Information Asymmetries and Insider Trading in Firms Subject to Securities Class Action

Litigation: A Look at Managing vs. Non-Managing Insiders

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ABSTRACT

Information Asymmetries and Insider Trading in Firms Subject to Securities Class Action
Litigation: A Look at Managing vs. Non-Managing Insiders

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In this study, we investigate the trading patterns of corporate insiders around the announcement dates of shareholder class action lawsuits and related settlements. In particular, we explore whether these trading patterns are indicative of information asymmetries between managing and non-managing insiders. We provide evidence that litigation and settlement announcements have a significant impact on the stock prices of sued firms, and that foreknowledge of these events may be used by insiders to earn abnormal profits. We assess both actual and proposed trades by insiders in sued firms to detect abnormal trading activity prior to these events. Our results provide strong evidence of abnormal trading activity by insiders of sued firms prior to these announcements. The direction of their trades suggests the presence of informed trading prior to both litigation and settlement announcements. Moreover, we observe that managers exhibit higher abnormal trading activity than non-managing insiders prior to litigation and settlement announcements.

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CONTRIBUTION OF AUTHORS

The initial insider trading dataset used in this study was provided by Pukthuanthong Kuntara. The dataset contained insider transactions filled on Forms 3, 4, and 5, and proposed transactions filled on Form 144 with the Securities and Exchange Commission.

Contents

1. Introduction

In this study, we examine how the trading behaviour of corporate insiders changes prior to the announcement of securities class action lawsuits and settlements. We choose securities class action lawsuits and settlements as events of interest because we hypothesize that they are not entirely unexpected for corporate insiders. Moreover, we investigate differences between the trading activities of managing and non-managing insiders. We hypothesize that managers are more likely to have an informational advantage over non-managing insiders, hence they will exhibit higher abnormal trading activity prior to litigation and settlement announcements.

Our initial analysis focuses on the wealth effects of securities class action announcements and related settlements. On one hand this helps us establish that litigation announcements indeed have a significant wealth effect once they are announced. On the other hand, it allows us to explore price trends prior to litigation announcement which may be attributed to informed traders taking advantage of their information.

We then focus on examining trends in actual and proposed insider trades around litigation and settlement announcements. We do this by estimating the differences in insider trading activities during event windows surrounding the announcements and expected trading during a prior estimation period. In Addition we examine how insider trading differs between our sample and a matched control sample. Finally, we explore differences in the trading activities of managing and non-managing insiders.

There is an extensive body of literature that examines the information content of insider trades as well as insider trading prior to corporate events. Also, several studies have investigated insider trading around lawsuits. However, all these studies only examine actual trades by insiders. We are not aware of any literature on insider trading around settlement announcements. We contribute to the literature on insider trading by including proposed sales in our analysis. Moreover, we are the first to investigate insider trading patterns around public settlement announcements.

We hypothesize that insider of sued firms trade on their foreknowledge of forthcoming lawsuits/settlements for personal gains. We also expect information asymmetries between

managing and non-managing insiders in regard to forthcoming lawsuits/settlements. Hence we expect an increase (decrease) in net-sales and proposed sales by insiders of sued firms prior to lawsuit (settlement) announcements. In addition we expect the magnitude of abnormal trading by managing insiders to be greater than that of non-managing insiders.

Our paper is organized as follows. Section 2 describes the existing literature exploring the information content of insider trades and insider trading patterns prior to corporate events. Section 3 describes our data and summary statistics. Section 4 describes our methodology. Section 5 illustrates the empirical results of our study. Section 6 provides a brief conclusion.

2. Literature Review
2.1 Information Content of Insider Trades
There is a vast body of literature that examines the incentives and information content of insider trades. Although some insider trades are due to insiders' liquidity and portfolio rebalancing objectives, another component of insider trades may be driven by the information advantage of insiders over other market participants. Lorie and Niederhoffer (1968) suggest that in general, insiders tend to abnormally sell (buy) before large stock price declines (rises). However, they do not make any adjustments for risk. Jaffe (1974) assesses the profitability of insider trades by evaluating a sample of the 200 largest securities on CRSP. He observes insider transitions in these companies in five random months, over the period from 1962 to 1968. He also divides his sample into sub-samples of large transactions with a value greater than 20,000 dollars, and a sub-sample of intensive trading months, i.e. months in which the number of purchasers (sellers) surpasses the number of sellers (purchasers) by a constant. He then evaluates the abnormal returns associated with each sub-sample during three different holding periods to assess the cumulative abnormal returns in the short and long-term. In his analysis, he assumes a transaction cost of two percent. He finds that although all sub-samples produce abnormal profits, only the subsample that includes intensive trading months produces a positive profit of about three percent after including transaction costs. Moreover, he performs a similar analysis on samples of intensive trading months in different time periods in the1950s and 1960s and arrives at similar results, suggesting that insiders have an information advantage. Finnerty (1976) evaluates the presence of informed insider trading for all NYSE firms during a 3 year period starting in January 1969 and ending in December 1971. He uses a similar methodology to Jaffe (1974),

although he separates buy and sell transactions into monthly buy and sell portfolios. He then assesses the one year holding period return associated with his monthly insider trade sample. His results are similar to Jaffe (1974), suggesting that stock prices tend to appreciate for firms in which insiders purchase shares during a given month and decline when they sell. Rozeff and Zaman (1988) extend a study by Finnerty (1976a), who finds that insiders tend to purchase securities of smaller companies with larger earnings and larger dividends, compared to securities they sell. They test whether the profitability of insider trades can be explained by size and growth effects. They estimate abnormal returns associated with a portfolio of insider trades during a ten year period from 1973 to 1982 using a standard market model event study. They take size and earnings to price effects into account when estimating abnormal returns. Their results suggest that insiders achieve significant abnormal returns even after adjusting for transaction costs. Adjusting the abnormal returns for size and earnings to price effects wipes out 25 to 50 % of excess profits. Yet, even then, their results suggest that insiders still earn excess profits of 3 to 3.5 percent per year. Other early studies by Seyhun (1988), Lin and Howe (1990), Seyhun (1992), and Meulbroek (1992) find similar results that suggest that insiders trade on special information that is not reflected in securities prices. Wisniewski and Bohl (2005) also find similar if not stronger results using Polish insider trading data. They argue that the abnormal profits associated with insider trades on the Warsaw Stock Exchange are higher compared to those in mature and developed markets because of poor enforcement of insider trading regulations. Piotroski and Roulstone (2005) suggest that the superior information by insiders can be explained by temporary misevaluations of their company's stock price by market participants, although their insights into the future prospects of the company also contribute to the informativenss of their trades. Ravina and Sapienza (2010) evaluate information asymmetries that exist between insiders and other market participants, as well as information asymmetries between corporate executives, independent directors[1], and outside block-holders[2] of a company's shares. They assess insider trading data between 1986 and 2003. They find that all three groups outperform the market in most holding periods following their purchases. Executives earn the highest returns following their purchases, followed by independent directors with about two percent lower profits, and block-holders. Cohen, Malloy, and Pomorski (2012) claim that some

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[1] A member of a company's board of directors who was brought in from outside the company
[2] Owner of 10 percent or more of the company's shares

insider trades might be of a routine nature without any information content, while other insider trades may be based on superior information about the future performance of the firm. They define routine trades as trades performed by the same insider in the same calendar month during at least 3 years of their sample period, which starts in 1989 and ends in 2007. Using this approach, they classify about half of all insider trades in their sample as being of a routine nature. Their results suggest that a long/short portfolio of routine insider purchases/sales earns almost zero annualized abnormal returns, while the remaining insider trades, i.e. trades that likely have an annualized value-weighted and equally weighted abnormal returns of 9.8 and 21.6 percent, respectively.

2.2. Insider Trading around Corporate Events

There is a sizeable stream body of research on insider trading behaviour around corporate events. These events typically cause significant stock price changes apart from the effects of insider sales and purchases. While most empirical evidence suggests that insiders trade on their information advantage, the results are not always consistent. Earlier studies that examine insider trading around corporate events such as takeover bids (Seyhun, 1990), dividend initiations (John and Lang, 1991), seasoned equity offerings (Karpoff and Lee, 1991), stock repurchases (Lee, Mikkelson, and Partch, 1992) and information-sensitive security issues (Lee and Loughran, 1998; Kahle, 2000) show that abnormal insider trades increase prior to these events. Some studies such as Rozeff and Zaman (1998), Lakonishok and Lee (2001), and Jenter (2005) suggest that insiders are contrarian investors. Huddart, Ke and Shi (2007) suggest that insiders avoid trading on their inside knowledge before high jeopardy events such as earnings announcements and trade most heavily after earnings announcements on their foreknowledge of price-relevant information in the forthcoming 10-K or 10-Q filing. Louis, Sun, and White (2010) evaluate insider trading behaviour after repurchase tender offers. They point out that insiders are better positioned to exploit their inside information and earn abnormal profits following Dutch auction repurchases compared to fixed price repurchases, since the price of Dutch auctions is determined by investors. They evaluate insider trading within +/- one year of repurchase tender offers during the period 1984 to 2003. Their results suggest that insiders exhibit abnormal net-selling in the quarter following the repurchase tender offer and that their net selling is negatively related to the future performance of the firm. They also divide their sample into Dutch auctions and fixed price tender offers and find that the abnormal net-selling and the negative relationship between net-

selling and performance are only significant for Dutch auction tender offers, suggesting that insider trades after Dutch auction repurchases are of an informative nature while insider trades after fixed price tender offers are driven by liquidity purposes. Kedia and Zhou (2009) indirectly investigate insider trading in corporate bonds of firms that have been targeted for a takeover. They state that bondholders of targeted companies only gain if the firms' bonds are riskier than the acquirer's debt. Hence, in order to earn abnormal profits by trading target bonds prior to public takeovers, one must have comprehensive knowledge of the risk aspects of both the acquirer and the target. They attempt to detect the presence of informed trading by regressing abnormal bond price returns for a sample of 642 target companies during the period 1994 to 2006 on credit rating differences of the acquirer and the target, controlling for firm specific factors such as the maturity of debt and firm size, in the 3 months prior to the public announcement of a takeover. They find a significant positive relationship between credit rating differences and abnormal returns, suggesting that there is information leakage prior to the announcement. Then they exclude companies that were rumored to be targets of a takeover in the 3 month pre-announcement period, and find that the positive relationship between credit rating differences and abnormal returns still holds, suggesting the pre-announcement abnormal returns are associated with insider information rather than market anticipation. Moreover, Agrawal and Nasser (2012) directly investigate the insider trading patterns prior to takeover announcements for sample of takeover announcements between 1988 and 2006. Their findings suggest that, although insiders do not engage in active trading prior to takeover announcements, they reduce their selling significantly, which leads to a roughly 50 percent increase in the monetary value of their net-purchases prior to the announcement relative to their normal levels of trading. Hence their results suggest that insiders engage in a passive profitable trading strategy related to insider information. More recently, Augustin and Brenner (2014) examine insider trading prior to merger and acquisition announcements for a sample of 1,859 deals (1,669 unique targets, and 1,279 unique acquirers) over the period 1996 to 2012. They investigate option trades of insiders in their sample. They find significant volumes of abnormal option trading in both target and acquirer firms prior to merger announcements. Jain and Sunderman (2014) analyze insider trading activity around merger announcements in the Indian stock market[3] over a 15 year period 1996 to 2010. They find that insiders engage in private information-based trading prior to

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[3] Bombay Stock Exchange (BSE)

industry merger[4] announcements, but do not find any abnormal insider trading activity prior to non-industry merger announcements. Agrawal and Cooper (2014) investigate insider trading patterns of insiders prior to earnings restatements[5] of 518 US firms during the period 1997 to 2002. They hypothesize that insiders will exhibit abnormal trading activity if the earnings restatement is of a serious nature. They compare their sample's insider trading behaviour with a control sample and find no evidence of significant abnormal trading prior to the announcement of an earnings restatement. Then they divide their full sample into sub-samples based on restatements being positive/negative (upward/downward adjustments), the number of restated quarters, and potential losses[6]. Their results indicate that insiders of restating firms exhibit larger and more significant abnormal selling and net-selling prior to restatements that are more severe in nature. This finding is in line with their hypothesis of informed insider trading prior to restatement announcements.

