Shareholder initiated class action lawsuits: Shareholder wealth effects and industry spillovers

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Abstract

This paper documents significantly negative stock price reactions to shareholder initiated class action lawsuits. We find that shareholders partially anticipate these lawsuits based on lawsuit filings against other firms in the same industry and capitalize part of these losses prior to a lawsuit filing date. Consequently, we show that filing date effects understate the magnitude of shareholder losses on average by approximately a third. We demonstrate that prior expectations about the likelihood of being sued are important determinants of the losses anticipated prior to the filing of an actual lawsuit, and on the lawsuit filing date.

Key Words: Class action lawsuits, industry feedback, partial anticipation, propensity to be sued, spillovers, shareholder wealth effects.

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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 (http://www.securities.stanford.edu) at Stanford University (which tracks federal securities class action lawsuits since 1996), 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 assert that a number of practices related to providing share allocations were not disclosed and harmed investors. For example, in a series of "IPO laddering" cases, 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, shareholder initiated lawsuits have received relatively little attention. The available evidence is based on relatively small samples which limit the power to draw cross-sectional inferences. Romano (1991) provides the first comprehensive analysis of shareholder class action suits. She examines share price reactions to the initiation of 66 shareholder suits during 1966-1987 and the resulting changes in compensation and corporate governance structures as well as managerial turnover. Most importantly for our study, she finds little evidence of significant price reactions at the initiation of lawsuits (-0.41%).

Francis, Philbrick, and Schipper (1994) examine whether firms that preemptively disclose adverse earnings news early benefit from a lower incidence of shareholder initiated lawsuits. They investigate a set of 44 firms in biotech, computer, electronics, and retail industries from

1988-1992 that were subject to securities class action lawsuits triggered by adverse earnings reports. They document excess returns of -17.16% on the adverse earnings announcement event. Since a majority of these sued firms voluntarily disclose adverse earnings news ahead of the mandatory earnings announcement dates (relative to a control sample of firms), they conclude that early disclosures increase litigation risk. However, Field, Lowry, and Shu (2004) document that firms with higher litigation risk are more likely to disclose early in an attempt to preempt potential lawsuits, and that such early disclosures decrease (rather than increase) the risk of being sued.

We analyze shareholder initiated class action lawsuits in this paper using a significantly larger sample than that employed in other studies. Our lawsuit sample covers a broad range of industries and types of lawsuits (see Table 1) from 1996-2003. Not only do we examine price reactions on the lawsuit filing date, but we consider the possibility that these lawsuits signal that comparable firms are susceptible to similar lawsuits. If true, we expect these comparable firms to have negative stock price reactions that are significantly related to the probability of being sued.[1] Consequently, our study is closely related to Karpoff, Lee and Martin (2005) who document that the stock market imposes significant reputational penalties on firms targeted by SEC enforcement actions for financial misrepresentations.

We develop an econometric model for the propensity to be sued based on litigation environment and firm-specific factors. In addition to identifying the principal determinants of the propensity to be sued, this model allows us to examine several related questions, such as whether or not the regulation pertaining to Fair Disclosure (Reg FD) affected the lawsuit propensity, and to what extent the Sarbaines Oxley Act encourages or deters the incidence of lawsuits.

We show that shareholder wealth losses on the date that the filing of a lawsuit is announced understate the magnitude of aggregate shareholder losses because investors partially

[1]In this regard, our methodology is consistent with the literature on conditional event study methods which emphasizes the role of explicitly conditioning for the expected information (i.e., partial anticipation of lawsuits) in estimating announcement effects, and concludes that the probability of an event (i.e., of being sued in our case) is, as we find in this study, significantly related to the announcement effect on the event date (see, for example, Eckbo, Maksimovic, and Williams (1990), and Prabhala (1997)).

anticipate these lawsuits and capitalize part of the losses in advance. While other studies have examined whether investors partially anticipate corporate events, such as acquisitions, none of them empirically analyze whether investor reactions are related to the probability of the event.[2] In this study, we conduct an in-depth analysis of the relation between the partial anticipation (as well as the announcement date effect on the lawsuit filing date) and the probability of being sued, and demonstrate that prior expectations about the likelihood of being sued are indeed significant determinants of investor reactions to the filing of class action lawsuits.

Finally, we examine whether certain types of lawsuits, such as accounting-related lawsuits (which could proxy for common business practices across firms within an industry) are likely to have stronger industry spillover effects as compared to others, such as operations-related lawsuits (which are more likely to be firm-specific).[3]

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, and tabulates industry spillover effects by suit type, such as accounting-related or operations-related 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]See Schipper and Thompson (1983) and Malatesta and Thompson (1985) for some early work on partial anticipation in the context of acquisitions. Schipper and Thompson (1983) argue that specific acquisitions are often embedded within general programs of acquisition, and that future acquisitions within these programs are anticipated. Consequently, the present value of individual acquisition events would then be fully reflected, i.e., capitalized, in stock prices at the inception of the program. Malatesta and Thompson (1985) present a formal model of stock price reactions to events that investors partially anticipate, such as a series of acquisitions by the same firm. In their empirical analysis, they examine a sample of serial acquisitions by 30 firms, and find some evidence that investors partially anticipate acquisition attempts. However, they do not estimate the probability of an acquisition attempt (q_j in their model), nor do they test whether this probability is related to the announcement date effect ($\alpha_j + \gamma_j$ in their model). In our study, we specifically focus on the relationship between investor reactions and the probability of being sued.

