Institutional Monitoring through Shareholder Litigation

C.S. Agnes Cheng
E. J. Ourso College of Business
Louisiana State University
Baton Rouge, LA 70803
Tel: (225) 578-6215, E-mail: acheng@lsu.edu

Henry He Huang
College of Business Administration
Prairie View A&M University
Prairie View, TX 77446
Tel: (936) 261-9210, E-mail: hhuang@pvamu.edu

Yinghua Li*
Krannert School of Management
Purdue University
West Lafayette, IN 47907-205
Tel: (765) 496-3510, Email: yli@purdue.edu

Gerald Lobo
C. T. Bauer College of Business
University of Houston
Houston, Texas 77204-6021
Tel: (713) 743-4838, E-mail: gjlobo@uh.edu

Revised, January 2009

*Contact author. We are especially grateful to the editor (G. William Schwert) and the anonymous reviewer for their many helpful and constructive suggestions. We also thank Mark Bagnoli, Ji-Chai Lin, Wei-ling Song, Shyam V. Sunder, Susan Watts, and participants in workshops at Butler University, Louisiana State University, NanKai University, Prairie View A&M University, Purdue University, the American Accounting Association 2007 Annual Meeting, and the Sixth International Symposium for Empirical Accounting Research for their helpful comments.

Institutional Monitoring through Shareholder Litigation

Abstract

This paper investigates the effectiveness of using securities class action lawsuits in monitoring defendant firms by institutional lead plaintiffs from two aspects: (1) immediate litigation outcomes, including the probability of surviving the motion to dismiss and the settlement amount, and (2) subsequent governance improvement such as changes in board independence. Using a large sample of securities lawsuits from 1996 to 2005, we show that institutional investors are more likely to serve as the lead plaintiff for lawsuits with certain characteristics. After controlling for these determinants of having an institutional lead plaintiff, we document that securities class actions with institutional owners as lead plaintiffs are less likely to be dismissed and have larger monetary settlements than securities class actions with individual lead plaintiffs. This effect exists for various types of institutions including public pension funds. We also find that after the lawsuit filings, defendant firms with institutional lead plaintiffs experience greater improvement in their board independence than defendant firms with individual lead plaintiffs. Our study suggests that securities litigation is an effective disciplining tool for institutional owners.

JEL Classification: G34; K41

Keywords: Corporate governance; Institutional Investors; Monitoring; Shareholder litigation

Institutional Monitoring through Shareholder Litigation

1. Introduction

The monitoring role of institutional investors is essential for investor protection (Shleifer and Vishny, 1997). Prior research (e.g., Carleton, Nelson and Weisbach, 1998) indicates that institutional investors could use private channels to monitor firms because they have greater access to management.[1] When management does not comply with their demands, institutional investors can exert their monitoring power by publicly filing a proxy resolution (Gillan and Starks, 2000). However, studies generally suggest that this means of resolution is ineffective (Karpoff, 2001).[2] In the case of managerial misconduct, and especially when damages are revealed, securities class action can be an effective mechanism for institutional investors to actively monitor the defendant firms (Romano, 1991). The effectiveness of monitoring by institutional owners through securities class action could be enhanced by having the institutional owners, rather than individuals, serve as the lead plaintiffs (Weiss and Beckerman, 1995). The Private Securities Litigation Reform Act (PSLRA) of 1995 established a provision requiring lead plaintiff status be granted to the plaintiff with the largest stake in the lawsuit. This provision is intended to encourage institutional owners to lead the lawsuit since it presumes that the largest stakeholders (likely institutional owners) are more capable of seeking better case outcomes for investors (Fisch, 2001).

In this paper, we investigate the use of securities class actions by institutional owners to monitor defendant firms. Specifically, we investigate the determinants for institutional owners to step forward to serve as lead plaintiffs and the monitoring effectiveness of institutional investors (relative to individual investors) in serving as lead plaintiffs in securities class actions. To identify determinants of having an institutional lead plaintiff, we discuss the costs and benefits for institutional owners and develop

[1] Based on proprietary correspondence between TIAA-CREF and target firms, Carleton et al. (1998) provide evidence that institutional investors with large ownerships can achieve success through private monitoring.
[2] Karpoff (2001) concludes in his survey paper that most research indicates shareholder proposals lead to small changes in target firms' governance structures with negligible impacts on firm valuations.

surrogates for their incentive to serve.[3] For monitoring effectiveness, we examine two aspects: (1) immediate litigation outcomes, specifically, the likelihood of the lawsuit's dismissal and the settlement amount if the lawsuit survives the motion to dismiss,[4] and (2) subsequent governance reform, especially changes in the defendant firm's board independence. Monitoring solutions to the agency problem would be effective if the monitor could present credible threats to management (Denis, 2001). The large financial and reputation penalties associated with successful securities class actions can discipline management and deter it from committing future wrongdoings that could misinform investors and result in misallocation of economic resources (Johnson, Nelson, and Pritchard, 2000). Corporate governance improvement has been deemed an effective monitoring mechanism. For instance, Coffee (1991) states that strengthening the board's monitoring function of the defendant firm is an effective way of disciplining management and preventing future corporate misbehaviors. Thus, we examine institutional investors' monitoring effectiveness by testing whether they can generate better litigation outcomes and improve subsequent corporate governance.

We expect that institutions as lead plaintiffs are more effective than individuals in achieving litigation success in terms of both financial recoveries and governance improvements. The lead plaintiff in a class action lawsuit represents all class members in selecting and retaining the class counsel, monitoring the litigation process, and negotiating with the defendant. Consequently, the lead plaintiff plays a vital role in the class action litigation process. Institutional lead plaintiffs generally have larger financial stakes, stronger litigation support and expertise, and higher public profiles than individual lead plaintiffs who are typically controlled by the class counsel who prefers a quick settlement to aggressively litigating the lawsuit (Weiss and Beckerman 1995). This suggests that institutional lead plaintiffs are

[3] It is important to investigate the determinants for at least two reasons: (1) to improve our understanding of factors that motivate institutional owners to serve as the lead plaintiff as desired by the regulator, and (2) to control for the self-selection problem in our empirical analysis. The free rider problem predicts that institutions will step forward to lead the lawsuits only when their expected benefits exceed their costs. Section 2.2 discusses this in detail.

[4] We also examine institutional lead plaintiffs' ability to prolong or shorten the settlement period. However, it is unclear whether a longer or a shorter settlement period is more beneficial to investors. We do not include the effect on the length of settlement period in our main discussion of "better outcomes". However, our empirical results do suggest that institutional lead plaintiffs have the ability to influence the settlement time for the benefit of investors.

more effective in reducing litigation agency costs[5] by effectively monitoring the class counsel and have stronger incentives and more resources to vigorously seek litigation success than individual lead plaintiffs. Consequently, we expect that institutional owners serving as lead plaintiffs are more likely to increase the success rate of class action litigation and to achieve larger settlements.

Institutional investors with larger than average investments tend to be more active in governance (Coffee, 1991; Black and Coffee, 1994) and long-term shareholders generally are more interested in building a strong governance system (Gillan and Starks, 2000). Institutional lead plaintiffs are more likely to have larger than average investments[6] and to continue holding their investments in the defendant firms' stocks than individual lead plaintiffs;[7] as a result, institutional lead plaintiffs have greater incentives to require defendant firms to build stronger governance systems. Institutional investors, especially those heavily indexed, also have the motivation to pursue governance reform of some firms in order to encourage other firms to make proactive governance changes (Del Guercio and Hawkins, 1999; Hawley, Williams, and Miller, 1994). Securities class actions may provide these institutional investors a channel to demand governance reform, and thereby to achieve the spillover effect of improving the governance quality of overall Corporate America. Indeed, Cox and Thomas (2006) suggest that improving corporate governance is a major incentive for institutional owners to serve as lead plaintiffs. Defendant firms could change their governance practices for at least two reasons. First, the large financial penalty and reputation damage could increase defendant firms' awareness of the importance of corporate governance, and therefore they voluntarily choose to improve their governance (Ferris, Jandik, Lawless, and Makhija, 2007). Second, institutional lead plaintiffs sometimes explicitly require governance reforms in the

[5] Litigation agency cost in securities class actions arises from the divergence of interests between the class members and the class counsel.

[6] Since the Private Securities Litigation Reform Act of 1995 (PSLRA) establishes a preference of granting lead plaintiff status to plaintiffs with the largest financial stake in the class action, it is likely that only institutions with a larger than average investment in the defendant firm would be granted the lead plaintiff status.

