawsuits are only adjudicated after negotiations between plaintiff and defendant attorneys break down.[8] One explanation is that damage awards will be eventually recovered by insurance companies in the form of higher premium payments. As a result, investors naturally capitalize these losses even though they require no immediate cash flows.

3.3. **Robustness Checks.** We assess the robustness of the significance of the results in Table 1 by comparing our estimates to a sample of control events that are obtained from sample of randomly chosen dates. For each lawsuit in our sample, we randomly select another date for the same firm and reestimate all of the cumulative abnormal returns reported in Table 1 for this alternative sample. As expected, we find that random event dates produce filing date own effects that are statistically insignificant from zero.

4. Industry Spillover

This section measures the stock market reactions to the filing of security class action lawsuits by other firms in the same industry. Industry feedback or "spillover" in our study is based on the idea that many lawsuits are filed in response to events that likely affect the entire industry.

For example, the investment banking industry was subject to a number of lawsuits related to the practice of "IPO laddering" and "spinning". Investment banks are particularly predisposed to industry spillover because underwriters are highly competitive and successful business practices are emulated by other firms. As a result, once the first lawsuit is filed, investors immediately infer that other underwriters are likely to be engaged in similar practices and adjust the prices of these related firms downward based on their propensity to be sued. In effect, the first suit creates a partial anticipation "domino effect" that affects all firms in the industry.

Industry also is likely to be a factor in depressed industries where firms are more likely to manipulate accounting earnings in an effort to hide poor operating performance.[9] When such management is detected at one firm, damaged investors

[7]This finding is consistent with testimony written by Grundfest and Perino (1997). They note that, "prior to the Reform Act, the average stock price decline preceding the filing of a Section 10(b) claim was about 19%."

[8]These observations are based on private communications with legal experts at Lexecon and Chicago Partners.

[9]Field, Lowry, and Shu (2004) examine the issue of disclosure and its relation to the filing of class action lawsuits. They find that voluntary disclosure does not increase the risk of a class-action lawsuit, and there is at least some evidence that disclosure decreases the risk of being sued.

are likely to file a class action lawsuit. The initiation of this lawsuit signals to investors that other suits are forthcoming, and the stock prices of related firms are adjusted downward accordingly.

Bittlingmayer and Hazlett (2000) and Lang and Stulz (1992) both document industry spillover for firms in the computer industry, and those filing bankruptcy. Lang and Stulz refer to industry spillover as industry contagion. We use the term spillover to avoid confusion with the unrelated concept of contagion used in time series econometrics.

We estimate the industry spillover effect for class action suit i by calculating cumulative abnormal returns for all firms in the same industry excluding the firm being sued, i.e.,

$$IS_i[\tau_1, \tau_2] = \frac{1}{J-1} \sum_{j=1, j\neq i}^{J} CAR_{ij}[\tau_1, \tau_2]. \tag{5}$$

where J is the number of firms in the industry, which is defined as the four-digit SIC code.

Table 3 presents evidence consistent with the hypothesis that class action lawsuits are partially anticipated by investors. There is an average abnormal price decline of -0.36% (t-stat of -2.22) over three-day announcement period for related firms. Stock prices are down an additional -0.70% (t-stat of -2.47) in the two-week period preceding the filing date, representing an additional loss of $40.23 million. The average dollar losses associated with industry spillover are economically significant. Over the twelve-day event window $[-10, +1]$ the average per firm loss is $51.97 million.

4.1. **Robustness Checks.** We evaluate the robustness of these results by estimating industry spillover using the approach of Lang and Stulz (1992). Specifically, we form value-weighted portfolios that include every firm in the same 4-digit SIC code except the sued firm for all 605 lawsuit filings. The average cumulative abnormal returns for the entire sample over the $[-10, +10]$ event window is -3.2%, which has a t-statistic of -7.15, The magnitude of the stock price decline is comparable to the 1.55% decline reported in Table 3.

5. Cumulative Own Effects

The calculation of "own" effects and industry spillover are cross-sectional measures based on the filing date. Since investors may have partially anticipated the lawsuit, even prior to this particular lawsuit's trigger date, other studies that only focus on filing date returns underestimate the true economic costs associated with class action lawsuits. In this section, we estimate this cumulative "own" effect by combining the announcement date effect and all of the firm-specific industry spillover effects that precede a filing. For each filing date, we consider the entire history of lawsuits that have been previously filed in the same industry. That is, the cumulative own effect is defined as

$$COE_{ij}[\tau_1, \tau_2] = CAR_{ij}[\tau_1, \tau_2] + PA_{ij}[\tau_1, \tau_2]. \tag{6}$$

where $PA_{ij}[\tau_1, \tau_2]$ denotes the partial anticipation for suit i that is filed against firm j and is calculated as

$$PA_{ij}[\tau_1, \tau_2] = \sum_{k=1}^{i-1} CAR_{kj}[\tau_1, \tau_2]. \tag{7}$$

In the event that a firm has been sued multiple times, the partial anticipation calculation is reset to zero after each lawsuit. Figure 1 illustrates how this calculation is made for a firm that is sued twice. Gray boxes indicate dates on which firm j is sued and represent the own effect component; white boxes indicate dates on which other firms in the same industry are sued.

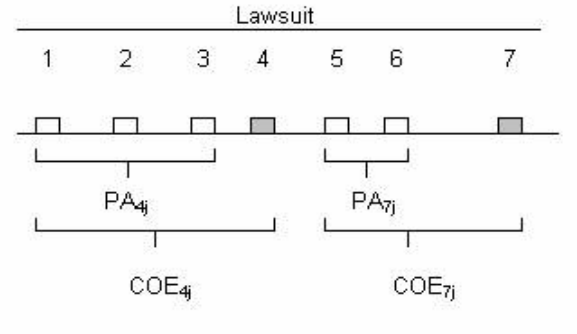

FIGURE 1. Cumulative Own Effect. This figure illustrates how the cumulative own effect calculation reflects industry spillover and own effects.

