Do Underwriters Have an Information Advantage? Evidence from Institutional Investor Holdings around IPO-Related Securities Class Action Announcements

Abstract

We examine whether institutional investors, and specifically underwriters, have an information advantage over other market participants in new public companies. We focus our attention on a sample of publicly traded firms that have become the target of an IPO-related securities class action lawsuit filed under Section 11 of the 1933 Securities Act between January 1991 and December 2006 and a matched sample of similar non-sued firms. By comparing aggregate institutional holding changes in sued and non-sued firms as well as holding revisions by different types of institutions that are classified based on their involvement in the IPO process, we find evidence suggesting that institutions are able to identify eventual litigation targets and, moreover, that lead underwriters are more proactive in their trading decisions than unaffiliated institutional investors. We conclude that lead underwriters retain an information advantage in the firms they take public and that they capitalize on this information by closing out or reducing their holdings in sued firms prior to the eventual litigation date. Furthermore, our results indicate that informed pre-litigation selling is accompanied by an increased divergence of analyst opinions about sued firms. Analysts affiliated with lead underwriters are somewhat reluctant to reduce their earnings forecasts or downgrade sued firms – a pattern that is inconsistent with their otherwise aggressive trading behavior.

JEL Classification: G11, G12, G14, G18, K22

Keywords: Institutional Ownership; Analyst Recommendations; Securities Litigation; Initial Public Offerings

1. Introduction

Institutional investors play an increasingly important role in all areas of the financial markets. Today, institutions have discretionary control over approximately half of all U.S. equities, which is about twice the proportion of shares owned by institutions three decades ago. Professional money managers have long been considered as being more sophisticated than individuals. Most of the recent academic literature supports this "smart money" view of the industry. For example, there is abundant evidence of the positive correlation between changes in institutional ownership and returns in secondary markets (e.g., Grinblatt, Titman, and Wermers, 1995; Nofsinger and Sias, 1999; Barabanov and McNamara, 2004; Sias, Starks, and Titman, 2006). Unlike for seasoned firms, there are few studies that examine institutional ownership trends for new public companies. Perhaps most important for our study are the results of Field and Lowry (2004) who show that – similar to the patterns observed for seasoned securities – institutional ownership is positively related to long-term returns in new public companies even though most of the institutions (77.2%) divest their positions within the first two years after an initial public offering (IPO). The relationship is attributed to the institutional ability to identify and avoid poorly performing stocks. We are not able to identify any studies that compare the performance of lead underwriters and non-lead members of the underwriting syndicate with other institutions in the post-IPO period. Our study attempts to fill this gap.

One implication of the "smart money" theory is that professional money managers are more sophisticated than individuals and are therefore more successful at avoiding poorly performing firms or at selecting winning stocks than the average individual investor. At the same time, if underwriters rely on the same information and employ the same analytical methods as other institutions we would not expect them to be more successful than unaffiliated

institutions in the post-IPO market. However, unlike unaffiliated institutions, underwriters are often personally familiar with the managers of the firms they take public and are more likely to be aware of material developments within IPO firms at the time of the IPO and thereafter. Moreover, they should be in a good position to judge management's abilities and ethical standards because they have personally dealt with the firm's managers over an extended period of time. This implies that even if all material information is properly disclosed in a firm's IPO prospectus, underwriters remain better positioned to understand the company's business and to correctly interpret management's ability to react to any post-IPO developments that may affect the firm. Furthermore, it is likely that during their roadshow underwriters will gain valuable insights into the concerns that other institutions have about the issuing firm and its industry, which, once aggregated, will provide them with a clearer overall picture about the investing industry's opinion about the firm. Moreover, even if underwriters rely on the same information set as other institutions, they are still likely to spend more resources than unaffiliated institutions on additional sector research while managing this and/or subsequent equity offerings.[1] Finally, because underwriters are frequently named as co-defendants in IPO-related lawsuits (c.f., Chaghouri and Walker, 2005), they are likely to be more familiar with the litigation environment and thus better able to identify and react to potential warning signs that may precede a lawsuit than non-underwriting institutions that have never been sued in similar lawsuits. Consequently, underwriting firms may be able to better understand company prospects at the time of the IPO, better interpret firm- and industry-specific developments that affect the company after its IPO,

[1] An underwriter who manages a secondary offering as well as an IPO of the same firm is likely to get an even better insight into firm's business. However, sued firms appear less likely to seek additional capital. In our sample of 96 sued firms we were able to identify only four firms that had a secondary equity offering between the time of their IPO and up to two quarters after the litigation announcement. The comparable figure for non-sued firms is twenty-one. Moreover, comparatively few sued firms access the capital markets for debt financing (for a comprehensive overview of financing activities see our analysis in Table 2).

and further enhance their information advantage by collecting and analyzing information about similar firms and sectors by underwriting IPOs or secondary offerings for other firms in the same industry. We hypothesize that these factors allow underwriters to not only enter the IPO aftermarket with a static information advantage that allows them to identify 'at risk' companies early on but that they also dynamically enhance their information advantage over time.

The primary goal of this study is to examine whether underwriters retain an information advantage in firms they take public and whether they capitalize on their superior knowledge better than other institutions. We distinguish between money managers affiliated with lead underwriters, managers affiliated with other members of the underwriting syndicate, and unaffiliated institutional investors and examine their relative abilities to anticipate negative developments in new public companies at an early stage and whether and to what extent they decrease positions in such firms over time. To answer these questions we investigate initial levels as well as changes in lead underwriter, syndicate member and unaffiliated institutional ownership around IPO-related lawsuits. We choose litigation announcements because we hypothesize that they are not entirely unexpected for the firm itself and those parties that closely monitor the firm.

We find support for prior anecdotal evidence about net institutional selling in recent IPOs as first empirically documented by Field and Lowry (2004). Furthermore, our findings reveal that institutional owners sell their positions sooner and to a greater extent in those IPOs that are subject to subsequent class action litigation than in non-sued IPOs. Most importantly, we document that lead underwriters are even more proactive than unaffiliated institutions in selling shares of IPO firms which are later sued. Non-lead members of the syndicate do not exhibit any significant abilities in identifying potential litigation targets and in avoiding ownership in these

firms. Unlike those institutions which were not part of the underwriting syndicate, underwriters appear to capitalize on their information advantage at least one more time when they start acquiring back positions in recent IPOs shortly after the litigation is announced. All of our findings are consistent with institutions in general and underwriters in particular being well-informed investors, who are actively trading on their information advantage.

Furthermore, we investigate whether there is a possible build-up in information asymmetry among analysts who cover eventual litigation targets. Specifically, we examine the possible divergence of analyst earnings forecasts and recommendations around IPO-related litigation announcements. Irrespective of the proxy we employ, we document an increased divergence of analyst opinions during a period of several quarters prior to a lawsuit. As such, our results suggest a strong link between informed institutional trading, increased levels of information asymmetry and shareholder litigation in recent IPOs. Moreover, our results add to earlier findings by Li, McInish, and Wongchoti (2005) who document a pattern of increasing information asymmetries among recent IPOs. Specifically, given the magnitude and significance of the observed divergence of opinions for sued firms, litigation and the frequently associated firm failure (see Chaghouri and Walker, 2005) may be a primary driver behind the post-IPO analyst jitters documented by Li, McInish, and Wongchoti.

Finally, we explore whether an institution's trading decisions conform to the earnings forecasts and recommendations provided by its analysts. While most institutions show a tendency to make large downward revisions in their earnings forecasts and recommendations prior to a lawsuit, we find evidence that suggests that lead underwriter-affiliated analysts make considerably smaller such revisions for sued firms prior to the litigation date, even though underwriter trading departments and underwriter-affiliated money managers significantly reduce

their positions during that time. For uninformed investors who blindly incorporate these observable trends in forecasts and recommendations into their trading decisions, this finding is somewhat disconcerting as it suggests a discrepancy between what underwriters say and do, that is, an inconsistency in the behavior of their in-house analysts and trading departments. The trading patterns of non-lead members of the underwriting syndicate and other (unaffiliated) institutions are generally more in line with the earnings forecasts and recommendations provided by their analysts.

The remainder of this paper is organized as follows. In the next section, we describe the data collection process, discuss our variable selection, and provide basic descriptive statistics. Our matching procedure is described in Section 3. In Section 4, we present the results of a univariate analysis of changes in institutional ownership around class action litigation announcements while Section 5 analyzes trends in analyst recommendations and forecasts. In Section 6, we discuss the results for a series of multivariate regressions in which we model ownership changes by different types of institutions as a function of various explanatory factors. Section 7 provides results for a series of robustness checks. In the last section, we present conclusions and discuss possible regulatory policy implications of our findings.

2. Data

Our data set includes information on IPOs, securities class action lawsuits, institutional ownership, analyst recommendations and earnings forecasts, and secondary market returns.

2.1. Initial Public Offerings

Our IPO sample is based on information provided by the SDC Platinum New Issues database and considers IPOs filed between January 1990 and December 2003. We exclude

ADRs, reverse LBOs, spinoffs, IPOs by financial firms, limited partnerships, real estate investment trusts (REITs), closed-end funds, unit offerings, and issues with offering prices below $5 from our IPO sample. For each IPO, we use the SDC database to identify the lead and co-lead underwriter(s)[2] as well as the remaining members of the underwriting syndicate. Daily adjusted prices and returns as well as market capitalization data are obtained from the Center for Research in Securities Prices (CRSP). Firms that we can not identify on CRSP or for which CRSP data is incomplete or missing are excluded from our analysis. As a further restriction, we only consider NASDAQ-listed firms in our study. Because over 92 percent of all IPOs during our sample period started trading on the NASDAQ, this restriction is less stringent than it may initially appear and allows us to avoid any possible intermarket differences spanning from listing requirements to trade execution and processing.[3] The resulting data set includes information on 4,283 IPOs.

2.2. Securities Class Action Lawsuits

We match our IPO sample with a litigation data set based on information provided by Stanford's Securities Class Action Clearinghouse (http://securities.stanford.edu), the Securities Class Action Alert, a monthly newsletter published by the Securities Class Action Services Division of Institutional Shareholder Services (ISS), and the Department of Justice Public Access to Court Electronic Records (PACER) database. Consistent with Lowry and Shu (2002) and Turtle and Walker (2006) we limit our sample by only considering lawsuits filed under Section 11 of the 1933 Securities Act within three years of an IPO. In addition, to avoid a

[2] For expositional convenience, we will hereafter refer to a single lead underwriter even if co-lead underwriters exist. In cases in which there is more than one lead underwriter, any subsequent calculations are based on an average of the lead underwriters.

[3] To ensure that our results are not exchange-specific, we perform a robustness test in which we include IPOs from all exchanges. Our results are qualitatively and quantitatively similar for this extended sample.

contamination of our findings by post-IPO price support activities (see, e.g., Aggarwal, 2000; Fishe, 2002) or insider sales restrictions, we exclude IPOs which were sued during the initial six-month lockup period. This restriction, together with the requirement that we must have at least two quarters after the lockup period but before the litigation date during which we can measure institutional ownership changes, effectively restricts our litigation data set to lawsuits that were filed between one year and three years after an IPO. Our litigation data set thus covers the period from January 1991 to December 2006. During that period, we identify 488 lawsuits that were filed against issuers in connection with their IPO. This number includes 297 "laddering" cases that were brought against IPO underwriters by the Securities and Exchange Commission (SEC). Due to their inherently different nature, we exclude all laddering cases from our sample.[4] The remaining sample thus consists of 191 firms which went public between 1990 and 2003 and were sued in connection with misrepresentations or omissions of material information from their IPO prospectuses between 1991 and 2006. Out of these, 125 firms were sued between one and three years after their IPO.

2.3. Institutional Ownership Data

Information on institutional ownership is obtained from the CDA Spectrum database, which contains detailed information on institutional 13F filings with the SEC and is currently maintained by Thomson Financial (previously CDA Investment Technologies), a part of Thomson Corporation. The database provides consolidated stock holdings for all institutional

[4] In these lawsuits, plaintiffs contend that the underwriters engaged in illegal tactics by soliciting and receiving kickbacks in exchange for allocations of portions of a company's IPO, required tie-in purchases creating an artificial demand for the stock, and artificially inflated the price of the stock through "laddering" (requiring purchases of additional stock in the aftermarket at escalating prices). Issuing firms are only named as codefendants in each of the 297 laddering cases, while underwriters are named as lead defendants. These complaints generally do not allege that an issuer engaged in any wrongdoing and are therefore distinguishable from the large majority of lawsuits otherwise represented in our data set.

managers filing 13F reports with the SEC.[5] Our data set includes 66 quarters of recorded ownership data starting with September 1990 and ending in December 2006.[6] We calculate the proportion of shares outstanding held by all institutional owners as:

$$\% \text{ Institutional Ownership} = \sum_{i=1}^{N} s_i / S \quad (1)$$

where N is the number of institutional managers reporting their positions on form 13F, s_i is the number of shares owned by institutional manager i, and S is the total number of shares outstanding. We also identify money managers associated with investment banking firms.[7] We then calculate the fraction of the shares outstanding owned by each lead underwriter and all affiliated money managers as well as the proportion of shares outstanding that is owned by other members of the underwriting syndicate and their affiliated institutions. The remainder of all institutional holdings is then attributed to other (unaffiliated) institutions.

In order to include positions held by all reporting branches, divisions, or sister firms affiliated with the lead underwriter or a syndicate member we manually identify all related institutional entities which file quarterly 13F forms. In calculating positions held by an underwriter we aggregate holdings reported by all related money managers. For example, an underwriter may be affiliated with independent investment advisors, mutual funds, banks or managing trusts that are registered in different states and file separate 13F forms with the SEC.

We also account for mergers when determining affiliations. For instance, if an investment bank that was the lead underwriter for an IPO merged with another bank and if a

[5] Note that the total proportion of institutional holdings may be slightly greater than the reported number, because only those institutions with holdings greater than $200,000 or 10,000 shares of stock are required to report their positions on the 13F form. Most institutions, however, report all of their positions.

[6] The September 1990 starting date is again related to the requirement that we do not consider any IPO-related lawsuits filed during the initial six month (two quarter) lockup period.

[7] Please note that the underwriter lockup period typically does not apply to affiliated money managers.

reporting money manager who is affiliated with either one of the banks reported holdings within a year of the IPO, that manager is considered an affiliated institutional investor.

We do not treat co-managers as lead underwriters because these underwriters are not book-runners, leaving the lead manager (and, in some cases, the co-lead manager) to allocate the vast majority of shares (see Chen and Ritter, 2000; Cliff and Denis, 2004). We further follow Cliff and Denis and identify IPOs that have joint lead managers or that have more than one underwriter that help manage the book (i.e. issues with SDC codes BM, JB, or LM). For these IPOs, we treat all lead managers as one. For instance, Credit Suisse First Boston (CSFB) acquired Donaldson Lufkin & Jenrette (DLJ) in 2000. If DLJ served as the lead underwriter in a 1999 IPO, any holdings reported in 2000 by a CSFB-affiliated money manager would be classified as lead underwriter holdings.