[7] Many institutional investors, such as pension funds, have selling constraints because their portfolios are indexed (Davis and Steil, 2001). In addition, some holdings of institutional investors are so large that selling would lead to further losses (Coffee, 1991).

litigation negotiation process.[8] Plitch (2005) notes that especially for large public institutions, achieving governance reform through securities litigation has become mainstream to prevent the recurrence of managerial misconduct. While suggested by many scholars and practitioners, no studies to date provide systematic empirical evidence on governance reforms achieved by institutional lead plaintiffs. Our study attempts to bridge that gap.

We believe that it is also important to examine whether the monitoring effects exist for different types of institutional lead plaintiffs. Since public pension fund managers may be especially motivated in leading securities' litigation for political reasons and for maintaining their reputation (Murphy and Van Nuys, 1994; Woidtke, 2002), a larger lawsuit settlement is not necessarily better for pension fund beneficiaries, and therefore may not indicate monitoring effectiveness of public pension funds. A comparison of lawsuit outcomes across various types of institutional lead plaintiffs will then reveal insights on monitoring effectiveness of different institutions. Studies (e.g., Gillan and Starks, 2000) have shown that shareholder activism by public pension funds is more successful than activism by other types of institutions. This is because public pension funds tend to passively index a majority of their assets,[9] and thus have a large amount of long-term shareholdings. Therefore, they may have more incentives to change management behavior and governance practices of companies in the overall market (Del Guercio and Hawkins, 1999). Public pension funds also try to exert more influence on management and are more active in initiating governance reforms (Gillan and Starks, 2000; Qiu, 2003). These findings suggest that public pension funds may be able to achieve better litigation outcomes and governance reform than other institutional investors.

We start with a sample of 1,811 securities class actions filed between 1996 and 2005 to examine

[8] For example, in Vesta Insurance Group's securities litigation in which the Florida State Board of Administration (FSBA), the employee pension fund for Florida State and County employees, served as lead plaintiff, the defendant firm agreed to improve its board and subcommittee independence (PR Newswire, 2001). FSBA's Executive Director, Tom Herndon stated that: "We are pleased that Vesta has agreed not only to this substantial monetary settlement, but also to corporate governance changes which create an independent majority on the Board and an audit committee with real teeth. Overall, this shows the effectiveness of public pension funds in the class action process as envisioned by Congress in the PSLRA." Eisenhofer and Leban (1999) conclude that the lead plaintiff provision in the PSLRA is an important mechanism for large investors to change corporate governance practices.

[9] Davis and Steil (2001) report that 54 percent of public pension funds' domestic equity portfolios are indexed.

the trend of institutional investors serving as lead plaintiffs. Because PSLRA significantly altered securities litigation laws, we restrict the sample period to post-1995 to control for the potentially confounding effects of changes in the litigation environment. We find that institutional investors have gradually increased their involvement in securities class action lawsuits as indicated by the increasing percentages of lawsuits with institutional lead plaintiffs from 1995 to 2004. We also find that both public and union pension funds are actively assuming the lead plaintiff role in lawsuits. The free rider problem predicts that institutional owners will choose to serve as lead plaintiffs only if their expected benefits are greater than their expected costs (Romano, 1991). Determinants of having an institutional lead plaintiff, therefore, are important control variables for our evaluation of monitoring effectiveness of institutional owners in leading the lawsuits. Since institutional owners' expected cost and benefit functions are not observable, we develop proxies in our empirical model of the determinants. We propose and find that when the likelihood of winning is high, the potential damage is large, and the defendant firm is important to the institutional owners, institutional owners are more likely to step forward to serve as the lead plaintiff. Specifically, we find that institutional investors are more likely to serve as the lead plaintiff when the lawsuit involves an accounting-related allegation, has an accounting firm as the co-defendant, has a longer class period, has a larger negative market reaction to the revelation event, and has a larger potential investor loss. The probability of having an institutional lead plaintiff is also higher when the defendant firm has a larger market capitalization, has a higher level of institutional holdings, and is operating in a high-tech industry.

After controlling for these determinants of having an institutional lead plaintiff in our multivariate regression analysis, we find that relative to lawsuits with an individual lead plaintiff, lawsuits with an institutional lead plaintiff are less likely to be dismissed and have significantly larger settlements. Further analysis indicates that all types of institutions show significantly better litigation outcomes with public pension funds generating the largest settlement amount. We also find that within three years of filing the lawsuit, defendant firms with institutional lead plaintiffs experience greater improvement in board independence than those with individual lead plaintiffs. These results are robust to controlling for

regulatory changes in the NYSE, NASDAQ and SEC corporate governance requirements during the sample period and for determinants of having an institutional lead plaintiff.

We investigate institutional investors' effectiveness as lead plaintiffs in achieving the multiple objectives of reaching larger settlements and improving corporate governance. Our study contributes to the literature on institutional monitoring by documenting that securities class action is a viable mechanism for institutional investors to exert their monitoring power. First, we show that institutional lead plaintiffs are associated with more favorable immediate litigation outcomes, as indicated by the lower likelihood of case dismissal and larger settlement amounts. These results suggest that institutional lead plaintiffs are able to impose greater financial penalties on defendant firms than individual lead plaintiffs. Second, our evidence shows that the involvement of institutional investors is associated with more positive changes in defendant firms' corporate governance. Third, we find our results are not driven solely by public pension fund lead plaintiffs; the impact on immediate litigation outcomes is also significant for union pension fund, mutual fund and other institutional lead plaintiffs. Collectively, our empirical results are consistent with the hypothesis that institutional investors can effectively monitor defendant firms through litigation.

The rest of our study is organized as follows. The next section reviews the related literature and develops our main hypotheses. Section 3 describes the data and sample selection, Section 4 discusses the research design and the empirical results, and Section 5 concludes the study.

2. Literature review and hypothesis development

2.1. Appointment of lead plaintiff under PSLRA

A lead plaintiff is a class member of a class action lawsuit that acts on behalf of other class members in overseeing the litigation. The lead plaintiff is in charge of prosecuting the lawsuit, including selecting and retaining the class attorney and approving the final settlement. According to the Federal Rules of Civil Procedure, when appointing a lead plaintiff, the court must determine that the class member's claim is typical of the claims of other class members, and that the class member will adequately

represent the class.[10]

The procedure for appointing a lead plaintiff is as follows. Under the PSLRA of 1995, following the initial filing of the complaint, the filing plaintiff is required to publish a notice within 20 days of the filing to identify the claim and the class and to invite class members to exercise their right of applying for the lead plaintiff position. Within 60 days of the publication of the notice, any class member interested in becoming the lead plaintiff must file an application to serve as the lead plaintiff. Finally, within 90 days of the publication of the notice, the court is required to appoint a lead plaintiff from among those applicants whom the court deems the most capable of adequately representing the interests of the class members. For the choice of the lead plaintiff, the PSLRA of 1995 established a rebuttable presumption that the most adequate plaintiff to serve as a lead plaintiff is the person or group of persons with "the largest financial interest in the relief sought by the class".[11] This presumption is subject to rebuttal that such a person or group of persons will not fairly and adequately protect the class members' interests. The lead plaintiff provision was part of Congress' effort to replace the then attorney-driven securities litigation with plaintiff-driven securities litigation. Congress envisioned that it would encourage institutional owners to step forward to serve as lead plaintiff (Fisch, 2001).[12]

2.2. Costs and benefits of serving as lead plaintiff

The decision by an institutional investor to serve as a lead plaintiff in a class action lawsuit will depend on the tradeoff of expected benefits and costs. The free rider problem (Grossman and Hart, 1980; Romano, 1991; Gillan and Starks, 2000) predicts that a plaintiff usually lacks the incentive to lead the case because the cost of leading the lawsuit is typically greater than the plaintiff's pro rata benefit from the settlement. However, large institutional investors are able to reduce the deadweight loss of attorney fee and other litigation costs by actively monitoring the class counsel (Weiss and Beckerman, 1995;

[10] 15 U.S.C. 78u-4(a)(3)(B)(iii)(I) (1999).
[11] See id. 78u-4(a)(3)(B)(iii)(I) (1999).
[12] Fisch (2001) state that "The legislative history of the PSLRA suggests that Congress particularly intended to encourage institutional investors to seek appointment as lead plaintiff". Also, see Conference Report on the Private Securities Litigation Reform Act of 1995, H.R. Rep. No. 104-369, at 31, 33 (1995), reprinted in 1995 U.S. CC.A.N. 730.

Fisch, 2001). Since a lawsuit will be filed regardless of an institution's participation, the institution's opportunity cost of not serving may be much higher than its cost of serving (Weiss and Beckerman, 1995). Moreover, Romano (1991) and Gillan and Starks (2000) argue that larger shareholders have greater incentives to undertake monitoring activities because it is likely that their marginal returns from the improved firm governance and performance can exceed their monitoring costs. Institutions will evaluate the costs and benefits when making their decision to lead a class action lawsuit. This section discusses the costs and benefits for institutional lead plaintiffs.