Table 4 presents estimates of the cumulative own effects which reflect the summation of own effects and partial anticipation due to industry spillover. The three-day average cumulative own effect is -7.28% (t-stat of -7.53), which corresponds to a mean dollar loss of $477.75 million. This indicates that, if one fails to consider partial anticipation, own effects are understated by 34.3%. Looking at the twelve-day event window $[-10, +1]$, the mean cumulative own effect is -20.06% of which 27.96% is attributable to partial anticipation due to industry spillover. These findings clearly indicate the importance of controlling for industry spillover when determining the extent of shareholder value losses associated with the filing of class action lawsuits.

5.1. **Robustness Checks.** One limitation of our estimation approach is that we estimate the cumulative own effect using all of the prior firm-specific industry spillover effects that precede the filing date. Since some of these lawsuits may have been filed in the distant past, our estimate of the partial anticipation component may include spillover effects that have no bearing on the current lawsuit.

To control for the possibility that previous lawsuits become less relevant as they age, we present truncated cumulative own effect estimates that only prior lawsuits that were filed within the past N years. Panels B and C in Table 4 respectively report estimates based on one and two year truncation periods. The results are smaller but comparable to the "all-inclusive" estimates.

We replicate all of the analysis in the paper using these truncated estimates and obtain qualitatively similar results. Consequently, we only report results for the all inclusive estimates.

6. The propensity to be sued

We estimate the propensity to be sued using a probit model where the dependent variable is equal to one if the firm is sued and zero otherwise. The final sample includes 377 class action lawsuits filed against 328 different firms. The control firms are all firms in the Execucomp database that have the same four-digit SIC code and the same fiscal year end as the sued firm, which results in a total of 5,670 control firm-years.

6.1. **Discussion of explanatory variables.**

The propensity to be sued is estimated using factors that correlate with the size of the potential damages, the litigation environment, and firm-specific characteristics. We organize the following discussion of the explanatory variables along these lines.

6.1.1. *Size of Potential Damages.*

The probability that a firm is sued depends upon the size of the potential damages. We use a number of factors as proxies for the size of the potential damage awards. The standard methodology for computing damage awards specifically considers share turnover and past volatility.[10] Higher levels of both factors increase the likelihood that shareholders purchased shares based on misleading information.

Share turnover reflects the probability that a share was traded within a given time period. We estimate the share turnover factor using the procedure defined in Field, Lowry, and Shu (2004) over a six-month estimation window. Table 5 indicates that the mean probability that a share is traded in the next six-months is 61.07%.

Volatility is estimated as the daily standard deviation of the rate of return in the six-month window preceding the filing date. The mean daily variance is 0.0408, which corresponds to annualized standard deviation of 64.77%.

Prior stock returns have also been shown to be related to plaintiff's incentives to bring a lawsuit. Jones and Weingram (1996) have shown that firms with good stock price performance in the recent past are less likely to be sued by shareholders. On average, prior stock returns, measured over the six-month period ending on the last day prior to the lawsuit filing date, are positive for the full sample. Panel A of Table 5 shows that mean returns are 5.96%. Interestingly, Panel B of Table 5 indicates that prior stock returns are -13.52% for sued firms and 7.27% for non-sued firms.

6.1.2. *Litigation Environment.*

We also include a number of factors that relate to the current litigation environment. Specifically, we include measures of firm-specific litigation activity, industry litigation activity, and controls for specific industries that are expected to have different exposures to litigation risk.

To track past litigation activity, we create a dummy variable that takes the value 1 if the firm has been sued previously and 0 otherwise. We predict that a firm is more likely to be sued if it has been sued in the past. This is essentially a "bad

[10]For a review of the approach used to calculate damages in class action lawsuit, see the papers written by Dyl [1999], Furbush and Smith [1994], and Mitchell and Netter [1994].

behavior" hypothesis. That is, once management is caught making misrepresentations, investors infer that other problems may also come to light that will result in additional litigation.

An alternative to the "bad behavior" hypothesis is a variant of the "deep pockets" hypothesis. In this setting, the "deep pockets" hypothesis predicts that firms which have previously been sued may not have the capacity to pay as much to impaired shareholders in a subsequent lawsuit. This would make the firm a less attractive for class-action litigation.

A second litigation environment factor is the frequency of litigation within the industry. We measure litigation intensity as the number of class action lawsuits that have been filed against firms in the same four-digit SIC code over the past six months prior to the lawsuit filing date. Table 5 indicates that, on average, there have been 2.1909 lawsuits within the past six months across all industries.

Since Table 1 has shown that the rate of litigation can be quite high for certain industries, we include industry dummy variables for regulated, financial, technology and retail firms following the approach used by Field, Lowry, and Shu (2004).[11] We expect the rate of lawsuits to be higher in the financial industry because financial firms have direct relations with customers and nonperformance is more likely to result in litigation.[12] By contrast, the additional monitoring that accompanies firms subject to regulatory oversight should result in a lower rate of lawsuit filings for regulated firms.[13] We also include a control for technology firms because the greater level of uncertainty about future prospects is likely to result in more lawsuits.[14]

Finally, Field, Lowry, and Shu (2004) argue that lawsuits are less likely to be filed against retail firms because they tend to release monthly sales figures, meaning that the market has better information about their current operating environment and is thus less likely to be surprised with bad news. Although this is a distinct possibility, retail firms sell products to individuals and tend to have large labor forces. Since the risk of litigation is high when large groups of individuals are involved, these firms may have incentives to prevent this type of adverse information from being released to investors, which is expected to lead to higher filing rates. Given both possibilities, the expected rate of lawsuit filings for retail firms is indeterminate.[15]

6.1.3. *Firm-Specific Factors.* There are many firm-specific factors that may also explain the probability of being sued by shareholders in a class action lawsuit. The first variable controls for "deep pockets" and is measured as the natural log of the market capitalization of equity. Since large firms are better able to pay larger amounts if cases have unfavorable resolutions, they are more likely to be sued.

Unexpectedly bad earnings performance also is more likely to lead to the filing of a lawsuit. We estimate two measures of unexpected earnings. The first is the level of

[11]Lawsuits may be more prevalent over certain time periods. We estimate probit models of the propensity to sue with year dummies. Since the year dummies tend to be insignificant, we do not report these specifications.

[12]Firms are classified as Financial Institutions if they have SIC codes between 6021 and 6999.

[13]Regulated Firms have SIC codes 4812-4813, 4833, 4841, 4811-4899, 4922-4924, 4931, and 4941.