As a final step in our sample construction process, we identify for each IPO whether the lead underwriter, members of the underwriting syndicate, and/or institutional money managers associated with these institutions report holdings to the SEC on Form 13F. IPOs with no reported holdings by underwriters are excluded from our analysis (c.f., Binay, Gatchev, and Pirinsky, 2006). This reduces our final sample to 96 issuing firms that were sued in IPO-related securities class action lawsuits within one and three years after their issue date and had at least one underwriter that reported holdings in the firm.

Table 1 provides an overview of our IPO and litigation sample and outlines our sample construction process. In Panel A, we provide aggregate statistics for our entire sample period. Panel B provides a breakdown by year.

*** Insert Table 1 about here ***

2.4. Analyst Recommendations and Earnings Forecasts

When evaluating trends in analyst opinions and their divergence, we use information on analyst recommendations and earnings forecasts that we obtained from Thomson's I/B/E/S-Firstcall database. For each firm in our IPO sample, we calculate the mean and median analyst recommendation and earnings forecast as well as the standard deviation (dispersion) of those two measures. We consider analyst earnings forecasts for two quarters into the future.[8,9]

To distinguish between different types of analysts, we follow our earlier classification scheme and separate analysts into three groups: (1) those affiliated with the lead or co-lead underwriter for the IPO, (2) those affiliated with non-lead members of the underwriting syndicate, and (3) all other analysts. As such, our approach is consistent with prior studies about IPO-related analyst recommendations such as Cliff and Denis (2004) and James and Karceski (2006). Specifically, we use the I/B/E/S broker identification file to determine to what extent an issuer was covered by analysts that are affiliated with an institution in each of our three institutional categories. Just as with ownership data, we research all firms that are related to lead underwriters and to non-lead members of an underwriting syndicate. All remaining analyst data

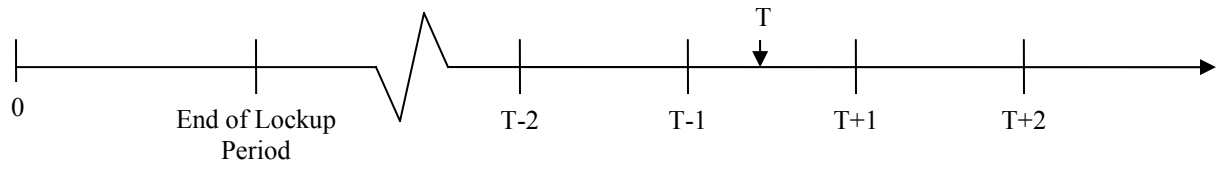
[8] Our results are quantitatively and qualitatively similar when we consider earnings forecasts for the quarter immediately following the lawsuit or when we consider forecasts for three or four quarters ahead. We choose earnings forecasts for two quarters into the future as the underlying data is richer than for long-term forecasts, thus providing us with the highest number of data points (comparatively fewer analysts issue long-term forecasts for recent IPOs).

[9] Our sample period largely precedes the reforms made by the Sarbanes-Oxley Act, signed into law by President Bush on July 30, 2002. The Sarbanes-Oxley Act has altered the relationship between analysts, underwriters and the IPOs they take public. While it would be interesting to examine the impact of Sarbanes-Oxley on our findings, there are too few IPO-related lawsuits after this reform to draw any reliable conclusions on how it affected information asymmetries for sued IPO firms. Furthermore, Sarbanes-Oxley is not likely to affect the answer to our main question, i.e. whether underwriters possess and act upon their information advantage over non-underwriting institutional investors.

is assigned to unaffiliated institutions. Again, we account for mergers when determining affiliations.[10]

2.5. Time Period Conventions

To ensure a convenient interpretability of our results, we define each variable used in our subsequent analysis relative to the date on which a firm is sued. Specifically, to compare institutional holdings changes (which can only be observed from quarter to quarter) with analyst recommendations and earnings forecasts (which can change on a daily basis) and other variables of interest, we aggregate most of our non-quarterly data by quarter. Each quarter is then labeled relative to the quarter during which the litigation announcement occurred. The following timeline illustrates our approach.[11]



We consider firms that went public at time 0 and were sued at time T. As noted before, we require that the common stock of the firm has been trading for at least a year between those two dates. This accounts for the typical six month lockup period and allows us to measure changes in institutional ownership between at least two consecutive quarters prior to the lawsuit announcement, that is, between time *T-2* and *T-1*.[12] We also study the reaction of institutions to

[10] Similar to Cliff and Denis (2004), we identify analyst coverage for about 93 percent of our sample on I/B/E/S (89 out of 96 IPOs). The remaining firms are excluded from our analyst-related calculations. Moreover, if a firm is only covered by one analyst during a given quarter, we ignore it when calculating the dispersion of analyst earnings forecasts and recommendations. The firm remains in our sample, however, when we examine mean and median earnings forecasts and recommendation levels as well as the changes in those levels.

[11] Note that IPOs and lawsuit announcements can occur at any point in time during a quarter. Our timeline attempts to demonstrate this fact.

[12] For firms that are sued more than fifteen (eighteen) months after their IPO we also examine institutional holdings three (four) quarters prior to the lawsuit announcement.

lawsuits both during and after the litigation quarter, i.e. we measure changes in institutional ownership between time *T-1* and *T+1* and for three quarters afterwards.[13]

3. Matching Procedure

Underwriters may reduce their holdings in IPO firms after the lockup period irrespective of whether they perceive the firm to be a litigation target or not. In order to control for this possibility, we perform a matched firm analysis in which we compare changes in institutional ownership for our sample of sued IPO firms with a matched sample of non-sued IPO firms. To be included as a non-sued match, the matched firm must have had its IPO within +/- six months of the sued firm, must not have been involved in any securities litigation during our sample period, must belong to the same industry[14], and must be similar to the sued firm with respect to size and return momentum, as measured by total return over a period from four quarters to one quarter prior to the lawsuit (from *T-4* to *T-1*). Specifically, we follow the approach by Sibley and Burch (1979) and Antunovich and Sarkar (2006) and select a control firm for every event firm in our sample by minimizing the global distance between the two firms as follows:

$$d_i = \sqrt{\frac{(Size_{T-4,i} - Size_{T-4,c})^2}{\sigma^2_{Size,T-4}} + \frac{(Ret_{T-4,T-1,i} - Ret_{T-4,T-1,c})^2}{\sigma^2_{Ret,T-4,T-1}}} \qquad (2)$$

where d_i is the Euclidean distance between the event firm i and control firm c. $Size_{T-4,i}$ and $Size_{T-4,c}$ are the market capitalizations of firm i and control firm c at time *T-4*, and $Ret_{T-4,T-1,i}$ and $Ret_{T-4,T-1,c}$ are the returns for the two firms, calculated over the three-quarter time period between time

[13] Note that institutional holdings changes during the litigation quarter (between *T-1* and *T+1*) should be interpreted with caution as they reflect trades that occurred both before and after the lawsuit announcement (time *T*). We will address this issue in more detail in our robustness section below.

[14] To examine industry effects, we adapt the breakdown of Loughran and Ritter (2004) and Cliff and Denis (2004) and categorize firms as technology (tech) firms and non-tech firms. Tech firms are those with the following SIC codes: 2833, 2834, 2835, 2836, 3571, 3572, 3575, 3577, 3578, 3661, 3663, 3669, 3674, 3812, 3823, 3825, 3826, 3827, 3829, 3841, 3845, 4812, 4813, 4899, 7370, 7371, 7372, 7373, 7374, 7375, 7377, 7378, 7379.

T-4 and time *T-1*. Finally, $\sigma^2_{Size,T-4}$ and $\sigma^2_{Ret,T-4,T-1}$ are the cross-sectional variances of the average market values and returns, respectively.

Matching by industry controls for variations in litigation risk and institutional holdings across industrial sectors as documented, for example, by Bajaj, Mazumdar, and Sarin (2000), Lowry and Shu (2002), and Li and Masulis (2005). Matching by size controls for earlier findings by Alexander (1991) and Turtle and Walker (2006) that suggest that plaintiffs and their law firms preferentially target so-called "deep pocket" defendants, that is, large firms that are likely to settle for larger amounts.[15] In addition, size-matching controls for the institutional propensity to invest in higher capitalization stocks (see, e.g., Gompers and Metrick, 2001; Bennett, Sias, and Starks, 2003). Finally, by matching by pre-litigation return momentum, we can distinguish between reductions in institutional ownership due to perceived litigation risk and institutional exit from poorly performing IPOs. Moreover, it allows us to control for the possibility that disgruntled shareholders and attorneys may resort to opportunistic class-action litigation against recent IPOs experiencing poor returns on their stocks. Thus, every sample firm has the same calendar time period as its matching sued firm, operates in a similar industry, and has a similar size and return momentum in the pre-litigation period.[16]

---

[15] Note that securities class actions are very rarely decided in court. Lawsuits that pass the defendants' motions to dismiss are almost all eventually settled.

[16] In order to ensure that we can identify a matching non-sued firm for each of our sample firms, we purposefully choose a matching procedure that is not overly restrictive. Stricter matching criteria generally result in some firms having no suitable match. Nonetheless, our general findings regarding institutional changes in ownership around class action announcements, and how these changes differ among our three institutional groups, are highly robust to virtually any reasonable matching procedure considered. For instance, we also considered industry matches based on two-digit SIC codes and on the industry classification by Breeden, Gibbons, and Litzenberger (1989) who identify twelve major industrial sectors of SIC codes that are selected to maximize the correlation of returns for firms in each sector. Moreover, we substituted our simultaneous size and return momentum matching approach with stricter routines in which we first match on size (considering various size brackets) and then on the closest return momentum and vice versa. Furthermore, we also considered simplified matches based on time, industry, and only one of size or momentum for the final matching variable. Finally, we matched on short-term return momentum (employing returns from *T-2* to *T-1* instead of returns from *T-4* to *T-1*).

In Table 2, we present comparative statistics for sued and matched non-sued firms. We employ a series of variables that have been shown to be related to litigation risk (see, e.g., O'Brien and Bhushan, 1990; Jones and Weingram, 1996; Johnson, Kasznik, and Nelson, 2001; Barabanov, Ozocak, Turtle, and Walker, 2007) and to institutional trading behavior (see, e.g., Grinblatt, Titman, and Wermers, 1995; Gompers and Metrick, 2001; Bennett, Sias, and Starks, 2003).

*** Insert Table 2 about here ***

In Panel A, we describe our sued and non-sued subsamples based on a series of firm characteristics and performance measures. Similar to Barabanov, Ozocak, Turtle, and Walker (2007), we decompose the return between *T-4* and *T-1* (that was used as part of our matching routine) into a long- and short-term performance component, namely $Ret_{T-4,T-2}$ (which measures the return between *T-4* and *T-2*), and $Ret_{T-2,T-1}$ (which measures the return during the pre-litigation quarter, that is, from *T-2* to *T-1*). As promoted by the design of our matching routine, sued and matched non-sued firms are very close in both average and median market capitalization and in momentum returns measured from *T-4* to *T-2*. When examining short-term momentum, however, we observe that sued firms experience an accelerated decline in prices during the quarter immediately preceding litigation. The difference between the mean (median) return of -12.8% (-12.51%) for sued firms and -7.88% (-6.64%) for the matched non-sued sample during the period *T-2* to *T-1* is significant at the 10% (5%) level. In addition, we observe that in the three quarters leading up to the litigation date, sued firms experience a significantly higher pre-litigation share turnover and a higher return volatility (measured as the standard deviation of daily returns) relative to non-sued firms. The return volatility of sued firms increases particularly during the last pre-litigation quarter, while it remains comparatively stable

for non-sued firms. As such, our results are similar to those of Barabanov, Ozocak, Turtle, and Walker (2007) who document similar stock price developments prior to litigation announcements against seasoned (non-IPO) firms. When examining the post-IPO financing activities of sued and non-sued firms, we find that non-sued firms are significantly more successful in obtaining additional financing than are sued firms. Specifically, we employ a financing dummy similar to that of Johnson, Kasznik, and Nelson (2001) that identifies whether a firm received any debt and/or equity financing between the IPO date and the litigation date (based on information about secondary equity offerings and debt issues contained in the SDC database). Similar to Johnson, Kasznik, and Nelson who find that sued firms apply for and receive significantly less additional capital after their IPO, our results suggest that 42 percent of non-sued firms re-enter the capital markets during that time period, while only 17 percent of sued firms raise additional capital. Finally, we examine the abnormal stock price performance of sued and non-sued firms on the announcement day and the first subsequent trading day, that is, during a (0,1) event window. Notwithstanding the somewhat similar price behavior of sued and non-sued firms prior to the litigation quarter, we find that sued firms experience a significantly larger price decline during those two days.[17]

Panel B provides mean and median holdings in sued and non-sued firms among each of our three groups of institutions at time *T-4*. While we find no significant difference between sued- and non-sued firm holdings by unaffiliated institutions, our results suggest that lead (and to a lesser extent non-lead) underwriters enter our pre-litigation period with significantly smaller holdings in sued firms than in non-sued firms. Specifically, we observe that lead underwriters hold on average 1.44 percent of the shares in sued firms while their holdings in non-sued firms

[17] We will elaborate more on our estimation approach and the implication of these findings in Section 4.

are considerably larger with 3.38 percent (p-value < 0.001). Interestingly, the relationship is reversed for unaffiliated institutions which hold about 33.16 percent of the shares in a typical sued firm but only 24.69 percent of the shares of non-sued firms. A possible reason for these discrepancies may be that sued firms may have been 'hyped up' by the firm's officers or the underwriters themselves to maximize the firm's offering proceeds even though they are aware that the firm may turn into a 'fallen angel', that is, that it may not do well in aftermarket trading or that it may face other problems down the road. Moreover, our results provide some initial support for our notion that – at least from a static perspective – underwriters possess an information advantage over unaffiliated institutions that allows them to identify potential litigation targets and avoid investing in those firms early on.

In Panel C, we present levels and dispersion measures for analyst recommendations and earnings forecasts for both our sued and non-sued sample. Specifically, to provide an estimate of the initial starting point for our subsequent calculations, we calculate the mean and median recommendation/forecast level (and their dispersion) for each of our three groups of analysts at time *T-4*. A detailed analysis of the quarterly changes in these measures after *T-4* is provided in Section 5.

From the outset, we observe that analyst opinions are more divergent for sued firms than for non-sued firms, particularly when considering earnings per share (EPS) forecasts (p-values for the significance of differences in means and medians are 0.005 and 0.059, respectively). When comparing mean and median earnings forecasts and recommendations among analysts affiliated with each of the three institutional subgroups, we find that lead analysts appear to be the most discerning in their evaluation of sued and non-sued firms. Specifically, they provide the lowest forecasts and recommendations for sued firms; yet, at the same time, their evaluation

of non-sued firms appears to be more favorable than that of non-lead underwriters and other (unaffiliated) institutions – a positive bias by lead analysts that is consistent with earlier findings by Michaely and Womack (1999) and Adams (2003). For instance, the lead analysts' average earnings forecast for sued firms is 9.47 cents per share, whereas it is almost 16 cents per share for non-sued firms (p-value for the significance of differences = 0.002). Similarly, lead analysts provide significantly lower recommendations for sued IPOs (mean = 2.25) than for matched non-sued firms (1.84).[18]

In contrast, analysts affiliated with other (non-underwriting) institutions appear to make little distinction between the two IPO subsamples, with no significant differences in their earnings forecasts and recommendations for sued and non-sued firms. Non-lead members of the underwriting syndicate show some – albeit limited – ability to distinguish between sued and non-sued firms this early on.