2.3 Insider Trading around Fraudulent Events

There is also an extensive body of literature on insider trading patterns around fraudulent events. Summers and Sweeney (1998) examine insider trading activities prior to the illegal, fraudulent activities which were mentioned in the Wall Street Journal Index, during the period from 1980 to 1987. Their findings suggest that prior to these announcements, insiders reduce their stockholdings through significant selling activities. Some of the empirical literature on insider trading in relation to class action litigation has focused on the merits of the suits (e.g. whether managers deliberately delayed the disclosure of material negative information). The release of negative information that triggers securities class actions typically causes substantial stock price drops at the end of class period. Abnormal insider sales during the class period provide evidence on managers' incentives to delay negative information disclosures and thus the merit of a securities class action. Niehaus and Roth (1999) examine insider sales of 63 firms subject to securities class actions in the period 1988 to 1994 and find no abnormal insider trading activity during the class period[7]. Griffin and Grundfest (2002) use a larger sample of 842 securities class action lawsuits during the period 1996 to 2001 to examine insider trading activities during the

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[4] Mergers with the same 4-digit SIC codes are considered industry mergers in this paper.
[5] Firms which misstated their earnings (GAAP violations etc.) and are going to adjust their earnings statements.
[6] They use value of loss avoided by selling the stock prior to the announcement of earnings restatement as a proxy for potential losses.
[7] A class period is the period of time during which the corporate actors are alleged to have been engaged in wrongful conduct.

class period. They compare the insider trading activities in their sample with time periods before and after the lawsuit and with a control sample of matched non-sued firms. They find that net insider sales of sued firms during the class period are significantly higher than those before or after the class period and higher than those of matched firms during the same period. In addition, they claim that unusual insider sales provide a strong indication of fraud in a securities class action litigation. Iqbal, Shetty, and Wang (2007) examine insider trading in 340 sued firms around securities class actions. They find no significant insider sales during the class period. However, they show that insiders increase their shareholdings immediately before the class period, suggesting that insiders profit from artificially inflated stock prices during the class period. Thevenot (2012) investigates insider trading behaviour around GAAP violations that are likely to be intentional and in which managers are likely to trade on private knowledge associated with the violation. They claim that managers are more likely to have knowledge of violations related to revenue recognition[8] and other accounting irregularities[9] as identified by Hennes et al. (2008). They categorize their sample of financial restatements during 1997 to 2006 into fraudulent[10] and non-fraudulent restatements. Their analysis indicates that insiders of firms in which the restatement is less severe are more likely to trade on private information. Their findings suggest that although insiders of fraudulent firms exhibit increased selling activity prior to restatement announcement, their increased selling activity is driven by their risk aversion and personal preferences rather than private information. Badertscher, Hribar, and Jenkins (2011) examine insider trading around accounting restatements as well as the market reaction to the associated announcements. They observe a larger negative market reaction to restatement announcements in firms in which insiders tend to be net-sellers than firms in which insiders are net-purchasers. In addition, they find a significant negative market reaction following disclosed insider trades but no significant market reaction following non-disclosed insider trades. Their findings suggest that investors tend to see insider trades as an information signal and price the restatement announcement accordingly. In addition, they argue that the negative market reaction prior to restatement announcements is caused by investors' reaction to insider trades rather than informed trading or information leakage. Bradley, Cline, and Lian (2014) investigate the presence of informed trading during the class period associated with 1,596 lawsuits during the

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[8] See Feroz et al. (1991), Anderson and Yohn (2002), and Palmrose and Scholz (2004).
[9] Restatements related to costs or expenses, restructuring, assets, or inventory.
[10] If the firm admits or is accused of fraud by an outside party, such as the SEC, investors, or the media.

period 1996 to 2011. They evaluate call option exercises by executives which are likely to be information driven[11]. Their results suggest that executives of sued firms significantly increase their informed option exercises during the class period compared to the pre-class periods and relative to a matched control sample. This finding suggests the presence of informed trading by executives of sued firms prior to securities class action lawsuits. Griffin, Lont, and McClune (2014) assess insider trading around the disclosure[12] of debt covenant violations for first time offender firms during the period 2000 to 2008. They relate the trading activity of insiders to abnormal returns around the disclosure date. Their findings show that insiders are net sellers prior to the disclosure, and that the net-selling activity increases prior to the stock price decline of violating firms, suggesting that insider trades may be based on an information advantage.

3. Data and Sample Description
3.1 Data
Our data set includes information on proposed and actual insider transactions, securities class action lawsuits, securities class action settlements, and financial market data.

The Securities and Exchange Commission (SEC) defines an insider as an executive, officer, director, controlling person of the firm, or any principal shareholder who owns more than 10% of total common stock outstanding. Besides requiring insiders to report their holdings to the SEC on an annual basis, U.S. securities laws mandate the reporting of any changes to those holdings plus the announcement of restricted share sales in advance. Actual insider sales and purchases are reported on Form4. Proposed insider sales are reported on Form144 which must be filed whenever insiders plan to sell restricted (or unregistered) shares. Specifically, Form 144 must be filed as a notice of the proposed sale of restricted securities or securities held by an affiliate of the issuer when the amount to be sold during any three month period exceeds 500 shares or units or has an aggregate sales price in excess of 10,000$.

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[11] Option exercises that are not associated with a vesting, maturity, or ex-dividend date (Brooks et al. 2012).
[12] SEC regulations and generally accepted accounting principles require disclosure of all material breaches of debt covenants in the notes to the financial statements.

We construct an insider trading dataset from the Insider Filing Data Feed (IFDF) provided by Thomson Reuters, which captures all U.S. insider holdings and trading activity as reported on SEC Forms 3, 4, and 5. From IFDF, we obtain insider transaction data from January 1996 to December 2013. Following the literature investigating the presence of informed insider trading[13], we omit all duplicate, amended, and inconsistent transactions from our data set. In addition, we exclude option exercises since they are likely to be related to employee compensation packages that should be less affected by insider information. Ravina and Sapienza (2010) illustrate that trades by principal shareholders who are not officers or directors do not convey much information. Consequently, we focus our attention on trades by company executives, officers, directors, and controlling persons. For each firm covered in our insider data set, we retrieve daily return data and Standard Industrial Classification codes (SIC) from the Center for Research in Securities Prices (CRSP). In addition, we collect information on the monthly market capitalization for each firm from COMPUSTAT.

We match our insider data set with a litigation data set that we collected from Stanford's Securities Class Action Clearinghouse (SCAC)[14], which tracks federal securities class action lawsuits since 1996. Our litigation data set covers the period from January 1996 to December 2013. We identify 3,127 lawsuits that were filed against publicly traded firms.

We exclude lawsuits in which firms are sued more than once in one year to reduce any estimation biases that may result from overlapping litigations. In addition, we exclude IPO related cases and lawsuits in which sued firms do not have price records on the CRSP daily database at least two years before the lawsuit announcement. This reduces the size of our litigation sample to 2,195 securities class action lawsuits which we use in our event study to investigate the wealth effects of securities class action lawsuit/settlement announcements. Finally, when analyzing the insider trading behavior prior to lawsuit/settlement announcements we drop another 42 firms, because we fail to find a matching firm meeting our criteria[15] for the control sample, which we use later in our study to compare the trading behavior of insiders in

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[13] Seyhun (1988), Shetty and Wang (2007), Bradley, Cline, and Lian (2014)

[14] http://securities.stanford.edu/filings.html

[15] We choose the firm with the closest market capitalization to the litigated firm in the litigation sample. These firms are chosen from all the firms in CRSP with the same 3-digit truncated SIC code as the litigated firms. Moreover, their market capitalization is in the range of 0.1 to 10 times the market capitalization of the litigated firm.

sued firms with the trading of insiders in similar non-sued firms. We report summary for the 2,153 firms used in our insider trading analysis.

We also use Stanford's Securities Class Action Clearinghouse as well as the Securities Class Action Alert (SCAA) to retrieve information on securities class action settlements. The SCAA tracks all securities class action lawsuits filed since 1988. We retrieve detailed information on 1,049 securities class action cases that were settled in the period from January 1996 to December 2013. For each publicly announced settlement, the SCAC and SCAA provide a rich set of settlement information including, for example, the date of the settlement, the settlement amount, the plaintiff and defendant parties and their legal representation, and a description of the alleged violation of the securities laws. We convert settlement amounts to 1996 dollars using CPI deflators as reported by the Bureau of Labor Statistics (BLS)[16].

We eliminate settlements for which the SCAA provides incomplete settlement details and settlements by firms that we could not identify in the Center for Research in Securities Prices (CRSP) database. One shortcoming of the SCAA newsletter is that it does not report the exact settlement date. To overcome this problem, we accessed Lexis-Nexis and identified 393 firms for which we could determine an exact settlement date. Settlements for which the exact announcement is unknown or the settled firm does not have price information on CRSP are excluded from our sample, which results in a final settlement sample of 315 settlements.

3.2 Summary Statistics

Table 1 presents descriptive statistics for the 2,153 securities class action lawsuits and 315 securities class action settlements in our final sample. We classify the sample into 11 industry groups as defined by the Securities and Exchange Commission (SEC)[17]. Panel A provides information on the number of securities class action lawsuits across different industries on a yearly basis. It shows that the manufacturing industry has the highest number of filings trailed by the Services and Financial industry. In addition, it shows that the manufacturing and services industry has the highest number of filings for most years except 2008 when firms in the financial, insurance, and real estate sector experienced the most filings. The year 2004 has the

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[16] http://www.bls.gov/cpi/tables.htm

[17] http://www.secinfo.com/$/SEC/SIC.asp?Start=

highest number of filings followed by 2002 and 2003, while the year 1996 has the lowest number of filings.

Insert Table 1 about here

Panel B provides information on securities class action settlements and average settlement amounts categorized by industry sector and year. It shows that the manufacturing and services industry have the highest number of settlements followed by the financial, insurance, and real estate industry which is not surprising considering that these industries also had the largest number of lawsuits. In addition it shows that firms in the financial, insurance, and real estate sector have the largest average settlement amounts, trailed by the retail industry and the services industry. In terms of yearly average settlement amounts, 2012 has the highest average settlements which are roughly 1.5 times as large as settlements in the second highest year, 1999.

Table 2 presents yearly summary statistics of insider trading activities in sued firms. It describes the number of insider sales and purchases, the number of shares sold and purchased, as well as the number and volume of proposed sales by insiders in sued firms, in each sample year from 1996 to 2013. Panel A provides information for all insiders[18], Panels B and C report the same statistics for managing and non-managing insiders, respectively. There are 2,322,120 actual transactions and 130,792 proposed sales. Although managers account for a majority of transactions and proposed sales, in terms of volume they only account for about 30 and 10 percent of actual and proposed transactions, respectively.

Insert Table 2 about here

Overall, there are more sell than buy transactions, however sales volume is slightly less than purchase volume. The average ratio of sales vs. purchases is about 1.4 for the entire sample period while it is considerably higher over the period 2006 to 2008, peaking in 2007 at more than 2 times the sample average. This peak period for net-selling by insiders is not surprising considering that this was the time period surrounding the 2007-08 financial crisis. The sales/purchases ratio for managers is higher than the full sample average for all insiders, (roughly 1.8) while they sell approximately as much as they buy in terms of volume. A noteworthy observation is that managers account for 76 percent of sales over the 2006 to 2008 peak period of

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[18] See Appendix2 for an insider categorization

selling activity. In addition the frequency of insider trades by all insiders is significantly higher during this period compared to other years. This suggests possible informed trading and/or more aggressive trading during the years typically associated with the financial crisis. Non-managing insiders show approximately equal amounts of selling and buying, both in terms of transaction counts and volume. They have slightly fewer sale transactions than purchase transactions (sell/buy ratio of 0.9), while their sales volume is slightly higher than their purchase volume (sell/buy ratio of 1.1).

4. Methodology

We investigate the trading behavior of corporate insiders prior to securities class action lawsuit and settlement announcements. We proceed as follows: the first part of our study focuses on examining the effects of litigation and settlement announcements on a firm's stock price behavior employing standard event study methodology. This fulfills two purposes: first we establish that these events have a significant effect on a firm's stock price and that prior knowledge or anticipation of the event is a valuable piece of information, i.e. it allows insiders to benefit from their information advantage through informed trades.

Second, by investigating a firm's stock price behavior prior to the announcement of a lawsuit and/or settlement, we can explore the presence of information leakage and insider trading. Our findings indicate that lawsuits and settlements have a significant wealth effect on investors. While the markets react negatively to a lawsuit announcement, a settlement announcement is viewed as positive news, i.e. it results in a significant positive abnormal return on the announcement date. In addition to the negative/positive abnormal returns we observe for lawsuits/settlements on the day they are announced, we also observe significant negative/positive abnormal returns prior to the announcement. However, the positive returns prior to settlements only become statistically significant 1 day prior to the announcement. While this later result points to the likely presence of informed trading prior to the announcement, it does not reveal whether insiders play an active role in pre-announcement trading. We investigate this issue in the second part of our study by analyzing trends in insider trading, taking into account the insiders' position in the firm's hierarchy, as well as in comparison with a sample of matched control firms which were not involved in any securities class action lawsuits during our sample period.