[3]Our study is also related to papers by Bhagat, Brickley, and Coles (1994), Bijzak and Coles (1995), and Bhagat, Bizjak, and Coles (1998) which examine the wealth effects of interfirm lawsuits (rather than securities class action lawsuits) during 1981-83, 1973-83, and 1981-83 respectively. They find that defendant firms experience statistically significant negative price reactions on the lawsuit initiation date.

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.[4] 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 against 488 firms. The number of companies is lower than the number of filings because some firms are sued multiple times.

Our initial analysis on shareholder losses around a lawsuit filing date uses the full sample of 605 filings. However, our subsequent analysis that estimates the probability of being sued and its relation to lawsuit-related shareholder losses requires that firms (both sued and non-sued) also be available on Compustat, and First Call. This reduces the sample for such analysis to 377 class action lawsuits against 310 different firms.

Table 1 provides information about the number of class action lawsuits across different industries.[5] Panel A shows that the lawsuit filing rate increases 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 lawsuits 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. The first two categories in Panel B correspond to whether an alleged fraud is related to a firm's accounting procedures (e.g., improper recognition of revenue) or to its operations (e.g., production problems). A rationale for such a classification is that accounting irregularities

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

[5]In an approach that is similar to Field, Lowry, and Shu (2004), we use the following industry definitions throughout the paper. Firms are classified as Financial Institutions if they have SIC codes between 6000 and 6999. Regulated Firms have SIC codes between 4000 and 4999. 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.

are ex ante more likely to be industry specific whereas operations irregularities are more likely to be firm specific. The next two categories relate to questionable practices at financial institutions that have been a subject of recent litigation, such as analyst conflicts of interest, and IPO laddering cases. Accounting related cases tend to increase over the sample period. By contrast, analyst conflict of interest and IPO laddering cases respectively had large spikes in 2002 and 2001 but relatively little activity in other periods.[6] The other cases that are not separately reported are reasonably stable over the sample period.

3 Calculation of Economic Effects

Investors file federal securities 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 to 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.

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

[6]Since our sample is conditioned on availability of data in Execucomp and Compustat, these numbers are smaller than in an unconditioned sample.

CRSP tape over day t. The coefficients α_j and β_j are ordinary least 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 (i.e., of approximately six months) where day 0 is the filing date.[7] For the i^{th} lawsuit in an industry (defined by its 4-digit SIC code) that is filed against firm j, we estimate the filing date effect by cumulating abnormal returns (CARs) 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 industry lawsuit i. We evaluate the statistical significance of these CARs using the methodology of Brown and Warner (1985) that considers both the time-series and cross-sectional dependence in returns. In addition, our results are also robust to several other methods of estimating the filing date effects (see Section 3.3 for details).

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, if the existence of an impropriety is harder to detect, it may take investors longer than a day or two to determine whether the trigger event contains sufficient evidence to warrant initiating litigation.

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

[7] Our results are qualitatively unchanged when we use a longer estimation window, such as a year (e.g., from day -244 to -11). See Section 3.3 for details of this and other robustness checks.

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.[8]

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 $t-1$. Daily economic dollar 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 economic 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 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.[9] The market appears to process

[8] Consistent with this assumption, we find that the daily abnormal returns from more distant dates relative to the filing date are insignificantly different from zero.

[9] This finding is consistent with testimony written by Grundfest and Perino (1997). They note that, " ... the average stock price decline preceding the filing of a Section 10(b) claim was about 19%." In a typical securities class action under Section 10(b) of the Securities Exchange Act of 1934 (the "1934 Act") and SEC Rule 10b-5, such as those analyzed in this study, the plaintiffs allege that the defendants made material misrepresentations about a company or failed to disclose material facts through uniform public statements. The 1934 Act mandates that publicly traded companies disseminate to investors all relevant information that may affect the price of a security. In particular, Rule 10b-5 unambiguously states that the management

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.[10] 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. Another contributing factor is that other non-damage related costs, such as (defense) attorney fees, lost management time, and loss of reputation, can be substantial, which provide additional motivation for investors to capitalize such losses.

3.3 Robustness Checks

We assess the robustness of the significance of the results in Table 2 in a number of different ways and find that our results are qualitatively unchanged. First, we use a longer estimation period to calculate parameters for the market model. For example, when we change the estimation time period from [-135,-11] (used in Table 2) to [-244,-11]. Second, we estimate standard errors to also account for unequal return variances across securities (as in, for example, Mikkelson and Partch (1988)).[11] Third, we exclude outliers (defined as the top 1% and bottom 1% of the cumulative abnormal returns). Fourth, we compute buy and hold (instead of cumulative) abnormal returns. Finally, we compare our estimates to a randomly chosen sample of control events. That is, for each lawsuit in our sample, we randomly

of a publicly held company has the express duty to disseminate all relevant information to investors and that omission of such information is as important to a finding of a violation as providing incorrect information.

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

[11]The Brown and Warner (1985) methodology assumes equal return variances across securities.

select another date for the same firm and reestimate all of the cumulative abnormal returns reported in Table 2 for this alternative sample. As expected, we find that random event dates produce filing date effects that are statistically insignificant from zero.[12]

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 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 spillover 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. When such management is detected at one firm, damaged investors typically file a class action lawsuit. The initiation of this lawsuit signals to investors that other suits against other firms are forthcoming, and the stock prices of related firms are adjusted downward accordingly.