[14]Firms are classified as Technology Firms if they have SIC codes 2833-2836, 3570-3577, 3600-3674, 7371-7379 or 8731-8734.

[15]Retail Firms have SIC codes between 5200 and 5961.

discretionary accruals from a modified Jones model.[16] Since earnings tend to mean revert, we also include two lags of discretionary accruals. Table 4 indicates that mean discretionary accruals are positive, meaning that firms tend to over-report earnings. Panel B indicates that there is no significant difference in discretionary accruals for sued and non-sued firms.

If earnings are mean reverting, the correlation between contemporaneous discretionary accruals and the first and second lags are expected to be negative and positive, respectively. Consistent with this observation, the respective correlation levels for contemporaneous discretionary accruals and its first and second lags are -0.0439 (p-value of 0.0003) and 0.2387 (p-value of 0.0001) across the full sample. By contrast, if firms that consistently over-report earnings are more likely to be sued, we expect to discretionary accruals for *sued* firms to be positively correlated at all lags. Partially consistent with this, we find that the correlation between contemporaneous discretionary accruals and the first and second lag are 0.0726 (p-value equal to 0.1348) and 0.3100 (p-value equal to 0.001).

The second measure of unexpected earnings is standardized unexpected earnings (SUE). We estimate unexpected earnings as the difference between actual quarterly earnings and the First Call consensus earnings estimate for the quarter immediately preceding the lawsuit filing date. Unexpected earnings are then scaled by the standard deviation of the consensus earnings forecast as reported by First Call. Since the standard deviation of the consensus earnings forecast can be quite small, the estimate of SUE can be large in absolute value. To control for this tendency, we winsorize the SUE estimates at -6 and 6. For the full sample, the mean SUE is a positive 0.6879.

We expect that firms announcing unexpectedly bad earnings are more likely to be sued. Consistent with this observation, Table 4 indicates that the mean SUEs for sued and non-sued firms are -0.0411 and 0.7352, respectively. If firms with negative earnings surprises are more likely to be sued, we predict a negative association between the propensity to be sued and SUEs.

We also include the percentage of total CEO compensation from bonuses to control for the structure of the compensation plan. In general, we expect that bonus compensation provides an incentive for managers to produce better operating results. The stronger the incentive for managers to perform well, the less likely it is for a firm to be sued. We therefore expect a negative relation between the propensity to be sued and the proportion of bonus compensation. Using the Execucomp database, it is measured as the proportion of bonus compensation to total compensation (the sum of the dollar values of salary, bonus, other compensation, savings plans, properties and insurance, long-term incentive payments, restricted stocks and stock options).

Despite this general tendency for bonuses to provide positive incentives for managers to perform well, there is a possible adverse effect related to bonus compensation as well. Specifically, managers that have relatively high levels of bonus-based compensation may be more likely to misstate earnings to achieve certain incentive targets. We control for this possibility by including a term that interacts the percentage of total compensation from bonuses with a dummy variable that takes the value one when return on assets is negative and zero otherwise. The more

[16]The modified Jones model is estimated each year. For a discussion of the estimation procedure see Dechow, Sloan, and Sweeney (1995).

bonus compensation a manager receives when firm operating performance is poor the more likely a firm is to be sued.

The final firm-specific factor is the percentage of total shares held by the CEO, which is used to control for the existing ownership structure. If managements' interests are already aligned with shareholders as a result of their existing share ownership, the firm may be less likely to take actions that lead to a lawsuit. The total shares held by the CEO is measured as the sum of shares outstanding in option grants, unexercised options, and current shares held by CEOs divided by total shares outstanding plus options held by CEOs. We expect a negative relation between the probability of being sued and share ownership.

6.2. **Parameter estimates of the propensity to be sued model.** Table 6 provides parameter estimates for four class-action lawsuit models. The first three models present probit estimations that respectively consider the size of potential damages, the litigation environment and firm specific factors. The fourth, or Full, model combines the potential damages, litigation environment, and firm-specific factors. We report significance levels based on standard errors that adjust for heteroscedasticity and filing date clustering. Adjustments are made for filing date clustering because a number of firms are sued on the same date and, it is, therefore, inappropriate to assume that these events are independent.[17]

The fifth column reports the marginal change in the propensity to be sued for marginal changes in the explanatory variables. The marginal effects are calculated at the means of the independent variables. For the dummy variables, the marginal effect is calculated as the discrete change as the dummy variable changes from zero to one.

Since the coefficient estimates for the Full Model are qualitatively similar to those for the first three models, we only discuss the Full Model results. As we shall see, the propensity to be sued model accords well with our predictions.

Consistent with expectations, firms that are more likely to have higher damage awards are more likely to be sued. We find that firms are more likely to sue if they have higher share turnover (p-value of 0.0001). Also, firms with relatively high stock returns prior to the lawsuit filing date (p-value of 0.0002) are less likely to be sued.

We also find the litigation environment affects the likelihood that a firm is sued. As expected, the coefficient estimate for the previous lawsuit dummy (p-value of 0.0001) suggests that the firms are likely to be sued if they have been previously sued. We also find that firms operating in industries that have recently experienced significant litigation activity are less likely to be sued (p-value of 0.0001), which is inconsistent with expectations.

With the exception of the tech firm dummy, all of the industry controls are statistically significant and have the expected sign. Consistent with our assertion that companies dealing with individuals are more likely to be sued, the retail dummy variable is positive.

Larger firms (p-value of 0.0003) are more likely to be sued, which supports the "deep pockets" hypothesis. In addition, profitable firms (p-value of 0.0144) that provide investors with "good news" on earnings announcement dates (p-value of 0.0001) are less likely to be sued.

[17]Since a number of firms are sued multiple times, we also control for within-firm clustering as a robustness check and we obtain similar results.

Not surprisingly, firms that pay managers relatively high bonuses are less likely to be sued (p-value of 0.0008). However, firms that continue to pay managers relatively high bonuses even after the firm experiences poor operating performance (p-value of 0.010) are more likely to be sued. The coefficient estimate for the percentage of the firm owned by the CEO is negative as expected but insignificantly different from zero.