4.1 Event Study Methodology

We use event study methodology to measure the abnormal stock price performance of our sample firms prior to and after a lawsuit and/or settlement. Event study methodology measures the abnormal return of a stock as the difference between the actual return and the expected return around the time of an event. Event studies draw on the efficient market hypothesis of Fama et al. (1969) which states that capital markets are efficient in processing information by establishing a correct new stock price equilibrium as soon as new information about a firm becomes available. The logic underlying the hypothesis is the belief that investors in capital markets process publicly available information on firm activities and external events influencing a firm, and that they consider not just the impact on current performance but also on the performance of the firm in future periods. When additional information becomes available, the firm's stock price should change rapidly and should reflect investors' revised consensus of the firm's future profitability.

The strength of the method lies in the fact that it captures the overall assessment by a large number of investors of the discounted value of current and future firm performance attributable to individual events which are reflected in the stock price and the market value of the firm. Changes in investor's beliefs regarding the future profitability of a firm are reflected in abnormal returns - risk adjusted returns in excess of the firm's expected return - around an event. Abnormal returns thus provide a unique means of associating the impact of a lawsuit or settlement announcement on the firm's expected profitability in future periods (Mc Williams and Siegel, 1997).

There is significant empirical support for the efficient market hypothesis in litigation studies including the Loh and Rathinasamy (2003) and Chaghouri and Walker (2004) studies of stock price behaviour around litigation announcements.

We estimate the announcement period returns of sued firms based on the market model. The abnormal stock return on day t is calculated by subtracting the return predicted by general market trends on the stock from its actual return on that day, as in the following formula:

$$AR_{st} = R_{st} - \alpha_s - \beta_s R_{mt}$$

where $R_{s,t}$ is the return of stock s at time t: $R_{s,t} = (Price_{s,t} - Price_{s,t-1})/Price_{s,t-1}$. If the firm paid a dividend during our event window, it is included in our return calculations. The subscript t

indicates time, the subscript s indicates a specific stock, and the subscript m indicates the market. For this study, we use the CRSP value weighted market index to proxy for the market.

The date of the event, that is, the lawsuit/settlement announcement, is denoted as t=0. We estimate the market parameters for each firm over a 500 trading day period from day -750 to day -250 (approximately 2 years). We also consider several other methods of calculating a firm's expected return which makes no significance difference in the results. The abnormal returns are averaged across N firms on each event day to estimate an average abnormal return over the period.

Under the assumption that the returns on each day are independent and the standard errors are cumulative, accumulating the abnormal returns over a given window provides the cumulative abnormal return (CAR) for each firm:

$$CAR_s = \sum_{i=0}^{\tau} AR_{si}$$

 From this equation we can calculate the average CAR across all firms. The resulting equation is:

$$\overline{CAR}_{\tau} = \frac{1}{N} \sum_{s=1}^{N} CAR_{s\tau}$$

The null hypothesis to be tested is that the mean excess return during our event window is equal to zero. Because t-tests are based on strong assumptions about the underlying return distribution, we also perform a Wilcoxon test (a non-parametric test) to ensure the robustness of our results. In a Wilcoxon test, both the sign and the magnitude of abnormal performance are taken into consideration when calculating the test statistic.

4.2 Patterns in Insider Trading Behaviour
We examine trends in both actual insider sales and purchases as well as proposed insider sales. To investigate insider trading patterns in sued firms around securities class action and settlement announcements, we examine time series patterns in quarterly insider sales, purchases, and net sales for actual insider trades during the period from 8 quarters before to 8 quarters after a lawsuit/settlement announcement. Moreover, we conduct the same analysis on a group of matched control firms to ensure the robustness of our findings.

4.2.1 Measures of Insider Trading

We measure insider trading activities by considering the number of transactions (a trade-based measure) and the number of shares traded (a volume-based measure). On a trade basis, net sales are the number of sale transactions minus the number of purchase transactions by insiders in each interval. To take into account the effect of firm size on our volume based measures, we standardize all volume-based measures by dividing the number of shares traded, or proposed, by the average shares outstanding of each firm during the year prior to the announcement. All references to the volume-based measures later in this paper are to standardized measures. On a volume basis, net sales are the number of shares sold minus the number of shares purchased by insiders in each interval. Because the trades by beneficial owners as well as several other categories[19] are less likely to be information driven. Therefore, we report the results excluding those categories, although including them does not differentiate the results qualitatively.

4.2.2 Categorizing Insider Trades by Insider Roles

Using the IFDF's definition of insider roles we form two insider groups, i.e. managing and non-managing insiders. Managing insiders are defined as all corporate officers who are in charge of principal business units, divisions or functions, and any other person who performs a policy making function (Bettis, Coles, and Lemmon, 2000). Non-managing insiders include the members of the board of directors (other than the chairman), committee members, and all other insiders excluding corporate officers. The categorization of insiders[20] into two mutually exclusive sub-groups of managing and non-managing insiders allows us to perform pairwise comparisons between these groups. We compare the trading activity by these two groups of insiders to explore whether there are any apparent differences in the information content of the trades by each group and each group's trading pattern over time.

4.2.3 Control Sample Selection

We match our litigation/settlement sample with a sample of comparable publicly traded firms, excluding firms that were involved in a securities class action lawsuit during our sample period (1996-2013). To be considered as a matching firm, we require each control firm to have the same 3-digit SIC code as the sample firm, and an average market capitalization (over the year prior to the litigation/settlement announcement) in the range of 0.1 to 10 times the market capitalization

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[19] See Appendix 1 for excluded insiders
[20] See Appendix 2 for a detailed description of our insider categorization

of the sample firm. In order to arrive at one match per sample firm, we pick the control firm with the market capitalization closest to the corresponding sample firm.

4.2.4 Abnormal Insider Trading Activities

We expect insiders in sued firms to trade in anticipation of stock price movements around lawsuit/settlement announcements. We focus on measures of abnormal insider trading, defined as actual insider trading minus expected insider trading, on a firm level basis. Expected insider trading activities are measured as the average insider trading activities in each sued firm, during a 12 quarter period beginning 20 quarters and ending 8 quarters prior to the announcement of a lawsuit/settlement. We calculate quarterly abnormal trades for each firm using the following formula:

$$AT_{sq} = T_{sq} - ET_s$$

where ET_s represents the expected insider trading for firm s based on the above-mentioned 12 quarter estimation period and T_{sq} is the actual insider trading for firm s during quarter q. Furthermore, we calculate the average abnormal trading across all firms during each quarter based on the following formula:

$$\overline{AAT_q} = \frac{1}{N}\sum_{s=1}^{N} AT_{sq}$$

The null hypothesis to be tested is that the mean abnormal trades during each event quarter are equal to zero. As in our prior analyses we report both student t-test (parametric) and Wilcoxon signed rank (non-parametric) test statistics.

5. Results

5.1 Abnormal Stock Performance around Lawsuit Announcements

Our lawsuit sample consists of 2,153 securities class action lawsuits filed between January 1996 and December 2013. To evaluate the short and long-term effects of a lawsuit announcement on a defendant firm's performance, we investigate the abnormal performance of sued firms within various timeframes around their lawsuit announcement. Figure 1 provides a graphical illustration of the defendant firm's average abnormal return (AAR) during a period of 250 trading days (about 360 calendar days) before and after a lawsuit announcement.

We observe an AAR of -1.44 percent on day 0, the day the lawsuit is announced. Interestingly,

we also observe average abnormal returns in excess of -1 percent during each of the 6 days prior to the lawsuit, averaging -1.93 percent on day -1, one day prior to the lawsuit announcement. This points to the presence of informed trading or information leakage about a forthcoming lawsuit filing before the announcement date. Although the specific reasons for the pre-announcement decline may vary from case to case, our results suggest that lawsuits do not hit the market by surprise. While they still cause a significant price decline on the announcement day, they are preceded by several days of declines.

<center>***Insert Figure 1 about here***</center>

Table 3 reports average CARs in the 250 trading days before and after the lawsuit announcement for different event windows. Panel A provides average CARs for event windows ending prior to the lawsuit announcement. Panel B reports the same information for event windows around and after the lawsuit announcement. We observe a price decline both before and after the lawsuit announcement. It should be noted that the CARs for all windows are significant at the 0.1% level.

<center>***Insert Table 3 about here***</center>

Figure 2 illustrates the pre-announcement decline even better by graphing cumulative abnormal returns 250 days before and after the announcement of a lawsuit. While we still observe that sued firms experience a sharp price decline on the day of the announcement, we can also see that at the time a lawsuit is filed against a firm, its stock price has already dropped by approximately 51.82 percent during the preceding 250 days. Again, there are several factors that likely drive this price decline. Our later analysis focuses on insider trading behavior prior to these lawsuits. On one hand, increased sales by insiders may put some selling pressure on the stock price and may send a negative signal to other investors who may follow suit and reduce their holdings as well. On the other hand, the stock price decline may be caused by a leakage of information about an imminent lawsuit or a possible overlap of the pre-announcement period with the class action period (during which the crimes allegedly took place). Because it is impossible to determine in hindsight what may have caused the pre-lawsuit price decline in each case, we make no attempt at investigating this issue. What is important for our subsequent analysis is the observation that early knowledge of or the ability to predict a lawsuit is highly valuable. Given their role within a

firm, insiders - specifically those in leading managerial positions - should be able to exploit their information advantage.

Insert Figure 2 about here

5.2 Abnormal Stock Performance around Settlement Announcements

Our settlement sample consists of 315 lawsuits that were part of our litigation sample, that were settled during our sample period, and for which we were able to identify the exact settlement date and settlement details. In Figure 3, we graph the average abnormal returns (AAR) of all settled firms 250 days before and after the settlement announcement.

Insert Figure 3 about here

We observe that settling firms experience a positive average abnormal return of 2.24 percent (significant at the 0.1 percent level) on the day the settlement is announced. This supports our hypothesis that a settlement announcement is perceived as good news by investors. Moreover, the graph suggests that abnormal returns on the days prior to and after the settlement announcement follow a random pattern and are close to zero, which suggests that settlement announcements may be less predictable by market participants compared to lawsuit announcements.

Table 4 provides reports average CARs in the 250 trading days before and after a settlement announcement. Panel A provides average CARs for windows ending prior to the settlement announcement. Panel B reports the same information for event windows around and after the settlement announcement. Except for event windows that cover the week that starts one day prior to the settlement announcement, all other event windows exhibit CARs that are statistically or economically insignificant. The only exception is the window covering the period from 60 to 1 days prior to the announcement with a CAR of 4.72 percent which is statistically significant.

Insert Table 4 about here

In Figure 4, we graph CARs during a period of 250 days before and after a settlement announcement. We observe that settling firms experience a downward trend in their stock prices between 250 and 150 days prior to their settlement announcement. This is likely caused by investor uncertainty during the ongoing litigation. Around 74 days prior to the settlement announcement an upward trend starts, eliminating any losses that were incurred during the prior

27 days before the settlement. On the day of the announcement we observe the same upward spike in stock prices that we had observed in Figure 3. The upward trend continues to persist even after the announcement of the settlement. However, the positive CARs turn statistically insignificant about a week after the case has been settled.

Insert Figure 4 about here

5.3 Insider Trading Around Litigation Announcements

Table 5 reports average abnormal net-sales, both on a trade and volume basis, for eight quarters before and after a lawsuit announcement. Panel A provides average abnormal trades for all insiders. Panels B and C report average abnormal net-sales for managing and non-managing insiders, respectively. The abnormal trade measures in this table are calculated as the differences between the actual and expected trades for each insider group[21]. This allows us to capture the abnormal trading by subgroups of insiders in an unbiased manner, since managers tend to show higher net selling behaviour during the estimation period than their non-managing counterparts.

Insert Table 5 about here

5.3.1 Actual Trades by All Insiders

Panel A of Table 5 shows that on an aggregate basis, insiders display abnormal net selling behaviour prior to lawsuit announcements. Trade-based abnormal net-selling is significant until the last quarter before the lawsuit. During quarter -1 (90 days to 1 day prior to the announcement), mean net selling activity remains significant in terms of magnitude, but loses its statistical significance in our median test. Abnormal net selling activity reaches its peak during the period from one year to 90 days before the announcement, dropping to almost half of its peak value during the 90 days before the announcement. After the announcement, abnormal net selling approaches zero and becomes statistically insignificant in all parametric tests. Similar to our trade-based measure, our volume-based measure is at its peak during the year prior to the announcement, however it is not statistically significant. This suggests that insiders reduce their holdings through more frequent net-selling prior to the litigation announcement. However, they do not sell abnormal volumes, possibly to avoid the detection by regulatory agencies or

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[21] We calculate the expected trades for all insiders during a 12 quarter period starting 20 quarters before the announcement. Expected trades for managing (non-managing) insiders are calculated by only considering trades by managing (non-managing) insiders.

investors, and the associated legal repercussions[22]. Our evidence of abnormal selling prior to litigation announcements is in line with Bradley, Cline, and Lian (2014) who suggest the presence of informed option exercises prior to securities class action lawsuits. However, it contrasts with Shetty and Wang's (2007) study, who fail to detect abnormal trading activity prior to securities class action lawsuits, although they detect possible informed purchasing activity prior to the class period. It must be noted that their litigation sample of 340 cases is much smaller than either Bradley et al's (2014) sample of 1,596 lawsuits or our sample of 2,153 cases.