4. Stock Price Performance and Institutional Holdings Changes around Securities Class Action Announcements

4.1. Event Study Analysis

To support our claim that well-informed market participants can benefit from their information advantage, that is, that cashing out of an eventual litigation target in time is financially rewarding for investors, we employ standard event study methodology to measure how the stock prices of sued firms react to the respective lawsuit announcement. Our findings are summarized in Table 3.

*** Insert Table 3 about here ***

[18] Analyst recommendations range from 1 (strong buy) to 5 (strong sell). Thus, an increase in our recommendation variable corresponds to a decreased (lower) recommendation.

As is evident from our results, sued IPO stocks suffer significant price declines during the year preceding the litigation event. We find significant negative mean and median cumulative abnormal returns (CARs) during the year leading up to the litigation announcement (-45.70% and -50.04%, respectively). More importantly, sued firms experience a highly significant stock price decline of three percent during the first two days of trading (during a (0,1) event window), that suggests that the lawsuit is not entirely expected for all market participants, and continue to fall during the quarter following the litigation announcement (mean CAR over one quarter = -4.84%). During the subsequent three quarters, sued firms recover some of their losses, gaining back 3.55 percent of their prior decline (from a -4.84% CAR at the end of the first quarter to a -1.29% CAR at the end of the fourth quarter). Tests of this price recovery are weakly significant with p-values of 0.079 (t-test for the mean) and 0.093 (Wilcoxon signed rank test for the median).[19] As such, our results are consistent with Hedge, Malone, and Finnerty (2003) and Chaghouri and Walker (2005) who document similar stock price developments around lawsuits.[20] Overall, our results suggest that underwriters and other parties with superior information about the firm stand to profit significantly from reducing their positions prior to a lawsuit announcement.[21]

[19] Our results remain marginally significant if we employ buy-and-hold abnormal returns (BHARs), which tend to provide better long-term performance estimates.

[20] There are numerous other studies that have also examined the stock price performance of sued firms (see, for example, Griffin, Grundfest, and Perino, 2004; Thakor, 2005; Gande and Lewis, 2007).

[21] Considering that lead underwriters hold on average 1.44 percent of the shares in sued firms at time *T-4* and given the sued firms' average market capitalization of approximately $102 million at that time (see our analysis in Table 2), avoidance of the three percent price drop on the announcement day alone would save the average lead underwriter approximately $44,000. The savings tend to be considerably larger the earlier an institution eliminates their holdings and the larger the IPO firm, with early cash-outs from large firms frequently resulting in avoided losses in excess of $1 million.

4.2. Institutional Holdings Changes by Type of Institution

Institutions (and underwriters in particular) are likely to be better informed about the quality of a new issue than individual investors. Moreover, as suggested by Field and Lowry (2004), they remain better informed in the aftermarket. Institutional investors are well known to receive higher allocations in hot IPOs and, as has been shown by Aggarwal, Prabhala, and Puri (2002), institutional allocations in underpriced issues contain additional information which is not explained by book-building and other public information. In recent years, institutional preferences have shifted towards smaller stocks where the institutions can better exploit their information advantage (e.g., Bennett, Sias, and Starks, 2003). This may explain the generally high level of institutional activity we observe for the IPO firms in our sample.

In order to investigate if an institutional investor is capable of foreseeing negative developments, we examine changes in institutional ownership prior to and after a lawsuit announcement. Barber and Lyon (1996) provide strong evidence that empirical tests based on changes in variables of interest, rather than on variable levels, will be better specified in most empirical contexts. For this reason, we examine percentage changes in institutional ownership in both a univariate and multivariate context, that is, we first examine ownership changes over time and then model them in relation to various economic variables of interest. In order to account for initiations of new positions (i.e., a positive change from zero holdings) we measure changes in ownership from period T-i to T-j as the natural logarithm of (1 + ownership at T-j)/(1 + ownership at T-i). For brevity we will hereafter refer to "percentage changes in institutional ownership."[22] A decline in institutional holdings in sued firms relative to non-sued firms would suggest that institutions are able to anticipate impending lawsuits and the frequently associated

[22] We add one to ownership levels in the numerator and denominator to ensure that our proposed measure is well defined for all possible ownership realizations.

negative stock price developments. Moreover, variations in the trading behavior of different types of institutional investors would suggest that some institutions are better informed and more proactive than others.

In Table 4, we present quarterly percentage changes in mean and median ownership levels between time *T-4* and *T+4* by the three institutional groups. For each group we provide p-values for the equality of means (t-tests) and the equality of medians (Wilcoxon tests) between sued and matched non-sued firms. Panel A contains quarterly changes and Panel B reports cumulative changes relative to the end-of-quarter holdings immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*).

*** Insert Table 4 about here ***

All three groups of institutional owners decrease their holdings in sued IPOs prior to litigation. During the two quarters prior to the litigation quarter (*T-3* to *T-1*) lead underwriters sell on average 34.92% of their stock holdings in sued IPOs. This decline is significantly different (p-value of 0.057) from the increase of 0.43% in their average holdings of matched non-sued IPOs. We also observe a similar trading pattern when examining the unaggregated quarterly changes from *T-3* to *T-2* and from *T-2* to *T-1*.

Non-lead members of the underwriting syndicate and unaffiliated institutions exhibit similar behavior, yet their holdings revisions are generally smaller than for lead underwriters.[23] For example, during the two-quarter period prior to litigation (from *T-3* to *T-1*), both the mean and median decrease in sued-firm ownership by unaffiliated institutions (-17.11% and -14.36%, respectively) is both significantly different from zero and from the corresponding increase in

[23] We will test for the significance of cross-institutional differences between our three subsamples in Table 5.

matched-firm ownership (6.72% and 1.5%, mean and median respectively).[24] All institutions (and underwriters in particular) continue to decrease their positions during the litigation quarter.[25]

When examining post-litigation trading activity, we can make two interesting observations. First, it appears that some underwriters and unaffiliated institutions reacquire shares after the litigation announcement. Second, underwriters (both lead and non-lead) show a tendency to unload some of their holdings in matched non-sued firms. For example, once the lawsuit has been announced, lead underwriter positions in sued firms increase by 23.41 percent (mean change from *T+1* to *T+2*), while they fall significantly in matching non-sued firms (18.08 percent decrease in the mean). These changes in mean ownership are significantly different from each other (p-value of 0.043). The drop in underwriter positions for matching non-sued firms after a lawsuit announcement is consistent with a situation in which underwriters are afraid that once a firm has been sued, a similar firm in the same industry may be a future litigation target.[26] Interestingly, we further find that median ownership by lead underwriters drops for both sued and non-sued firms during that time period. This discrepancy between mean and median holdings changes in the post-litigation quarter suggests that the lead underwriters' reacquisition of shares in previously sued firms is somewhat selective. Specifically, it appears that lead

[24] Note that while the aggregate percentage changes for non-lead syndicate members and unaffiliated institutions are economically similar (e.g. an approximate drop of 17 percent in sued firm ownership during the period from *T-3* to *T-1* for both groups), the statistical significance varies considerably between the two subsamples. We attribute these variations to the considerably larger sample size for unaffiliated institutions relative to our subsample of underwriting syndicate members. Similar sample size differences also exist between the lead underwriter sample and the unaffiliated institutions sample.

[25] Note that we are unable to determine whether institutional trading activity during the litigation quarter (that is, between *T-1* and *T+1*) occurred before or after the lawsuit announcement date. We will address this issue in more detail in Section 7.

[26] This provides an interesting link to Turtle and Walker (2006) who document that IPO litigation risk depends not only on ex-ante risk factors, but also on post-IPO developments that are outside of the issuing firm's control such as general industry or market downturns, as well as litigation activity against other IPO firms in the same industry.

underwriters reacquire large stakes in some firms while they continue to decrease their holdings in most other firms. This selective reacquisition of previously sold shares is consistent with Brunnermeier (2005) who suggests that an investor who obtains information about an event prior to its public announcement can benefit from it twice: first, by trading aggressively on his/her information advantage prior to the public announcement, and then by unwinding part of his/her prior trade once the information becomes public. The extent of the trade reversal depends on the investor's assessment of how much of the new information is reflected in the asset price. Our findings are consistent with underwriters benefiting twice from their prior knowledge about sued IPOs.[27]

4.3. Comparison of Institutional Holdings Changes

To examine whether some institutions are more informed than others, we perform a series of tests in which we compare holdings changes by different types of institutions. Specifically, we test for the significance of differences in holdings changes for all possible pairwise comparisons among the three institutional categories. If lead underwriters indeed possess an information advantage relative to other institutions, we expect them to decrease their holdings to a significantly larger extent than both non-lead underwriters and other (unaffiliated) institutions. Our results are presented in Table 5. Panel A contains quarterly changes while Panel B provides cumulative changes relative to the quarters ending at *T-1* and *T+1*.

[27] In unreported tests, we examined whether lead underwriter holdings after the litigation quarter relate to a firm's post-litigation stock price performance, that is, whether lead underwriters are able to distinguish between firms that recover well from a lawsuit and firms that continue to struggle. Specifically, we created a portfolio of winners (firms with positive stock price performance within one year after the lawsuit) and losers (firms that failed entirely or whose stock price declined during that period) and examined how underwriters trade in these two portfolios. Although only marginally significant, our results suggest that lead underwriters both retain and increase their holdings in winners while they start out with smaller positions (and subsequently reduce their holdings) in losers. Non-lead syndicate members and unaffiliated institutions display similar trading behavior, but for both of these types of institutions the difference in holdings (and holding changes) between winners and losers is economically smaller and statistically insignificant.

*** Insert Table 5 about here ***

In each row of Table 5, we compare the leftmost mean and median with the mean and median for all other institutional types. For example, the third row of Panel B compares the cumulative mean and median percentage ownership changes for lead underwriters over the interval from *T-3* to *T-1* of -34.92 and -43.00 percent, respectively, to the comparable changes in ownership levels for all other types of institutions. The mean and median changes in non-lead underwriter ownership are -17.81 and -22.63 percent, respectively, during that time period while unaffiliated institutional owners revise their holdings by -17.11 and 14.36 percent, respectively. These differences in means and medians are highly significant as indicated by the reported p-values in parentheses.

Although we find no significant differences between the holdings revisions of non-lead underwriters and unaffiliated institutions, our results consistently indicate that lead underwriters engage in more informed trading prior to litigation announcements than both of these types of institutions. In addition to our earlier results that suggested that lead underwriters possess a static information advantage as early as at time *T-4* (see Table 2), this indicates that their information advantage also has a dynamic component, that is, that lead underwriters are better able than other institutions at interpreting and reacting to potential developments that may increase a firm's likelihood of being sued.

Moreover, after the lawsuit announcement, lead underwriters appear to reacquire larger positions in sued firms than non-lead underwriters and unaffiliated institutions. As in Table 4, we observe that the reacquisition activities are limited to a select few companies (median holdings decline during the same period) and occur primarily in the quarter immediately following the litigation quarter (between *T+1* and *T+2*), thus pointing to underwriters' ability to

selectively and quickly react to post-litigation sell-offs. Non-lead underwriters and unaffiliated institutions also appear to reacquire shares after litigation (non-lead underwriters more selectively so), but their holdings changes tend to be somewhat smaller and are generally not significantly different from the holdings changes of lead underwriters.

In summary, our results provide significant evidence for aggressive institutional selling during a period of several quarters prior to a litigation announcement and support our hypothesis that institutions are able to foresee a potential lawsuit against a firm. Moreover, lead underwriters exhibit a significantly larger variation in their holdings than other institutional investors, which supports our notion that underwriters indeed retain an information advantage in the firms they take public and that they reduce their positions in eventual litigation targets more aggressively than other institutions.

5. Divergence and Changes in Analyst Opinions

The results presented earlier suggest that some institutions and underwriters in particular possess an information advantage over other market participants in new public companies. In this section, we aim to examine whether differences in the trading behavior of our three institutional groups are accompanied by a rise in the dispersion of analyst earnings forecasts and recommendations – two commonly used measures of information asymmetry among institutional investors. Consistent with the extant literature in this area, we expect to observe a divergence of opinions (and a concurrent exit by informed shareholders) prior to negative developments that may affect a firm. Houge, Loughran, Suchanek, and Yan (2001) and Gao, Mao, and Zhong (2006), for example, find that investors' divergence of opinions is negatively related to an IPO's

three-year return. Similarly, Brooks and Patel (2000) document a positive relationship between information asymmetry around seasoned equity offerings and a subsequent decline in wealth.

If unusually large holdings revisions by lead underwriters (or by other institutions that can be expected to have an information advantage over other market participants) are accompanied by a concurrent 'build up' in the divergence of opinions about a firm, then it may be possible that a sophisticated, but otherwise uninformed investor can infer a negative development or an event by observing analyst opinions and the trades of informed shareholders.

One of our primary goals in this section is thus to investigate if there is any evidence of an increasing divergence of analyst opinions prior to litigation announcements. Although some lawsuits are preceded by such events as revenue restatements or government investigations which send a clear warning signal to all investors,[28] the majority of lawsuits tend to hit uninformed investors by surprise.[29] Moreover, our research framework presents an opportunity to investigate whether an institution's trading corresponds to the recommendations and earnings forecasts made by its in-house analysts.[30]

---

[28] DuCharme, Malatesta, and Sefcik (2004), for example, show that firms that inflate earnings before equity issues by increasing their accruals render themselves vulnerable to shareholder litigation.

[29] Francis, Philbrick, and Schipper (1994) investigate a sample of 43 sued firms and 51 "at risk" companies, which had larger earnings declines than sued firms; they find that only one of the 51 "at risk" companies was sued.

[30] We use the term "in house analyst" to refer to analysts within the same group of institutions for which we examine institutional holdings changes. While for lead underwriters, these are generally analysts that indeed work for the same investment bank that led the offering (or its affiliated money managers), such a direct connection does not necessarily exist for analysts affiliated with non-lead syndicate members or unaffiliated institutions because both of these subgroups typically comprise more than one institution. In unreported tests, we also examined how institutional holdings changes relate to the opinions of analysts who strictly work in the same institution (i.e., analysts that fulfill the strict definition of an "in-house analyst" for syndicate members and unaffiliated institutions). Our results are qualitatively similar to those presented here, i.e. we find evidence suggesting that (1) analysts across all groups of institutions tend to lower their earnings forecasts and recommendations about sued firms prior to a lawsuit announcement, (2) relative to analysts affiliated with other institutions lead analysts are reluctant to make large revisions to their earnings forecasts or recommendations prior to the litigation date, and (3) institutional trading behavior tends to be positively related to changes in earnings forecast and recommendations by a firm's own analysts. We purposefully use a broader definition to maximize the sample size for our subsequent tests.