2.2.1 Litigation costs

There are many costs of serving as a lead plaintiff, including the time and effort spent in investigating the merit of the lawsuit, selecting and monitoring class counsel, and making decisions on pleas (Weiss and Beckerman, 1995). A lead plaintiff also faces other costs such as distraction of management's attention from its primary responsibilities, possible burdensome discovery by defendant firms that may lead to disclosure of proprietary information and internal business practices, and potential liabilities to other class members (Fisch, 1997). If the lead plaintiff wins the case, then many costs and expenses (including lost wages) directly related to serving as lead plaintiff will be reimbursed out of the final settlement. However, some costs such as distraction from their primary responsibility are difficult to quantify and, therefore, are not guaranteed by PSLRA to be reimbursed.[13] If the case is lost, all the costs incurred by the lead plaintiff become non-reimbursable. This provides an incentive for institutional investors to engage only in lawsuits with a higher probability of success.

2.2.2. Net case settlement benefits (or costs)

A settlement is distributed among all class action members in proportion to their tangible losses

[13] The PSLRA states that "The share of any final judgment or of any settlement that is awarded to a representative party serving on behalf of a class shall be equal, on a per share basis, to the portion of the final judgment or settlement awarded to all other members of the class. Nothing in this paragraph shall be construed to limit the award of reasonable costs and expenses (including lost wages) directly relating to the representation of the class to any representative party serving on behalf of the class." According to Cox and Thomas (2006), out-of-pocket expenses usually are reimbursed in successful lawsuits, but it is not guaranteed that institutional lead plaintiffs will be reimbursed at market rates for their in-house professional staff's time. Weiss and Beckerman (1995) indicate that courts grant incentive rewards to lead plaintiffs in some cases.

(termed "*settlement sharing ratio*"). From the defendant firm's perspective, its litigation costs (including the settlement and other litigation costs such as lost management time and lost firm reputation)[14] are shared by current shareholders based on the ownership ratio (termed "*litigation cost sharing ratio*"). The net case settlement benefits (or costs) for a plaintiff can be expressed in the following simple equation:

Settlement received – Litigation costs shared

$$= \alpha(Settlement\_Amount - Attorney\_Fee) - \beta(Settlement\_Amount^{15} + Other\_Firm\_Litigation\_Cost)$$

$$= (\alpha - \beta)\ Settlement\_Amount - \alpha\ Attorney\_Fee - \beta\ Other\_Firm\_Litigation\_Cost, \qquad (1)$$

where α represents the *settlement sharing ratio* that, in principle, is based on the plaintiff's ownership during the class period, and β represents the *litigation cost sharing ratio* that, in principle, is based on the plaintiff's ownership after filing of the lawsuit. It is easy to see that if the *settlement sharing ratio* equals the *litigation cost sharing ratio* (i.e., $\alpha=\beta$), then the plaintiffs will be worse off (in terms of immediate litigation outcomes) because they have to bear the deadweight attorney fees and other litigation-related costs. When shareholders detect management's wrongdoings, they can choose to sell their shares (reduce their ownership ratios) at a loss. If the settlement sharing ratio is much higher than the litigation cost sharing ratio, it is more likely that the plaintiff will be better off by serving as the lead plaintiff to increase the settlement amount. Thus, this net case settlement benefits/costs tradeoff predicts that institutions that own significantly less shares of the defendant firms after filing the lawsuit will be more likely to lead the lawsuits.[16]

2.2.3. Long-term and other benefits

Large institutional investors, especially public pension funds, have more difficulty shedding off

[14] Even though some litigation costs may be covered by D & O liability insurance, it will raise the defendant firm's premium and continuing shareholders have to bear this increased cost (Core, 2000).

[15] Firms could purchase insurance to cover their lawsuit losses. However, their insurance expenses will increase in the future. Without loss of generality, we assume that the present value of future additional insurance expenses equals the settlement amount.

[16] In the empirical section, we discuss that due to data availability, we cannot identify the ownership ratios for institutions around the lawsuit, which may be used to measure the difference between the settlement sharing ratio and the litigation cost sharing ratio. Since we are unable to control for the ratios of ownership, our proxies for institutions' incentive to serve will reflect the combined effects of net settlement costs and long-term future benefits.

their investment in a specific firm. Accordingly, the differential ownership ratio expressed in equation (1) (i.e., $\alpha-\beta$) should be smaller for such funds. Based on our discussion in the previous section, *ceteris paribus,* this type of fund should be less likely to initiate the lawsuit against the defendant firm. However, there are also compelling long-term benefits and other benefits (e.g., benefits of mitigating litigation agency costs, spillover benefits, and political benefits) that a large institution can derive from serving as lead plaintiff. Consequently, the expected net benefits for a plaintiff can be re-expressed as follows:

$$\begin{aligned}
&\textit{Settlement received} - \textit{Litigation costs shared} + \textit{Long-term benefits} + \textit{Other benefits} \\
&\quad = \alpha(\textit{Settlement_Amount} - \textit{Attorney_Fee}) - \beta(\textit{Settlement_Amount} + \textit{Other_Firm_Litigation_Cost}) \\
&\qquad + \beta\ \textit{Long-term_Benefits}^{17} + \textit{Other_Benefits} \\
&\quad = (\alpha-\beta)\ \textit{Settlement_Amount} - \alpha\ \textit{Attorney_Fee} - \beta\ \textit{Other_Firm_Litigation_Cost} \\
&\qquad + \beta\ \textit{Long-term_Benefits} + \textit{Other_Benefits} \qquad (2)
\end{aligned}$$

This equation shows that shareholders with a large β (likely large institutional owners with a selling constraint) can derive long-term benefits to offset their share of litigation costs. Large institutional owners are also more likely to enjoy other benefits. For example, due to large institutional owners' ability to monitor and negotiate with attorneys, they are able to mitigate litigation agency costs (including the attorney fees and other deadweight costs). We provide a more in-depth discussion of these long-term benefits and other benefits below.

Institutions that continue owning the stock of the defendant firm will enjoy the long-term benefits from governance reform resulting from the litigation. Successful lawsuits with large punishments might have a stronger disciplining effect on a defendant firm's management and raise awareness of the importance of corporate governance. Romano (1991) argues that even if damages are insured, institutional lead plaintiffs can still discipline managers through litigation. This is because managers identified in the litigation are likely to have their reputations damaged, resulting in a decline in their value in the labor market. Defendant firms may strive to improve corporate governance either proactively or

[17] Since β represents the *litigation cost sharing ratio* that is based on the plaintiff's ownership after filing of the lawsuit, it also represents the portion of long-term benefits the plaintiff can derive from the litigation.

under the explicit request from the institutional lead plaintiffs. For example, in the Vesta lawsuit (PR Newswire, 2001) discussed previously, the defendant firm agreed in the settlement provision to improve its board independence. Gillan and Starks (2000) suggest that a large shareholder's benefits from the improved long-term performance of the monitored firms (as indicated by β *Long-term_Benefits* in equation (2)) could outweigh its monitoring costs and thus it is more willing to engage in costly monitoring activities. Consequently, a large institutional shareholder has incentive to use litigation as a monitoring device to discipline managers and to improve monitoring systems.

Substantial amounts of litigation agency costs, arising from the divergence of interests between class members and the class counsel, are inevitable if the lead plaintiff does not have a stake large enough to justify monitoring the class attorney (Weiss and Beckerman, 1995). These litigation agency costs (such as excessive attorney fees) are deadweight losses to both the continuing shareholders and class members (Ali and Kallapur, 2001). Institutional investors' large stakes and expertise allow them to monitor the class counsel and reduce the deadweight loss; hence, their opportunity cost of not serving as the lead plaintiff may be much higher than the direct and indirect litigation costs (Weiss and Beckerman, 1995; Fisch, 2001). As indicated in equation (2), the reductions in *Attorney_Fee* and *Other Firm_Litigation_Cost* make it more likely for an institutional investor to serve as the lead plaintiff.

Regardless of their actual ownership in the defendant firms, large institutional investors, especially public pension funds that passively index a substantial fraction of their investments, may also benefit from spillover effects in preventing managerial misconduct and improving corporate governance at other companies in their portfolios (Del Guercio and Hawkins, 1999). Given such positive externalities, serving as a lead plaintiff may have an overall positive expected net benefit (identified in equation (2)) for large institutional investors even if the expected direct cost-benefit tradeoff from the settlement (identified in equation (1)) is unfavorable. The spillover effects predict that institutions will step forward to lead the lawsuits when the punishment of the defendant firms can promote positive changes in the overall market.