7. Determinants of Stock Price Reactions for Sued Firms

We have already shown that stock price reactions are significantly negative for both sued firms and non-sued firms in the same industry, and that a significant amount of the total price reaction has been previously anticipated by investors prior to the actual filing of the lawsuit. The purpose of this section is to examine whether the size of the price reaction is related to the propensity to be sued as well as other factors used to estimate the lawsuit propensity model in Section 6.

To do this, we propose a number of hypotheses based on the propensity to be sued and the magnitude of the economic losses around lawsuit filing dates. Section 7.1 focuses on sued firms. Section 7.2 extends the analysis of sued firms by examining the relation between the fraction of the cumulative own effect that is partially anticipated and the propensity to be sued. Section 7.3 then examines the relation between partial anticipation and the propensity to be sued for non-sued firms.

7.1. **Regression analysis of sued firms.**

This section determines whether the propensity to be sued affects investor reactions to the news that specific firms are sued. We estimate cross-sectional regressions of partial anticipation (firm-specific industry spillover) in the period preceding the filing of a class action lawsuit, the filing date own effect, and cumulative own effects (the sum of firm-specific industry spillover and the filing date own effect) using explanatory variables that include the propensity to be sued, potential damage factors, litigation environment factors, and certain firm-specific factors. Since we expect lawsuits to convey negative news to the market, we multiply all three measures by -1 so that we can interpret the estimates as *losses*. This makes the coefficient estimates easier to interpret.

7.1.1. *Partial Anticipation (Firm-Specific Industry Spillover).*

When a given firm in the industry is sued, it signals to investors that other firms in the industry may be subject to similar lawsuits. Investors then determine the likelihood that these related firms may be sued and capitalize the expected loss.

For those firms that are actually sued, the aggregate level of the expected loss that is partially anticipated is predicted to be positively associated with the propensity to be sued. That is,

Hypothesis 1 (Partial Anticipation Hypothesis)**.** *For sued firms, the level of partial anticipation prior to the lawsuit filing date is positively related to the propensity to be sued.*

Table 7 reports the results of the Partial Anticipation regressions. As expected, the size of the cumulative spillover effect is positively related to the probability of being sued. The coefficient on Lawsuit Propensity (the fitted value from the probit model) is 1.7701 (p-value of 0.0244), demonstrating the importance of controlling for the probability of being sued.

We also show that, even though large firms are more likely to be sued because they are better able to pay damage claims, expected losses are smaller (p-value 0.0148) on a relative basis and less costly to shareholders. To avoid a potential spurious correlation problem with abnormal return estimates, we exclude past stock price returns and volatility from the regression analysis.

Spillover effects are negatively related to the previous lawsuit dummy (p-value of 0.0453). This suggests that investors believe that these firms are more likely to have learned from past mistakes and have taken actions designed to prevent similar situations in the future. The fact these firms are being sued again implies that this faith is misplaced. Not surprisingly, the spillover effect is more pronounced in industries that experience periods of heightened litigation activity (p-value of 0.0307). Table 7 also shows that firms that follow conservative reporting policies (e.g., they use discretionary accruals to lower earnings estimates) and those that report surprisingly good earnings relative to analyst expectations are expected to have larger litigation related losses.

7.1.2. *Filing Date Own Effects.* Once a firm is sued, the the market reaction is affected by the incremental information contained in the announcement and the extent to which the lawsuit was previously anticipated. Altough it may seem somewhat paradoxical, we expect to observe a negative relation between the propensity to be sued and the stock market reaction.

The intuition here is that, if the market already places a very high probability on a lawsuit, it will have already capitalized most of the expected loss. Since there is very little residual uncertainty resolved on the lawsuit filing date, investor response will be relatively small. By contrast, if the probability of being sued is low and the firm is sued, there will be a bigger price reaction. This implies that,

Hypothesis 2 (Filing Date Hypothesis)**.** *The filing date own effect is negatively related to the propensity to be sued.*

Considering the Filing Date Own Effect regressions in Table 7, we see that, as predicted, the coefficient for Lawsuit Propensity is negative (coefficient estimate = -1.0693 and p-value = 0.0014). Similar to the spillover results, the own effect is negatively related to firm size and positively related to past stock performance (p-value 0.0000). There are several differences in the own effect regression compared to the spillover regression. First, the lawsuit environment variables are insignificantly related to the filing date price reaction. This is a sensible result because the filing date resolves any residual uncertainty about whether the firm is going to be sued. Since the earnings information is available to investors in the spillover period, the lack of an additional filing date reaction is not surprising.

7.1.3. *Cumulative Own Effect.* Conditional on observing a significant misstatement or omission of fact, it is relatively simple to infer whether a lawsuit is forthcoming. There is, however, no similar basis for inferring that the size of the cumulative own effect should be positively or negatively related to the propensity to be sued because the size of the loss is related to the nature of the impropriety rather than the probability that a mistake was made. Nonetheless, it is still an important exercise to document the determinants of the cumulative own effects.

Table 7 reports the results of the Cumulative Own Effect regressions. We can see that the cumulative economic losses are unrelated to the propensity to be sued;

the coefficient estimate for Lawsuit Propensity is insignificantly different from zero (p-value of 0.4081).

Comparing these results to those for the industry spillover and the filing date effect, the presence of deep pockets is one of the primary determinants of investors' cumulative response. With the exception of the earnings variables, which are insignificantly different from zero, the cumulative own effect results are qualitatively similar to the partial anticipation results. In other words, the factors that investors use to estimate potential losses prior to a lawsuit are the same as those that explain aggregate reactions once a filing is made.

7.2. **Capitalized losses and the propensity to be sued.** This section proposes a more powerful test of the Partial Anticipation Hypothesis. A drawback with evaluating the relation between investor reactions to the filing of class action lawsuits and the propensity to be sued is that there may be a substantial fixed cost component to the cumulative economic losses.