Following D'Mello and Ferris (2000), Van Ness, Van Ness, and Warr (2002), and Diether, Malloy, and Scherbina (2002) we first consider trends in the dispersion of analyst earnings forecasts and recommendations to examine whether the level of information asymmetry among analysts increases prior to the litigation date. A second part of our analysis then explores whether there are any discernible differences in the earnings forecasts and recommendations made by analysts affiliated with the lead underwriter, non-lead syndicate members, and unaffiliated institutions and to what extent their forecasts and recommendations correspond to the trading behavior of their respective institutions.

The academic literature provides some evidence of a relationship between the investment banking function of a firm and its sell-side analyst recommendations. Michaely and Womack (1999) document a significant bias by underwriter analysts and show that the bias is not fully recognized by the market. Dunbar, Hwang, and Shastri (1999) show that while initial buy recommendations by underwriters are uninformative their subsequent recommendations trigger a stronger reaction in the market as even in the aftermarket underwriters are perceived to be well-informed. Adams (2003), however, provides evidence that the coverage by analysts who are not affiliated with any members of the underwriting syndicate starts later and is more informative for investors than the coverage by analysts who were not involved in the IPO.

5.1. Trends in the Divergence of Analyst Opinions

In Table 6, we examine changes in the dispersion of analyst earnings forecasts and recommendations around lawsuit announcements. The dispersion of analyst earnings forecasts is calculated as the standard deviation of earnings forecasts for two quarters into the future made by all analysts that cover a given stock, as reported by I/B/E/S-Firstcall. The dispersion of analyst

recommendations is calculated as the standard deviation of recommendations made by all analysts that cover a given stock during a given quarter. In Panel A, we report percentage changes between consecutive quarters. Panel B lists percentage changes relative to the end-of-quarter dispersion level immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*).

*** Insert Table 6 about here ***

Prior to the lawsuit, we find some (albeit generally weak) evidence that suggests that earnings forecasts for sued firms become more dispersed, with cumulative mean changes from *T-4* to *T-1* and from *T-3* to *T-1* being significant at the ten and five percent level, respectively. At the same time, however, we find no evidence that suggests that these changes are significantly different from those for non-sued firms.

Moreover, because the announcement of a lawsuit is accompanied by a dissemination of information about the sued firm to all market participants, it is likely to reduce information asymmetries between informed and uninformed parties. Thus, we expect to observe a reduction in the dispersion of analyst earnings forecasts following a lawsuit. Analysts might agree more about the future financial performance of a firm once the bad news is "on the table" (even if they expect a poorer price performance). While many of the quarterly changes as well as intergroup comparisons are not statistically significant at conventional levels, we find limited evidence that suggests that earnings forecasts become more divergent prior to the litigation quarter (the cumulative mean changes from both *T-4* and *T-3* to *T-1* are significant at the ten percent level). Moreover, consistent with our expectations there is evidence of a decline in the dispersion of analyst earnings forecasts after the litigation announcement. Cumulative changes from *T+1* to *T+3* (p-values are 0.001 for changes in the mean and 0.002 for changes in the median) and from

T+1 to *T+4* (p-values are 0.035 and 0.078) are significant for sued firms. These changes are also significantly different from the contemporaneous increase in the dispersion of analyst earnings forecasts for our sample of matched non-sued firms from *T+1* to *T+3* (p-values are 0.019 and 0.012 for differences in the mean and median, respectively). Consistent with our expectations, this suggests that litigation announcements are accompanied by a release of information which alleviates some uncertainty in the marketplace. At the same time, analysts appear to become more cautious and divergent in their opinions about comparable non-sued firms, which may be exposed to similar risks as the sued companies. The dispersion of analyst recommendations (provided on the right hand side of Table 6) shows no discernible trends for either sued or non-sued firms.

5.2. Changes in Earnings Forecasts and Recommendations by Type of Institution

Next, we perform a similar investigation with analyst data stratified into the three institutional groups. In Table 7, we focus on changes in analyst earnings forecasts while Table 8 considers analyst recommendations. In each of these tables, we use raw changes in these variables, that is, we define changes in earnings forecasts at time t ($t = T\text{-}3$ to $T+4$) relative to the preceding quarter that ended at time $t\text{-}x$ ($x = 1$ to 3) as $\Delta EPS_{t,t-x} = EPS_t - EPS_{t-x}$, and – in the same fashion – changes in recommendations as $\Delta Recom_{t,t-x} = Recom_t - Recom_{t-x}$.[31] When individual brokerage recommendations/forecasts change during a quarter, we calculate a time-weighted average for that analyst.

[31] Note that, if a firm receives no analyst coverage in two consecutive quarters (either in the form of earnings forecasts or recommendations), we retain the firm in our data set but assign a zero change to the respective variables over that time period. If an analyst initiates coverage for a firm for the first time or if his/her coverage ceases during a given quarter, we exclude that analyst from our calculations during that quarter. We also considered alternative approaches such as using log changes (as we did for institutional holdings). Our results are qualitatively unaffected when we use other computational approaches. We choose to report raw changes for these variables to aid the economic interpretability of our results. Further note that due to initiations and terminations in analyst coverage by individual institutions and/or missing data in some quarters, the cumulative changes reported in Panel B of Tables 7 and 8 do not always correspond to the quarterly changes reported in Panel A.

*** Insert Table 7 about here ***

Our results in Table 7 suggest that lead analysts make significant downward revisions in their earnings forecasts for sued firms relative to non-sued firms shortly before the litigation announcement (the differences are significant in both the mean and median during the period from *T-2* to *T-1* and from *T-3* to *T-1*). At the same time, however, unaffiliated analysts exhibit larger and much more significant downside revisions in their earnings forecasts for sued firms than do the other two groups of analysts. The decrease in average earnings forecasts for sued IPOs by unaffiliated analysts is significant in both the mean and median when considering quarterly changes from *T-3* to *T-2* and from *T-2* to *T-1* or cumulative changes from *T-4* to *T-1* and *T-3* to *T-1*. For syndicate members the results are significantly weaker, with only the cumulative mean changes being significantly different from zero. For lead analysts, only the cumulative mean and median change from *T-3* to *T-1* is significant.[32] This behavior is quite different from the large decrease in lead underwriter holdings we observed before litigation announcements, but is consistent with the positive bias in underwriter recommendations documented by Michaely and Womack (1999) and Adams (2003).[33,34]

All groups of analysts continue to revise their expectations downward after the litigation date. Interestingly, while the forecasts by analysts affiliated with lead and non-lead members of

[32] In unreported tests, we also tested for the significance of differences in earnings forecasts between the three groups of institutions. Our results confirm that, prior to the litigation quarter, lead underwriters make significantly smaller downward revisions in their earnings forecasts than non-lead syndicate members and unaffiliated institutions.

[33] In fact, a similar upward bias can be observed when examining firms in our matched non-sued sample. Although they have experienced similar stock price declines as sued firms, lead underwriters tend to maintain comparatively high earnings forecasts for these firms prior to the litigation quarter while earnings forecasts by unaffiliated analysts show a steady decrease.

[34] Another possible explanation for the comparatively small revisions in earnings forecasts by lead analysts may be that they provided significantly lower EPS forecasts at time *T-4* (see our results in Table 2), i.e. that they warned investors about possible problems the firm may be experiencing early on. However, this does not explain the discrepancy between the changes in EPS forecasts and holdings (which also started out at a significantly lower level at *T-4*).

the underwriting syndicate were somewhat "sticky" in the pre-litigation period, they now exhibit a greater decline relative to the forecasts made by unaffiliated analysts. Again, this is not consistent with the behavior of affiliated money managers who start to reacquire shares in sued companies soon after the litigation date.

We observe similar analyst behavior when examining analyst recommendations in Table 8. As noted earlier, recommendations range from 1 (strong buy) to 5 (strong sell). Thus, an increase in our recommendation variable corresponds to a decreased (lower) recommendation.

*** Insert Table 8 about here ***

Consistent with the observed trend in analyst earnings forecasts, we find a monotonic decrease in recommendations for both sued and matched non-sued firms before and after litigation announcements. Pre-litigation cumulative changes are significant for all three groups of analysts, although most are not significantly different from similar changes for matched non-sued firms.

All of our results suggest that sued firms undergo a period of significant uncertainty prior to a lawsuit announcement. The fact that analyst recommendations and earnings forecasts differ increasingly prior to the litigation date suggests that analysts are more and more in disagreement about the future profitability of the firm as the lawsuit draws closer. Our findings also suggest that the general increase in information asymmetry for recent IPOs as documented earlier by Li, McInish, and Wongchoti (2005) may to a large extent be driven by IPO-related litigation.

Although we are unable to discern at this point whether analysts react to problems that the firm is experiencing (which ultimately cause it to be sued) or whether they foresee the actual lawsuit filing, our results clearly indicate a decrease in analyst recommendations and earnings forecasts, accompanied by a larger divergence of analyst opinions. Moreover, our results suggest

that while some analysts may be able to foresee or react to negative developments within sued firms, they fail to exhibit the same level of prudence as demonstrated by institutional money managers and underwriters in particular who are much more proactive in their actions than their in-house analysts.

6. Multivariate Analysis of Ownership Changes around Class Action Litigation Announcements

In this section, we extend our prior analysis and attempt to explain changes in institutional ownership in a multivariate framework. Specifically, we employ a merged sample that includes both the 96 firms that were sued as well as their 96 non-sued counterparts and regress the change in institutional ownership for all institutions and for our three subgroups of institutions during the pre-litigation quarter (from *T-2* to *T-1*) against various predetermined variables. We follow Lowry and Shu (2002) and Turtle and Walker (2006) and identify firms that were subject to litigation during our sample period by means of a dummy variable (*Sued*) that equals one if the firm was sued and zero otherwise. Consistent with our hypothesis, we anticipate holdings changes by lead underwriters to be particularly responsive to this variable (thus indicating that lead underwriters make particularly large holdings revisions prior to lawsuits), while we expect less responsiveness by non-lead underwriters and unaffiliated institutions. Moreover, we employ a set of six variables that measure the change in both earnings forecasts and recommendations made by analysts affiliated with our three institutional groups. If institutional portfolio managers rely on the same information set as their sell-side analysts, then we should document a positive relation between changes in analyst earnings forecasts and recommendations and changes in IPO ownership by the respective institutional

investors. On the other hand, if underwriters provide biased recommendations – as our earlier results and the findings of Michaely and Womack (1999) and Adams (2003) suggest – then we expect an insignificant (and possibly even a negative) relationship between these two variables for lead (and to a lesser extent) non-lead underwriters.[35]

Furthermore, consistent with Grinblatt, Titman, and Wermers (1995) and Barabanov, Ozocak, Turtle, and Walker (2007), we seek a specification that allows for different levels of responsiveness to shorter- and longer-term returns prior to the litigation date. As our proxy for short- and long-term price momentum we use the same variables ($Ret_{T-2,T-1}$ and $Ret_{T-4,T-2}$) that we employed in Table 2. Finally, we proxy for the negative surprise component of a lawsuit announcement with the announcement return measured as the cumulative abnormal return on the lawsuit announcement date and the first trading day following the announcement (*CAR(0,1)*). We employ the announcement return as an interactive variable with our *Sued* dummy since there is no reason to expect large abnormal returns for non-sued firms around the corresponding lawsuit announcement for sued firms. Notwithstanding our expectations about institutions' ability to partially foresee a lawsuit, we expect institutional holdings revisions to be less pronounced for firms that are sued largely by surprise, i.e. firms for which the litigation announcement is associated with a large negative abnormal return.[36] Table 9 summarizes our results.

*** Insert Table 9 about here ***

[35] Due to generally high correlation coefficients we observed among the variables that measure revisions in earnings forecasts and recommendations within each institutional subgroup (the correlation matrices are not reported here for brevity), we include the respective variables in different model specifications.

[36] Similar factors have been used in the extant institutional ownership literature (e.g., Gompers and Metrick, 2001; and Bennett, Sias, and Starks, 2003). We choose not to include variables such as S&P500 membership, firm age, dividend yield, number of shares outstanding, and book value per share as they are not likely to experience significant changes during our relatively narrow sample period. Furthermore, we do not include turnover or the standard deviation of returns because they are highly correlated with our return variables.

The first group of columns (models 1-3) provides regression results for percentage changes in ownership by all institutional investors. Models 4-6 analyze percentage changes in ownership by lead underwriters, models 7-9 by syndicate members, and the last three columns (models 10-12) by unaffiliated institutions. Consistent with our expectations, we find that holdings changes by lead underwriters are highly responsive to our dummy variable that identifies eventual litigation targets (with highly significant negative coefficients in all three model specifications). Non-lead underwriters and unaffiliated institutions also exhibit some responsiveness, but it is economically smaller and only marginally significant in some of the respective models. As such, our multivariate analysis confirms the findings of our univariate tests in Tables 4 and 5 that suggested that lead underwriters are the most proactive of all institutions in reducing their positions prior to litigation announcements.

We also find evidence that suggests that institutional trades are positively aligned with the earnings forecasts and recommendations of analysts both within their own institutional group and other groups, that is, lead underwriter holdings, for example, tend to decline when either their own in-house analysts or analysts associated with other institutions lower their earnings expectations for a given firm or when they downgrade it. Specifically, in most of our models, we find significant positive coefficients on the variables that identify revised earnings forecasts by the different institutional groups. The variables that identify revised analyst recommendations tend to be negative[37], but – with the exception of revised analyst recommendations by unaffiliated institutions – are not significant in any of our model specifications. Most importantly, we find that aside from following the changes of their own in-house analysts' earnings forecasts and recommendations, the holdings revisions by all three institutional

[37] Recall that a higher value for our recommendation variable reflects a lower recommendation. Thus, a negative coefficient for this variable suggests that institutional holdings decline when analysts downgrade a given stock.

subgroups relate strongly to the earnings forecasts and recommendations made by unaffiliated analysts. Analysts affiliated with lead or non-lead underwriters on the other hand, appear to exert only a small influence on holdings changes outside of their own institutional category. Although somewhat surprising, this may be related to the aforementioned tendency of underwriter earnings forecasts and recommendations to be somewhat 'sticky' during the pre-litigation period.

As expected, we find that institutional holdings changes relate positively to return momentum, particularly in the short-term. Finally, we observe that both lead (and to a lesser extent non-lead) underwriters appear to correctly avoid sued IPOs with a large negative surprise component of the announcement as measured by our interactive variable *Sued*CAR(0,1)*. The coefficient estimates are notably less significant for non-lead underwriters than for lead underwriters and are largely insignificant for unaffiliated institutions.[38]

7. Robustness Tests

To ensure that our results are not sensitive to changes in sample construction or methodology we perform a plethora of robustness tests. We are primarily concerned about the robustness of our results presented in Tables 4, 5 and 9, i.e. whether institutional investors, and in particular underwriters, possess an information advantage over other market participants.