Public pension fund administrators can also politically benefit from the positive publicity generated by engaging in monitoring activities (Murphy and Van Nuys, 1994). Because the administrators

of public pension funds are either publicly elected or appointed by state legislators (Romano, 1993; Woidtke, 2002), they are under political and social pressure to aggressively pursue justice for their fund beneficiaries and the general public. Class action litigation provides administrators of public pension funds an opportunity to generate valuable publicity by aggressively pursuing recovery of shareholder losses and seeking governance reform in the defendant firms. Moreover, some institutional investors are subject to fiduciary duties to investors to diligently recover their losses (Cleveland, 2002). Thus they have to fulfill their duties by serving as the lead plaintiff despite the possible free rider issue. The political benefits predict that large public pension funds have stronger incentive to step forward than other types of institutional investors to lead class action lawsuits and to generate large case settlements. However, the political benefits to public pension fund managers do not necessarily benefit the pension fund beneficiaries. As discussed earlier, attorney fees are deadweight costs for shareholders. Pension fund managers may push for large settlement amounts by paying excessive fees to the attorneys, which will make shareholders worse off. Given that the effectiveness of monitoring depends on the ultimate wealth improvement for shareholders, evidence of a larger settlement by itself is insufficient for assessing whether public pension funds are more effective at monitoring through leading the lawsuit. Accordingly, we design our study to evaluate other effects of the litigation, including the likelihood of the case being dismissed and the subsequent governance change in addition to the settlement amount. Moreover, we examine the monitoring effects of different types of institutions.

Sometimes, institutions choose to opt out of the class action and pursue their own lawsuits. These institutions may choose not to lead the class action lawsuits because they expect other plaintiffs to generate reasonable settlement amounts, or they may have failed in the competition for the lead plaintiff position. They may also opt out if they are not satisfied with the plaintiff's attorney or believe that the proposed settlement is inadequate. Coffee (2008) indicates that opt-outs occur mostly after a class action settlement has been reached. Anecdotal evidence shows that institutions have opted out of mega cases such as WorldCom, AOL Time Warner, Quest and Tyco International and have made much higher financial recoveries than class members who stayed in the class action. This evidence may suggest that

opting out and filing individual lawsuits is a stronger monitoring tool than leading the class action. In this study we focus on evaluating the monitoring effectiveness of institutions through class action lawsuits and do not study the effectiveness of opt outs.[18] However, our evidence on the monitoring effectiveness of institutions through leading the class action may indirectly shed light on the superior performance of individual lawsuits filed by those opting-out institutions.

The next two sections discuss the monitoring effectiveness of institutional lead plaintiffs versus individual lead plaintiffs in detail. We argue that once institutions choose to serve, they are able to generate better litigation outcomes (in terms of both financial recoveries and governance improvement) than individuals.

2.3. Institutional lead plaintiff versus individual lead plaintiff in mitigating litigation agency costs and affecting immediate litigation outcomes

Prior research suggests that, in securities litigation, institutional owners can reduce litigation agency costs arising from the divergence of interests between the class counsel and the class members (Thompson and Thomas, 2004; Weiss and Beckerman, 1995). This section summarizes the reasons and develops our first set of hypotheses.

Institutional lead plaintiffs can better mitigate the litigation agency costs than individual lead plaintiffs for at least five reasons. First, institutional owners presumably are able to recruit and retain a more competent class counsel without excessive attorney fees. Institutional owners have more experience with attorneys and are better able to negotiate favorable terms with the class counsel to minimize litigation agency costs (Fisch, 2001). Second, because institutional owners typically hold larger stakes in the class action, they have stronger incentives to monitor the litigation process and have less free rider problems (Weiss and Beckerman, 1995). Third, institutional owners have more resources to monitor the class counsel and to make litigation decisions. Institutional owners typically have in-house legal counsel and staff devoted to legal matters. Consequently, they should be better able to comprehend the complicated legal process. Fourth, institutional owners have stronger public influence and can use

[18] Coffee (2008) indicates that the opt-out strategy has been infrequently used until very recently. While the reasons for institutions opting out are interesting, our empirical sample limits our ability to study that issue.

publicity to obtain leverage against target firms (Del Guercio and Hawkins, 1999). To avoid further negative publicity, the defendant firms may agree on settlement terms favorable to the plaintiffs in order to reach a quick settlement. Fifth, institutional owners have diverse portfolios and abundant resources and, therefore, can afford the risk of having the lawsuit go to trial (Choi, Fisch, and Pritchard, 2006). Consequently, institutional owners are better able to deal with defendant firms in the lengthy litigation process and are less prone to a quicker but smaller settlement.

Unlike institutional investors, individual investors usually have relatively small holdings in a firm and thus weaker incentives to monitor the litigation process (Macey and Miller, 1991). It was common practice for a plaintiff attorney to maintain a list of individual shareholders and be the first to file on an individual shareholder's behalf in order to become the class counsel (Weiss and Beckerman, 1995). Even after the PSLRA of 1995, plaintiff attorneys are still able to round up a group of individuals to qualify as the "group of persons" with the largest financial stake in the class (Berger et al., 2001). This practice of individual lead plaintiff being recruited by the attorney has severely undermined the individual lead plaintiff's ability to monitor the class attorney. As a result, the class counsel may benefit more from the litigation than the class members by garnering a large amount of attorney fees and settling for little compensation to the class members (Macey and Miller, 1991). Even if an individual lead plaintiff is not recruited by an attorney, the individual lead plaintiff may still be hindered by the lack of resources and experience to monitor the class attorney. Individual lead plaintiffs may not have the time and manpower to deal with the sophisticated litigation process and are more dependent on the class counsel to make decisions. Class counsel, with all the time and money spent in advance, is less willing to go to trial, which is typically time-consuming and does not guarantee a favorable outcome (Fisch, 1997). Thus, if the lead plaintiff is an individual who is controlled by or relies heavily on the class counsel, the lawsuit is likely to be quickly settled at a smaller amount instead of going through a risky trial (Weiss and Beckerman, 1995).

Based on the previous discussion, we propose the following hypotheses:

H1a: Lawsuits with institutional lead plaintiffs are less likely to be dismissed than lawsuits

with individual lead plaintiffs.

H1b: Lawsuits with institutional lead plaintiffs have relatively larger settlement amounts than lawsuits with individual lead plaintiffs.

Two studies have empirically tested the impact of institutional lead plaintiffs on settlement amounts. Choi et al. (2006) find that after the PSLRA of 1995, public pension fund lead plaintiffs more frequently achieve larger settlements. However, due to the small sample size and lack of adequate control variables, the authors caution that their finding may result from the public pension fund lead plaintiff's self-selection of cases with large potential damages. Cox and Thomas (2006) find a positive coefficient on the interaction between the provable loss and the presence of an institutional lead plaintiff in a regression of the settlement amount for post-PSLRA lawsuits. However, they do not include the main effect of the presence of an institutional lead plaintiff in their model, thus making it difficult to infer whether having an institutional lead plaintiff is on average associated with a higher amount of recovery.

2.4. Institutional lead plaintiff and subsequent governance changes

Prior research suggests that institutional lead plaintiffs can influence corporate governance reform subsequent to class action filing. This section summarizes the relevant research supporting this important monitoring role of institutional investors and develops our second hypothesis.

We conjecture that institutional lead plaintiffs are more likely to continue their stockholdings in the defendant firms after the lawsuit filings than are individual lead plaintiffs.[19] Institutional investors will likely remain shareholders of defendant firms for at least two reasons: (1) many institutional investors, especially public pension funds, have selling constraints since their indexed or diversified portfolios make

[19] The ideal proxy for institutional lead plaintiffs' incentives would be their stock ownership in the litigated firm. According to the SEC regulation, institutional investment managers who exercise investment discretion over $100 million or more in Section 13(f) securities must report their holdings in Form 13F to be filed with the SEC. However, the majority of the institutional lead plaintiffs in our sample are non-13F institutions (they either do not exercise investment discretion or have less than $100 million under control) that are not required to publicly disclose their stockholdings. Therefore, we cannot measure their stock ownership in the defendant firms. Defendants' governance reform can be due to the continuing governance of the institutional lead plaintiffs or the reputational effect from past publicity of the institutional lead plaintiffs. Since we cannot directly observe the continuing ownerships of the institutional lead plaintiffs, we do not distinguish between whether the improvement in the subsequent corporate governance is due to the continuing governance or due to the reputational effect.

it difficult for them to discontinue their ownership (Davis and Steil, 2001);[20] and (2) some holdings are so large that selling would lead to further losses (Coffee, 1991). Since these long-term institutional investors tend to be interested in promoting governance reforms to assure the long-term prosperity of portfolio firms (Cremers and Nair, 2005; Pound, 1988), these institutional investors with continuing ownership are more likely to push for governance reforms of defendant firms.