A more direct test is to ask what fraction of the cumulative own effect is anticipated prior to the filing date. The advantage of this approach is that it controls for size differences, which we know are significant determinants of investor reactions. Since investors partially anticipate lawsuit filings, we expect to find that the proportion of the cumulative own effect that is partially anticipated is positively related to the propensity to be sued. That is,

Hypothesis 3 (Partial Anticipation Hypothesis)**.** *The proportion of the cumulative own effect that is partially anticipated is positively associated with the propensity to be sued.*

We measure the fraction of legal liability that is partially anticipated as the ratio of the firm-specific industry spillover to the cumulative own effect, i.e.,

$$FPA_{ij}[\tau_1, \tau_2] = \frac{PA_{ij}[\tau_1, \tau_2]}{COE_{ij}[\tau_1, \tau_2]}. \tag{8}$$

Even though this estimate is a "fraction", it is possible for it to be fall outside of the $[0, 1]$ interval. For example, when the filing date announcement reveals that the lawsuit is not as large as previously anticipated the $CAR_{ij}[\tau_1, \tau_2]$ is negative, i.e., $COE_{ij}[\tau_1, \tau_2] < PA_{ij}[\tau_1, \tau_2]$. Since investors have implicitly capitalized the entire loss prior to its announcement, it is economically sensible to set $FPA_{ij}[\tau_1, \tau_2]$ to 1. As a result, values of $FPA_{ij}[\tau_1, \tau_2]$ less than 0 and greater than 1 are respectively truncated at 0 and 1.

The Partial Anticipation hypothesis predicts that $FPA_{ij}[\tau_1, \tau_2]$ is positively correlated with the probability that a firm is sued. Since the dependent variable is constrained to lie between 0 and 1, we test the hypothesis by estimating a logistic regression model. The specification includes the Lawsuit Propensity factor and all the control variables used to estimate the propensity model.

As expected, Table 8 indicates that there is a statistically significant and positive relation between the fraction of the legal damages that are partially anticipated by investors and the propensity to be sued. The coefficient estimate for the propensity score is 6.6628 with a p-value of 0.0000.[18]

[18]We estimate the same model using ordinary least squares as a robustness check and obtain qualitatively similar results. The relation between the propensity to be sued and the fraction of the

Table 8 also includes some of the same factors used to build the lawsuit propensity model. Given their incremental nature, there are no clear predictions about the sign of these coefficients. Nonetheless, a number of these factors are significant indicating that the lawsuit propensity factor does not fully capture all of the information used by investors to evaluate anticipated losses.

The most interesting finding is that a number of factors that are insignificant determinants of the propensity to be sued are significantly related to the proportion of the cumulative own effect that is partially anticipated. In particular, it appears that investors are less likely to capitalize anticipated losses when the signal to noise ratio is low (the sign on volatility is negative). By contrast, the more companies manage earnings upward, the more likely investors are to capitalize anticipated losses. Note that this result also holds at one and two lags indicating that investors react more aggressively to firms with a history of earnings management.

8. Industry Spillover and Non-Sued Firms

Lawsuits filed against particular firms may signal to investors that similar firms may also be sued. We predict that investors capitalize the expected losses associated with potential lawsuits and that the magnitude of this response is positively related to the probability of being sued. That is, investors apply a bigger discount to firms that are more likely to be sued. This simply states that the partial anticipation hypothesis holds for non-sued firms as well.

Hypothesis 4 (Partial Anticipation Hypothesis)**.** *For non-sued firms, the level of partial anticipation prior to the lawsuit filing date is positively related to the propensity to be sued.*

We test this hypothesis by estimating a cross sectional regression of industry spillover (partial anticipation) using explanatory variables that include the propensity to be sued, the size of potential damages factors, the litigation environment, and firm-specific factors. Consistent with the Partial Anticipation Hypothesis, Table 9 shows there is a significant positive relation between industry spillover and the likelihood of being sued. The coefficient estimate for the Lawsuit Propensity factor is 0.6114 (p-value of 0.0438).

We find that investors reactions are negatively related to firm size and the use of discretionary accruals. Table 9 also indicates that the magnitude of the spillover effect is industry specific.

To check the robustness of these results, we perform a second regression analysis based on a logistic regression where the dependent variable takes the value 1 if industry spillover for a given firm reflects a loss and 0 otherwise. Once again, Table 9 reports a significantly positive relation between losses and the propensity to be sued (p-value of 0.0042).

9. Conclusion

We document economically large price reactions to the filing of class action lawsuits. Evidence presented indicates that investors partially anticipate expected losses from future lawsuits and that filing date own effects understate the magnitude of shareholder losses. We demonstrate the importance of estimating cumulative

legal damages that are partially anticipated by investors is, once again, positive and statistically significant (p-value of 0.0159).

own effects by showing that narrowly focusing on filing date regressions can lead to misleading inferences.

We do this in two steps. First, we show that investors partially anticipate future lawsuits and that expected losses are positively related to the propensity to be sued. Second, we show that investor reactions on the lawsuit filing date are negatively related to the propensity to be sued. For example, a firm that has a high propensity to be sued is likely to have a lower stock price decline on the lawsuit filing date since such an event was less of a surprise. Therefore, if we simply consider the filing date results in isolation, we would mistakenly conclude that investors behave as if firms that are more likely to be sued are expected to have smaller losses rather than recognizing it as a consequence of the early positive effect related to the market's attempt to capitalize expected losses.

References

[1] Bhagat, Sanjay, John Bizjak, and Jeffrey L. Coles, 1998, The Shareholder Wealth Implications of Corporate Lawsuits, *Financial Management* 27, 5-27.

[2] Bhagat, Sanjay, James A. Brickley, and Jeffrey L. Coles, 1994, The Wealth Effects of Interfirm Lawsuits, *Journal of Financial Economics* 27, 221-247.

[3] Bittlingmayer, George, and Thomas W. Hazlett, 2000, DOS Kapital: Has Antitrust Regulation Against Microsoft Created Value in the Computer Industry, *Journal of Financial Economics* 55, 329-359.

[4] Dechow, Patricia M., Richard G. Sloan and Amy P. Sweeney, 1995, Detecting Earnings Management, *Accounting Review* 70, 1993-225.

[5] Dyl, Edward A., 1999, Estimating Economic Damages in Class Action Securities Fraud Litigation, *Journal of Forensic Economics* 12, 1-11.

[6] Francis, Jennifer, Donna Philbrick, and Katherine Schipper, 1994, Shareholder Litigation and Corporate Disclosures, *Journal of Accounting Research* 32, 137-164.

[7] Furbush, Dean, and Jeffrey W. Smith, 1994, Estimating the Number of Damaged Shares in Securities Fraud Litigation: An Introduction to Stock Trading Models, *The Business Lawyer* 49, 527-542.