5.3.2 Managing versus Non-Managing Insiders

When we focus on the trading behavior of managing and non-managing insiders, from Panels B and C of Table 5 we find that, interestingly, non-managing insiders demonstrate trade-based abnormal net-purchasing activity in most time periods prior to the litigation announcement. In other words, they increase their holdings before the bad news arrives and thus suffer higher losses. This finding is in line with Kaniel, Saar, and Titman (2008) who provide evidence of intense buying following stock price declines. As we observed in our earlier analysis of the wealth effects of litigation announcements, the stock prices of sued firms tend to be on a free fall long before the announcement. Kaniel, Saar, and Titman's (2008) findings can also explain the significant net-purchasing activity by both managing and non-managing insiders in the year following the litigation announcement. Managers, however, exhibit positive abnormal net-selling activity prior to the announcement. Overall, these results suggest the presence of informed trading by managing insiders in sued firms prior to the litigation announcement. Moreover, it indicates that non-managing insiders do not anticipate lawsuits while managers do. This is in line with our hypothesis that managers possess superior information regarding potential litigation relative to non-managing insiders. To further investigate information asymmetries between our two sub-samples, we estimate the mean differences in both measures of abnormal trading and test for the equality of means between the abnormal trading of managing and non-managing insiders in sued firms. The results are reported in Table 6. On a trade basis, managing and non-managing insiders differ considerably in their trading activities prior to litigation announcements (complementing our earlier findings), although the differences are not statistically significant for some periods. We do not find any noteworthy differences in the volume-based measure, although

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[22] Huddart, Ke and Shi (2007) suggest that insiders avoid trading aggressively prior to events with high legal jeopardy.

managers sell considerably fewer shares compared to non-managing insiders seven quarters prior to the announcement.

Insert Table 6 about here

5.3.3 Drivers of Abnormal Trades

In our prior discussions, we focused on the net transactions of insiders. In this section, we investigate the determinants of these transactions. In what follows, we focus on our trade-based measure of abnormal trading. Table 7 provides detailed insights into the drivers of abnormal net selling prior to and after litigation announcement, by both managing and non-managing insiders. Panel A reports average abnormal sale and purchase transactions using both trade and volume-based measures. Panel B and C report average abnormal sale and purchase transactions for managing and non-managing insiders, respectively.

Insert Table 7 about here

From Table 7, Panel A, we observe that the abnormal net selling by all insiders is a result of abnormal selling activity, not abnormally lower purchasing activity. In fact, abnormal sales are economically and statistically significant in all but the last quarter prior to the litigation announcement. Moreover, abnormal sales exhibit a pattern that is similar to the trend in abnormal net sales during all quarters and have the same peak period as abnormal net sales. Panel B shows a similar trading pattern by managing insiders while non-managing insiders display abnormal non-selling behaviour (selling less frequently than during the estimation period) prior to the announcement. After the announcement, both managing and non-managing insiders exhibit economically and statistically significant negative abnormal selling behavior.

These findings suggest that, on an aggregate basis, managers engage in active trading and reduce their stock holdings prior to litigation announcements. Moreover, they support our hypothesis of information asymmetries between managing and non-managing insiders. The negative abnormal selling following the announcement is to some extent in line with Kaniel, Saar, and Titman (2008). However, they suggest that investors increase their purchases following stock price declines while our findings suggest that insiders sell fewer shares.

5.3.4 Control Sample

Table 8 reports average abnormal net selling activity, based on both the trade and volume measure, for our control sample. For each firm in the control sample, we employ the same lawsuit announcement date as the corresponding firm in our litigation sample. In this control sample, both measures of abnormal trading are insignificant. In unreported results, we further assess abnormal sales and purchases based on both trade and volume. We find that both abnormal sales and abnormal purchases are not significantly different from zero.

Insert Table 8 about here

In Table 9, we report mean differences in abnormal net sales and perform a series of tests for the equality of mean abnormal net-selling between the litigation and control sample. We observe that prior to litigation announcements, the insiders of sued firms exhibit large abnormal net-selling (in terms of trades) compared to insiders in our control sample. The differences are statistically significant in all periods prior to the announcement. We observe a similar trend for our volume measure, although the median test is not significant. After the announcement, any differences in abnormal net-selling between the two samples approaches zero. These results provide additional evidence supporting our earlier observation of abnormal selling activity by insiders prior to litigation announcements.

Insert Table 9 about here

5.3.5 Proposed Sales

Table 10 reports information on the average abnormal proposed sales, both in terms of trades and volume, during a period of eight quarters before and after a lawsuit announcement. For brevity and because we do not observe any significant abnormal activity for managing and non-managing insiders, we only report results for all insiders.

Insert Table 10 about here

Table 10 suggests a pattern of positive abnormal proposed selling by all insiders prior to litigation announcements and negative proposed selling afterwards. On a trade basis, this pattern is statistically significant for most periods based on both a parametric and non-parametric test, although it is relatively small in terms of magnitude. We also observe an increase in volume-based abnormal proposed selling during a period from four to two quarters prior to the

announcement, however it is not statistically significant. This finding suggests that proposed sales by insiders represent another useful tool for investigating the information content and the presence of informed trading by insiders. It also complements our earlier observation of abnormal insider selling prior to litigation announcements. In unreported analyses we also calculated the mean differences between the proposed selling activity by managing and non-managing insiders. We found no significant differences between the two groups.

Table 11 reports information on abnormal proposed selling for firms in our control sample. We observe that both our trade and volume-based measures are not significantly different from zero, either in terms of magnitude or statistical significance.

Insert Table 11 about here

Table 12 provides information on the differences in means between abnormal proposed selling activity in our litigation sample and our matched control sample. Our trade-based measure suggests that insiders of firms in our litigation sample have higher abnormal proposed sales than those in our matched control sample until one quarter prior to the litigation announcement. From one quarter prior to the announcement and afterwards, the abnormal proposed selling in the sued sample is lower than in the control sample. In most periods, the differences in the mean volume-based measures are small for most periods in terms of magnitude. However, three quarters prior to the announcement, the difference is a remarkable nine percent of shares outstanding, followed by 1.2 percent in the next quarter. Nevertheless, the mean differences in the volume-based measure are not statistically significant for any period before or after the litigation announcement according to the parametric test.

Insert Table 12 about here

Overall, our analysis of proposed selling activities by insiders in sued firms provides additional evidence supporting our hypothesis of abnormal trading activity prior to litigation announcements. While these findings are less significant than those for actual trades, the qualitative implications are the same.

5.4 Insider Trading Around Settlement Announcements

We examine average quarterly abnormal net-sales around settlement announcements over the 16 quarter period surrounding the settlement announcements. For brevity we only report the results for managers, since it is the only sub-sample of insiders with significant insider trading activity prior to the settlement announcement. Table 13 reports information on the abnormal net-selling activities of managers around settlement announcements. Managers demonstrate excessive amounts of transaction-based negative abnormal net-selling activity prior to settlement announcements which is statistically significant. However, none of the insider groups exhibit any significant volume-based abnormal activity. All insiders and the subgroup of non-managing insiders show a similar pattern in terms of the trade-based measure, with no statistical significance and considerably lower magnitude, compared to managers. This suggests the presence of informed trading by managers of settling firms prior to the announcement, since negative net-selling means that they increase their shareholdings prior to the settlement announcement and benefit from the consequent stock price appreciation, although these trading activities are of a passive nature (non-selling rather than buying). In addition, we examine whether there is any abnormal insider trading activity around settlement announcements[23] in our control sample. We use identical methodology and time periods as for our settlement sample. We do not find any significant abnormal trading activity for any of the periods in our control sample. This complements our hypothesis of informed trading prior to settlement announcements.

The difference in the magnitude of abnormal trading activity between managing and non-managing insiders suggests information asymmetries between these two groups. Either managers are better informed than non-managing insiders about the upcoming settlement, or they trade on this information more frequently than non-managing insiders. When we evaluated the abnormal sale and purchase activities of insiders in unreported analysis we observe that this pattern of negative abnormal net selling is a consequence of abnormal non-selling rather than abnormal purchasing for all groups of insiders. Our finding is similar to Agrawal and Nasser's (2012) results of informed insider trading behaviour prior to takeover announcements. They also observe abnormal non-selling activity prior to takeover announcements. In addition we observe a significant pattern of negative abnormal net-selling and non-selling following settlement

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[23] The date of the settlement announcement of each firm in the settlement sample is day 0 for the matched counterpart in the control sample.

announcements. This pattern might be partially due to optimism derived from settling legal disputes or other overlapping events since it continues for eight quarters following the announcement.

Insert Table 13 about here

Table 14 reports the mean differences and tests for the equality of means between the net-selling activities of managing and non-managing insiders in each quarter. We observe that managing insiders exhibit lower abnormal transaction-based net-selling compared to non-managing insiders during most quarters prior to and after the announcement. The pattern is similar for the volume-based measure. It must be noted that this difference is not statistically significant for any of the time periods except four quarters prior to the announcement which is also the peak difference in terms of magnitude. This result implies that managers accumulate more shares prior to the settlement announcement then non-managing insiders and thus experience greater wealth gains following the settlement announcement. These findings provide additional evidence for our hypothesis that managers have an information advantage over non-managing insiders. Hence they decrease their net-selling prior to settlement announcements in order to benefit from the post-settlement stock price run-up. This finding is in line with previous studies such as Ravina and Sapienza (2010). They suggest that executives earn higher returns following their purchases than independent directors. Executives fall into our managing sub-sample while most independent directors fall into our non-managing sub-sample.

Insert Table 14 about here

In unreported tests, we also investigated proposed trades of insiders in settling firms and the matched control firms. We observe negative and statistically significant abnormal proposed selling prior to settlement announcements. This trend is significant for both measures during the four quarters prior to the announcement for all insiders. For managers, it is significant during all time periods. When we estimate abnormal trading for the control sample and test for differences in means, we find abnormal proposed non-selling only for the trade-based measure, which is significant during the three quarters prior to the settlement announcement. This finding provides additional evidence supporting the existence of informed trading prior to settlement announcements. Moreover, it suggests that proposed sales as reported on Form 144 may be a useful source of information for regulators who aim to detect illegal insider trading patterns. We

also analyse differences in the proposed sales of managing and non-managing insiders. Similar to our findings for actual trades, we observe that managers tend to have fewer abnormal proposed sales compared to non-managing insiders prior to settlement announcements, further complementing our earlier observation of an information advantage of managers over non-managing insiders.

6. Conclusions

In this study, we establish that litigation (settlement) announcements are bad (good) news and have significant wealth effects for investors. We examine whether corporate insiders possess an information advantage over uninformed investors by investigating the presence of informed insider trading prior to litigation and settlement announcements. In addition, we examine whether there are any information asymmetries between managing and non-managing insiders that are reflected in their trading behaviour. We examine insider trades as reported to the Securities and Exchange Commission on Form 3, 4, and 5. We find strong evidence of active selling and passive non-selling prior to litigation and settlement announcements, respectively. Moreover, we contribute to the literature by evaluating proposed sales as reported on SEC Form 144. This adds additional insights, particularly because none of the previous studies on insider trading have investigated proposed sales. Our findings for proposed trades are similar to those for actual trades. Our results should be of interest for regulatory bodies investigating illegal insider trading activities, since they suggest that Form 144 may be a useful source for detecting those activities. We also observe that managers increase (reduce) their selling activities prior to litigation (settlement) announcements. This finding provides evidence of information asymmetries between managing and non-managing insiders.