Black and Coffee (1994) state that institutional investors with larger than average investment should be active on governance issues since their returns from the monitoring activities are comparatively higher than average investors' returns. Since the PSLRA of 1995 established the preference of appointing the plaintiff with the largest stake in the lawsuit as lead plaintiff, it is likely that the institutional lead plaintiff has a larger than average investment in the defendant firm and cannot easily sell off their investment. Consequently, institutional lead plaintiffs should have incentives to improve defendant firms' governance, which will give them comparatively larger long-term returns (Romano, 1991). Indeed, according to Cox and Thomas (2006), one of the motivations for institutional investors to serve as a lead plaintiff is the opportunity to change the corporate governance system.

As discussed in the previous section on spillover effects, Del Guercio and Hawkins (1999) contend that heavily indexed pension funds (e.g., California Public Employees' Retirement System (CalPERS)) might pursue governance reform in some firms to motivate other firms to make proactive governance changes. Thus, securities class actions provide institutional investors a potentially effective tool to promote market-wide changes by financially punishing the defendant firms and structurally overhauling defendant firms' governance. Moreover, many recent corporate scandals (e.g., Enron, WorldCom, stock option backdating, etc.) provide institutional owners incentives to promote broad governance reform to prevent future corporate wrongdoings (Romano, 2001). Securities litigation thus could provide institutional investors a tool to push for corporate governance reforms.

[20] Bushee and Noe (2000) classify institutional investors as transient (short-horizon), quasi-indexing, and dedicated (long-horizon) institutions based on their investment behaviors in terms of portfolio diversification and share turnover. Chen, Harford, and Li (2007) suggest that long-horizon investors are willing to devote time to monitor management and their large shareholdings give them influence over management.

We also propose that institutional lead plaintiffs tend to be more capable of achieving the goal of improving corporate governance than individual lead plaintiffs. As discussed in the preceding section, institutional investors are able to hire competent attorneys and closely monitor them; they are resourceful, have public influence, and are not afraid of taking the case to risky trial. Therefore, institutional investors' ability to aggressively and vigorously litigate the lawsuit could lead to greater corporate governance improvement. Our prediction is consistent with the conclusion of Eisenhofer and Leban (1999) that large investors wishing to change governance practices can achieve their goals by using the lead plaintiff provisions in the PSLRA. There is also anecdotal evidence supporting our prediction. For instance, in the landmark Cendant case, the lead plaintiffs consisting of several high-profile pension funds including CalPERS, New York State Common Retirement Fund, and New York City Pension Fund, were able to include corporate governance reform as part of the final settlement. Specifically, the defendant firm agreed to have a majority of its directors be independent, to have audit, compensation and nominating committees be comprised of independent directors only, to establish a lead director position, and to subject stock option re-pricing to shareholder approval (Pacelle, 1999). It has also been recognized in the financial media that pushing governance reform through securities class action has become mainstream as an additional tool used by public institutions to improve governance practices (Plitch, 2005).

The institutional lead plaintiffs could explicitly request governance changes during the litigation process. Moreover, a lawsuit may publicize the weakness in the defendant firm's governance structure and the need for improvement (Ferris et al., 2007). Consequently, the effect of having an institutional lead plaintiff on governance improvement might manifest itself right after the institutional investor becomes the lead plaintiff. For instance, in a securities class action against SkillSoft, the lead plaintiff (Louisiana Sheriffs' Pension and Relief Fund and Teachers' Retirement System of Louisiana) negotiated significant improvements in board independence. By the time the final settlement was reached, the defendant firm had already adopted the negotiated governance reforms (Business Wire, 2004).

On the other hand, even if individual lead plaintiffs are interested in maintaining their stockholdings and initiating governance reform of the defendant firms, their limited resources and

experience may not allow them to aggressively push for such reform. In addition, individual lead plaintiffs rely more on the class attorney, who is likely to focus on negotiating a cash settlement to secure his fees rather than to achieve governance reforms (Macey and Miller, 1991). Moreover, because individual lead plaintiffs generally have relatively little public influence, governance reform after the lawsuit filing is less likely.

Board independence is a critical indicator of governance quality (Shleifer and Vishny, 1997; Danis, 2001) and has often been among plaintiffs' demands for governance overhaul.[21] Accordingly, we hypothesize that:

> H2: Lawsuits with institutional lead plaintiffs are associated with greater improvement in post-litigation board independence in the defendant firms than lawsuits with individual lead plaintiffs.

3. Data sources and sample selection

We obtain the sample of federal securities class action lawsuits from the Securities Class Action Services (SCAS) of Institutional Shareholder Services (ISS).[22] Since the PSLRA of 1995 made substantial changes in the lead plaintiff selection rule and other important rules for securities litigation, we limit the sample to lawsuits filed after 1995 to reduce heterogeneity in the litigation environment. The ending date of the sample period is July 20, 2005. We also limit the sample to lawsuits that were resolved (either dismissed or settled) by June 1, 2006.[23] Thus, our sample includes all securities class action lawsuits that were filed from January 1, 1996 to July 20, 2005 and were resolved by June 1, 2006. We collect information on the class period, filing date, allegation type, lead plaintiff type (institutional or

[21] Reported settlements suggest that improving board independence is often demanded by institutional lead plaintiffs. For instance, the New Hampshire Retirement System reached a settlement with Ashworth, which mandated greater board independence. The system's counsel stated "If you have more independent and more vigilant boards, securities class actions will become less of an issue" (Laise, 2005). Furthermore, in several reported institutional investor-led class actions with settlement provisions on governance reform (e.g., class action against Vesta Insurance Group (PR Newswire, 2001), Sprint (PR Newswire, 2003), Cendant (Pacelle, 1999), and SkillSoft (Business Wire, 2004), respectively), board independence was part of the governance reform in each of these cases. For instance, in the lawsuit again Sprint, institutional lead plaintiffs pushed for a sweeping boardroom reform to improve board independence (PR Newswire, 2003).

[22] The official website of SCAS is http://www.issproxy.com/issgovernance/scas/index.html. We also verified these cases with the Stanford Securities Clearing House if a case is available in both databases.

[23] We include only those lawsuits that have been resolved so that we have data available on the litigation outcomes including settlement amounts.

individual), defendants, litigation outcomes (whether the lawsuit is settled or dismissed, and settlement amounts if the case is settled) from the Securities Class Action Services.[24]

There are 1,811 lawsuits that meet these selection criteria and have the required litigation data available. Panel A of Table 1 presents a breakdown of the types of lead plaintiffs; 1,525 lawsuits are led by individual lead plaintiffs, 178 lawsuits are led by at least one public/union pension fund or mutual fund, and 108 lawsuits are led by other categories of institutions. Among the lawsuits led by public/union pension funds, 97 lawsuits have public pension funds as lead plaintiffs, 61 lawsuits have union pension funds as lead plaintiffs, and 12 lawsuits have mutual funds as lead plaintiffs.[25] There are also 8 lawsuits that are co-led by public/union pension funds and mutual funds. Institutions classified under "Other categories of institutions" include hedge funds, non-financial firms, trusts, brokerages, investment advisors, corporate pension funds, endowments, banks, private equity/venture capital firms, miscellaneous investment firms, and others. In particular, hedge funds, non-financial firms, and trusts serve as the lead plaintiff in 18, 18, and 7 lawsuits, respectively.[26] We find many other categories of institutions rarely serve as lead plaintiffs, including brokerages, investment advisors, corporate pension

[24] Securities Class Action Services (SCAS) defines an institutional investor as "an investor, such as a bank, insurance company, retirement fund, hedge fund, or mutual fund, etc. that is financially sophisticated and makes large investments, often held in very large portfolios of investments."

[25] Choi et al. (2006) provide two reasons why mutual funds rarely served as lead plaintiffs. First, mutual fund managers are evaluated based on their fund performance. Since it takes a long time to resolve the litigation, the financial payoff from serving as lead plaintiff may not be reflected in fund performance in a timely manner. Serving as lead plaintiff might also draw unwanted public attention to the fact that the fund manager was not able to steer the fund clear of firms with potential litigation trouble. Second, mutual fund management could be reluctant to participate in the litigation because they do not want to jeopardize their business relationships (e.g., managing retirement accounts for firms) with defendant firms. In addition, another possibility is that the mutual fund management is averse to expending the resources required. Mutual fund management, especially index fund management, could be reluctant to lead the lawsuits, since serving as the lead plaintiff is costly and can increase the fund's expenses (Kahan and Rock, 2006).