Drawing conclusions from a sample that combines daily data on IPOs and IPO lawsuits with quarterly institutional holdings is not straightforward. Institutions are not required to disclose the trades they make during a quarter, thus we have to rely on end-of-quarter data to

[38] Note that we also performed tests in which we employed a variable that measures the announcement return during longer-term event windows, including a variable specification that captures the return during the entire litigation quarter (irrespective of when during that quarter the firm was sued). Our results are qualitatively similar when we use those variable definitions instead.

estimate changes in institutional ownership over time. A resulting measurement problem is illustrated by the following example: consider a lawsuit against an IPO firm that was filed at the beginning of the third quarter, say on July 5. Consistent with our hypothesis, we expect institutional holdings at the end of the second quarter, i.e. on June 30, to be significantly smaller than at the end of the first quarter due to institutional sales during the second quarter prior to the lawsuit announcement. In contrast, consider a lawsuit that was filed on September 20. Because the lawsuit is announced close to the end of the third quarter, it is likely that we will observe a much smaller change in institutional positions between the first and second quarter.

Because in this case there are more than eighty days prior to the lawsuit announcement during which institutions may have sold part of their holdings, we expect changes in institutional holdings during the prior quarters to be less significant. Rather, we expect that changes in institutional holdings are largely reflected at the end of a quarter for lawsuits filed late during that quarter, and even then they may reflect sales or purchases that occurred shortly after the lawsuit announcement, making their interpretation difficult.

To control for these measurement problems, we perform a robustness test in which we break each quarter down into three one-month periods. Similar to Reuter (2006), we form three subsamples of our data set that contain lawsuits filed during the first, second, and third month of each quarter, respectively, and then re-perform our analysis for each subsample. We consistently find that our results are stronger and more significant for lawsuits filed during the first month of each quarter, i.e. January, April, July, and October, while they are slightly less significant when we consider lawsuits filed in the last month of each quarter, i.e. March, June, September, and December.

Our second robustness test examines whether our results are robust to variations in the selection criteria for lawsuits. We find no significant changes in our results when we include non-Section 11 lawsuits in our analysis or when we reduce the time period we allow for a lawsuit to occur from three to two years. Our results are not robust to the inclusion of laddering cases, but given that these cases are inherently different in nature and primarily address the underwriter rather than the issuing firm it is not surprising that they weaken our results.

In addition, to ensure that our results are robust across different time periods, we perform a robustness test in which we divide our IPO sample into two halves, i.e. January 1990 to December 1996 and January 1997 to December 2003 and test whether we have similar findings in each sub-period. Our findings are little affected as our results are quantitatively and qualitatively consistent with the results for the full sample.

We then test whether our results are driven by differences in underwriter characteristics between sued and non-sued firms. As an additional matching criterion, we require that sued and matching non-sued firms must have been underwritten by an underwriter of similar reputation. We use the Carter and Manaster (1990), and Carter, Dark, and Singh (1998) underwriter rankings as revised by Jay Ritter[39] to match sued and non-sued firms. Although this reduces our sample size by ten firms for which we find no matching non-sued firm, our results are little affected.

In a final robustness test we address the link between stock prices and litigation likelihood. It is important to recognize that the relationship between these two factors is not straightforward. On one hand, we expect stock prices to decline prior to a lawsuit announcement as informed investors reduce their positions in the litigation target to avoid the post-

[39] See Jay Ritter's website at http://bear.cba.ufl.edu/ritter/Rank.htm for a complete list of underwriter rankings. If there is more than one lead underwriter, we calculate the average reputation of the lead underwriters. The data has also been used in Loughran and Ritter (2004).

announcement stock decline that most sued firms in our sample experience. On the other hand, we expect that stock price declines themselves increase a firm's likelihood of being sued. As Turtle and Walker (2006) argue, the larger the stock price decline, the larger the litigatable loss that plaintiffs can claim in a lawsuit. Given the endogenous relationship between litigation risk and pre-litigation stock price performance, it is difficult to discern to what degree informed investors can predict a lawsuit and to what degree they react to or anticipate stock price declines. We address these concerns through two robustness tests.

When examining institutional holdings at the end of the first quarter following the lockup expiration date for all IPOs during our sample period, we observe that lead underwriters retain an ownership stake of approximately 1.6 percent in firms that were subsequently sued, compared to 3.6 percent for firms that were not sued. Similarly, when examining lead underwriter holdings in firms that experienced market-adjusted price declines of over twenty percent within two quarters following the lockup expiration date – irrespective of whether or not the firms were eventually sued – we observe that underwriter stakes in the 'losers' were only 2.5 percent, compared to a 4.3 percent ownership stake in the 'winners'. The differences in means and medians for both of these tests are significant at the five percent significance level. Similar, but less significant differences can be observed for non-lead syndicate members and unaffiliated institutions.

These results suggest that underwriters can not only predict the likelihood of litigation, but can also predict the likelihood of share price declines that may attract litigation. In addition to observing significant reductions in the holdings by lead underwriters prior to lawsuit filings, we observe that shortly after the IPO lockup period they retain smaller positions in firms that experience significant price declines, irrespective of whether or not they are ultimately sued.

8. Conclusions

Institutional investors, through their monitoring of the firms they invest in, are often viewed as "smart money" investors. A large body of research has investigated differences in trading patterns among different types of institutions, i.e. banks, mutual funds, etc. To our knowledge, there have been no studies that compare the trading of underwriters and non-underwriting institutions in young IPO firms, possibly due to a lack of specific event data around which such trading behavior can be measured. We employ a unique data set of IPO-related securities class action cases that allows us to overcome this problem. By examining trading patterns by lead underwriters, non-lead members of the underwriting syndicate, and other (unaffiliated) institutions prior to these lawsuits, we are able to document that lead underwriters retain an information advantage in the firms they take public and are more proactive in reducing their positions in eventual litigation targets than other institutional investors. Non-lead members of the underwriting syndicate – although also involved in the IPO process – and unaffiliated institutions appear to be less proactive in avoiding sued IPOs. Our results are robust to variations in our sample selection and to methodological changes.

We further explore the divergence of analyst opinions around securities class action announcements. We provide evidence that suggests that the level of information asymmetry, measured as the dispersion of analyst earnings forecasts and recommendations, rises prior to shareholder litigation. In this context, we also investigate whether lawsuits are preceded by negative revisions in analyst earnings forecasts and recommendations (measured separately for each of our three groups of institutions) and whether these revisions correspond with the holdings changes within the respective institutional subgroups. Our findings suggest that litigation announcements are preceded by a significant deterioration of unaffiliated analyst

opinions about the respective firm. At the same time, however, we document a considerable reluctance by lead underwriter-affiliated analysts to lower their earnings forecasts or recommendations prior to the litigation announcement – a pattern that stands in stark contrast to their institutions' otherwise more informed trading behavior. Finally, we find evidence that suggests that lead underwriters (and to a lesser extent other institutions) trade back into some firms after they have been sued and that they are able to identify post-litigation winners, i.e. firms that recover well from the lawsuit and the generally associated stock price declines.

From a practical standpoint, our findings allow investors to better understand the rationale behind patterns in institutional trading and analyst opinions and the potential implications these patterns may have on their portfolio. In particular, a larger than usual increase in the commonly used information asymmetry proxies, accompanied by a substantial decrease in analyst opinions and large institutional holdings revisions in the first few years after an IPO provides investors with a possible warning sign that a firm may get sued.

The results of this study call for more transparency and disclosure. We believe that regulators and policymakers should consider requiring more frequent trade and position disclosures, particularly so from underwriters and affiliated institutions. Given that we document well-informed trading behavior by these institutions despite the fact that we only had access to data on long positions (which the institutions have to disclose to the SEC on From 13F) but not on short positions, warrants, or daily trades, suggests that our findings may be even stronger (and institutional behavior even more abusive) than what we documented here. Large financial institutions have been increasingly active on the short side of trades and may even exploit their information advantages without reporting any changes in their long positions on Form 13F. A mandatory disclosure of all equity-related trades including short sales and derivatives would help

promote openness and fairness in the contemporary marketplace and would reduce the financially exploitable information advantage that well-informed institutions have over other market participants.

References

Adams, B., 2003. Does timing matter? A study of analyst coverage of initial public offerings, *Working paper*, Arizona State University.

Aggarwal, R., 2000. Stabilization activities by underwriters after initial public offerings, *Journal of Finance* 55, 1075-1104.

Aggarwal, R., N. Prabhala, and M. Puri, 2002. Institutional allocation in initial public offerings: Empirical evidence, *Journal of Finance* 57, 1421-1442.

Alexander, J., 1991. Do the merits matter? A study of settlements in securities class actions, *Stanford Law Review* 43, 498-598.

Antunovich, P., and A. Sarkar, 2006. Fifteen minutes of fame? The market impact of Internet stock picks. *Journal of Business* 79, 3209–3251.

Bajaj, M., S. Mazumdar, and A. Sarin, 2000. Securities class action settlements: An empirical analysis, *Working paper*, University of California-Berkeley and Santa Clara University.

Barabanov, S., and M. McNamara, 2004. On the market perception of information asymmetry: Concentration of ownership by different types of institutions and the bid-ask spread, *Working paper*, University of St. Thomas and Washington State University.

Barabanov, S., O. Ozocak, H. Turtle, and T. Walker, 2007. Institutional investors and shareholder litigation, *Financial Management*, forthcoming.

Barber, B., and J. Lyon, 1996. Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics* 41, 359-399.

Bennett, J., R. Sias, and L. Starks, 2003. Greener pastures and the impact of dynamic institutional preferences, *Review of Financial Studies* 16, 1203-1238.

Binay, M., V. Gatchev, and C. Pirinsky, 2006. How important are relationships for IPO underwriters and institutional investors? *Working paper*, Claremont Graduate University, University of Central Florida, and Rutgers University.

Breeden, D., M. Gibbons, and R. Litzenberger, 1989. Empirical tests of the consumption-oriented CAPM, *Journal of Finance* 44, 231-265.

Brooks, R., and A. Patel, 2000. Information conveyed by seasoned security offerings: Evidence from components of the bid-ask spread,. *Review of Financial Economics* 9, 83-99.

Brunnermeier, M., 2005. Information leakage and market efficiency, *Review of Financial Studies* 18, 417-457.

Carter, R., and S. Manaster, 1990. Initial public offerings and underwriter reputation, *Journal of Finance* 45, 1045-1067.

Carter, R., F. Dark, and A. Singh, 1998. Underwriter reputation, initial returns and long run performance of IPO stocks, *Journal of Finance* 53, 285-311.

Chaghouri , M., and T. Walker, 2005. On the dynamics of securities class action litigation, *Working paper*, Concordia University.

Chen, H., and J. Ritter, 2000. The seven percent solution, *Journal of Finance* 55, 1105-1132.

Cliff, M., and D. Denis, 2004. Do IPO firms purchase analyst coverage with underpricing? *Journal of Finance* 59, 2871-2901.

Diether, K., C. Malloy, and A. Scherbina, 2002. Differences of opinion and the cross section of stock returns, *Journal of Finance* 57, 2113-2141.

D'Mello, R., and S. Ferris, 2000. The information effects of analyst activity at the announcement of new equity issues, *Financial Management* 29, 78-95.

DuCharme, L., P. Malatesta, and S. Sefcik, 2004. Earnings management, stock issues, and shareholder lawsuits, *Journal of Financial Economics* 71, 27-49.

Dunbar, C., C. Hwang, and K. Shastri, 1999. Underwriter analyst recommendations: Conflict of interest or rush to judgment? *Working paper*, University of Western Ontario, Hong Kong University of Science & Technology, and University of Pittsburgh.

Field, L., and M. Lowry, 2004. How is institutional investment in initial public offerings related to the long-run performance of these firms? *Working paper*, Pennsylvania State University.

Fishe, R., 2002. How stock flippers affect IPO pricing and stabilization, *Journal of Financial and Quantitative Analysis* 37, 319-340.

Francis, J., D. Philbrick, and K. Schipper, 1994. Shareholder litigation and corporate disclosure, *Journal of Accounting Research* 32, 137-164.

Gande, A., and C. Lewis, 2007. Shareholder initiated class action lawsuits: Shareholder wealth effects and industry spillovers, *Working paper*, Southern Methodist University and Vanderbilt University.

Gao, Y., C. Mao, and R. Zhong, 2006. Divergence of opinion and long-term performance of initial public offerings, *Journal of Financial Research* 29, 113-129.

Gompers, P., and A. Metrick, 2001. Institutional investors and equity prices, *Quarterly Journal of Economics* 116, 229-259.

Griffin, P., J. Grundfest, and M. Perino, 2004. Stock price response to news of securities fraud, *Abacus* 40, 21-48.

Grinblatt, M., S. Titman, and R. Wermers, 1995, Momentum investment strategies, portfolio performance, and herding: A study of mutual fund behavior, *American Economic Review* 85, 1088-1105.

Hedge, S., C. Malone, and J. Finnerty, 2003. The financial impact of fraud and securities class action suits. *Working paper*, University of Connecticut, Massey University and Analysis Group/Economics.

Houge, T., T. Loughran, G. Suchanek, and X. Yan, 2001. Divergence of opinion, uncertainty, and the quality of initial public offerings, *Financial Management* 30, 5-23.

James, C., and J. Karceski, 2006. Strength of analyst coverage following IPOs, *Journal of Financial Economics* 82, 1-34.

Johnson, M., R. Kasznik, and K. Nelson, 2001. The impact of securities litigation reform on the disclosure of forward-looking information by high technology firms, *Journal of Accounting Research* 39, 297-327.

Jones, C., and S. Weingram, 1996. The determinants of 10b-5 litigation risk, *Working paper*, Stanford University.

Li, M., T. McInish, and U. Wongchoti, 2005. Asymmetric information in the IPO aftermarket, *The Financial Review* 40, 131-153.

Li, X., and R. Masulis, 2005. Pre-IPO investments by financial intermediaries: Certification or moral hazard? *Working paper*, University of Miami and Vanderbilt University.

Loughran, T., and J. Ritter, 2004. Why has IPO underpricing changed over time? *Financial Management* 33, 5-37.

Lowry, M., and S. Shu, 2002. Litigation risk and IPO underpricing, *Journal of Financial Economics* 65, 309-336.

Michaely, R., and K. Womack, 1999. Conflict of interest and the credibility of underwriter analyst recommendations, *Review of Financial Studies* 12, 653-686.

Nofsinger, J., and R. Sias, 1999. Herding and feedback trading by institutional and individual investors, *Journal of Finance* 54, 2263-2295.

O'Brien, P., and R. Bhushan, 1990. Analyst following and institutional ownership, *Journal of Accounting Research* 28, 55-76.

Reuter, J., 2006. Are IPO allocations for sale? Evidence from mutual funds, *Journal of Finance* 61, 2289-2324.

Sias, R., L. Starks, and S. Titman, 2006. Changes in institutional ownership and stock returns: Assessment and methodology, *Journal of Business*, 79, 2869-2910.