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Figure 1: Daily Average Abnormal Returns (AAR) around the Litigation Announcement

We calculate daily average abnormal returns (AAR) within a period of 250 trading days (about 360 calendar days) before and after a lawsuit announcement for our litigation sample of 2153 cases.
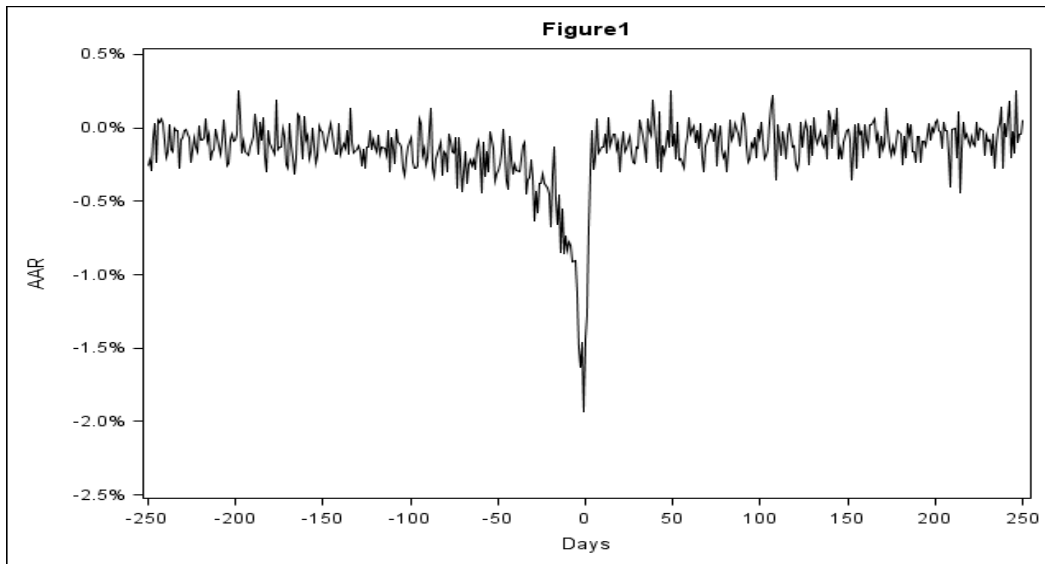
Figure 2: Cumulative Abnormal Returns (CAR) around the Litigation Announcement

We calculate cumulative average abnormal returns (CAR) within a period of 250 trading days (about 360 calendar days) before and after a lawsuit announcement for our litigation sample of 2153 cases.
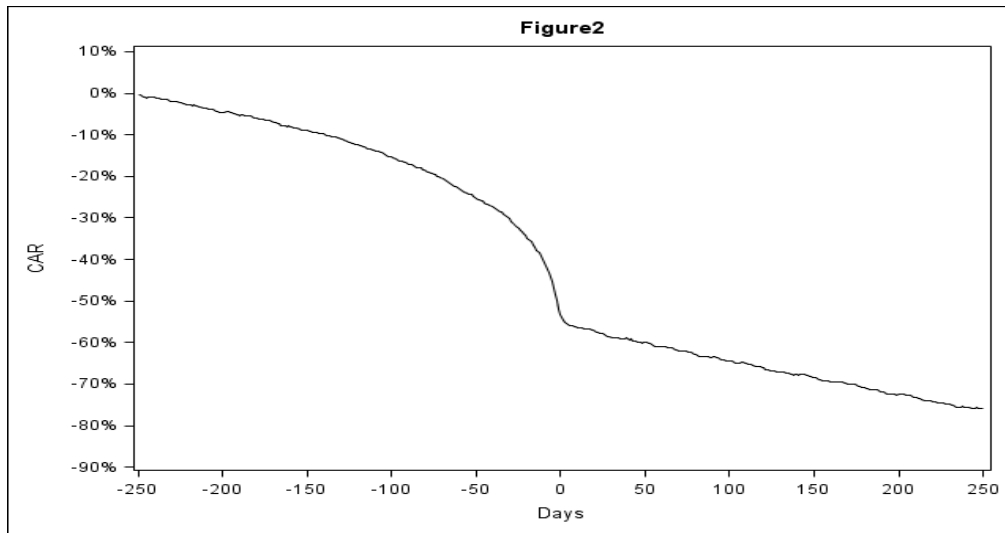
Figure 3: Daily Average Abnormal Returns (AAR) around the Settlement Announcement

We calculate daily average abnormal returns (AAR) within a period of 250 trading days (about 360 calendar days) before and after a lawsuit announcement for our settlement sample of 315 cases.
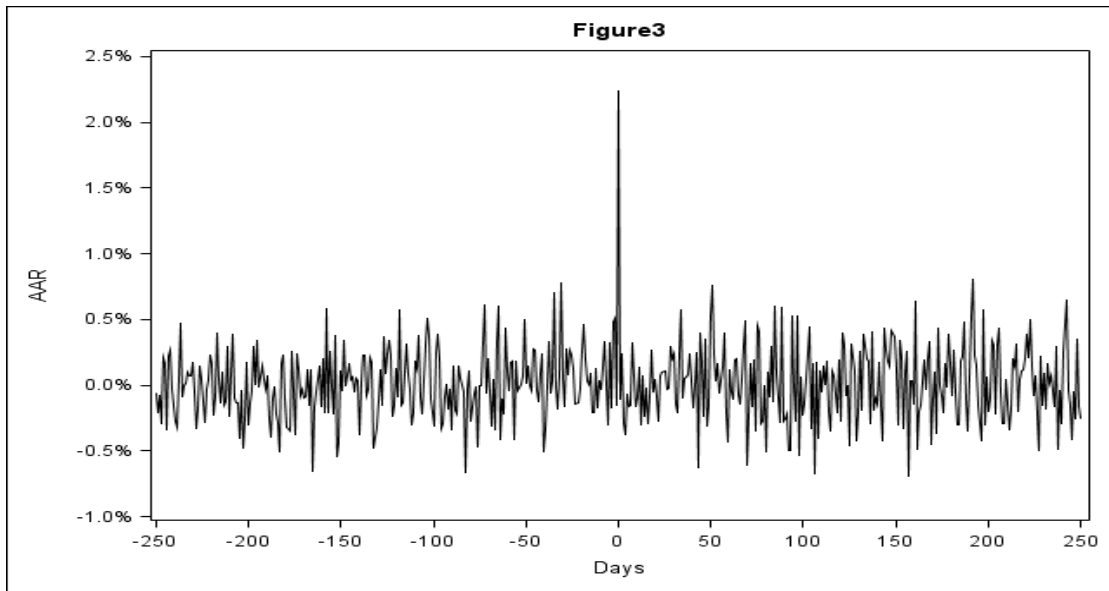
Figure 4: Cumulative Abnormal Returns (CAR) around the Settlement Announcement

We calculate cumulative average abnormal returns (CAR) within a period of 250 trading days (about 360 calendar days) before and after a lawsuit announcement for our settlement sample of 315 cases.
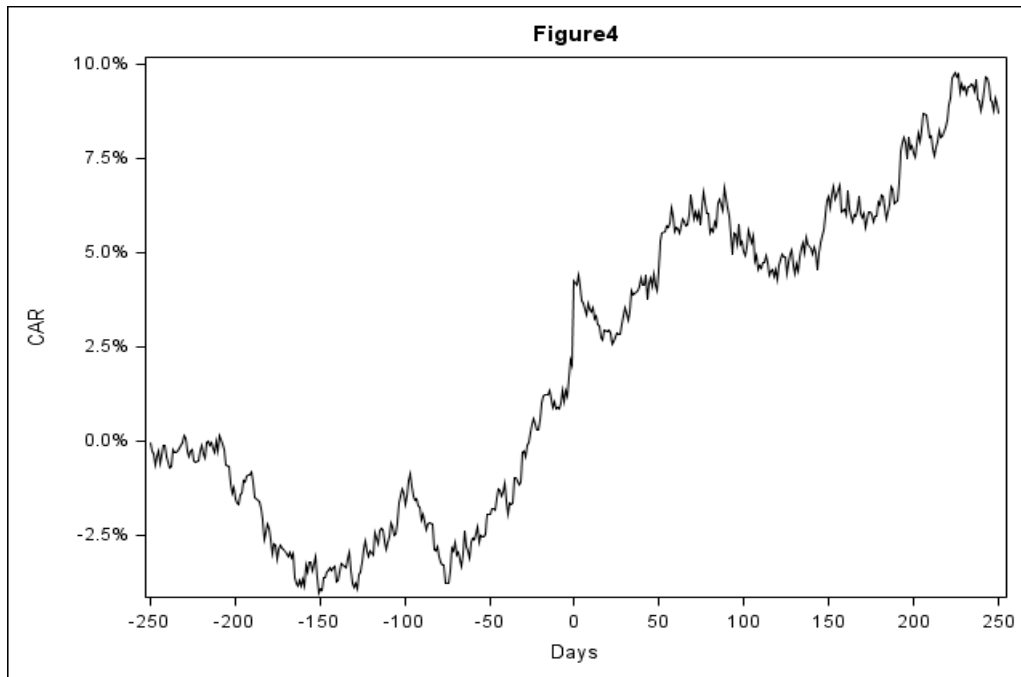
Table 1: Litigation Sample Description

This table provides summary statistics for our sample of 2,153 securities class action lawsuits and 315 settlements filed between January 1996 and December 2013. The table employs the industry group classification defined by the Securities and Exchange Commission (SEC). Panel A reports the number of securities class action lawsuits in different industry groups by year. Panel B reports the number of securities class action settlement across different industry groups by year. All settlement amounts have been converted to 1996 dollars based on annual CPI inflation rates published by the Bureau of Labor Statistics (BLS). There are no lawsuits in the industry groups: Agriculture, Forestry & Fishing, and Public Administration. In addition, there are no settlements in industry group: non-classifiable establishments.

Panel A. Securities Class Action Lawsuits by Industry

Year	Finance, Insurance, Real Estate	Construction	Manufacturing	Mining	Transportation, Communication, Electric, Gas, Sanitary	Wholesale	Retail	Services	Non-Classifiable Establishments	Total
1996	5	0	21	1	4	3	3	10	0	47
1997	8	0	34	5	6	2	3	34	0	92
1998	19	0	57	3	6	8	8	49	0	150
1999	15	0	48	0	4	7	10	52	0	136
2000	13	0	41	1	15	3	3	44	0	120
2001	10	0	44	2	16	6	3	31	0	112
2002	23	0	47	6	28	7	6	38	0	155
2003	35	1	56	3	8	2	11	36	0	152
2004	28	4	57	2	12	4	7	48	0	162
2005	20	0	68	5	6	5	8	25	0	137
2006	12	2	42	1	2	4	6	15	0	84
2007	32	4	41	0	7	2	5	19	0	110
2008	52	2	41	5	8	0	3	18	0	129
2009	23	0	31	2	7	3	3	18	0	87
2010	21	0	52	9	5	1	1	24	1	114
2011	12	1	53	10	12	3	9	29	5	134
2012	12	0	41	14	5	3	7	18	9	109
2013	14	1	49	9	8	0	8	23	11	123
Total	354	15	823	78	159	63	104	531	26	2153

Panel B. Securities Class Action Settlements by Industry

Year	Finance Insurance Real Estate	Construction	Manufacturing	Mining	Transportation Communication Electric, Gas Sanitary	Wholesale	Retail	Services	Total	Average Settlement ($million)
1996	0	0	0	0	0	0	0	1	1	18.00
1997	0	0	0	0	0	0	0	3	3	10.10
1998	0	0	5	0	0	1	1	5	12	7.15
1999	2	0	8	0	1	1	0	4	16	187.01
2000	1	0	11	0	0	0	1	10	23	37.76
2001	3	0	7	1	1	1	0	5	18	18.93
2002	0	0	11	0	0	0	1	4	16	28.63
2003	0	0	8	1	3	2	0	7	21	40.81
2004	5	0	10	0	2	0	1	3	21	21.75
2005	3	0	11	1	8	1	2	5	31	129.53
2006	3	1	10	1	6	0	0	9	30	108.398
2007	4	0	16	0	0	2	0	7	29	108.46
2008	3	0	14	0	0	2	0	5	24	23.73
2009	1	1	9	1	0	1	0	2	15	48.26
2010	2	0	9	1	1	0	1	3	17	35.52
2011	3	0	5	1	2	0	1	3	15	17.81
2012	3	0	4	0	1	0	0	1	9	276.07
2013	1	0	9	0	0	1	0	3	14	13.41
Total	34	2	147	7	25	12	8	80	315	62.85
Average Settlement ($million)	178.13	15.04	38.99	17.73	60.26	50.22	157.58	75.79	62.85	-

Table 2: Insider Trading Sample Description

This table presents yearly summary statistics on insider trading activities for our sample of 2,153 sued firms from January 1996 to December 2013. We collect insider trading data from the Insider Filing Data Feed (IFDF) provided by Thomson Reuters. We delete all duplicate, amended and inconsistent transactions as well as option exercises. We merge the insider trading dataset with the litigation dataset for the period between 20 quarters before to 8 quarters after the lawsuit filing. We report the number and volume (in millions of shares) of insider sales and purchases, as well as number and volume of proposed sales. Panel A provides this information for all insiders, and Panel B reports the information for managers, and Panel C reports the information for non-managing insiders.