[26] Our main analyses focus on union/public pension funds and mutual funds and only report the average effects of these other categories of institutions. We chose to focus on public/union pension funds and mutual funds mainly for two reasons. First, large public pension funds and mutual funds are groups of institutional investors that Congress particularly expected to serve as lead plaintiffs (Becker, 2003; Choi et al., 2006; Weiss and Beckerman, 1995). Second, as we discussed previously, public pension fund managers may be especially motivated to achieve large settlement amounts to obtain political gains. Union pension funds, with less political motivation (Woidtke, 2002) and a comparable sample size in our study, serve a desirable comparison group to public pension funds. A finding that union pension funds are also associated with more favorable immediate litigation outcomes would suggest that the effects of institutional lead plaintiffs are not solely driven by political motivation of public pension funds. While a detailed study of the effectiveness of other categories of institutions such as hedge funds may be interesting, we leave it to future research.

funds, endowments, banks, and private equity/venture capital firms.[27] Finally, there are 17 lawsuits co-led by two or more of the above other categories of institutions.

Panel B of Table 1 indicates that some institutions are relatively active in taking the lead plaintiff role. There are 27 institutions that served as the lead plaintiff for more than 2 lawsuits with the maximum number of times being 14, as shown in Panel C. We find that the Teachers' Retirement System of Louisiana and the Florida State Board of Administration are by far the most active institutional lead plaintiffs, having served in the lead plaintiff role 14 and 12 times, respectively. These two institutions are followed by Louisiana School Employees' Retirement System, Louisiana State Employees Retirement System, and Plumbers & Pipefitters National Pension Fund, which each served 6 times as lead plaintiffs. Meanwhile, the high-profile New York State Common Retirement Fund and CalPERS have served as lead plaintiffs 4 and 3 times, respectively.

We also examine the overall trend of institutional participation in securities class action lawsuits. Figure 1 shows the annual number and percentage of lawsuits led by institutional investors from 1996 to 2005. Consistent with prior studies (e.g., Choi et al., 2006; Simmons and Ryan, 2003), we find a trend of increasing institutional involvement in securities litigation. The percentage of lawsuits with institutional lead plaintiffs has more than doubled from less than 15% in 1996 to more than 30% in 2004.[28]

4. Empirical analysis

[27] There are various reasons for the rare participation of these categories of institutions. Woidtke (2002) suggests that corporate pension fund administrators are controlled by the corporate management, and thus are under pressure not to target corporations. Institutions that are vendors of financial services and products (such as banks and insurance companies) have incentive not to participate in activities against firms they might take on as future clients (Laise, 2005; Cox and Thomas, 2006). In addition, many institutional investors (e.g., banks) face additional regulatory constraints from accumulating concentrated positions in firms (Black, 1992; Brav, Jiang, Thomas, and Partnoy, 2008), and therefore might not be able to glean enough benefits from participating in the litigation to overcome the free rider problem. Furthermore, some institutions such as venture capital firms often have strong voting rights in the board of the firm and may even have the contractual right to change the management team (Sahlman, 1990), and thus we conjecture that these institutions could resolve management or governance issues without relying on litigation. Finally, Black (1992) indicates that money managers have the culture of using trading rather than monitoring to beat the market. Therefore, this market-based culture might make money managers averse to expending their limited resources on litigation.

[28] There is a decline in the number of lawsuits with institutional lead plaintiffs from 2003 to 2005 because we did not include lawsuits filed after July 20, 2005, and we required lawsuits to be resolved by June 1, 2006.

4.1 Determinants of having an institutional lead plaintiff

We first analyze the determinants of having an institutional lead plaintiff. We do so for two purposes. First, the empirical evidence on the determinants will facilitate our understanding of the monitoring role of institutions through litigation. Specifically, as discussed previously in Section 2.2, activism through filing a lawsuit is costly, especially for continuing stockholders. Regulators prefer institutions to be the lead plaintiff; however, the tradeoff between an institution's expected costs and benefits may deter it from being the lead plaintiff. Empirical evidence on the determinants of having an institutional lead plaintiff will indicate the perceived importance to institutions of being an active litigant. Second, controlling for self-selection is critical for our study. Prior research (e.g., Weiss and Beckerman, 1995) and our discussion in Section 2.2 suggest that institutional owners are only willing to serve as lead plaintiffs for cases with certain characteristics. This will lead to an endogeneity problem if the determinants of institutions serving as lead plaintiffs are also correlated with the litigation outcomes and the subsequent corporate governance changes. Omitting these determinants from the regression could result in biased coefficient estimates (Wooldridge, 2002). Thus, by identifying the determinants of institutional involvement in the lawsuit, we can control for these factors when testing our hypotheses.

Prior research examining the occurrence of lawsuits has also tried to address the endogenous nature of lawsuit filings. For example, a number of papers examine the impact of early disclosure on litigation risk and find mixed evidence (Healy and Palepu, 2001). Francis, Philbrick, and Schipper (1994) find that early disclosure of bad news is associated with a higher probability of a lawsuit. However, a firm's decision to disclose early is also affected by the perceived severity of the bad news. A firm with severe bad news has an incentive to release the news earlier to reduce expected litigation costs. At the same time, the firm faces a higher likelihood of litigation due to the bad news. After controlling for endogeneity, Field, Lowry, and Shu (2005) find that disclosure deters certain types of litigation and Skinner (1997) reports that early disclosure is associated with a lower settlement amount.

Following the approach in Field et al. (2005), we estimate a probit model with a binary dependent variable indicating the presence of an institutional lead plaintiff. Prior studies (e.g., Romano, 1991; Weiss

and Beckerman, 1995; Choi et al. 2006; Cleveland, 2002; Cox and Thomas, 2006) and our discussion in Section 2.2 suggest that an institutional owner is more likely to serve as a lead plaintiff if its net expected benefits are positive. Many of these costs and benefits (as discussed in Section 2) are not measurable; thus we rely on current literature and theories to develop surrogates for our empirical testing.

In general, we propose that institutions will lead the lawsuit when the stake in the lawsuit, the chance of winning, the potential deadweight loss of litigation, the potential improvement in performance and governance, and the spillover effect are high enough to justify the costs. We classify these factors related to increasing the likelihood of having an institutional lead plaintiff into the following five categories: (1) merit and potential damage of the lawsuit; (2) importance of the defendant firm to the institutional owner; (3) susceptibility of the defendant firm to lawsuits; (4) prior performance of the defendant firm; and (5) agency costs of the defendant firm. We elaborate on these five categories in the following paragraphs.

(1) Merits and potential damage of the lawsuit

We discussed previously that institutional investors need to receive sufficient benefits to cover their out-of-pocket as well as other costs of serving as the lead plaintiff; thus they are more likely to engage in lawsuits with a higher likelihood of winning and a potentially larger settlement (Weiss and Beckerman, 1995). An important benefit for institutional investors to serve as the lead plaintiff in a large damage lawsuit is to reduce the litigation agency costs including lower settlements and higher attorney fees, which they have to share as continuing shareholders (Fisch, 2001).

We use the allegation type (represented by the dummy variables D_IPO, D_GAAP, and D_ACCTFIRM), the length of the class period (LCLASS), the 3-day market reaction to the revelation event (CAR3), and the logarithm of potential investor loss (LOGPIL) to proxy for the merit of the case and the size of the potential damage. We set up dummy variables to identify whether a lawsuit involves an IPO (D_IPO), a Generally Accepted Accounting Principles (GAAP) violation (D_GAAP), and an accounting firm that is named as a co-defendant (D_ACCTFIRM). Allegation of GAAP violation and having an accounting firm as a co-defendant may lead to a larger negative market reaction at the event

revelation date and a larger subsequent settlement (Bajaj, Mazumdar and Sarin, 2003; Palmrose, Richardson and Scholz, 2004); therefore, we expect that institutional investors are more likely to participate in lawsuits with such allegations. The class period extends from the date the defendant committed the alleged misconduct (e.g., a misleading statement from the firm) to the date of the revelation event, when the market learns the truth. Thus, a longer class period may indicate a longer period during which the market was misled by the defendant firm and is likely to be associated with larger investor damages. A longer class period may also help to prove the scienter of the defendant especially since the PSLRA of 1995 requires plaintiffs to show fraudulent intent with particularity before any discovery is allowed.[29] Consequently, we expect a lawsuit with a longer class period to be more likely to attract institutional involvement. We also capture the merit and the severity of the lawsuit by the three-day market return after the revelation day (CAR3) and the logarithm of potential investor loss (LOGPIL).[30] We expect that more negative CAR3 and larger LOGPIL increase the likelihood of having an institutional lead plaintiff.

(2) Importance of the defendant firm

We use firm size (LOGMV) and percentage of shares held by institutions (INHOLD) to proxy for the importance of the defendant firm to its institutional owners.[31] Illegal conduct committed by larger firms usually leads to larger damages to institutional investors due to the size effect, thus providing them incentives to get involved (Romano, 1991). Larger firms are more likely to be included in the investment portfolios of institutional investors especially when institutional investors have indexed portfolios. Hence, institutional investors have the motivation to overhaul a large firm's governance (Gillan and Starks, 2000), and serving as the lead plaintiff provides such an opportunity. In addition, lawsuits against large firms

[29] As ruled in Ernst & Ernst v. Hochfelder (425 U.S. 185 1976), to establish liability under Section 10(b) of the Exchange Act of 1934, the plaintiffs must show that the defendants acted with scienter.