Sibley, A., and E. Burch, 1979. Optimal selection of matched pairs from large data bases, *Decision Sciences* 10, 62-70.

Thakor, A., 2005. The unintended consequences of securities litigation, *Working paper*, Washington University in St. Louis.

Turtle, H., and T. Walker, 2006. Legal opportunism, litigation risk, and IPO underpricing, *Working paper*, Washington State University and Concordia University.

Van Ness, B., R. Van Ness, and R. Warr, 2002. How well do adverse selection components measure adverse selection? *Financial Management* 30, 5-30.

Table 1: IPO Summary Statistics

Our sample consists of 4,283 new equity issues filed between January 1990 and December 2003 collected from the SDC Platinum New Issues database. IPOs with offer prices below $5, unit offers, closed-end funds (including REITs), ADRs, reverse LBOs, limited partnerships, equity carve-outs, and foreign issues are excluded. We identify sued IPOs by cross-referencing our IPO data set with litigation information provided by Stanford's Securities Class Action Clearinghouse (SCAC), the Securities Class Action Alert (SCAA), and the Department of Justice Public Access to Court Electronic Records (PACER) database. The first column labels our sample periods. In column 2, we list the number of IPOs per year. The third column lists the number of IPO firms that were sued in connection with their IPO under Section 11 of the Securities Act of 1933. In column 4, we only consider lawsuits that were filed against the issuing firms within a one-year to three-year period after their issue date. In the last column, we list the number of sued IPO firms for which the lead underwriter or at least one member of the underwriting syndicate or their affiliated money managers reported holdings to the Securities and Exchange Commission (SEC) on Form 13F. Laddering cases filed against the underwriters in which issuers are named as codefendants are excluded from our calculations in the last three columns. Panel A provides summary statistics for the entire sample period. Panel B provides a comparison by year.

	Number of IPOs	Number of IPO firms sued under Section 11 of the 1933 Securities Act	Number of IPO firms sued between one year and three yeas after their IPO	Number of sued IPO firms in which at least one of the underwriters held shares
Panel A: All IPOs				
Entire sample period 1990-2003	4,283	191	125	96
Panel B: Yearly Summary Statistics				
1990	107	7	5	3
1991	234	16	12	9
1992	285	21	13	11
1993	409	28	20	15
1994	367	11	8	6
1995	435	22	13	9
1996	592	24	12	10
1997	488	15	11	9
1998	313	13	10	8
1999	478	12	6	4
2000	382	15	10	8
2001	73	3	2	2
2002	67	2	2	1
2003	53	2	1	1

Table 2: Comparative Statistics for Sued and Matched Non-Sued Firms

We present descriptive statistics for both sued firms and matched non-sued firms. Matched firms must not have been involved in any securities litigation during our sample period, must have had their IPO within +/- six months of the sued firm, must belong to the same industry as the corresponding sued firm (following the categorization of Loughran and Ritter (2004) and Cliff and Denis (2004) who distinguish between tech and non-tech firms), and must have the smallest Euclidean distance relative to the sued firm in terms of both market capitalization (measured one day prior to the lawsuit announcement) and total return (measured over a period from four quarters to one quarter prior to the lawsuit, i.e. from *T-4* to *T-1*). In Panel A, we characterize our sample firms along several dimensions: the market capitalization at time *T-4* converted to 1990 dollars based on CPI data from the Bureau of Labor Statistics ($Size_{T-4}$), the return between time *T-4* and *T-2* ($Ret_{T-4,T-2}$), the return between *T-2* and *T-1* ($Ret_{T-2,T-1}$), the share turnover between *T-4* and *T-1* ($Turnover_{T-4,T-1}$), the standard deviation of daily returns between time *T-4* and *T-2* ($\sigma_{T-4,T-2}$), the quarterly change in the standard deviation of daily returns from the quarter ending at *T-2* to the quarter ending at *T-1* ($\Delta\sigma_{T-2,T-1}$), a financing dummy that identifies whether the firm received any debt and/or equity financing between the IPO date and the litigation date (*Financing-Dummy*), and the announcement return measured as the cumulative abnormal return on the lawsuit announcement date and the first trading day following the announcement (*CAR(0,1)*). In Panel B, we report the mean and median aggregate holdings for each institutional subgroup at time *T-4* ($Holdings_{Lead,T-4}$, $Holdings_{Synd,T-4}$, and $Holdings_{Oth,T-4}$, respectively). In Panel C, we provide information on the dispersion of earnings per share (EPS) forecasts made by analysts at time *T-4* for two quarters into the future (*Dispersion of EPS Forecasts*$_{T-4}$) and the mean and median dollar amount of analyst earnings forecasts made by the lead underwriters, non-lead members of the underwriting syndicate, and other (unaffiliated) institutions at time *T-4* ($EPS_{Lead,T-4}$, $EPS_{Synd,T-4}$, and $EPS_{Oth,T-4}$, respectively). In addition, we provide information on the dispersion of analyst recommendations at time *T-4* (*Dispersion of Recommendations*$_{T-4}$) and the mean and median recommendations made by analysts affiliated with the lead underwriters, non-lead members of the underwriting syndicate, and other (unaffiliated) institutions at time *T-4* ($Recomm_{Lead,T-4}$, $Recomm_{Synd,T-4}$, and $Recomm_{Oth,T-4}$, respectively). Analyst earnings forecasts and recommendations are based on data provided by I/B/E/S-Firstcall. To separate analysts based on their institutional affiliation, we accessed SDC Platinum to identify the lead underwriter(s) and other members of the underwriting syndicate for each offering and then used the broker identification file in the I/B/E/S database to assign the analysts to the respective institutions. We consider analysts to be affiliated if they are related to any of the entities associated with the respective lead underwriter or other members of the syndicate (i.e., divisions, foreign or domestic branches, sister-firms of the underwriting or other member entity). Analysts that can not be assigned in this manner are classified as belonging to other (unaffiliated) institutions. Analyst recommendations range from 1 (strong buy) to 5 (strong sell). In the last two columns, we provide two-tailed p-values for a t-test for the significance of differences in means and a Wilcoxon test for the significance of differences in medians.

Variable	Sued Firms			Non-Sued Firms			Equality Tests	
Panel A: Firm Characteristics and Performance Measures	Mean	Median	Std.Dev.	Mean	Median	Std.Dev.	T-Test (p-value)	Wilcoxon Test (p-value)
$Size_{T-4}$ ($ million)	102.48	35.40	86.38	97.10	35.82	79.12	0.659	0.954
$Ret_{T-4,T-2}$	-8.91%	-10.44%	42.19%	-13.17%	-12.74%	49.76%	0.141	0.373
$Ret_{T-2,T-1}$	-12.80%	-12.51%	48.23%	-7.88%	-6.64%	30.49%	0.097	0.032
$Turnover_{T-4,T-1}$	0.3146	0.2851	0.0310	0.2737	0.2166	0.0278	0.021	0.008
$\sigma_{T-4,T-2}$	0.0772	0.0730	0.0358	0.0501	0.0546	0.0293	0.009	0.014
$\Delta\sigma_{T-2,T-1}$	0.0052	0.0028	0.0051	0.0011	0.0003	0.0045	<0.001	<0.001
Financing-Dummy	0.17	0.00	0.38	0.42	0.00	0.50	<0.001	<0.001
CAR(0,1)	-3.00%	-1.64%	14.17%	-0.28%	-0.25%	1.72%	<0.001	<0.001
Panel B: Institutional Holdings	Mean		Median	Mean		Median	T-Test (p-value)	Wilcoxon Test (p-value)
$Holdings_{Lead,T-4}$	1.44%		0.30%	3.38%		1.05%	<0.001	0.023
$Holdings_{Synd,T-4}$	1.14%		0.33%	1.77%		0.41%	0.106	0.227
$Holdings_{Oth,T-4}$	33.16%		24.30%	24.69%		15.46%	0.043	0.048
Panel C: Analyst Data	Mean		Median	Mean		Median	T-Test (p-value)	Wilcoxon Test (p-value)
Dispersion of EPS $Forecasts_{T-4}$	0.1274		0.0531	0.0849		0.0280	0.005	0.059
$EPS_{Lead,T-4}$ ($)	0.0947		-0.0250	0.1598		0.0400	0.002	0.026
$EPS_{Synd,T-4}$ ($)	0.1148		-0.0050	0.1469		0.0350	0.157	0.089
$EPS_{Oth,T-4}$ ($)	0.1229		0.0100	0.1317		0.0150	0.604	0.728
Dispersion of $Recommendations_{T-4}$	0.6406		0.6227	0.5831		0.5705	0.087	0.142
$Recomm_{Lead,T-4}$	2.25		2.00	1.84		1.00	<0.001	<0.001
$Recomm_{Synd,T-4}$	2.10		2.00	2.03		2.00	0.370	0.354
$Recomm_{Oth,T-4}$	2.13		2.00	2.12		2.00	0.939	0.535

Table 3: Abnormal Performance of Sued Firms around Lawsuit Filings

We report the results of an event study over different event windows before and after a lawsuit announcement. In Panel A, we report results for various timeframes prior to the lawsuit announcement date, denoted as day 0. In Panel B, we report results for event windows around and after the announcement. Our sample consists of 96 IPO-related securities class action lawsuits filed within one and three years after the issue date under Section 11 of the 1933 Securities Act between January 1991 and December 2006. In each of these IPOs, at least one member of the underwriting syndicate reported holdings to the Securities and Exchange Commission on Form 13F. We calculate a firm's cumulative abnormal return (CAR) following a market-model approach. The firm's beta is proxied for by the average beta of all firms in the same industry (all firms with the same 3-digit SIC code), calculated over a three-year period ending four quarters prior to the lawsuit announcement. Market returns are calculated based on the CRSP NYSE/AMEX/NASDAQ value-weighted market index. In columns 2 and 3, we report mean and median cumulative abnormal returns. In the last two columns, we report two-sided p-values for a t-test and a Wilcoxon signed rank test for the significance of mean and median CARs, respectively.

Number of Trading Days Before/After Announcement	Mean CAR	Median CAR	T-Test (p-value)	Wilcoxon Signed Rank Test (p-value)
Panel A: CARs Before Lawsuit Announcement				
-250 to -1 (4 quarters)	-45.70%	-50.04%	<0.001	<0.001
-125 to -1 (2 quarters)	-35.08%	-34.77%	<0.001	<0.001
-63 to -1 (1 quarter)	-24.03%	-23.09%	<0.001	<0.001
-21 to -1 (1 month)	-15.20%	-9.72%	<0.001	<0.001
-10 to -1 (2 weeks)	-9.80%	-4.46%	<0.001	<0.001
-5 to -1 (1 week)	-6.34%	-2.68%	<0.001	<0.001
-3 to -1	-3.91%	-1.37%	<0.001	<0.001
-2 to -1	-2.76%	-0.89%	<0.001	<0.001
Panel B: CARs Around and After Lawsuit Announcement				
-1 to 0	-2.87%	-0.94%	<0.001	<0.001
-1 to 1	-4.65%	-2.08%	<0.001	<0.001
0 to 1	-3.00%	-1.64%	<0.001	<0.001
0 to 2	-3.59%	-1.79%	<0.001	<0.001
0 to 3	-3.76%	-2.15%	<0.001	<0.001
0 to 5 days (1 week)	-3.60%	-2.32%	<0.001	<0.001
0 to 10 days (2 weeks)	-3.55%	-2.60%	0.002	0.005
0 to 21 days (1 month)	-3.58%	-1.89%	0.033	0.041
0 to 63 days (1 quarter)	-4.84%	-2.09%	0.055	0.097
0 to 125 days (2 quarters)	-3.50%	-1.31%	0.184	0.373
0 to 250 days (4 quarters)	-1.29%	-0.44%	0.631	0.772

Table 4: Changes in Institutional Holdings around Lawsuit Announcements by Type of Institution

We examine changes in mean and median holdings of lead underwriters, members of the underwriting syndicate, and unaffiliated institutions during various periods before and after a lawsuit announcement for both sued firms and matched non-sued firms. Matched firms must not have been involved in any securities litigation during our sample period, must have had their IPO within +/- six months of the sued firm, must belong to the same industry as the corresponding sued firm (following the categorization of Loughran and Ritter (2004) and Cliff and Denis (2004) who distinguish between tech and non-tech firms), and must have the smallest Euclidean distance relative to the sued firm in terms of both market capitalization (measured one day prior to the lawsuit announcement) and total return (measured over a period from four quarters to one quarter prior to the lawsuit, i.e. from *T-4* to *T-1*). We consider all reporting money managers (e.g., domestic and foreign branches, divisions, sister firms registered in the same and different countries and states) affiliated with the respective investment banking firm or division. Holdings of each lead underwriter or other member of the syndicate include positions reported by all affiliated institutions. In Panel A, we report percentage changes between consecutive quarters. In Panel B, we report cumulative percentage changes relative to the end-of-quarter holdings immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*). P-values are reported in brackets below each change. In addition, we provide p-values for a t-test and a Wilcoxon test for the significance of differences in means and medians, respectively, in the last two columns of each institutional subgroup.