Panel A. All Insiders						
Year	Insider Sales (Count)	Insider Sales (Volume)	Insider Purchases (Count)	Insider Purchases (Volume)	Proposed Sales (Count)	Proposed Sales (Volume)
1996	42105	4581.71	77593	557.68	4981	1447.749
1997	46697	2938.19	44323	252.96	9712	1229.065
1998	46144	2599.66	56515	357.55	8812	40833.21
1999	49838	3040.88	53345	395.02	85	10.06403
2000	65402	6198.85	57806	498.11	15	1.411838
2001	60237	4306.54	47588	344.92	6106	500.2656
2002	56069	3148.06	62303	316.79	6504	547.8657
2003	95725	3242.962	48961	279.30	8930	921.791
2004	108066	3534.82	66592	254.92	9999	740.3132
2005	114576	3801.03	67200	521.62	9812	953.5089
2006	131917	3638.59	57441	390.13	10251	1031.045
2007	186347	3703.72	58992	787.08	10849	965.2239
2008	117505	6083.19	58022	553.50	6370	641.5333
2009	49518	3577.64	37690	359.72	6656	770.4123
2010	46583	3255.34	35474	557.46	7067	628.5104
2011	51866	3570.45	44573	633.12	7221	499.8941
2012	48786	2703.99	43482	514.08	8328	628.4119
2013	47232	8714.81	39607	450.74	9094	898.0999
Total	1364613	72640.44	957507	8024.68	130792	53248.37

Panel B. Managing Insiders

Year	Insider Sales (Count)	Insider Sales (Volume)	Insider Purchases (Count)	Insider Purchases (Volume)	Proposed Sales (Count)	Proposed Sales (Volume)
1996	29175	1586.07	55389	1685.75	2336	64.23
1997	33276	1032.57	29638	793.74	5305	470.11
1998	33632	856.77	37541	1223.09	4668	191.69
1999	36796	1243.03	33277	1266.91	42	1.82
2000	46506	3048.06	37509	2580.32	9	0.61
2001	40203	1708.36	29792	1217.80	3369	221.60
2002	38983	982.46	26450	994.04	3512	231.50
2003	67904	1303.47	29365	1146.73	5004	413.27
2004	76359	1436.82	37378	919.46	6164	490.25
2005	82936	1568.42	36528	1246.75	6253	680.44
2006	100702	1224.38	34835	1167.66	6134	393.00
2007	141007	1094.01	32167	1676.05	6719	398.65
2008	91741	774.59	28296	983.40	3871	243.20
2009	36213	731.59	20177	973.99	3754	281.64
2010	34360	1019.61	20661	1089.88	3855	352.86
2011	41450	1087.94	26215	1014.98	4307	250.05
2012	38529	932.87	26111	3084.02	5103	326.49
2013	37911	1085.23	24952	984.50	5572	326.55
Total	1007683	22716.27	566281	24049.07	75977	5337.97

	Panel C. Non-Managing Insiders					
Year	**Insider Sales (Count)**	**Insider Sales (Volume)**	**Insider Purchases (Count)**	**Insider Purchases (Volume)**	**Proposed Sales (Count)**	**Proposed Sales (Volume)**
1996	12930	2995.63	22204	3891.02	2645	1383.52
1997	13421	1905.62	14685	1735.85	4407	758.96
1998	12512	1742.89	18974	2352.36	4144	40641.52
1999	13042	1797.85	20068	2683.24	43	8.24
2000	18896	3150.79	20297	2400.81	6	0.80
2001	20034	2598.17	17796	2231.45	2737	278.66
2002	17086	2165.60	35853	2173.85	2992	316.36
2003	27821	1939.49	19596	1646.23	3926	508.52
2004	31707	2098.00	29214	1629.78	3835	250.07
2005	31640	2232.61	30672	3969.44	3559	273.07
2006	31215	2414.21	22606	2733.63	4117	638.04
2007	45340	2609.71	26825	6194.72	4130	566.57
2008	25764	5308.60	29726	4551.57	2499	398.33
2009	13305	2846.05	17513	2623.24	2902	488.77
2010	12223	2235.73	14813	4484.69	3212	275.65
2011	10416	2482.50	18358	5316.19	2914	249.84
2012	10257	1771.13	17371	2056.81	3225	301.92
2013	9321	7629.58	14655	3522.89	3522	571.55
Total	356930	49924.18	391226	56197.77	54815	47910.40

Table 3: Abnormal Performance of Sued Firms around Lawsuit Announcements

This table reports 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 announcement. In Panel B, we report results for event windows around and after the announcement. Our sample consists of 2,153 lawsuits filed between January 1996 and December 2013.

Number of Days Before/After Announcement	Cumulative Abnormal Returns	Mean Test (P-Value)	Median Cumulative Abnormal Returns	Wilcoxon Ranked-Sign Test (P-Value)	Number of Firms
Cumulative Abnormal Returns Around Lawsuit Announcements					
Panel A: CARs Before Lawsuit Announcements					
-250 to -1	-0.5182	<.0001	-0.47077	<.0001	2153
-125 to -1	-0.4002	<.0001	-0.36401	<.0001	2153
-60 to -1	-0.2915	<.0001	-0.26051	<.0001	2153
-20 to -1	-0.1757	<.0001	-0.12171	<.0001	2153
-10 to -1	-0.1183	<.0001	-0.05494	<.0001	2153
-5 to -1	-0.0764	<.0001	-0.02689	<.0001	2153
-3 to -1	-0.0501	<.0001	-0.01608	<.0001	2153
-2 to -1	-0.0339	<.0001	-0.00773	<.0001	2152
Panel B: CARs After Lawsuit Announcements					
-1 to 0	-0.0337	<.0001	-0.00916	<.0001	2153
-1 to 1	-0.0464	<.0001	-0.01573	<.0001	2153
0 to 1	-0.0271	<.0001	-0.01212	<.0001	2153
0 to 2	-0.0340	<.0001	-0.01514	<.0001	2153
0 to 3	-0.0370	<.0001	-0.01708	<.0001	2153
0 to 5	-0.0400	<.0001	-0.02163	<.0001	2153
0 to 10	-0.0456	<.0001	-0.02914	<.0001	2153
0 to 20	-0.0552	<.0001	-0.03135	<.0001	2153
0 to 60	-0.0893	<.0001	-0.05602	<.0001	2153
0 to 125	-0.1407	<.0001	-0.08981	<.0001	2153
0 to 250	-0.2140	<.0001	-0.12465	<.0001	2153

Table 4: Abnormal Performance of Sued Firms around Settlement Announcements

This table reports the results of an event study over different event windows before and after a settlement announcement. In Panel A, we report results for various timeframes prior to the announcement. In Panel B, we report results for event windows around and after a lawsuit announcement. Our sample consists of 315 settlements announced between January 1996 and December 2013.

Number of Days Before/After Announcement	Cumulative Abnormal Returns	Mean Test (P-Value)	Median Cumulative Abnormal Returns	Wilcoxon Ranked-Sign Test (P-Value)	Number of Firms
Cumulative Abnormal Returns Around Settlement Announcements					
Panel A: CARs Before Settlement Announcements					
-250 to -1	0.0204	0.6546	-0.00257	0.8457	315
-125 to -1	0.0549	0.0688	0.002755	0.3120	312
-60 to -1	0.0472	0.0285	0.000776	0.3027	312
-20 to -1	0.0174	0.1345	0.000882	0.3539	312
-10 to -1	0.0117	0.2054	0.001310	0.5623	312
-5 to -1	0.0098	0.1534	0.003391	0.4223	312
-3 to -1	0.0084	0.1962	0.001655	0.8708	312
-2 to -1	0.0036	0.5457	-0.00478	0.3331	312
Panel B: CARs After Settlement Announcements					
-1 to 0	0.0209	0.0003	0.020927	0.0009	312
-1 to 1	0.0198	0.0007	0.006237	0.0019	312
0 to 1	0.0213	<.0001	0.005080	<.0001	312
0 to 2	0.0238	0.0012	0.008933	0.0006	312
0 to 3	0.0209	0.0016	0.010122	0.0020	312
0 to 5	0.0164	0.0135	0.005148	0.0750	312
0 to 10	0.0140	0.1049	0.001455	0.4873	312
0 to 20	0.0094	0.4099	-0.00015	0.6765	312
0 to 60	0.0341	0.1285	0.012292	0.2297	312
0 to 125	0.0205	0.5448	-0.03951	0.5531	313
0 to 250	0.0591	0.2249	0.006880	0.4083	313

Table 5: Abnormal Insider Net Sales around Litigation Announcements

This table reports abnormal insider net selling activity within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits. We calculate abnormal net sales during a given quarter as the actual quarterly net sales for each firm minus the expected net sales of that firm. The expected insider net sales for each firm are the mean quarterly net sales for that firm during the 3 year period beginning 5 years prior to the litigation announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 2,153 lawsuits). The results for our volume-based measure are reported in basis points. We present results for all insiders in Panel A, managing insiders in Panel B, and non-managing insiders in Panel C.

Panel A. All Insiders

Net-Sales

Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	6.29	0.0000	0.0003	21	0.1507	0.0262
(-630,-541)	5.69	0.0000	0.0000	83	0.0748	0.8326
(-540,-451)	5.67	0.0001	0.0000	44	0.0403	0.3622
(-450,-361)	7.20	0.0000	0.0000	61	0.0017	0.0899
(-360,-271)	9.46	0.0001	0.0000	53	0.0039	0.0047
(-270,-181)	8.26	0.0258	0.0000	59	0.0010	0.3457
(-180,-91)	8.52	0.0000	0.0000	34	0.0244	0.5919
(-90,-1)	5.00	0.0001	0.8230	31	0.0556	0.0010
(0,90)	-1.23	0.1938	0.0000	-36	0.1341	0.0000
(91,180)	-2.34	0.1190	0.0000	-3	0.8335	0.0000
(181,270)	-1.67	0.1960	0.0000	-15	0.3598	0.0000
(271,360)	1.76	0.3019	0.0000	-3	0.8675	0.0000
(361,450)	1.90	0.3494	0.0000	-26	0.2837	0.0000
(451,540)	2.01	0.4161	0.0000	7	0.6528	0.0000
(541,630)	2.13	0.2411	0.0000	-3	0.8312	0.0000
(631,720)	2.50	0.1481	0.0000	4	0.7880	0.0000

Panel B. Managing Insiders

Net-Sales

Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	2.00	0.0783	0.0912	1	0.8284	0.0000
(-630,-541)	1.57	0.0865	0.7695	3	0.3062	0.3909
(-540,-451)	2.72	0.0174	0.8612	8	0.0256	0.0931
(-450,-361)	2.96	0.0089	0.3071	9	0.0374	0.8522
(-360,-271)	3.39	0.0105	0.0215	12	0.0028	0.0884
(-270,-181)	4.55	0.0224	0.2878	15	0.0005	0.2188
(-180,-91)	3.94	0.0029	0.7978	10	0.0123	0.9141
(-90,-1)	0.84	0.4462	0.0000	10	0.0159	0.0000
(0,90)	-3.94	0.0000	0.0000	-5	0.0952	0.0000
(91,180)	-3.72	0.0000	0.0000	-5	0.1292	0.0000
(181,270)	-3.39	0.0001	0.0000	-3	0.5979	0.0000
(271,360)	-1.02	0.5097	0.0000	-2	0.4296	0.0000
(361,450)	-0.40	0.8276	0.0000	-4	0.1838	0.0000
(451,540)	-0.53	0.7589	0.0000	-5	0.3167	0.0000
(541,630)	-1.64	0.2011	0.0000	-3	0.3771	0.0000
(631,720)	-0.79	0.6062	0.0000	-4	0.1770	0.0000

Panel C. Non-Managing Insiders						
Net-Sales						
Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	-0.47	0.4934	0.0002	0	0.9932	0.0000
(-630,-541)	-0.63	0.4562	0.0067	60	0.1985	0.0000
(-540,-451)	-1.80	0.0415	0.0008	16	0.4427	0.0000
(-450,-361)	-0.52	0.5511	0.0182	32	0.0926	0.0000
(-360,-271)	1.31	0.4482	0.1022	21	0.2484	0.0000
(-270,-181)	-1.04	0.7047	0.0084	24	0.1746	0.0000
(-180,-91)	-0.17	0.8957	0.0844	4	0.7865	0.0000
(-90,-1)	-0.60	0.4989	0.0000	2	0.9079	0.0000
(0,90)	-2.04	0.0187	0.0000	-50	0.0373	0.0000
(91,180)	-3.37	0.0254	0.0000	-17	0.2451	0.0000
(181,270)	-3.04	0.0173	0.0000	-32	0.0426	0.0000
(271,360)	-1.97	0.0401	0.0000	-20	0.2341	0.0000
(361,450)	-2.45	0.0256	0.0000	-41	0.0871	0.0000
(451,540)	-2.22	0.1540	0.0000	-8	0.5983	0.0000
(541,630)	-0.98	0.4582	0.0000	-19	0.2027	0.0000
(631,720)	-1.46	0.1765	0.0000	-11	0.4742	0.0000

Table 6: Differences in mean Abnormal Net Sales between Managing and Non-Managing insiders around Litigation Announcements

This table reports differences between mean abnormal net sales by managing and non-managing insiders during a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits. We calculate mean differences in abnormal net sales as the mean abnormal net sales by managers during a given period minus the mean abnormal net sales by non-managing insiders during the same period. The results for our volume-based measure are reported in basis points.