The importance of industry spillover has been documented in other contexts, such as corporate bankruptcy filings and federal antitrust actions. For example, Lang and Stulz (1992) document industry spillover for firms filing for bankruptcy. They show that bankruptcy filing announcements typically result in a lowering of stock prices of other firms in the indus-

[12]We thank Hans Stoll for making this suggestion.

try. However, where firms compete with the firm announcing a bankruptcy filing, such firms are shown to experience an increase in stock prices. That is, some of the industry spillover effect in their study is a result of a change in the competitive equilibrium in that industry. Bittlingmayer and Hazlett (2000) examine industry spillover for firms in the computer industry. They document that federal antitrust actions against Microsoft from 1991-1997 were accompanied by declines in values of other firms in the computer industry, suggesting that antitrust actions inflict capital losses on all firms rather than improve the profitability of the other firms in the industry. Both these studies measure industry spillover as the change in price of an index of other firms in response to an event.

Following Lang and Stulz (1992), we define an industry based on the four-digit SIC code.[13] We estimate spillover separately for each non-sued firm (rather than on an index of non-sued firms) in the same industry. Our results are qualitatively unchanged if we measure the industry spillover directly on an index of non-sued firms (see Section 4.1. for details) rather than as an average of spillovers of non-sued firms in the same industry as the sued firm.

The industry spillover effect for class action suit i as the average cumulative abnormal returns for all firms in the same industry excluding the firm being sued is calculated as

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

where J is the number of firms in the same four-digit SIC code as the sued firm.

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 drop an additional -0.70% (t-stat of -2.47) in the two-week period preceding the filing date. The average dollar losses associated with industry spillover are economically significant. Over

[13] It is possible that spillover effects extend beyond our strict definition of an industry based on its four-digit SIC code. If so, this would further strengthen our results. Consequently, we view our definition of an industry based on its four digit SIC code as a conservative bias against finding large spillover effects.

the twelve-day event window $[-10, +1]$ the average per firm loss is \$51.97 million.

We find evidence that the industry spillover is affected by the type of lawsuit. As expected, accounting-related lawsuits which could proxy for common business practices across firms within an industry are associated with stronger industry spillover effects as compared to operations-related lawsuits which are more likely to be firm-specific. Specifically, the industry spillover for the twelve-day event window $[-10, +1]$ (not reported in the Tables) is -2.40% (t-stat -6.99) for accounting lawsuits as compared to -0.64% (t-stat -1.50) for operations lawsuits, and the difference is economically and statistically significant at the 1% level.[14] Rather than empirically catalogue industry spillover effects by suit type, we develop a model for the propensity to be sued based on litigation environment, and firm-specific characteristics (see Section 6 for details), which is also shown to be a significant determinant of the shareholder losses anticipated prior to the filing of an actual lawsuit, and on the lawsuit filing date. We next examine the robustness of these results in Section 4.1.

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. We conducted the analysis for two alternative definitions of non-sued firms: First, other firms in Execucomp in the same four-digit SIC code as the sued firm. This matches closely the research design in this paper. Second, all other firms (i.e., not limited to those available on Execucomp) in the same four-digit SIC code as the sued firm, similar to Lang and Stulz (1992). Our results are qualitatively similar under both these scenarios.

[14] See Section 7.2.1 for an analysis of the type of the lawsuit and its influence on investors' partially anticipating such lawsuits.

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 (see, introduction for details of such studies) underestimate the true economic costs associated with class action lawsuits. In this section, we estimate this cumulative "own" effect by combining the filing 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 since the beginning of our sample period, and for robustness we also consider a shorter history of lawsuits, such as those that are filed in the same industry within the past year (See Section 5.1 for details). 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.

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 25.56% in dollar terms (i.e., (477.75-355.65)/477.75). Looking at the twelve-day event window $[-10, +1]$, the mean cumulative own effect is -20.06% of which 27.97% (i.e., (20.06 - 14.45)/20.06)) is attributable to partial anticipation due to industry spillover. These findings clearly indicate the importance of including industry spillover effects when determining the extent of shareholder value losses associated with the filing of class action lawsuits. We next examine the robustness of these results in Section 5.1.

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 include 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 and 5,670 control firm years. The control firms represent all firms in the Execucomp database that have the same four-digit SIC code, the same fiscal year end as the

sued firm, and have the relevant data from Compustat and First Call.

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 (see, for example Dyl (1999)).[15] Higher levels of both factors increase the likelihood that shareholders purchased shares based on misleading information.[16]

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 the six-month estimation window used in the event study in Section 3.1, i.e., [-135,-11]. Table 5 indicates that the mean probability that a share is traded in the six-month estimation window is 61.07%. Volatility is estimated as the daily standard deviation of the rate of return in the same six-month estimation window preceding the filing date. The mean daily volatility for the full sample is 4.08%.[17]

[15]The Securities Class Action Clearinghouse website includes information about the "class period," which represents the time period over which the fraus is alleged to have occurred. We are unable to use this information (or estimates based thereon) to estimate lawsuit propensities because it is not available to investors prior to the lawsuit filing date.

[16]Alternatively, one may view that higher levels of share turnover and past volatility also increase the chances that a law suit is frivolous. We expect this to be less of a concern for our study since our sample of lawsuit filings starts in 1996, which is subsequent to the passage of the Private Securities Litigation Reform Act of 1995 (the "Reform Act"), whose primary goal was the reduction of frivolous securities litigation through: (a) safe harbor provisions aimed at protecting companies for issuing "forward-looking statements," (e.g., projections of financial items, management plans and objectives, and statements relating to future economic performance), and (b) early, pretrial dismissal of actions involving such statements.