[30] Please refer to the appendix for the methodology used for calculating LOGPIL. We use the logarithm of potential investor loss to control for the skewness of these losses.

[31] Although firm size and the percentage of shares held by institutions tend to be highly correlated, both variables have been commonly used in the literature to measure the importance of a firm to institutional investors (e.g., Bushee, 1998; Cox and Thomas, 2006). In addition, institutional ownership is included to partially control for the unobserved equity stakes of institutional lead plaintiffs.

may generate greater spillover effects. We expect defendant firms with larger market capitalization and higher levels of institutional holdings to be more likely to have institutional lead plaintiffs.

(3) Defendant firm's susceptibility to lawsuits

Since serving as a lead plaintiff requires advancement of out-of-pocket cost and other costs, institutional investors should be more interested in engaging in lawsuits with a higher chance of winning (Weiss and Beckerman, 1995). Some firms tend to be more susceptible to lawsuits as they face more frivolous lawsuits. Since these types of lawsuits would be less attractive to institutional investors, we proxy for the probability of such lawsuits with systematic risk (BETA) and return skewness (SKEWNESS) to measure a firm's susceptibility to lawsuits. Prior studies document that systematic risk is positively associated with the probability of being sued and return skewness is negatively associated with litigation risk (Johnson et al., 2001). Attorneys sometimes rush to the court to file a lawsuit following a steep stock price drop. Firms with higher systematic risk and more left-skewed returns are more likely to experience large stock price drops and thus have a higher probability of facing a frivolous lawsuit. Since institutional investors are less interested in serving as the lead plaintiff for frivolous lawsuits, we predict that BETA and SKEWNESS are negatively associated with the probability of having an institutional lead plaintiff.

(4) Defendant firm's performance

We employ prior year return (LAGRET), industry-adjusted return on equity (ROE), and book-to-market ratio (BM) as indicators of a defendant firm's performance before the lawsuit filing. Lower LAGRET and ROE and higher BM indicate poorer performance. To justify their costs of serving as lead plaintiff, institutional investors are more likely to get involved in lawsuits against firms with potentially greater possibility of performance improvement and thus are less interested in firms that are already performing well. We expect poor stock performance to be associated with a higher likelihood of having an institutional lead plaintiff.[32] Specifically, we predict LAGRET and ROE to be negatively and BM to

[32] We do not exclude the possibility that better firm performance before the lawsuit filing may be caused by fraudulent activities.

be positively related to the likelihood of having an institutional lead plaintiff.

(5) Agency costs

Institutional investors with larger than average ownerships should be more motivated to participate in costly monitoring activities to address the agency problem since they could benefit more from the improved governance (Romano, 1991; Black and Coffee, 1994). Higher agency costs might indicate a greater demand for (and larger potential payoffs from) monitoring activities such as participating in the class action. For instance, Ferris et al. (2007) suggest that shareholders target firms with greater agency costs for governance improvement. Thus, an institutional investor with a large ownership is more likely to serve as lead plaintiff if the defendant firm's agency costs are high. We use debt-to-equity ratio (LEV) and share turnover (TURNOVER) to proxy for the level of agency costs. The debt covenant hypothesis states that managerial incentive to avoid violating lending agreements motivates aggressive reporting (DeFond and Jiambalvo, 1994). In the accounting choice literature, leverage is a commonly used proxy for the proximity of the firm to violation of its debt covenant and the severity of managerial incentives to engage in aggressive earnings reporting (Fields, Lys, and Vincent, 2001). Ferris et al. (2007) suggest that higher share turnover leads to more frequent changes of monitors and gives managers the opportunity to engage in self-dealing. We expect LEV and TURNOVER to be positively associated with the likelihood of having an institutional lead plaintiff.

(6) Industry affiliation and year effects

In addition to the variables described above, we also control for industry and year effects. Following Francis et al. (1994), we control for firms in regulated industries by including a dummy variable, REG, in the model. Francis et al. (1994) also suggest that firms in the technology and retail industries face higher litigation risk and account for a large number of securities lawsuits. Thus, we control for firm affiliation in these two industries by adding two industry dummy variables, TECH and RETAIL. We include year dummy variables to control for differences across years.

The probit regression on the determinants of having an institutional lead plaintiff is formalized below:

$$\begin{aligned} \text{D\_INLEAD}_{it} = \alpha &+ \beta_1\text{D\_IP}_{it} + \beta_2\text{D\_GAAP}_{it} + \beta_3\text{D\_ACCTFIRM}_{it} + \beta_4\text{LCLASS}_{it} + \beta_5\text{CAR3}_{it} \\ &+ \beta_6\text{LOGPIL}_{it} + \beta_7\text{LOGMV}_{it} + \beta_8\text{INSHARE}_{it} + \beta_9\text{BETA}_{it} + \beta_{10}\text{SKEWNESS}_{it} \\ &+ \beta_{11}\text{LAGRET}_{it} + \beta_{12}\text{ROE}_{it} + \beta_{13}\text{BM}_{it} + \beta_{14}\text{LEV}_{it} + \beta_{15}\text{TURNOVER}_{it} \\ &+ \beta_{16}\text{REG}_{it} + \beta_{17}\text{TECH}_{it} + \beta_{18}\text{RETAIL}_{it} + \text{YEAR DUMMIES} + \varepsilon_{it}, \end{aligned} \tag{3}$$

where

D_INLEAD	=	1 if the lawsuit has an institutional investor as the lead plaintiff, and 0 otherwise
D_IPO	=	1 if IPO violation is alleged in the lawsuit, and 0 otherwise;
D_GAAP	=	1 if GAAP violation is alleged in the lawsuit, and 0 otherwise;
D_ACCTFIRM	=	1 if an accounting firm is named as a defendant in the lawsuit, and 0 otherwise;
LCLASS	=	length of the class period;
CAR3	=	3-day cumulative abnormal return after the end of the class period;
PIL	=	potential investor loss, measured as the difference between the highest value of the market capitalization during the class period and the market capitalization on the day after the end of the class period, scaled by the market value at the last fiscal year end prior to the end of the class period;
LOGMV	=	log of market value at the last fiscal year end prior to the end of the class period;
INSHARE	=	the percentage of institutional ownership of the firm, measured at the last fiscal year end prior to the end of the class period;
BETA	=	market beta at the last fiscal year end prior to the end of the class period;
SKEWNESS	=	the third moment of the return distribution over the on-year calendar day window (-375, -10) relative to the class period end date;
LAGRET	=	the compounded raw return over one-year calendar-day window [-375, -10] relative to the class period end date;
ROE	=	industry adjusted return on equity by deducting the median of the corresponding Fama-French industry, measured for the last fiscal year prior to the end of the class period;
BM	=	book value of equity plus book value of deferred taxes divided by market value;
LEV	=	total liabilities divided by total assets, measured at the last fiscal year end prior to the end of the class period;
TURNOVER	=	1- (1-Turn) ^{n} , where Turn is average daily trading volume divided by the number of shares outstanding, and n is the number of trading days in the one-year calendar-day window [-375, -10] relative to the class period end date; of equity, measured at the last fiscal year end prior to the end of the class period
REG	=	1 if the firm is in a regulatory industry (SIC industry code for the following: 4011, 4100, 4812, 4813, 4911, 4922-4924), and 0 otherwise (see Francis et al. 1994);
TECH	=	1 if the sued firm belongs to an industry with SIC code 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734, and 0 otherwise;
RETAIL	=	1 if the sued firm belongs to an industry with SIC code between 5200 and 5961, and 0 otherwise.

To estimate the probit regression (equation (3)), we obtain stock return data from CRSP, institutional ownership data from Thompson Financial, and all other financial data from Computstat. Data unavailability reduces our sample size to 1,213 lawsuits, of which 212 lawsuits have institutional lead plaintiffs. Public pension funds and union pension funds serve as the lead plaintiffs in 78 and 49 lawsuits, respectively, while mutual funds are involved in only 9 lawsuits.