Managing VS Non-Managing Insiders						
Net-Sales						
Time-Frame	**Count**	**T-Test**	**Wilcoxon Signed Rank**	**Volume**	**T-Test**	**Wilcoxon Signed Rank**
(-720,-631)	2.4719	0.0626	0.6145	1	0.9688	0.0051
(-630,-541)	2.1937	0.0774	0.1287	-56	0.2246	<.0001
(-540,-451)	4.5225	0.0018	0.0666	-9	0.6824	<.0001
(-450,-361)	3.4779	0.0147	0.0595	-22	0.2466	<.0001
(-360,-271)	2.0785	0.3407	0.0210	-9	0.6198	<.0001
(-270,-181)	5.5889	0.0996	0.0333	-9	0.6197	<.0001
(-180,-91)	4.1114	0.0278	0.5606	6	0.7055	<.0001
(-90,-1)	1.4440	0.3089	0.1739	8	0.6393	0.0053
(0,90)	-1.8941	0.1128	0.0003	44	0.0655	0.1202
(91,180)	-0.3451	0.8395	0.0042	12	0.4350	0.0293
(181,270)	-0.3535	0.8179	0.0013	29	0.0821	0.0824
(271,360)	0.9526	0.6015	0.0005	17	0.3048	0.1175
(361,450)	2.0427	0.3422	0.0030	37	0.1260	0.0675
(451,540)	1.6920	0.4654	<.0001	3	0.8256	0.4450
(541,630)	-0.6549	0.7226	<.0001	16	0.3076	0.8334
(631,720)	0.6688	0.7218	<.0001	7	0.6594	0.6966

Table 7: Abnormal Insider Sales/Purchases around Litigation Announcements

This table reports abnormal insider selling (purchasing) activity within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits. We calculate abnormal sales (purchases) during a given quarter as the actual quarterly sales (purchases) of each firm minus the expected sales (purchases) of that firm. The expected insider sales (purchases) for each firm are the mean quarterly sales (purchases) of that firm during the 3 year period beginning 5 years prior to the litigation announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 2,153 lawsuits). The results for our volume-based measure are reported in basis points. We present results for all insiders in Panel A, managing insiders in Panel B, and non-managing insiders in Panel C.

Panel A. All Insiders

Time-Frame	Abnormal Sales						Abnormal Purchases					
	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	6.40	0.0000	0.1673	3	0.5821	0.0000	0.11	0.6294	0.0000	-17	0.1879	0.0000
(-630,-541)	5.89	0.0000	0.0017	66	0.1349	0.0000	0.19	0.5839	0.0000	-16	0.2222	0.0000
(-540,-451)	6.99	0.0000	0.0016	34	0.0345	0.0000	1.31	0.0748	0.0000	-10	0.4842	0.0000
(-450,-361)	8.60	0.0000	0.0000	48	0.0006	0.1643	1.40	0.0534	0.0000	-13	0.3465	0.0000
(-360,-271)	10.08	0.0000	0.0000	41	0.0009	0.5951	0.62	0.3085	0.0000	-12	0.3753	0.0000
(-270,-181)	11.15	0.0001	0.0000	50	0.0000	0.0499	2.89	0.2152	0.0000	-9	0.5086	0.0000
(-180,-91)	9.69	0.0000	0.0001	22	0.0030	0.0411	1.17	0.2705	0.0000	-12	0.3708	0.0000
(-90,-1)	4.99	0.0000	0.2509	29	0.0008	0.0000	0.00	0.9964	0.0001	-2	0.8776	0.0000
(0,90)	-0.87	0.2830	0.0000	-4	0.6147	0.0000	0.36	0.4643	0.0000	32	0.1601	0.0000
(91,180)	-0.81	0.2896	0.0000	-5	0.3612	0.0000	1.52	0.2602	0.0000	-2	0.8960	0.0000
(181,270)	-1.22	0.1524	0.0000	-10	0.0563	0.0000	0.46	0.6438	0.0000	5	0.7615	0.0000
(271,360)	1.89	0.2294	0.0000	-8	0.3449	0.0000	0.13	0.8383	0.0000	-5	0.6987	0.0000
(361,450)	2.17	0.2437	0.0000	2	0.8336	0.0000	0.27	0.7505	0.0000	28	0.2008	0.0000
(451,540)	2.42	0.2638	0.0000	-1	0.9099	0.0000	0.41	0.7341	0.0000	-8	0.5570	0.0000
(541,630)	2.18	0.2156	0.0000	-9	0.1049	0.0000	0.05	0.9324	0.0000	-5	0.7019	0.0000
(631,720)	1.82	0.2788	0.0000	-10	0.1369	0.0000	-0.68	0.1086	0.0000	-14	0.2994	0.0000

Panel B. Managing insiders

Time-Frame	Abnormal Sales						Abnormal Purchases					
	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	1.69	0.1356	0.0000	-7	0.0029	0.0000	-0.32	0.0107	0.0000	-8	0.0004	0.0000
(-630,-541)	1.05	0.2481	0.0004	-5	0.0427	0.0000	-0.52	0.0000	0.0000	-8	0.0005	0.0000
(-540,-451)	2.20	0.0531	0.0004	-1	0.8433	0.0000	-0.52	0.0000	0.0000	-8	0.0003	0.0000
(-450,-361)	2.72	0.0153	0.1016	4	0.3103	0.0017	-0.24	0.0960	0.0000	-6	0.0351	0.0000
(-360,-271)	3.05	0.0210	0.8691	4	0.2059	0.0538	-0.34	0.0010	0.0000	-8	0.0008	0.0000
(-270,-181)	4.44	0.0255	0.2086	7	0.0457	0.0315	-0.11	0.5103	0.0000	-8	0.0007	0.0000
(-180,-91)	3.60	0.0062	0.0134	3	0.3753	0.0014	-0.34	0.0025	0.0000	-7	0.0021	0.0000
(-90,-1)	0.56	0.6093	0.0000	3	0.3233	0.0000	-0.28	0.0088	0.0000	-6	0.0063	0.0000
(0,90)	-4.17	0.0000	0.0000	-11	0.0000	0.0000	-0.24	0.0441	0.0000	-6	0.0080	0.0000
(91,180)	-4.09	0.0000	0.0000	-11	0.0000	0.0000	-0.37	0.0019	0.0000	-6	0.0358	0.0000
(181,270)	-3.93	0.0000	0.0000	-6	0.1339	0.0000	-0.53	0.0000	0.0000	-3	0.4689	0.0000
(271,360)	-1.60	0.3001	0.0000	-10	0.0000	0.0000	-0.58	0.0000	0.0000	-8	0.0004	0.0000
(361,450)	-1.02	0.5818	0.0000	-12	0.0000	0.0000	-0.61	0.0000	0.0000	-8	0.0008	0.0000
(451,540)	-1.16	0.4984	0.0000	-8	0.0163	0.0000	-0.63	0.0000	0.0000	-3	0.3656	0.0000
(541,630)	-2.16	0.0890	0.0000	-10	0.0005	0.0000	-0.52	0.0018	0.0000	-7	0.0147	0.0000
(631,720)	-1.37	0.3721	0.0000	-12	0.0000	0.0000	-0.57	0.0000	0.0000	-8	0.0003	0.0000

Panel C. Non-Managing Insiders

Time-Frame	Abnormal Sales						Abnormal Purchases					
	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	-1.78	0.0033	0.0000	-20	0.0025	0.0000	-1.31	0.0000	0.0000	-20	0.1202	0.0000
(-630,-541)	-1.65	0.0358	0.0000	40	0.3651	0.0000	-1.02	0.0003	0.0000	-19	0.1422	0.0000
(-540,-451)	-1.71	0.0096	0.0000	4	0.8260	0.0000	0.10	0.8755	0.0000	-13	0.3612	0.0000
(-450,-361)	-0.61	0.3474	0.0000	14	0.3151	0.0000	-0.10	0.8720	0.0000	-18	0.1696	0.0000
(-360,-271)	0.54	0.7294	0.0000	6	0.6490	0.0000	-0.77	0.2926	0.0000	-16	0.2553	0.0000
(-270,-181)	0.22	0.8742	0.0000	12	0.3151	0.0000	1.27	0.5903	0.0000	-12	0.3598	0.0000
(-180,-91)	-0.40	0.5552	0.0000	-12	0.1200	0.0000	-0.23	0.8414	0.0000	-16	0.2297	0.0000
(-90,-1)	-2.06	0.0026	0.0000	-5	0.5465	0.0000	-1.46	0.0122	0.0000	-7	0.6202	0.0000
(0,90)	-3.19	0.0000	0.0000	-23	0.0032	0.0000	-1.14	0.0719	0.0000	27	0.2361	0.0000
(91,180)	-3.21	0.0000	0.0000	-25	0.0001	0.0000	0.16	0.9096	0.0000	-7	0.5952	0.0000
(181,270)	-3.78	0.0000	0.0000	-35	0.0000	0.0000	-0.75	0.4846	0.0000	-4	0.8101	0.0000
(271,360)	-2.99	0.0000	0.0000	-28	0.0020	0.0000	-1.02	0.1912	0.0000	-9	0.5423	0.0000
(361,450)	-3.30	0.0000	0.0000	-17	0.1061	0.0000	-0.85	0.3627	0.0000	24	0.2634	0.0000
(451,540)	-2.91	0.0014	0.0000	-24	0.0016	0.0000	-0.69	0.5928	0.0000	-16	0.2314	0.0000
(541,630)	-2.14	0.0521	0.0000	-29	0.0000	0.0000	-1.16	0.1191	0.0000	-10	0.4802	0.0000
(631,720)	-3.30	0.0003	0.0000	-28	0.0001	0.0000	-1.84	0.0017	0.0000	-17	0.2081	0.0000

Table 8: Abnormal Insider Net Sales around Litigation Announcements (Control Sample)

This table reports abnormal insider net selling activity within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits for our sample of matched control firms. We calculate abnormal net sales during a given quarter as actual quarterly net sales for each firm minus the expected net sales of that firm. The expected insider net sales for each firm are the mean quarterly net sales for that firm during the 3 year period beginning 5 years prior to the litigation announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 2,153 lawsuits). The results for our volume-based measure are reported in basis points. We present results for all insiders in the matched control firms.

All Insiders						
Net-Sales						
Time-Frame	**Count**	**T-Test**	**Wilcoxon Signed Rank**	**Volume**	**T-Test**	**Wilcoxon Signed Rank**
(-720,-631)	0.34	0.2457	0.2976	-5	0.6356	0.0003
(-630,-541)	0.79	0.1332	0.5288	9	0.4747	0.0058
(-540,-451)	0.45	0.2578	0.6005	-3	0.6731	0.0178
(-450,-361)	0.60	0.3810	0.3419	-3	0.2561	0.0000
(-360,-271)	0.69	0.1828	0.5051	0	0.8778	0.0330
(-270,-181)	0.02	0.9582	0.3884	5	0.2841	0.0330
(-180,-91)	-0.07	0.7496	0.2529	0	0.9603	0.0001
(-90,-1)	-0.23	0.5509	0.5306	-8	0.1528	0.0046
(0,90)	-0.39	0.2810	0.1673	3	0.7767	0.0014
(91,180)	-0.22	0.2861	0.0357	-1	0.8553	0.0000
(181,270)	0.15	0.6410	0.0403	-3	0.8006	0.0000
(271,360)	-0.55	0.2940	0.0054	4	0.6611	0.0000
(361,450)	-0.26	0.3047	0.0059	-3	0.2305	0.0001
(451,540)	-0.08	0.7462	0.0149	-11	0.1103	0.0000
(541,630)	-0.18	0.3880	0.0279	14	0.2605	0.0001
(631,720)	-0.18	0.5350	0.0021	1	0.7943	0.0000

Table 9: Differences in Mean Abnormal Net Sales between Sued and Non-Sued firms around Litigation Announcements

This table reports differences between mean abnormal net sales by insiders of sued firms (i.e. firms in our litigation sample) and insiders in non-sued firms (i.e. firms in our matched control sample), within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits in our litigation sample and the corresponding 2,153 matched control firms. We calculate mean differences in abnormal net sales as mean abnormal net sales by insiders of sued firms minus the mean abnormal net sales by insiders of non-sued firms.