[17]This number corresponds to an "easier to interpret" annualized volatility estimate of 64.77% ($4.08\sqrt{252}$). In the regression analysis conducted in this study, we use the mean daily volatility estimate directly rather than an annualized number.

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 same six-month estimation period preceding 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 averaged -13.52% for sued firms and 7.27% for non-sued firms, and the difference in means is statistically significant at the 1% level.

6.1.2 Litigation Environment

We include a number of factors that relate to the current litigation environment. These 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 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 less attractive for class-action litigation. Or, even a "reformed firm" hypothesis in which firms that have been previously sued are more likely to institute procedures that are designed to prevent similar problems from occurring.

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 2.19 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 (see footnote 5 for how these variables are constructed) following the approach used by Field, Lowry, and Shu (2004).[18] 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. By contrast, the additional monitoring that accompanies firms subject to regulatory oversight should result in a lower rate of lawsuit filings for regulated firms. We also include a control for technology firms because the greater level of uncertainty about future prospects is likely to result in more lawsuits.

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.

6.1.3 Firm-Specific Factors

There are many firm-specific factors that may affect 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 (e.g., when a firm agrees to a settle a lawsuit rather than go to trial), they are more likely to be sued. This hypothesis

[18]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.

should hold even when firms carry insurance to defray litigation costs, since firm size is likely to be highly correlated with the undisclosed policy limit; the latter is believed by industry experts to be highly correlated with the settlement amount.

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 discretionary accruals from a modified Jones model.[19] Since earnings tend to mean revert, we also include two lags of discretionary accruals. Panel A of Table 5 indicates that mean discretionary accruals are positive, meaning that firms tend to over-report earnings. Panel B of Table 5 indicates that there is no significant difference in discretionary accruals for sued and non-sued firms.[20]

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 0.6870. We expect that firms announcing unexpectedly bad earnings are more likely to be sued. Consistent with this observation, Panel B of Table 5 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.

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

[20]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 (not reported in Table 5) for contemporaneous discretionary accruals and its first and second lags are -0.04 (p-value of 0.0003) and 0.24 (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 discretionary accruals for *sued* firms to be positively correlated at all lags. Partially consistent with this, we find that the correlation (not reported in Table 5) between contemporaneous discretionary accruals and the first and second lag are 0.07 (p-value equal to 0.1348) and 0.31 (p-value equal to 0.0010).

We also include the percentage of total CEO compensation from bonuses to control for the structure of the compensation plan.[21] 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. 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 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. The ownership data is obtained from the Execucomp database. We expect a negative relation between the probability of being sued and share ownership.[22]

[21] The structure of the CEO's compensation contract has been shown to have an important effect on the likelihood of a firm engaging in unusual accounting practices that result in a restatement of financial statements. See Burns and Kedia (2005), and Roell and Peng (2005) for details.

[22] Another reason for the negative relation is that a CEO with a large ownership stake is less likely to risk losing her stake by committing fraud, which in turn should result in a lower probability of being sued.

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 firms may be sued on the same date and, it is, therefore, inappropriate to assume that these events are independent.[23]

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 accompanied by p-values (in place of the 1%, 5% and 10% significance levels reported in Table 6). As we shall see, the model estimates accord well with our predictions.[24]

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 be sued if they have higher share turnover (p-value of 0.0001). Also, firms with relatively high stock returns prior to the lawsuit filing date are less likely to be sued (p-value of 0.0002).

We also find the litigation environment affects the likelihood that a firm is sued. As

[23]To account for overlapping non-sued firms across different filing dates, and for multiple lawsuits filed against the same firm at different times, we also control for within-firm clustering as a robustness check and obtain similar results.

[24]In addition, our econometric model for the propensity to be sued can be easily adapted to examine several related questions, such as whether or not the regulation pertaining to Fair Disclosure (Reg FD) or the Sarbaines Oxley Act affected the lawsuit propensity. Since Reg FD was passed on October 23, 2000, when we augment the full specification in Table 6 with an indicator variable for suits filed after October 23, 2000, we find (not reported in Table 6) that the lawsuit propensity increased in the post Reg FD period as compared to the pre Reg FD period, although statistically significant at the 10% level. Similar result obtains for the Sarbaines Oxley Act which was passed on July 30, 2002, i.e., the lawsuit propensity increased in the post Sarbaines Oxley period as compared to the pre Sarbaines Oxley period, once again statistically significant at the 10% level.

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

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 are more likely to be sued (p-value of 0.0100). 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.[25]

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 presents the results

[25]The literature on conditional event study methods predicts a relation between the stock price reaction and the propensity to be sued. See footnote 1 for details.

of regression analysis for sued firms. Specifically, whether the level of partial anticipation, the filing date effect, and the cumulative own effects are related to the propensity to be sued in the hypothesized manner. Section 7.2 extends this analysis by examining the relation between the fraction of the cumulative own effect that is partially anticipated and the propensity to be sued (i.e., redefines partial anticipation as a fraction).