[8] Field, Laura, Michelle Lowry, and Susan Shu, 2004, Does Disclosure Deter or Trigger Litigation, forthcoming *Journal of Accounting and Economics.*

[9] Grundfest, J. and M. Perino, 1997, Ten Things We Know and Ten Things We Dont Know About the Private Securities Litigation Reform Act of 1995, Joint Written Testimony of Joseph A. Grundfest and Michael A. Perino Before the Subcommittee on Securities of the Committee on Banking, Housing and Urban Affairs United States Senate on July 24, 1997.

[10] Jones, Christopher L., and Seth E. Weingram, 1996, The Determinants of 10b-5 Litigation Risk, Stanford Law School Working Paper.

[11] Lang, Larry H. P., and Rene M. Stulz, 1992, Contagion and Competitive Intra-Industry Effects of Bankruptcy Announcements: An Empirical Analysis, *Journal of Financial Economics* 32, 45-60.

[12] Mitchell, Mark L. and Jeffrey M. Netter, 1994, The Role of Financial Economics in Securities Fraud Cases: Applications at the Securities and Exchange Commission, *The Business Lawyer* 49, 545-590.

[13] Romano, Roberta, 1991, The Shareholder Suit: Litigation without Foundation?, *Journal of Law Economics and Organizations* 7, 55-87.

TABLE 1. Sample Description by Year. Panel A reports the number of lawsuits across different industries in different years.* Panel B reports the number of class action lawsuits by lawsuit type in different years.

Panel A. Number of lawsuits across different industries

Year	Financial	Regulated	Technology	Retail	Other	Total
1996	4	1	4	2	12	23
1997	4	6	10	3	27	50
1998	6	3	15	2	36	62
1999	12	5	9	4	48	78
2000	7	9	5	2	44	67
2001	12	9	24	4	46	95
2002	53	24	13	4	37	131
2003	37	7	11	5	39	99
Total	135	64	91	26	289	605

Panel B. Number of lawsuits by lawsuit type

Year	Financial Restatement	Earnings Estimates	Other Accounting Irregular.	Analyst Conflict Interest	Other	Total
1996	1	0	0	0	22	23
1997	2	0	1	0	47	50
1998	3	1	3	0	55	62
1999	5	8	1	0	64	78
2000	7	3	4	0	53	67
2001	5	13	5	1	71	95
2002	13	14	10	35	59	131
2003	15	16	2	7	59	99
Total	51	55	26	43	430	605

* Financial Institutions have SIC codes between 6021 and 6999. Regulated firms are those with SIC codes 4812-4813, 4833, 4841, 4811-4899, 4922-4924, 4931, and 4941. Technology Firms have SIC codes 2833-2836, 3570-3577, 3600-3674, 7371-7379 or 8731-8734. Retail Firms have SIC codes between 5200 and 5961.

TABLE 2. Filing date abnormal returns and changes in market value. Panel A reports abnormal returns and changes in market value for each day in the event window. Panel B reports cumulative abnormal returns and changes in market value over selected event windows.

Panel A. Daily abnormal returns and changes in market value

	Abnormal returns		Δ in market value			
Event date	Mean	t-statistic	Mean	t-statistic	% Neg.	Obs.
-10	-0.45	-2.34	-99.45	-2.46	53.73	603
-9	-0.89	-4.63	-93.40	-1.84	53.48	604
-8	-0.62	-3.22	-21.64	-0.53	53.81	604
-7	-1.04	-5.41	-89.21	-1.61	53.64	604
-6	-0.77	-4.03	-46.06	-1.34	50.99	604
-5	-1.34	-6.96	-53.02	-1.43	57.78	604
-4	-1.29	-6.71	0.19	0.00	53.64	604
-3	-1.48	-7.69	-83.91	-1.38	50.41	605
-2	-1.93	-10.04	-242.07	-3.96	54.14	604
-1	-2.14	-11.15	-243.27	-2.21	54.38	605
0	-1.80	-9.37	-146.65	-2.03	51.07	605
1	-0.72	-3.73	33.92	0.83	53.64	604
2	-0.35	-1.84	-30.35	-1.05	53.48	604
3	-0.09	-0.45	-11.97	-0.41	49.09	603
4	0.30	1.58	-7.53	-0.23	48.92	603
5	0.17	0.87	-11.29	-0.31	48.84	602
6	-0.13	-0.65	15.94	0.47	51.75	601
7	0.20	1.06	17.49	0.73	49.42	601
8	0.08	0.39	-4.73	-0.11	49.25	601
9	0.12	0.60	20.70	0.69	48.25	601
10	0.01	0.08	24.12	0.85	47.59	601
Panel B. Own-firm filing date effects over selected event windows						
$[-10, -2]$	-9.79	-16.99	-727.01	-5.65	62.64	605
$[-1, +1]$	-4.66	-13.99	-355.65	-2.42	56.69	605
$[-10, +1]$	-14.45	-21.71	-1082.66	-5.36	63.47	605
$[+2, +10]$	0.31	0.54	12.09	0.16	47.85	604

TABLE 3. Industry spillover on filing date. This table reports cumulative abnormal returns and changes in market value over selected event windows.

	Abnormal returns		Δ in market value			
Event date	Mean	t-statistic	Mean	t-statistic	% Neg.	Obs.
$[-10, -2]$	-0.70	-2.47	-40.23	-2.01	52.32	8977
$[-1, +1]$	-0.36	-2.22	-11.74	-1.04	51.99	8977
$[-10, +1]$	-1.07	-3.25	-51.97	-2.24	52.90	8977
$[+2, +10]$	-0.48	-1.70	-55.09	-2.46	51.26	8974

TABLE 4. Cumulative own effect. This table aggregates firm-specific industry spillover and own-firm filing date effects and reports cumulative abnormal returns and changes in market value for selected event windows.