Quarter Around Lawsuit Announcement	Lead Underwriters						Syndicate Members						Unaffiliated Institutions					
	Sued Firms		Matched Non-Sued Firms		Equality Tests		Sued Firms		Matched Non-Sued Firms		Equality Tests		Sued Firms		Matched Non-Sued Firms		Equality Tests	
	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)
Panel A: Quarterly Changes																		
T-4 to T-3	5.17 (0.643)	-8.51 (0.489)	-0.42 (0.972)	-13.02 (0.255)	0.366	0.602	9.56 (0.298)	2.68 (0.365)	-1.13 (0.906)	0.43 (0.523)	0.290	0.151	-4.11 (0.399)	-5.02 (0.277)	-0.81 (0.671)	-0.42 (0.616)	0.446	0.327
T-3 to T-2	-7.12 (0.432)	-1.05 (0.961)	20.44 (0.066)	0.54 (0.967)	0.054	0.210	-0.67 (0.957)	1.06 (0.850)	3.77 (0.697)	-3.32 (0.742)	0.777	0.665	-5.01 (0.402)	-1.42 (0.801)	6.53 (0.118)	2.85 (0.152)	0.167	0.542
T-2 to T-1	-25.38 (0.021)	-38.50 (0.007)	6.80 (0.601)	5.80 (0.369)	0.017	0.086	-3.81 (0.642)	-6.28 (0.285)	-7.15 (0.367)	-4.08 (0.472)	0.527	0.469	-4.93 (0.253)	-1.17 (0.452)	0.17 (0.936)	0.24 (0.863)	0.236	0.701
T-1 to T+1	-29.98 (0.118)	-14.09 (0.094)	7.99 (0.592)	-10.40 (0.969)	0.100	0.446	-8.93 (0.787)	-7.75 (0.875)	22.84 (0.122)	-4.31 (0.548)	0.391	0.910	-0.48 (0.870)	-0.07 (0.922)	4.85 (0.373)	0.71 (0.834)	0.477	0.691
T+1 to T+2	23.41 (0.064)	-5.83 (0.695)	-18.08 (0.025)	-20.08 (0.027)	0.043	0.161	-5.48 (0.751)	0.00 (0.844)	19.27 (0.155)	-0.07 (0.535)	0.259	0.530	8.31 (0.305)	3.75 (0.517)	9.21 (0.305)	2.70 (0.459)	0.939	0.827
T+2 to T+3	-10.93 (0.293)	-8.84 (0.359)	-4.25 (0.684)	-1.84 (0.539)	0.641	0.777	-15.04 (0.275)	-6.77 (0.383)	-9.25 (0.315)	-6.62 (0.131)	0.715	0.804	10.22 (0.409)	0.90 (0.927)	-1.33 (0.648)	1.70 (0.702)	0.294	0.848
T+3 to T+4	10.66 (0.327)	2.25 (0.432)	8.35 (0.486)	2.56 (0.417)	0.883	0.867	33.72 (0.101)	26.16 (0.094)	14.43 (0.173)	3.29 (0.287)	0.353	0.275	0.45 (0.908)	-0.45 (0.678)	5.99 (0.020)	4.16 (0.035)	0.208	0.262
Panel B: Cumulative Changes Relative to T-1 and T+1																		
T-4 to T-1	-28.99 (0.208)	-44.64 (0.359)	-2.52 (0.859)	-35.69 (0.505)	0.313	0.303	-19.37 (0.526)	-36.87 (0.578)	24.19 (0.083)	4.88 (0.478)	0.199	0.078	-17.18 (0.015)	-16.91 (0.009)	5.11 (0.193)	-2.96 (0.653)	0.003	0.004
T-3 to T-1	-34.92 (0.013)	-43.00 (0.017)	0.43 (0.975)	-16.76 (0.419)	0.057	0.130	-17.81 (0.378)	-22.63 (0.375)	1.66 (0.845)	-7.18 (0.652)	0.309	0.237	-17.11 (0.003)	-14.36 (0.002)	6.72 (0.038)	1.50 (0.147)	<0.001	<0.001
T+1 to T+3	0.43 (0.980)	-14.35 (0.137)	-21.41 (0.024)	-9.77 (0.065)	0.214	0.502	-14.57 (0.239)	-11.49 (0.156)	-6.55 (0.375)	-6.60 (0.390)	0.557	0.462	7.65 (0.366)	8.68 (0.495)	3.49 (0.274)	4.18 (0.372)	0.595	0.721
T+1 to T+4	23.09 (0.471)	-3.95 (0.904)	-5.04 (0.704)	-13.09 (0.648)	0.328	0.676	16.45 (0.597)	-11.12 (0.938)	7.08 (0.626)	-2.34 (0.913)	0.759	0.980	5.69 (0.512)	0.62 (0.632)	9.15 (0.012)	7.35 (0.009)	0.672	0.339

Table 5: Tests of Differences in Holdings Changes by Institutional Types around Lawsuit Announcements

We report mean and median percentage changes in sued firm holdings by type of institution. In Panel A, we report percentage changes in mean and median sued-firm holdings between consecutive quarters. In Panel B, we report percentage changes in mean and median holdings relative to the end-of-quarter holdings immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*). We also perform pairwise comparisons of the changes in holdings by different types of institutions. For each pairwise comparison, we compare the leftmost mean and median with means and medians for all other institutional types. We report p-values for a t-test for the significance of differences in means and a Wilcoxon test for the significance of differences in medians in parentheses.

Quarter Around Lawsuit Announcement	Lead Underwriters		Syndicate Members		Unaffiliated Institutions	
	Mean	Median	Mean	Median	Mean	Median
Panel A: Quarterly Changes						
T-4 to T-3	5.17	-8.51	9.56 (0.753)	2.68 (0.429)	-4.11 (0.160)	-5.02 (0.905)
T-4 to T-3			9.56	2.68	-4.11 (0.126)	-5.02 (0.221)
T-3 to T-2	-7.12	-1.05	-0.67 (0.518)	1.06 (0.840)	-5.01 (0.720)	-1.42 (0.954)
T-3 to T-2			-0.67	1.06	-5.01 (0.361)	-1.42 (0.720)
T-2 to T-1	-25.38	-38.50	-3.81 (0.014)	-6.28 (0.009)	-4.93 (<0.001)	-1.17 (<0.001)
T-2 to T-1			-3.81	-6.28	-4.93 (0.883)	-1.17 (0.506)
T-1 to T+1	-29.98	-14.09	-8.93 (0.043)	-7.75 (0.089)	-0.48 (0.010)	-0.07 (0.048)
T-1 to T+1			-8.93	-7.75	-0.48 (0.169)	-0.07 (0.212)
T+1 to T+2	23.41	-5.83	-5.48 (0.053)	0.00 (0.178)	8.31 (0.037)	3.75 (0.122)
T+1 to T+2			-5.48	0.00	8.31 (0.150)	3.75 (0.732)
T+2 to T+3	-10.93	-8.84	-15.04 (0.295)	-6.77 (0.841)	10.22 (0.147)	0.90 (0.260)
T+2 to T+3			-15.04	-6.77	10.22 (0.119)	0.90 (0.376)
T+3 to T+4	10.66	2.25	33.72 (0.303)	26.16 (0.279)	0.45 (0.264)	-0.45 (0.814)
T+3 to T+4			33.72	26.16	0.45 (0.016)	-0.45 (0.087)
Panel B: Cumulative Changes Relative to T-1 and T+1						
T-4 to T-1	-28.99	-44.64	-19.37 (0.057)	-36.87 (0.095)	-17.18 (0.025)	-16.91 (0.009)
T-4 to T-1			-19.37	-36.87	-17.18 (0.804)	-16.91 (0.118)
T-3 to T-1	-34.92	-43.00	-17.81 (0.041)	-22.63 (0.049)	-17.11 (0.010)	-14.36 (0.002)
T-3 to T-1			-17.81	-22.63	-17.11 (0.944)	-14.36 (0.420)
T+1 to T+3	0.43	-14.35	-14.57 (0.082)	-11.49 (0.476)	7.65 (0.177)	8.68 (0.083)
T+1 to T+3			-14.57	-11.49	7.65 (0.114)	8.68 (0.103)
T+1 to T+4	23.09	-3.95	16.45 (0.423)	-11.12 (0.273)	5.69 (0.104)	0.62 (0.561)
T+1 to T+4			16.45	-11.12	5.69 (0.309)	0.62 (0.287)

Table 6: Dispersion of Analyst Earnings Forecasts and Recommendations

We present percentage changes in the dispersion of analyst earnings forecasts and analyst recommendations around litigation dates for both sued and matched non-sued firms. Matched firms must not have been involved in any securities litigation during our sample period, must have had their IPO within +/- six months of the sued firm, must belong to the same industry as the corresponding sued firm (following the categorization of Loughran and Ritter (2004) and Cliff and Denis (2004) who distinguish between tech and non-tech firms), and must have the smallest Euclidean distance relative to the sued firm in terms of both market capitalization (measured one day prior to the lawsuit announcement) and total return (measured over a period from four quarters to one quarter prior to the lawsuit, i.e. from *T-4* to *T-1*). The *dispersion of analyst earnings forecasts* is calculated as the standard deviation of earnings forecasts for two quarters into the future made by all analysts that cover a given stock, as reported by I/B/E/S-Firstcall. The *dispersion of analyst recommendations* is calculated as the standard deviation of recommendations made by all analysts that cover a given stock during a given quarter, as reported by I/B/E/S-Firstcall. Analyst recommendations range from 1 (strong buy) to 5 (strong sell). In Panel A, we report percentage changes between consecutive quarters. In Panel B, we report percentage changes relative to the end-of-quarter dispersion level immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*). P-values are reported in brackets below each change. In addition, we provide p-values for a t-test and a Wilcoxon test for the significance of differences in means and medians, respectively, in the last two columns of each subgroup.

Quarter Around Lawsuit Announcement	Dispersion of Analyst Earnings Forecasts						Dispersion of Analyst Recommendations					
	Sued Firms		Non-Sued Firms		Equality Tests		Sued Firms		Non-Sued Firms		Equality Tests	
	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)
Panel A: Quarterly Changes												
T-4 to T-3	0.1048	-0.1214	0.2360	0.1237	0.596	0.463	0.2798	0.1453	0.1064	0.0199	0.200	0.131
	(0.606)	(0.961)	(0.126)	(0.184)			(0.057)	(0.020)	(0.131)	(0.334)		
T-3 to T-2	0.2868	0.0595	0.3363	0.1429	0.866	0.650	0.0267	0.0506	0.1009	0.0708	0.077	0.034
	(0.281)	(0.539)	(0.056)	(0.107)			(0.610)	(0.465)	(0.046)	(0.048)		
T-2 to T-1	0.2285	0.1057	0.0508	-0.1930	0.356	0.203	0.0873	0.0657	0.0677	0.0231	0.848	0.912
	(0.108)	(0.094)	(0.711)	(0.798)			(0.271)	(0.273)	(0.321)	(0.300)		
T-1 to T+1	0.2455	0.0556	0.2892	-0.0563	0.874	0.131	0.1002	0.0021	0.0208	0.0251	0.549	0.761
	(0.243)	(0.579)	(0.131)	(0.515)			(0.381)	(0.839)	(0.633)	(0.465)		
T+1 to T+2	0.0409	0.0014	0.3259	0.1201	0.275	0.554	0.0517	0.0053	0.0405	0.0032	0.900	0.838
	(0.752)	(0.984)	(0.161)	(0.375)			(0.522)	(0.813)	(0.407)	(0.417)		
T+2 to T+3	-0.1395	-0.4015	0.0213	-0.0445	0.520	0.334	0.0648	0.0618	-0.0832	-0.0264	0.130	0.146
	(0.466)	(0.203)	(0.898)	(0.553)			(0.470)	(0.297)	(0.117)	(0.268)		
T+3 to T+4	0.2794	0.2010	-0.1057	-0.1667	0.150	0.153	-0.0023	-0.0106	0.0228	0.0035	0.706	0.296
	(0.273)	(0.625)	(0.469)	(0.519)			(0.974)	(0.688)	(0.486)	(0.413)		
Panel B: Changes Relative to T-1 and T+1												
T-4 to T-1	0.2296	0.0909	0.3342	0.4286	0.765	0.858	0.1651	0.1552	0.2745	0.1289	0.576	0.958
	(0.071)	(0.570)	(0.210)	(0.119)			(0.255)	(0.313)	(0.066)	(0.060)		
T-3 to T-1	0.2927	0.0917	0.3797	0.2744	0.724	0.916	0.0979	0.0071	0.1412	0.1062	0.767	0.227
	(0.027)	(0.524)	(0.165)	(0.286)			(0.471)	(0.846)	(0.089)	(0.134)		
T+1 to T+3	-0.3509	-0.3818	0.3920	0.0929	0.019	0.012	0.1217	0.1266	-0.0472	-0.0212	0.153	0.133
	(0.001)	(0.002)	(0.170)	(0.365)			(0.207)	(0.219)	(0.514)	(0.782)		
T+1 to T+4	-0.2484	-0.3684	0.0731	-0.1154	0.208	0.579	0.2068	0.0693	-0.0022	-0.0180	0.166	0.398
	(0.035)	(0.078)	(0.753)	(0.773)			(0.259)	(0.461)	(0.972)	(0.934)		

Table 7: Changes in Analyst Earnings Forecasts around Lawsuit Announcements

We examine changes in mean and median earnings forecasts made by analysts affiliated with lead underwriters, non-lead members of the underwriting syndicate, and unaffiliated institutions during various periods before and after a lawsuit announcement for both sued firms and matched non-sued firms. Matched firms must not have been involved in any securities litigation during our sample period, must have had their IPO within +/- six months of the sued firm, must belong to the same industry as the corresponding sued firm (following the categorization of Loughran and Ritter (2004) and Cliff and Denis (2004) who distinguish between tech and non-tech firms), and must have the smallest Euclidean distance relative to the sued firm in terms of both market capitalization (measured one day prior to the lawsuit announcement) and total return (measured over a period from four quarters to one quarter prior to the lawsuit, i.e. from *T-4* to *T-1*). Our measure of analyst earnings forecasts is based on forecasts that are made for two quarters into the future, as reported by I/B/E/S-Firstcall. To separate analysts based on their institutional affiliation, we accessed SDC Platinum to identify the lead underwriter(s) and other members of the underwriting syndicate for each offering and then used the broker identification file in the I/B/E/S database to assign the analysts to the respective institutions. We consider analysts to be affiliated if they are related to any of the entities associated with the respective lead underwriter or other members of the syndicate (i.e., divisions, foreign or domestic branches, sister-firms of the underwriting or other member entity). Analysts that can not be assigned in this manner are classified as belonging to other (unaffiliated) institutions. In Panel A, we report changes between consecutive quarters. In Panel B, we report changes relative to the end-of-quarter earnings forecasts immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*). All changes are calculated as $\Delta EPS_{t,t-x} = EPS_t - EPS_{t-x}$ (t = *T-3* to *T+4* and x = 1 to 3) and are reported in cents. P-values are reported in brackets below each change. In addition, we provide p-values for a t-test and a Wilcoxon test for the significance of differences in means and medians, respectively, in the last two columns of each institutional subgroup.