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 effect, and cumulative own effects (the sum of firm-specific industry spillover and the filing date effect) using explanatory variables that include the propensity to be sued, potential damage factors,[26] litigation environment factors, and firm-specific factors.[27] 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

[26] We use the length of the class period, stock volatility, and share turnover to estimate damages based on models used by class action litigators. It is well-known that these models are significantly biased upward. Conventional wisdom has it that these models are quite useful for demonstrating that traders were damaged, but they are not particularly accurate in assessing the actual settlement amounts. In practice, once both parties agree that a fraud has been committed, settlements are highly correlated with insurance policy limits. We included damage estimates from a proportional trader model (Dyl (1999)) in our cross-sectional regressions of filing date effects and cumulative own effects and do not find significant relations.

[27] See Equations (7), (2), and (6) for the definition of partial anticipation, the filing date effect, and the cumulative own effect respectively.

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 firm-specific industry spillover effect is positively related to the probability of being sued. The coefficient on Lawsuit Propensity (the fitted value from the probit model) is 1.96 (p-value of 0.031).

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 0.005) on a relative basis and less costly to shareholders. One possible explanation for larger firms bearing smaller losses is they are better equipped financially in defending shareholder initiated lawsuits relative to other firms.[28]

Spillover effects are negatively related to the previous lawsuit dummy (p-value of 0.049). 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 (see Table 6) 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 0.030). Table 7 also shows that conservative reporting policies (e.g., firms that use discretionary accruals to lower earnings estimates) and surprisingly good earnings result in larger litigation related losses.

None of the variables that control for managerial compensation incentives are significant determinants of the partial anticipation effect beyond that already reflected in the propensity score.

[28]We exclude certain variables used in the probit model from the list of independent variables for the OLS regression analysis due to multicollinearity, e.g., share turnover, and past stock price performance.

7.1.2 Filing Date Effect

Once a firm is sued, the market reaction is affected by the incremental information contained in the announcement and the extent to which the lawsuit was previously anticipated. Although 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 very little residual uncertainty is resolved on the lawsuit filing date, investors' responses 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 effect is negatively related to the propensity to be sued.*

The Filing Date Effect regressions in Table 7 indicate that, as predicted, the coefficient for Lawsuit Propensity is negative (coefficient estimate = -1.31 and p-value = 0.001). Similar to the partial anticipation results, the filing date effect is negatively (but now insignificantly) related to firm size.

There are several differences in the filing date effect regression compared to the partial anticipation regression. First, the previous lawsuit dummy is now significantly positive (coefficient estimate = 0.58 and p-value 0.002). Since we have previously argued that investors act as if they believe that firms have learned from past mistakes, the positive coefficient suggests that investors revise this earlier assessment when faced with evidence to the contrary. Second, the litigation intensity variable also reflects a partial reversal relative to the amount that is partially anticipated (coefficient estimate = -0.04 and p-value 0.000). Third, the coefficient for the regulation dummy variable is significantly negative, which suggests that the relatively high levels of monitoring faced by these firms tends to result in lawsuits that are not as damaging as those for other firms. Finally, the discretionary accruals and standardized unexpected earnings effect effectively reverse so that the net effect is zero.

7.1.3 Cumulative Own Effect

The cumulative own effects regression considers the determinants of the total economic effects. Some of the explanatory variables are expected to help explain the losses that are capitalized prior to the filing of an actual lawsuit, even though they are not expected to be important determinants of the total economic losses. For example, 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.

Other factors are expected to be significant determinants of the cumulative own effect. For example, given the nature of the negotiations that produce out of court settlements (the typical outcome of a class action lawsuit), the ability to pay is expected to be an important final determinant.

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 0.525).

Comparing these results to those for the partial anticipation 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.

In summary, the evidence based on sued-firms suggests that as hypothesized, the partial anticipation effect is positively related to the propensity to be sued, the filing date effect is negatively related to the propensity to be sued, and the cumulative own effect is unrelated to the propensity to be sued. We next examine in Section 7.2 the robustness of these results when we consider the type of law suit, and when we define partial anticipation as a fraction

of the cumulative own effect.

7.2 Robustness Checks

We examine the robustness of our results from Table 7 in two distinct ways. In Section 7.2.1 we consider the type of law suit in our analysis. That is, rather than examine whether a firm is sued or not, we investigate using a multinomial logit model whether a firm is sued or not, and if so what type of a law suit is filed on the firm. As in Table 7, we analyze whether investor reactions are related to the predicted probability from the multinomial logit model. In Section 7.2.2, we propose a direct test of the Partial Anticipation Hypothesis by asking what fraction of the cumulative own effect is anticipated prior to the lawsuit filing date.

7.2.1 Investor reactions and lawsuit type

We extend the analysis in Section 7.1 by estimating the probability of a particular type of law suit (rather than whether any lawsuit is filed against the firm). Specifically, we tabulate the outcomes sequentially, i.e., not sued = 1, accounting suit = 2, operations suit = 3, analyst conflicts of interest suit = 4, ipo laddering suit = 5, and other suit = 6, and estimate the probability of a given lawsuit type using a multinomial logit model utilizing the full set of regressors in Table 6.[29]

As in Table 7, we regress in Table 8 the partial anticipation, filing date effect, and cumulative own effect on the law suit propensity (now estimated from a multinomial logit model rather than a probit model), other regressors used in Table 7, and on dummy variables for law suit type.[30]

Our results, summarized in Table 8, are qualitatively similar to those in Table 7. In particular, the partial anticipation effect is positively related to the propensity to be sued (p-value of 0.022), the filing date effect is negatively related to the propensity to be sued (p-value of 0.063), and the cumulative own effect is unrelated to the propensity to be sued.