	Abnormal returns		Δ in market value			
Event date	Mean	t-statistic	Mean	t-statistic	% Neg.	Obs.
Panel A. All-inclusive daily abnormal returns and changes in market value						
$[-10, -2]$	-12.78	-8.39	-1253.12	-4.55	63.23	601
$[-1, +1]$	-7.28	-7.53	-477.75	-2.79	60.07	601
$[-10, +1]$	-20.06	-10.33	-1730.87	-5.71	66.06	601
$[+2, +10]$	-3.78	-3.23	-516.02	-2.53	50.83	600
Panel B. One-year truncated daily abnormal returns and changes in market value						
$[-10, -2]$	-12.46	-10.11	-1,057.55	-4.46	64.63	605
$[-1, +1]$	-5.81	-6.79	-440.79	-2.83	59.67	605
$[-10, +1]$	-18.27	-12.06	-1,498.34	-5.54	66.61	605
$[+2, +10]$	-1.50	-1.52	-165.89	-1.60	49.01	604
Panel C. Two-year truncated daily abnormal returns and changes in market value						
$[-10, -2]$	-13.21	-9.55	-1,169.11	-4.81	65.51	603
$[-1, +1]$	-6.40	-6.93	-438.59	-2.60	59.70	603
$[-10, +1]$	-19.61	-11.03	-1,607.70	-5.80	66.67	603
$[+2, +10]$	-2.55	-2.46	-267.54	-2.17	50.00	602

TABLE 5. Summary statistics for determinants of the propensity to be sued. Panel A reports the selected summary statistics for the entire sample. Panel B reports the mean and standard deviation of selected summary statistics for the subsamples of sued and non-sued firms. Panel B also reports the p-values for difference in means tests across the two subsamples.

Panel A. Full sample

Description	Mean	Stand. Dev.	Min.	Max.	25^{th} Percen.	50^{th} Percen.	75^{th} Percen.
Share turnover	0.6107	0.2470	0.00	1.00	0.40	0.61	0.83
Volatility	0.0408	0.0223	0.00	0.27	0.02	0.04	0.05
Est. period stock return	0.0596	0.6126	-0.97	10.39	-0.24	-0.01	0.21
Previous lawsuit dummy	0.0459	0.2092	0.00	1.00	0.00	0.00	0.00
Litigation intensity	2.1909	3.3827	0.00	22.00	0.00	1.00	3.00
Regulation dummy	0.1260	0.3319	0.00	1.00	0.00	0.00	0.00
Financial dummy	0.2094	0.4069	0.00	1.00	0.00	0.00	0.00
Technology dummy	0.1679	0.3738	0.00	1.00	0.00	0.00	0.00
Retail dummy	0.0137	0.1162	0.00	1.00	0.00	0.00	0.00
Log of mkt. cap.	7.3910	1.8509	1.81	13.13	6.11	7.26	8.61
Return on assets	-0.0543	0.5296	-9.61	0.93	-0.03	0.03	0.09
Discretionary accruals (DA)	1.0106	2.0221	-7.72	83.01	0.24	0.61	1.31
DA Lag 1	1.2559	2.7910	-25.54	83.01	0.31	0.74	1.60
DA Lag 2	1.5041	3.1996	-11.43	84.55	0.40	0.89	1.77
Std. unexpected earnings	0.6870	3.2019	-6.00	6.00	-0.45	0.41	2.38
Prop.bonus comp.	0.3635	0.2743	0.00	1.00	0.06	0.38	0.56
Share ownership	0.0392	0.0587	0.00	0.64	0.01	0.02	0.05

Panel B. Sued and non-sued firm subsamples

	Sued firms		Non-sued firms		
Description	Mean	Standard Deviation	Mean	Standard Deviation	Difference in Means
Share turnover	0.6408	0.2296	0.6086	0.2480	0.001
Volatility	0.0427	0.0235	0.0407	0.0222	0.041
Est. period stock return	-0.1352	0.5291	0.0727	0.6156	0.000
Previous lawsuit dummy	0.2213	0.4155	0.0340	0.1812	0.000
Litigation intensity	1.4475	3.1981	2.2411	3.3892	0.000
Regulation dummy	0.1131	0.3170	0.1269	0.3329	0.300
Financial dummy	0.2213	0.4155	0.2086	0.4064	0.466
Technology dummy	0.1492	0.3566	0.1692	0.3750	0.181
Retail dummy	0.0426	0.2022	0.0117	0.1077	0.000
Log of mkt. cap.	7.8530	2.1130	7.3598	1.8278	0.000
Return on assets	-0.1344	0.7849	-0.0490	0.5078	0.027
Discretionary accruals (DA)	1.0177	1.4244	1.0101	2.0556	0.918
DA Lag 1	1.1432	2.6228	1.2634	2.8019	0.362
DA Lag 2	1.5557	1.9916	1.5007	3.2651	0.604
Std. unexpected earnings	-0.0411	3.3055	0.7352	3.1893	0.000
Prop.bonus comp.	0.3311	0.3188	0.3655	0.2711	0.016
Share ownership	0.0303	0.0547	0.0397	0.0590	0.000

TABLE 6. Probit estimation of propensity to be sued. a, b, and c respectively indicate that the Chi-square test of the null hypothesis that the parameter estimate equals zero is significant at the 1%, 5%, and 10% levels. The standard errors used to compute significance levels are adjusted for clustering. The last column measures the marginal effect of changes in the levels of the independent variables.

Description	Predicted Sign	Potential Damages	Litigat. Environ.	Firm Specific	Full Model	Marg. Effect
Intercept		-1.669 ^{a}	-1.469 ^{a}	-2.107 ^{a}	-2.192 ^{a}	
Share turnover	+	0.314 ^{a}			0.499 ^{a}	0.048 ^{a}
Volatility	+	-1.546			-1.544	-0.056 ^{a}
Est. period stock return	-	-0.424 ^{a}			-0.270 ^{b}	-0.023 ^{a}
Previous lawsuit dummy	+		1.491		1.483 ^{a}	0.366 ^{a}
Litigation intensity	+		-0.097 ^{a}		-0.097 ^{a}	-0.013 ^{a}
Regulation dummy	-		-0.113 ^{a}		-0.234 ^{b}	-0.021 ^{a}
Financial dummy	+		-0.015 ^{c}		0.305 ^{a}	0.036 ^{a}
Technology dummy	+		-0.123		-0.240 ^{a}	-0.022 ^{a}
Retail dummy	+/-		0.592 ^{b}		0.518 ^{a}	0.079 ^{a}
Log of mkt. cap.	+			0.090 ^{a}	0.078 ^{a}	0.003 ^{a}
Return on assets	-			-0.163 ^{a}	-0.148 ^{b}	-0.013 ^{b}
Discretionary accruals (DA)	+			0.011	0.040 ^{b}	0.004 ^{b}
DA Lag 1	-			-0.005	0.007	0.001
DA Lag 2	+			-0.002	0.003	0.000
Std. unexpected earnings	-			-0.040 ^{a}	-0.043 ^{a}	-0.004 ^{a}
Prop.bonus comp.	-			-0.314 ^{a}	-0.522 ^{a}	-0.049 ^{a}
Bonus x Neg. ROA dummy	+			0.409 ^{b}	0.448 ^{b}	0.059 ^{c}
Share ownership	-			-0.669	-0.530	-0.037
Number of observations		9634	9640	6068	6067	
Wald χ^2		31.27 ^{a}	443.12 ^{a}	61.77 ^{a}	449.90 ^{a}	
Pseudo R^2		0.022	0.096	0.025	0.128	