All Insiders						
Net-Sales						
Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	5.9472	<.0001	0.0071	25	0.1450	0.1683
(-630,-541)	4.9017	<.0001	0.0006	73.1	0.1288	0.4611
(-540,-451)	5.2236	0.0004	0.0018	46.5	0.0374	0.0623
(-450,-361)	6.5998	<.0001	<.0001	63.7	0.0011	0.2334
(-360,-271)	8.7749	0.0002	<.0001	53	0.0041	0.1636
(-270,-181)	8.2394	0.0269	<.0001	54	0.0032	0.3949
(-180,-91)	8.5868	<.0001	0.0028	33.5	0.0343	0.9632
(-90,-1)	5.2254	<.0001	0.0084	39.5	0.0225	<.0001
(0,90)	-0.8387	0.4073	<.0001	-38.9	0.1419	<.0001
(91,180)	-2.1169	0.1622	<.0001	-2.3	0.8812	<.0001
(181,270)	-1.8205	0.1717	<.0001	-12.2	0.5259	<.0001
(271,360)	2.3076	0.1951	<.0001	-6.3	0.7299	<.0001
(361,450)	2.1674	0.2907	<.0001	-22.4	0.3501	<.0001
(451,540)	2.0824	0.4010	<.0001	18.3	0.2870	<.0001
(541,630)	2.3058	0.2074	<.0001	-17.2	0.3756	<.0001
(631,720)	2.6783	0.1264	<.0001	2.81	0.8632	<.0001

Table 10: Abnormal Proposed Insider Sales around Litigation Announcements

This table reports abnormal proposed sales by insiders during a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits in our litigation sample. We calculate abnormal proposed sales during a given quarter as the actual quarterly proposed sales for each firm minus the expected proposed sales of that firm. The expected proposed insider sales for each firm are the mean quarterly proposed sales for that firm during the 3 year period beginning 5 years prior to the litigation announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 2,153 lawsuits). The results for our volume-based measure are reported in basis points. For brevity, we only present results for all insiders.

| All Insiders | | | | | | |
Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	0.20	0.0078	0.0000	10	0.3298	0.0000
(-630,-541)	0.41	0.0000	0.1011	-1	0.7632	0.0000
(-540,-451)	0.41	0.0000	0.2799	4	0.3736	0.0000
(-450,-361)	0.78	0.0000	0.0718	4	0.0803	0.0991
(-360,-271)	0.84	0.0000	0.0151	98	0.2917	0.3009
(-270,-181)	0.84	0.0000	0.0415	909	0.3172	0.6850
(-180,-91)	0.88	0.0000	0.0219	111	0.2525	0.6346
(-90,-1)	0.31	0.0003	0.0006	4	0.1385	0.0000
(0,90)	-0.25	0.0560	0.0000	5	0.4682	0.0000
(91,180)	-0.16	0.0770	0.0000	0	0.9786	0.0000
(181,270)	-0.24	0.0013	0.0000	-4	0.0767	0.0000
(271,360)	-0.28	0.0002	0.0000	-3	0.1639	0.0000
(361,450)	-0.12	0.1409	0.0000	-4	0.0609	0.0000
(451,540)	-0.21	0.0145	0.0000	-5	0.0238	0.0000
(541,630)	-0.23	0.0037	0.0000	-3	0.1898	0.0000
(631,720)	-0.20	0.0167	0.0000	-4	0.0572	0.0000

Table 11: Abnormal Proposed Insider Sales around Litigation Announcements (Control Sample)

This table reports insider proposed sales during a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits for our matched control sample. For each control firm, we consider the lawsuit announcement date of the corresponding sued firm. We calculate abnormal proposed sales during a given quarter as the actual quarterly proposed sales for each firm minus the expected proposed sales of that firm. The expected proposed insider sales for each firm are the mean quarterly proposed sales for that firm during the 3 year period beginning 5 years prior to the litigation announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 2,153 lawsuits). The results for our volume-based measure are reported in basis points. For brevity, we only present results for all insiders.

All Insiders						
Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	-0.09	0.2208	0.0000	-11	0.2325	0.0000
(-630,-541)	0.04	0.5396	0.0000	-13	0.1349	0.0000
(-540,-451)	0.07	0.3227	0.0000	-6	0.5330	0.0000
(-450,-361)	0.24	0.0009	0.0336	-12	0.1799	0.0000
(-360,-271)	0.30	0.0000	0.4875	-11	0.2269	0.0000
(-270,-181)	0.30	0.0001	0.0985	-5	0.5875	0.0000
(-180,-91)	0.39	0.0000	0.8376	-7	0.4731	0.0023
(-90,-1)	0.51	0.0000	0.1186	-9	0.2915	0.0065
(0,90)	0.58	0.0000	0.0123	-4	0.6521	0.5811
(91,180)	0.46	0.0000	0.2693	0	0.9940	0.0630
(181,270)	0.47	0.0000	0.3470	-5	0.5527	0.0270
(271,360)	0.25	0.0005	0.3223	-5	0.6009	0.0000
(361,450)	0.26	0.0007	0.1647	-2	0.8550	0.0000
(451,540)	0.12	0.0868	0.0004	-11	0.2232	0.0000
(541,630)	0.09	0.1991	0.0000	-11	0.1998	0.0000
(631,720)	0.04	0.5498	0.0000	-9	0.3334	0.0000

Table 12: Differences in Mean Abnormal Proposed Sales between Sued and Non-Sued Firms around Litigation Announcements

This table reports differences between mean abnormal proposed sales by insiders of sued firms (i.e. firms in our litigation sample) and insiders in non-sued firms (i.e. firms in our matched control sample), within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 2,153 securities class action lawsuits in our litigation sample and the corresponding 2,153 matched control firms. We calculate mean differences in abnormal proposed sales as mean abnormal proposed sales by insiders of sued firms minus the mean abnormal proposed sales by insiders of non-sued firms.

All Insiders						
Proposed-Sales						
Time-Frame	**Count**	**T-Test**	**Wilcoxon Signed Rank**	**Volume**	**T-Test**	**Wilcoxon Signed Rank**
(-720,-631)	0.2859	0.0057	0.5324	19	0.2856	0.9985
(-630,-541)	0.3676	0.0011	0.8873	12.6	0.1690	0.8353
(-540,-451)	0.3393	0.0011	0.8474	10.6	0.3470	0.8984
(-450,-361)	0.5334	<.0001	0.6032	16	0.0810	0.2595
(-360,-271)	0.5316	<.0001	0.6050	109	0.2441	0.5101
(-270,-181)	0.5358	<.0001	0.5992	902	0.3169	0.1552
(-180,-91)	0.4893	0.0004	0.2071	117	0.2275	0.9341
(-90,-1)	-0.2009	0.0877	<.0001	13.1	0.1554	0.0048
(0,90)	-0.8270	<.0001	<.0001	8.62	0.4332	<.0001
(91,180)	-0.6184	<.0001	<.0001	0	0.9999	0.9800
(181,270)	-0.7113	<.0001	<.0001	1.33	0.8868	<.0001
(271,360)	-0.5344	<.0001	<.0001	1.83	0.8555	<.0001
(361,450)	-0.3755	0.0006	<.0001	-2	0.8535	<.0001
(451,540)	-0.3314	0.0029	<.0001	6.18	0.4999	<.0001
(541,630)	-0.3156	0.0026	<.0001	8.31	0.3670	<.0001
(631,720)	-0.2459	<.0001	<.0001	4.74	0.6185	<.0001

Table 13: Abnormal Insider Net Sales around Settlement Announcements (Managing Insiders)

This table reports abnormal insider net selling activity within a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 315 securities class action settlements. We calculate abnormal net sales during a given quarter as actual quarterly net sales for each firm minus the expected net sales of that firm. The expected insider net sales for each firm are the mean quarterly net sales for that firm during the 3 year period beginning 5 years prior to the settlement announcement and ending 2 years prior to the announcement. All reported results are sample wide averages (for all 315 settlements). The results for volume-based measure are reported in basis points. For brevity, we only present results for managing insiders.

Managing Insiders						
Net-Sales						
Time-Frame	Count	T-Test	Wilcoxon Signed Rank	Volume	T-Test	Wilcoxon Signed Rank
(-720,-631)	-3.48	0.0245	0.0000	2	0.6830	0.0000
(-630,-541)	-2.27	0.3246	0.0000	-5	0.3020	0.0001
(-540,-451)	-4.10	0.0414	0.0000	-11	0.0250	0.0000
(-450,-361)	-4.68	0.0043	0.0000	-2	0.7672	0.0000
(-360,-271)	-6.06	0.0001	0.0000	-9	0.0562	0.0000
(-270,-181)	-4.38	0.0064	0.0000	-5	0.2967	0.0000
(-180,-91)	-3.85	0.0359	0.0000	-10	0.0319	0.0000
(-90,-1)	-4.25	0.0337	0.0000	-11	0.0147	0.0000
(0,90)	0.51	0.8524	0.0000	-9	0.0038	0.0000
(91,180)	-2.64	0.2496	0.0000	-4	0.5587	0.0000
(181,270)	-5.37	0.0013	0.0000	-20	0.1261	0.0000
(271,360)	-4.73	0.0119	0.0000	-13	0.0243	0.0000
(361,450)	-5.23	0.0022	0.0000	-13	0.0031	0.0000
(451,540)	-3.98	0.0395	0.0000	-19	0.0429	0.0000
(541,630)	-3.43	0.1682	0.0000	-12	0.0076	0.0000
(631,720)	-0.83	0.8140	0.0000	-10	0.0321	0.0000

Table 14: Differences in Mean Abnormal Net Sales between Managing and Non-Managing Insiders around Settlement Announcements

This table reports differences between mean abnormal net sales by managing and non-managing insiders during a period of 16 quarters, starting 8 quarters before and ending 8 quarters after the announcement of 315 securities class action settlements. We calculate mean differences in abnormal net sales as the mean abnormal net sales by managers during a given period minus the mean abnormal net sales by non-managing insiders during the same period.

Managing VS Non-Managing						
Net-Sales						
Time-Frame	**Count**	**T-Test**	**Wilcoxon Signed Rank**	**Volume**	**T-Test**	**Wilcoxon Signed Rank**
(-720,-631)	-1.2441	0.4910	0.3567	-114	0.1815	0.8884
(-630,-541)	0.9273	0.7179	0.6581	-46.9	0.4715	0.8529
(-540,-451)	-1.5361	0.4998	0.2314	-46.9	0.4696	0.3428
(-450,-361)	-2.4409	0.2494	0.0965	-54	0.4097	0.7066
(-360,-271)	-5.3584	0.0092	0.0249	-35.2	0.5899	0.2051
(-270,-181)	-2.1615	0.2449	0.1852	-43.7	0.5035	0.2162
(-180,-91)	-0.9488	0.6489	0.3204	-46.8	0.4709	0.5941
(-90,-1)	-1.9584	0.3899	0.0951	-51.9	0.4331	0.1176
(0,90)	3.9400	0.1826	0.2068	-41.5	0.5247	0.4054
(91,180)	0.1464	0.9556	0.1179	-42.3	0.5169	0.2413
(181,270)	-5.3457	0.0257	0.2442	-83.6	0.2094	0.2263
(271,360)	-3.4727	0.1131	0.0728	-62.1	0.3462	0.2148
(361,450)	-3.0695	0.1289	0.1007	-54.7	0.4293	0.2516
(451,540)	-1.0695	0.6388	0.5171	-51.2	0.4404	0.6005
(541,630)	-0.3838	0.8860	0.2084	-47	0.4747	0.5448
(631,720)	-0.0473	0.9903	0.0202	-44.2	0.4946	0.3105

Appendices

Appendix 1: Excluded Insiders

We exclude trades by insiders who are less likely to possess material private information and thus their trades are less likely to be informed

Insider	Role Code
Unknown	UT
Beneficial Owner of more than 10% of a Class of Security	B
Beneficial Owner as Custodian	BC
Beneficial Owner as Trustee	BT
Indirect Shareholder	DS
Former	FO
Retired	R
Shareholder	SH
Trustee	T
Deceased	X

Appendix 2: Insiders Categorization

Managing	Role Code	Non-Managing	Role Code
Chief executive officer	CEO	Vice chairman	VC
Chief financial officer	CFO	Member of the advisory committee	AC
Chairman of the board	CB	Member of the compensation committee	CC
Chief investment officer	CI	Member of the executive committee	EC
Chief operating officer	CO	Member of the finance committee	FC
Chief technology officer	CT	Member of committee or advisory board	MC
Officer, director, and beneficial owner	H	Member of the science/technology committee	SC
Officer and director	OD	Affiliated person	AF
Director	D	Affiliate of investment advisor	AI
Vice president	VP	General council	GC
Assistant vice president	AV	Investment advisor	IA
Executive vice president	EVP	Founder	F
Senior vice president	SVP	General partner	GP
Officer	O	Limited partner	LP
Officer and beneficial owner	OB	Managing partner	M
Officer of parent company	OP	Managing director	MD
Officer of Subsidiary Company	OS	Voting trustee	VT
Officer and Treasurer	OT		
Divisional Officer	OX		
President	P		
Secretary	S		
Controller	C		
Controlling Person	CP		
General Manager	GM		
Other Executive	OE		
Treasurer	TR		