[29]See Greene (2003, pp. 720-723) for more details on the Multinomial Logit Model.

[30]Since the regression is on sued firms, to avoid linear dependence, we drop one of the dummy variables (corresponding to the analyst conflicts of interest) from the set of regressors.

The explanatory power is marginally higher in Table 8 as compared to Table 7. There is also strong evidence that the partial anticipation effects for the accounting, operations, IPO laddering and other suits is larger than that of analyst conflicts of interest once we control for the likelihood of a particular lawsuit.

7.2.2 Capitalized losses (fraction) 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 the size of the economic losses. 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 (Fraction)) *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 9 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 estimates for the propensity score are positive and statistically significant across all three specifications (p-values of 0.000).[31]

Table 9 also includes many 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.

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 lag indicating that investors react more aggressively to firms with a history of earnings management.

Clearly, the partial anticipation result for the sued firms is robust even when we define the partial anticipation as a fraction of the cumulative own effect (rather than as a level). In the next section we analyze whether the partial anticipation result holds for non-sued firms.

[31] We estimate the full 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 legal damages that are partially anticipated by investors is, once again, positive and statistically significant (p-value of 0.0159).

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 (Non-sued firms)) *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 10 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 0.68 (p-value of 0.066).

We find that investor reactions are negatively related to firm size and the use of discretionary accruals. Table 10 also indicates that the magnitude of the spillover effect is industry specific. We next examine the robustness of these results in Section 8.1.

8.1 Robustness Check

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 10 reports a significantly positive relation between losses and the propensity to be sued (p-value of 0.004).

9 Conclusions

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 effects understate the magnitude of shareholder losses. We demonstrate the importance of estimating cumulative own effects by showing that narrowly focusing on filing date regressions can lead to misleading inferences about shareholder wealth losses based on the likelihood of a firm being sued.

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] John Bizjak, and Jeffrey L. Coles, 1995, The Effect of Private Antitrust Litigation on the Stock-Market Valuation of the Firm, *American Economic Review* 85(3), 436-461.

[4] 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.

[5] Burns, Natasha, and Simi Kedia, 2005, The impact of performance-based compensation on misreporting, *Journal of Financial Economics*, Forthcoming.

[6] Brown, Stephen. J., Jerome B. Warner, 1985, Using daily stock returns the case of event studies, *Journal of Financial Economics* 14, 3-31.

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

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

[9] Eckbo, Espen, Vojislav Maksimovic, and Joseph Williams, 1990, Consistent Estimation of Cross-Sectional Models in Event-Studies, *Review of Financial Studies* 3, 343-365.

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

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

[12] Greene, William H., 2003, Econometric Analysis, Fifth ed. Prentice-Hall, New Jersey.

[13] Grundfest, Joseph A., and Michael A. 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.

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

[15] Karpoff, Jonathan M., D. Scott Lee, and Gerald S. Martin, 2005, The cost of cooking the books, University of Washington Working Paper.

[16] 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.

[17] Malatesta, Paul H., and Rex Thompson, 1985. Partially Anticipated Events: A model of stock price reaction with an application to corporate acquisitions, *Journal of Financial Economics* 14, 237-250.

[18] Mikkelson, Wayne H., and M. Megan Partch, 1986. Valuation effects of security offerings and the issuance process, *Journal of Financial Economics* 15, 31-60.

[19] Prabhala, Nagpurnanand R., 1997, Conditional Methods in Event Studies and an Equilibrium Justification for Standard Event-Study Procedures, *Review of Financial Studies* 10(1), 1-38.

[20] Roell, Ailsa, and Lin Peng, 2005. Executive Pay, Earnings Manipulation and Shareholder Litigation, City University of New York Working Paper.

[21] Schipper, Katherine, and Rex Thompson, 1983. Evidence on the Capitalized Value of Merger Activity for Acquiring Firms, *Journal of Financial Economics* 11, 85-119.

[22] 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	Accounting	Operations	Analyst Conflict of Interest	IPO Laddering	Other	Total
1996	2	3	0	0	18	23
1997	8	5	0	0	37	50
1998	9	8	0	0	45	62
1999	11	10	0	0	57	78
2000	12	11	0	1	43	67
2001	13	10	3	27	42	95
2002	41	9	37	0	44	131
2003	22	15	16	0	46	99
Total	118	71	56	28	332	605

* Firms are classified as Financial Institutions if they have SIC codes between 6000 and 6999. Regulated Firms have SIC codes between 4000 and 4999. 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.

† Lawsuits are uniquely classified into one of the lawsuit types. For example, accounting suits, such as those based on to improper recognition of revenue, and operations suits such as those based on production problems. Lawsuits involving a financial intermediary's questionable practices, such as Analyst Conflicts of Interest and IPO Laddering are classified separately.