TABLE 7. Investor reaction regressions to the filing of class action lawsuits. We estimate weighted cross-sectional regressions where the dependent variables are firm-specific industry spillover, the filing date own effect, and the cumulative own effect over the event window $[-10, +1]$. The weighting variable is the standard deviation of the rate of return. Coefficient estimates and heteroscedasticity consistent p-values are reported.

	Partial Anticipation		Filing Date Own Effect		Cumulative Own Effect	
Description	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Intercept	0.2497	0.031	0.2672	0.001	0.5126	0.000
Lawsuit Propensity	1.7701	0.024	-1.0693	0.001	0.7265	0.408
Log of mkt. cap.	-0.0445	0.015	-0.0039	0.724	-0.0478	0.034
Previous lawsuit dummy	-0.7052	0.045	0.4775	0.003	-0.2429	0.526
Litigation intensity	0.0604	0.031	-0.0368	0.001	0.0251	0.353
Regulation dummy	0.0012	0.980	-0.2067	0.008	-0.2092	0.038
Financial dummy	-0.1326	0.210	-0.0259	0.666	-0.1645	0.205
Technology dummy	-0.0143	0.764	-0.1019	0.026	-0.1203	0.077
Retail dummy	-0.2935	0.006	0.0405	0.530	-0.2607	0.034
Discretionary accruals (DA)	-0.0248	0.047	0.0207	0.066	-0.0051	0.746
DA Lag 1	0.0016	0.850	0.0096	0.303	0.0123	0.327
Std. unexpected earnings (SUE)	0.0179	0.120	-0.0190	0.015	-0.0010	0.943
SUE Lag 1	0.0114	0.244	0.0187	0.003	0.0310	0.010
Adjusted R-square	0.0382		0.0234		0.0181	
Observations	371		373		371	

TABLE 8. Logistic regression of the fraction of the cumulative own effect that is partially anticipated prior to the lawsuit filing date. Coefficient estimates and p-values are reported. The p-values for the logistic regression are based on a Chi-square test.

	Size of Damages		Damages and Litigation Env.		Full	
Description	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Intercept	1.1536	0.000	1.4570	0.000	1.7203	0.000
Propensity to be sued	2.0356	0.000	3.5888	0.000	3.1628	0.000
Share turnover	-0.0070	0.972	-0.3075	0.140	-0.1873	0.397
Volatility	-12.9874	0.000	-13.2943	0.000	-13.1058	0.000
Est. period stock return	-0.0442	0.443	-0.0498	0.400	-0.0490	0.427
Previous lawsuit dummy			-0.8559	0.000	-0.5703	0.004
Regulation dummy			-0.7759	0.000	-0.8007	0.000
Financial dummy			-0.0967	0.466	0.3196	0.040
Technology dummy			-0.2972	0.002	-0.1440	0.176
Retail dummy			0.8954	0.003	0.9141	0.004
Log of mkt. cap.					-0.1164	0.000
Return on assets					0.0382	0.576
Discretionary accruals (DA)					0.1885	0.000
DA Lag 1					0.1784	0.000
DA Lag 2					0.0380	0.074
Std. unexpected earnings					-0.0466	0.000
Prop.bonus comp.					0.4142	0.026
Bonus x Neg. ROA dummy					-0.8483	0.000
Share ownership					-0.3666	0.628
Percentage concordant	62.2		68.4		69.9	
$-2\times$log-likelihood	4453.4		4281.7		4204.1	
Psuedo R-square	0.0278		0.0653		0.0822	
Observations	377		377		377	

TABLE 9. Spillover regression for non-sued firms. Coefficient estimates, standard errors and p-values are reported. The standard errors and p-values associated with the ordinary least squares estimates are heteroscedasticity consistent. The p-values for the logistic regression are based on a Chi-square test of the null hypothesis that the parameter estimate equals zero.

	OLS Regression			Logistic Regression		
Description	Coeff.	Stand. Error	P-value	Coeff.	Stand. Error	P-value
Intercept	0.4642	0.0458	0.000	-0.1801	0.1290	0.163
Lawsuit Propensity	0.6114	0.3034	0.044	2.1960	0.7673	0.004
Log of mkt. cap.	-0.0556	0.0057	0.000	-0.0077	0.0172	0.653
Previous lawsuits	-0.0984	0.0950	0.300	-0.4610	0.2651	0.082
Litigation intensity	-0.0019	0.0036	0.602	0.0324	0.0109	0.003
Regulation dummy	0.1045	0.0202	0.000	0.1745	0.0895	0.051
Financial dummy	-0.0790	0.0258	0.002	-0.0970	0.1003	0.333
Technology dummy	0.0362	0.0157	0.022	0.1727	0.0716	0.016
Retail dummy	-0.0781	0.0291	0.007	0.0253	0.2416	0.916
Discretionary accruals (DA)	-0.0254	0.0048	0.000	-0.0539	0.0218	0.013
DA Lag 1	-0.0032	0.0034	0.345	-0.0085	0.0103	0.407
Std. unexpected earnings (SUE)	0.0038	0.0033	0.248	0.0068	0.0095	0.473
SUE Lag 1	0.0033	0.0029	0.263	-0.0097	0.0088	0.270
Adjusted (Psuedo) R-square		0.0365			0.0032	
Observations		5670			5670	