Quarter Around Lawsuit Announcement	Lead Underwriters						Syndicate Members						Other (Unaffiliated) Institutions					
	Sued Firms		Non-Sued Firms		Equality Tests		Sued Firms		Non-Sued Firms		Equality Tests		Sued Firms		Non-Sued Firms		Equality Tests	
	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)
Panel A: Quarterly Changes																		
T-4 to T-3	0.2741	0.3795	0.1467	0.0143	0.616	0.826	0.2521	0.5352	0.6403	0.4417	0.468	0.663	-0.1470	-0.7448	-0.2371	-0.4089	0.805	0.468
	(0.467)	(0.438)	(0.683)	(0.945)			(0.217)	(0.524)	(0.166)	(0.287)			(0.706)	(0.621)	(0.194)	(0.032)		
T-3 to T-2	0.1098	0.1762	-0.0641	-0.0595	0.652	0.768	0.3204	0.1944	-0.2071	-0.2058	0.242	0.519	-0.3807	-0.2187	-0.1931	-0.3338	0.512	0.675
	(0.802)	(0.681)	(0.667)	(0.652)			(0.559)	(0.737)	(0.327)	(0.313)			(0.052)	(0.035)	(0.390)	(0.418)		
T-2 to T-1	-0.3258	-0.4484	0.1676	0.1911	0.045	0.064	-0.1984	-0.3319	0.1686	-0.0455	0.318	0.391	-0.5703	-0.5534	-0.2780	-0.1922	0.327	0.299
	(0.151)	(0.206)	(0.413)	(0.563)			(0.684)	(0.621)	(0.306)	(0.852)			(0.005)	(0.004)	(0.253)	(0.245)		
T-1 to T+1	-0.0467	-0.3117	0.0689	-0.2402	0.087	0.612	-0.7963	-0.6296	-0.2422	0.0393	0.170	0.154	-0.2035	-0.4622	-0.3939	-0.4211	0.445	0.963
	(0.901)	(0.255)	(0.920)	(0.470)			(0.062)	(0.279)	(0.448)	(0.789)			(0.441)	(0.454)	(0.001)	(0.001)		
T+1 to T+2	-0.7995	-0.9325	0.1656	0.2006	0.011	0.012	-1.2710	-1.1418	0.9155	0.9419	0.291	0.112	-0.2347	-0.3297	0.3134	0.6324	0.099	0.151
	(0.005)	(0.016)	(0.563)	(0.844)			(0.272)	(0.186)	(0.637)	(0.880)			(0.242)	(0.216)	(0.244)	(0.305)		
T+2 to T+3	-0.2374	-0.3022	-0.2064	-0.2658	0.944	0.713	0.5290	0.5485	-0.4008	-0.3951	0.147	0.196	-0.1245	-0.0074	-0.3457	-0.2963	0.577	0.224
	(0.484)	(0.563)	(0.516)	(0.469)			(0.350)	(0.548)	(0.341)	(0.454)			(0.636)	(0.734)	(0.269)	(0.102)		
T+3 to T+4	-0.2744	-0.4053	-0.1208	-0.1306	0.677	0.299	-0.0337	-0.0349	-0.1140	0.1375	0.783	0.682	-0.6630	-0.3999	-0.1436	0.0077	0.092	0.138
	(0.462)	(0.377)	(0.611)	(0.565)			(0.946)	(0.974)	(0.885)	(0.789)			(0.060)	(0.039)	(0.331)	(0.588)		
Panel B: Changes Relative to T-1 and T+1																		
T-4 to T-1	-0.0365	-0.3806	-0.1168	-0.1379	0.826	0.772	-0.8303	-0.7857	0.6641	0.2365	0.011	0.149	-0.8645	-0.9452	-0.4032	-0.5860	0.243	0.258
	(0.910)	(0.523)	(0.534)	(0.578)			(0.004)	(0.241)	(0.724)	(0.147)			(0.026)	(0.027)	(0.091)	(0.159)		
T-3 to T-1	-0.5078	-0.4412	0.1969	0.3031	0.016	0.009	-0.6196	-0.6687	0.2024	-0.3127	0.646	0.790	-0.6422	-0.6566	-0.4666	-0.3082	0.509	0.463
	(0.036)	(0.039)	(0.401)	(0.375)			(0.021)	(0.268)	(0.310)	(0.664)			(0.001)	(<0.001)	(0.052)	(0.057)		
T+1 to T+3	-0.6404	-0.7737	-0.0947	-0.2103	0.175	0.128	-0.6394	-0.6285	0.5011	0.4936	0.461	0.397	-0.1941	-0.4662	-0.5742	-0.4925	0.358	0.279
	(0.048)	(0.078)	(0.739)	(0.844)			(0.035)	(0.336)	(0.163)	(0.257)			(0.453)	(0.542)	(0.112)	(0.084)		
T+1 to T+4	-0.8105	-1.0026	0.0934	-0.1245	0.027	0.055	-1.6480	-1.5031	0.6361	0.6550	0.067	0.059	-0.1936	-0.1622	-0.5617	-0.4683	0.377	0.362
	(0.015)	(0.063)	(0.737)	(0.813)			(0.011)	(0.098)	(0.129)	(0.203)			(0.509)	(0.465)	(0.091)	(0.074)		

Table 8: Changes in Analyst Recommendations around Lawsuit Announcements

We examine changes in mean and median recommendations made by analysts affiliated with lead underwriters, members of the underwriting syndicate, and unaffiliated institutions during various periods before and after a lawsuit announcement for both sued firms and matched non-sued firms. Matched firms must not have been involved in any securities litigation during our sample period, must have had their IPO within +/- six months of the sued firm, must belong to the same industry as the corresponding sued firm (following the categorization of Loughran and Ritter (2004) and Cliff and Denis (2004) who distinguish between tech and non-tech firms), and must have the smallest Euclidean distance relative to the sued firm in terms of both market capitalization (measured one day prior to the lawsuit announcement) and total return (measured over a period from four quarters to one quarter prior to the lawsuit, i.e. from *T-4* to *T-1*). Analyst recommendations range from 1 (strong buy) to 5 (strong sell) and are based on data provided by I/B/E/S-Firstcall. To separate analysts based on their institutional affiliation, we accessed SDC Platinum to identify the lead underwriter(s) and other members of the underwriting syndicate for each offering and then used the broker identification file in the I/B/E/S database to assign the analysts to the respective institutions. We consider analysts to be affiliated if they are related to any of the entities associated with the respective lead underwriter or other members of the syndicate (i.e., divisions, foreign or domestic branches, sister-firms of the underwriting or other member entity). Analysts that can not be assigned in this manner are classified as belonging to other (unaffiliated) institutions. In Panel A, we report changes between consecutive quarters. In Panel B, we report changes relative to the end-of-quarter recommendation level immediately preceding the lawsuit (*T-1*) and following the lawsuit (*T+1*). All changes are calculated as $\Delta Recom_{t,t-x} = Recom_t - Recom_{t-x}$ (t = *T-3* to *T+4* and x = 1 to 3). P-values are reported in brackets below each change. In addition, we provide p-values for a t-test and a Wilcoxon test for the significance of differences in means and medians, respectively, in the last two columns of each institutional subgroup.

Quarter Around Lawsuit Announcement	Lead Underwriters						Syndicate Members						Other (Unaffiliated) Institutions					
	Sued Firms		Non-Sued Firms		Equality Tests		Sued Firms		Non-Sued Firms		Equality Tests		Sued Firms		Non-Sued Firms		Equality Tests	
	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)	Mean	Median	Mean	Median	T-Test (p-value)	Wilcoxon Test (p-value)
Panel A: Quarterly Changes																		
T-4 to T-3	0.1447	0.0000	0.1500	0.0000	0.975	0.827	0.1398	0.0000	0.1272	0.0000	0.804	0.903	0.1307	0.0000	0.1009	0.0000	0.835	0.945
	(0.316)	(0437)	(0.186)	(0.282)			(0.216)	(0.447)	(0.096)	(0.190)			(0.321)	(0.574)	(0.210)	(0.265)		
T-3 to T-2	0.3134	0.0000	0.0794	0.0000	0.161	0.015	0.2970	0.0000	-0.0121	0.0000	0.749	0.812	0.2736	0.0000	0.1438	0.0000	0.372	0.462
	(0.036)	(0.031)	(0.424)	(0.517)			(0.040)	(0.048)	(0.749)	(0.538)			(0.033)	(0.034)	(0.104)	(0.117)		
T-2 to T-1	0.1675	0.0000	0.2045	0.0000	0.830	0.899	0.3467	0.0000	0.2424	0.0000	0.567	0.548	0.3389	0.0000	0.3202	0.0000	0.902	0.669
	(0.192)	(0.247)	(0.119)	(0.228)			(0.013)	(0.029)	(0.257)	(0.298)			(0.009)	(0.002)	(0.002)	(0.001)		
T-1 to T+1	0.1246	0.0000	0.0217	0.0000	0.320	0.544	0.1380	0.0000	-0.0208	0.0000	0.179	0.186	0.1252	0.0000	-0.0088	0.0000	0.175	0.851
	(0.271)	(0.328)	(0.328)	(0.540)			(0.349)	(0.421)	(0.339)	(0.473)			(0.208)	(0.508)	(0.762)	(0.482)		
T+1 to T+2	0.0397	0.0000	0.0870	0.0000	0.618	0.654	0.0526	0.0000	0.0694	0.0000	0.175	0.209	0.0327	0.0000	0.1294	0.0000	0.262	0.808
	(0.171)	(0294)	(0.342)	(0.749)			(0.427)	(0.402)	(0.177)	(0239)			(0.359)	(0.410)	(0.105)	(0.211)		
T+2 to T+3	0.1190	0.0000	0.0435	0.0000	0.444	0.906	-0.0394	0.0000	0.0859	0.0000	0.284	0.315	0.0697	0.0000	0.0634	0.0000	0.925	0.874
	(0.234)	(0.311)	(0.162)	(0.261)			(0.587)	(0.630)	(0.290)	(0.362)			(0.168)	(0.313)	(0.183)	(0.256)		
T+3 to T+4	0.0317	0.0000	0.1236	0.0000	0.320	0.394	0.0330	0.0000	0.0715	0.0000	0.303	0.357	-0.0098	0.0000	0.0588	0.0000	0.166	0.413
	(0.329)	(0.402)	(0.397)	(0.355)			(0.647)	(0.714)	(0.421)	(0.468)			(0.794)	(0.721)	(0.177)	(0.187)		
Panel B: Changes Relative to T-1 and T+1																		
T-4 to T-1	0.6111	0.5000	0.4500	0.0000	0.563	0.241	0.7219	0.0000	0.3672	0.0000	0.270	0.661	0.5425	0.3750	0.4474	0.4286	0.624	0.854
	(0.010)	(0.004)	(0.025)	(0.063)			(0.001)	(<0.001)	(0.127)	(0.173)			(0.003)	(<0.001)	(0.001)	(<0.001)		
T-3 to T-1	0.4531	0.1250	0.2857	0.0000	0.471	0.055	0.5747	0.0000	0.1697	0.0000	0.373	0.743	0.5614	0.0000	0.4241	0.4252	0.507	0.912
	(0.017)	(0.008)	(0.083)	(0.095)			(0.014)	(0.009)	(0.218)	(0.373)			(0.004)	(0.001)	(0.001)	(<0.001)		
T+1 to T+3	0.1587	0.0000	0.1304	0.0000	0.835	0.689	0.0138	0.0000	0.1531	0.0000	0.095	0.109	0.0866	0.0000	0.1693	0.0000	0.400	0.359
	(0.123)	(0.127)	(0.173)	(0.188)			(0.205)	(0.264)	(0.076)	(0.082)			(0.099)	(0.137)	(0.049)	(0.024)		
T+1 to T+4	0.1905	0.0000	0.2536	0.0000	0.691	0.865	0.0422	0.0000	0.2294	0.0000	0.327	0.378	0.0539	0.0000	0.2313	0.0000	0.082	0.188
	(0.074)	(0.066)	(0.047)	(0.031)			(0.517)	(0.792)	(0.035)	(0.041)			(0.288)	(0.311)	(0.022)	(0.013)		

Table 9: OLS Regression for Institutional Holding Revisions

We perform a series of ordinary least squares (OLS) regressions to determine percentage changes in institutional holdings in reaction to a number of predetermined variables. Our dependent variables are the percentage change in institutional holdings between *T-2* and *T-1* for all institutions (models 1-3), lead underwriters (models 4-6), non-lead members of the underwriting syndicate (models 7-9), and other (unaffiliated) institutions (models 10-12). Our independent variables include a dummy variable that identifies whether or not the firm was sued in connection with its IPO (*Sued*), the change in average analyst earnings forecasts made by the lead underwriters, non-lead members of the underwriting syndicate, and other (unaffiliated) institutions for two quarters into the future, measured over the period from *T-4* to *T-1* (ΔEPS_{Lead}, ΔEPS_{Synd}, and ΔEPS_{Oth}, respectively), the change in average analyst recommendations made by analysts affiliated with the lead underwriters, non-lead members of the underwriting syndicate, and other (unaffiliated) institutions between time *T-4* and *T-1* ($\Delta Recomm_{Lead}$, $\Delta Recomm_{Synd}$, and $\Delta Recomm_{Oth}$, respectively), the return between time *T-4* and *T-2* ($Ret_{T-4,T-2}$), the return between *T-2* and *T-1* ($Ret_{T-2,T-1}$), and an interactive term of our *Sued* dummy and the announcement return measured as the cumulative abnormal return on the lawsuit announcement date and the first trading day following the announcement (*Sued*CAR(0,1)*). For each regressor, we present coefficient estimates with p-values in parentheses below. In the last two rows, we present the p-value for an F-test and the adjusted R^2 for each regression.

Variable	All Institutions			Lead Underwriters			Syndicate Members			Other Institutions		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12
Intercept	0.4708	0.4112	0.4396	0.3064	0.2419	0.2883	0.3847	0.2664	0.3050	0.4892	0.3704	0.5173
	(0.026)	(0.058)	(0.047)	(0.098)	(0.353)	(0.140)	(0.043)	(0.218)	(0.077)	(0.018)	(0.034)	(0.019)
Sued	-0.0641	-0.0830	-0.0597	-0.1404	-0.1215	-0.1012	-0.0271	-0.0853	-0.0610	-0.0644	-0.0972	0.0016
	(0.236)	(0.045)	(0.308)	(<0.001)	(0.004)	(0.025)	(0.174)	(0.048)	(0.092)	(0.258)	(0.081)	(0.547)
ΔEPS_{Lead}		0.0124			0.0686			-0.0193			0.0131	
		(0.391)			(0.089)			(0.324)			(0.556)	
ΔEPS_{Synd}		0.0056			0.0358			0.1311			0.0271	
		(0.848)			(0.417)			(0.028)			(0.625)	
ΔEPS_{Oth}		0.0253			0.0958			0.0527			0.0439	
		(0.069)			(0.052)			(0.071)			(0.072)	
$\Delta Recomm_{Lead}$			-0.1012			-0.0005			0.0035			-0.2801
			(0.547)			(0.782)			(0.687)			(0.184)
$\Delta Recomm_{Synd}$			0.0968			-0.0026			-0.0255			0.1416
			(0.592)			(0.626)			(0.066)			(0.649)
$\Delta Recomm_{Oth}$			-0.3112			-0.0047			-0.0207			-0.3521
			(0.077)			(0.512)			(0.054)			(0.088)
$Ret_{T-4,T-2}$	0.0395	-0.0198	0.0570	0.0092	0.0083	0.0097	0.0125	-0.0013	0.0084	0.0461	-0.0317	0.0704
	(0.526)	(0.781)	(0.302)	(0.013)	(0.017)	(0.063)	(0.004)	(0.805)	(0.028)	(0.613)	(0.715)	(0.362)
$Ret_{T-2,T-1}$	0.1462	0.0673	0.1754	0.0231	-0.0009	0.0189	0.0157	0.0055	0.0143	0.1485	0.0706	0.1633
	(0.078)	(0.385)	(0.048)	(0.084)	(0.886)	(0.112)	(0.003)	(0.417)	(0.009)	(0.086)	(0.392)	(0.065)
Sued*CAR(0,1)	0.1581	-0.0229	-0.0725	0.4235	0.5780	0.5047	0.3341	0.2788	0.1952	0.1327	-0.0520	-0.0938
	(0.368)	(0.924)	(0.716)	(0.020)	(<0.001)	(0.014)	(0.072)	(0.059)	(0.374)	(0.402)	(0.874)	(0.593)
F-Test (p-value)	0.025	0.014	0.023	0.012	<0.001	0.005	0.041	0.023	0.035	0.002	<0.001	<0.001
Adjusted R^2	0.196	0.220	0.188	0.257	0.319	0.303	0.204	0.252	0.238	0.165	0.192	0.154