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 mkt. value ($ mil.)			
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	-1,082.66	-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 mkt. value ($ mil.)			
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 mkt. value ($ mil.)			
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	-1,253.12	-4.55	63.23	601
$[-1, +1]$	-7.28	-7.53	-477.75	-2.79	60.07	601
$[-10, +1]$	-20.06	-10.33	-1,730.87	-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	Standard Deviation	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	Δ Means p-value
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		-1.67 ^{a}	-1.47 ^{a}	-2.11 ^{a}	-2.19 ^{a}	
Share turnover	+	0.31 ^{a}			0.50 ^{a}	0.048 ^{a}
Volatility	+	-1.55			-1.54	-0.056 ^{a}
Est. period stock return	-	-0.42 ^{a}			-0.27 ^{b}	-0.023 ^{a}
Previous lawsuit dummy	+		1.49		1.48 ^{a}	0.366 ^{a}
Litigation intensity	+		-0.10 ^{a}		-0.10 ^{a}	-0.013 ^{a}
Regulation dummy	-		-0.11 ^{a}		-0.23 ^{b}	-0.021 ^{a}
Financial dummy	+		-0.02 ^{c}		0.31 ^{a}	0.036 ^{a}
Technology dummy	+		-0.12		-0.24 ^{a}	-0.022 ^{a}
Retail dummy	+/-		0.59 ^{b}		0.52 ^{a}	0.079 ^{a}
Log of mkt. cap.	+			0.09 ^{a}	0.08 ^{a}	0.003 ^{a}
Return on assets	-			-0.16 ^{a}	-0.15 ^{b}	-0.013 ^{b}
Discretionary accruals (DA)	+			0.01	0.04 ^{b}	0.004 ^{b}
DA Lag 1	-			0.00	0.01	0.001
DA Lag 2	+			0.00	0.00	0.000
Std. unexpected earnings (SUE)	-			-0.04 ^{a}	-0.04 ^{a}	-0.004 ^{a}
Prop.bonus comp.	-			-0.31 ^{a}	-0.52 ^{a}	-0.049 ^{a}
Bonus x Neg. ROA dummy	+			0.41 ^{b}	0.45 ^{b}	0.059 ^{c}
Share ownership	-			-0.67	-0.53	-0.037
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	
Observations		9,634	9,640	6,068	6,067	

Table 7: Investor reaction regressions to the filing of 377 class action lawsuits. We estimate weighted cross-sectional regressions where the dependent variables are firm-specific industry spillover, the filing date effect, and the cumulative own effect over the event window $[-10, +1]$. Lawsuit Propensity is based on probit estimation of the full model in Table 6. 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	0.25	0.018	0.31	0.001	0.55	0.000
Lawsuit Propensity	1.96	0.031	-1.31	0.001	0.66	0.525
Log of mkt. cap.	-0.05	0.005	0.00	0.967	-0.05	0.038
Previous lawsuit dummy	-0.79	0.049	0.58	0.002	-0.22	0.630
Litigation intensity	0.06	0.030	-0.04	0.000	0.02	0.430
Regulation dummy	0.01	0.879	-0.22	0.005	-0.22	0.035
Financial dummy	-0.17	0.164	0.02	0.759	-0.16	0.295
Technology dummy	-0.00	0.948	-0.12	0.019	-0.13	0.086
Retail dummy	-0.30	0.019	0.08	0.272	-0.23	0.114
Discretionary accruals (DA)	-0.03	0.047	0.02	0.059	-0.01	0.758
DA Lag 1	0.00	0.796	0.01	0.301	0.01	0.323
Std. unexpected earn. (SUE)	0.02	0.121	-0.02	0.014	-0.00	0.941
SUE Lag 1	0.01	0.258	0.02	0.003	0.03	0.011
Prop.bonus comp.	0.14	0.283	-0.15	0.134	-0.02	0.899
Bonus x Neg. ROA dummy	-0.04	0.787	0.06	0.537	0.03	0.863
Share ownership	-0.13	0.712	-0.34	0.219	-0.36	0.455
Adjusted R-square	0.0912		0.1054		0.0623	

Table 8: Investor reaction regressions to the filing of 377 class action lawsuits. We estimate weighted cross-sectional regressions where the dependent variables are firm-specific industry spillover, the filing date effect, and the cumulative own effect over the event window $[-10, +1]$. Lawsuit Propensity is estimated using a multinomial logit model that considers the type of lawsuit (not sued = 1, accounting = 2, operations = 3, analyst conflicts of interest = 4, ipo laddering = 5, and other = 6) and includes the full set of regressors as in Table 6. 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	-0.33	0.257	0.39	0.013	0.04	0.913
Lawsuit Propensity	0.97	0.022	-0.41	0.063	0.55	0.260
Accounting dummy	0.57	0.048	-0.17	0.201	0.40	0.220
Operations dummy	0.68	0.023	-0.17	0.212	0.51	0.119
IPO Laddering dummy	1.02	0.012	-0.28	0.070	0.73	0.056
Other dummy	0.57	0.036	-0.11	0.336	0.46	0.120
Previous lawsuit dummy	-0.11	0.210	0.09	0.213	-0.02	0.871
Litigation intensity	0.03	0.051	-0.01	0.064	0.02	0.178
Regulation dummy	-0.03	0.606	-0.18	0.022	-0.21	0.032
Financial dummy	-0.07	0.534	-0.04	0.501	-0.11	0.426
Technology dummy	-0.09	0.157	-0.07	0.146	-0.16	0.031
Retail dummy	-0.09	0.119	-0.04	0.493	-0.15	0.107
Log of mkt. cap.	-0.03	0.034	-0.01	0.355	-0.04	0.042
Discretionary accruals (DA)	-0.01	0.143	0.01	0.245	0.00	0.968
DA Lag 1	0.00	0.589	0.01	0.415	0.01	0.280
Std. unexpected earn. (SUE)	0.01	0.355	-0.01	0.109	0.00	0.732
SUE Lag 1	0.01	0.368	0.02	0.003	0.03	0.011
Prop. bonus comp.	0.03	0.738	-0.02	0.853	0.00	1.000
Bonus x Neg. ROA dummy	0.02	0.857	-0.05	0.622	-0.01	0.958
Share ownership	-0.51	0.154	-0.23	0.442	-0.57	0.222
Adjusted R-square	0.1250		0.0725		0.0810	

Table 9: Logistic regression of the fraction of the cumulative own effect that is partially anticipated prior to the lawsuit filing date. Lawsuit Propensity is based on probit estimation of the full model in Table 6. 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	1.15	0.000	1.46	0.000	1.72	0.000
Lawsuit Propensity	2.04	0.000	3.59	0.000	3.16	0.000
Share turnover	-0.01	0.972	-0.31	0.140	-0.19	0.397
Volatility	-12.99	0.000	-13.29	0.000	-13.11	0.000
Est. period stock return	-0.04	0.443	-0.05	0.400	-0.05	0.427
Previous lawsuit dummy			-0.86	0.000	-0.57	0.004
Regulation dummy			-0.78	0.000	-0.80	0.000
Financial dummy			-0.10	0.466	0.32	0.040
Technology dummy			-0.30	0.002	-0.14	0.176
Retail dummy			0.90	0.003	0.91	0.004
Log of mkt. cap.					-0.12	0.000
Return on assets					0.04	0.576
Discretionary accruals (DA)					0.19	0.000
DA Lag 1					0.18	0.000
DA Lag 2					0.04	0.074
Std. unexpected earnings (SUE)					-0.05	0.000
Prop.bonus comp.					0.41	0.026
Bonus x Neg. ROA dummy					-0.85	0.000
Share ownership					-0.37	0.628
Percentage concordant	62.2		68.4		69.9	
$-2\times$log-likelihood	4,453.4		4,281.7		4,204.1	
Psuedo R-square	0.0278		0.0653		0.0822	
Observations	377		377		377	

Table 10: Spillover regression for 5,670 non-sued firms. Coefficient estimates, standard errors and p-values are reported. Lawsuit Propensity is based on probit estimation of the full model in Table 6. The standard errors and p-values associated with the ordinary least squares estimates are adjusted for heteroscedasticity. 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	0.45	0.05	0.000	-0.14	0.14	0.334
Lawsuit Propensity	0.68	0.37	0.066	2.66	0.93	0.004
Log of mkt. cap.	-0.06	0.01	0.000	-0.00	0.02	0.821
Previous lawsuit dummy	-0.17	0.11	0.137	0.26	0.30	0.386
Litigation intensity	-0.00	0.00	0.710	-0.02	0.01	0.162
Regulation dummy	0.09	0.02	0.000	-0.03	0.09	0.727
Financial dummy	-0.09	0.03	0.001	0.17	0.11	0.127
Technology dummy	0.05	0.02	0.001	-0.06	0.07	0.430
Retail dummy	-0.07	0.04	0.069	1.31	0.34	0.000
Discretionary accruals (DA)	-0.03	0.01	0.000	0.04	0.02	0.091
DA Lag 1	-0.00	0.00	0.603	0.06	0.02	0.002
Std. unexpected earnings (SUE)	0.01	0.00	0.154	-0.01	0.01	0.450
SUE Lag 1	0.00	0.00	0.221	-0.00	0.01	0.990
Prop.bonus comp.	0.15	0.04	0.000	-0.26	0.13	0.054
Bonus x Neg. ROA dummy	0.26	0.07	0.000	-0.02	0.19	0.906
Share ownership	-0.50	0.14	0.000	3.16	0.56	0.000
Adjusted R-square		0.0563				
Psuedo R-square					0.0227	

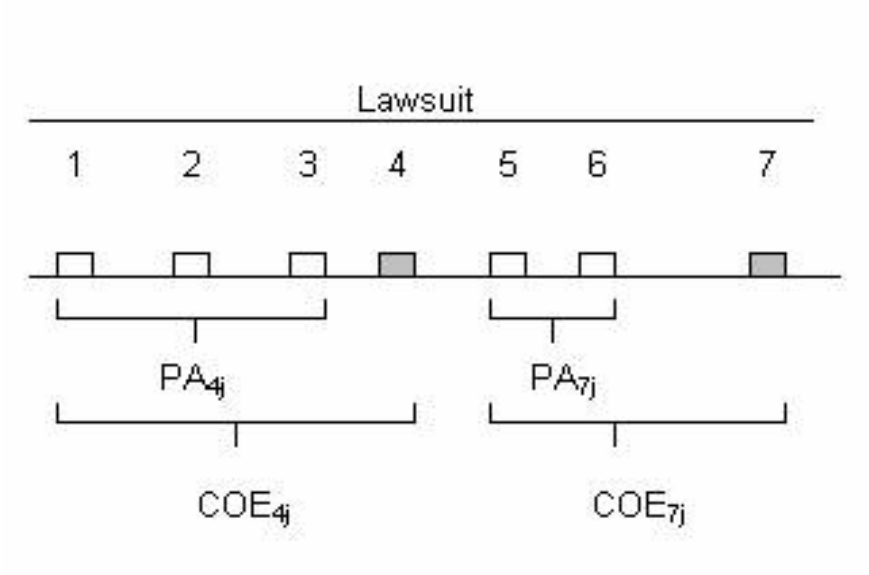

Figure 1: Cumulative Own Effect. This figure illustrates how the cumulative own effect calculation reflects industry spillover and own effects.