We report univariate comparisons between observations with individual lead plaintiffs and institutional lead plaintiffs in Panel A of Table 2. We find that institutional investors appear to be more interested in participating in the lawsuit when the case does not involve an IPO, when accounting issues are present, and when accounting firms are involved. The percentage of institutions (individuals) serving as lead plaintiffs is 4.2 (6.2) percent for cases involving an IPO. Moreover, 56.1 percent of lawsuits with institutional lead plaintiffs involve allegations of GAAP violation and 17 percent include an accounting firm as a co-defendant. The corresponding percentages for lawsuits with individual lead plaintiffs are considerably lower at 33.7 percent and 5.3 percent, respectively. Lawsuits that attract institutional investors to serve as the lead plaintiffs also have longer class periods and more negative market reactions at the revelation event, indicating that larger potential investor losses and the potential recovery amount are important factors for institutional investors to serve as lead plaintiffs. The defendant firms targeted by institutional lead plaintiffs also tend to have higher levels of institutional shareholdings, reflecting the importance of the defendant firms to the institutional lead plaintiffs. Moreover, the defendant firms involved in institutional lead plaintiff cases have higher betas, more left-skewed returns, lower lagged stock returns, and higher leverage as indicated by the statistically significant differences in both means and medians.

We present the results of the probit regression for determinants of having an institutional lead plaintiff in Panel B of Table 2. The results are generally consistent with our predictions. We find that lawsuits with allegations of GAAP violation (D_GAAP), accounting firms as co-defendants (D_ACCTFIRM), longer class periods (LCLASS), more negative market returns (CAR3), and larger potential investor losses (LOGPIL) are more likely to have an institutional lead plaintiff. This is consistent with our prediction that institutional investors are more likely to take the lead plaintiff position when the lawsuits have higher merit to win and larger potential damage. The coefficients of firm size (LOGMV) and institutional holdings (INSHARE) are also positive, consistent with institutional owners being more likely to engage in the litigation when the defendant firms are more important to them. We also find that the likelihood of having an institutional lead plaintiff is negatively associated (significant at

the 0.10 level using a one-tailed test) with prior year return (LAGRET). We do not find significant differences in the agency cost proxies. The coefficient on TECH is negative and significant. It is possible that high-tech firms face a larger percentage of frivolous lawsuits due to their wider price fluctuations (McGrath, 1997) and, therefore, are less attractive to institutional owners. It is also possible that high-tech firms, with high risk and small size, do not attract as many institutional investors or the institutional investors do not have a large enough investment in these firms to justify involvement in the lawsuit.

4.2. Impact of institutional lead plaintiff on immediate litigation outcomes

Hypotheses 1a and 1b posit the impact of having an institutional lead plaintiff on litigation outcomes from two perspectives: the likelihood of the case being dismissed and the settlement amount.

4.2.1. Institutional lead plaintiff and likelihood of the case being dismissed

We use the following multivariate probit regression to test hypothesis 1a:

$$\begin{aligned} \text{D\_DISMISS}_{it} = \alpha &+ \beta_1\text{D\_INLEAD}_{it} + \beta_2\text{D\_IPO}_{it} + \beta_3\text{D\_GAAP}_{it} + \beta_4\text{D\_ACCTFIRM}_{it} + \beta_5\text{LCLASS}_{it} \\ &+ \beta_6\text{CAR3}_{it} + \beta_7\text{LOGPIL}_{it} + \beta_8\text{LOGMV}_{it} + \beta_9\text{INSHARE}_{it} + \beta_{10}\text{BETA}_{it} + \beta_{11}\text{SKEWNESS}_{it} \\ &+ \beta_{12}\text{LAGRET}_{it} + \beta_{13}\text{ROE}_{it} + \beta_{14}\text{BM}_{it} + \beta_{15}\text{LEV}_{it} + \beta_{16}\text{TURNOVER}_{it} + \beta_{17}\text{REG}_{it} \\ &+ \beta_{18}\text{TECH}_{it} + \beta_{19}\text{RETAIL}_{it} + \text{YEAR DUMMIES} + \varepsilon_{it}, \end{aligned} \tag{4}$$

where D_DISMISS = 1 if the case is dismissed, and 0 otherwise; and all the other variables are as defined in equation (3).

The dependent variable in equation (4), D_DISMISS, is a dummy variable that equals 1 if the case is dismissed and 0 otherwise. The independent variables include D_INLEAD and all the determinants of having an institutional lead plaintiff from model (3). We include the determinants in order to mitigate the endogeneity problem that these determinants are correlated with both the likelihood of having an institutional lead plaintiff and the probability of the lawsuit being dismissed. The variable of interest is the dummy variable D_INLEAD that identifies the presence of an institutional investor serving as the lead plaintiff. We expect that having an institutional lead plaintiff will lower the likelihood of the case being dismissed even after controlling for the merit and characteristics of the lawsuit, since institutional lead plaintiffs are hypothesized to have more resources, stronger motivation and greater ability to make the right legal decisions during the litigation process.

The sample used to estimate equation (4) is the same as that for equation (3). Thus, we have

1,213 lawsuits, of which 448 were dismissed by the court. The results of the probit regression are shown in Table 3 under the column labeled "Probit Regression". As expected, we find a significantly negative coefficient on D_INLEAD, indicating that institutional lead plaintiffs play a significant role in defeating the defendant firm's motion to dismiss. As for the economic significance of this result, the presence of the institutional lead plaintiff can reduce the dismissal probability by 38.2%.[33] This result is comparable to the result of the univariate analysis (untabulated), which shows that only 16% of lawsuits with institutional lead plaintiffs are dismissed as compared with 44% of lawsuits with individual lead plaintiffs.

To further examine whether different types of institutional lead plaintiffs vary in their impact on the litigation outcome, we replace D_INLEAD in equation (4) with the following four dummy variables: D_PUBPEN, which equals 1 if the lawsuit has public pension funds as lead plaintiff; D_UNIPEN, which equals 1 if the lawsuit has union pension funds as lead plaintiff; D_MUTFUN, which equals 1 if the lawsuit has mutual funds as lead plaintiff; and D_OTHINS, which equals 1 if the lawsuit has a lead plaintiff belonging to other categories of institutions (please refer to Panel A of Table 1 for the classification of institutions). We find that the coefficients on all types of institutional lead plaintiffs are significantly negative.[34] A Chi-squared test (untabulated) indicates that the coefficient on D_PUBPEN is significantly smaller in magnitude than the coefficient on D_OTHINS, but is not statistically different from the coefficient on D_UNIPEN or D_MUTFUN. These results indicate that the likelihood of the case being dismissed is not driven by public pension funds, even though public pension fund management may have stronger incentives to enhance litigation outcomes for their own political and reputational benefits.

To further rule out the possibility that the negative association between D_INLEAD and the likelihood of case dismissal is caused by institutional lead plaintiffs' self selection of high-merit cases, we estimate a two-stage probit model (Wooldridge, 2002). We use the 3-day accumulated abnormal return

[33] The impact of D_INLEAD is calculated as the difference in predicted dismissal probability when D_INLEAD changes from 0 to 1 while holding all other variables at their mean.

[34] The mutual fund dummy (D_MUTFUN) has an economically significant coefficient (-1.037); however, the coefficient is significant only at the 10 percent level using a one-tailed test. This weak significance may be caused by its small number of observations.

(CAR3) as the instrumental variable.[35] In the first-stage, D_INLEAD is regressed on all exogenous variables in equation (4) including CAR3; then the predicted value of D_INLEAD is used in the second stage regression with CAR3 excluded.[36] We present the results in Table 3 under the column labeled "2SLS Regression". The results are very similar to those of the ordinary probit regression; the coefficient on the predicted D_INLEAD continues to be significantly negative as predicted.

In sum, the results in Table 3 indicate that having an institutional investor as the lead plaintiff improves the lawsuit's chance of surviving the motion to dismiss. The results are robust to various model specifications that control for the determinants of having an institutional lead plaintiff, suggesting that institutional lead plaintiffs have an incremental impact on the litigation outcome beyond these determinants.

4.2.2. Institutional lead plaintiff and settlement amount

To test hypothesis 1b regarding the impact of institutional lead plaintiffs on the settlement amount, we use those lawsuits that were settled and for which the settlement amounts are available. Settlement amounts were unavailable for 30 lawsuits and 448 lawsuits were dismissed. Hence, our sample size is reduced to 735 observations for testing hypothesis 1b. Panel A of Table 4 presents the breakdown of these 735 observations by type of lead plaintiff. There are 557 lawsuits led by individuals, 111 lawsuits led by at least one public/union pension fund or mutual fund, and 67 lawsuits led by other categories of institutions.

We present the descriptive statistics for both the institutional lead plaintiff subsample and the

---

[35] CAR3 is a reasonable identifying variable because it is significantly correlated with having an institutional lead plaintiff (as reported in Panel B of Table 2) and is uncorrelated with the probability of the case being dismissed (as reported in the probit regression column of Table 3).

[36] This two-stage probit regression model is specified as follows:

First stage: $\text{D\_INLEAD}_{it} = \alpha + \beta_1\text{CAR3}_{it} + \beta_2\text{D\_IPO}_{it} + \beta_3\text{D\_GAAP}_{it} + \beta_4\text{D\_ACCTFIRM}_{it} + \beta_5\text{LCLASS}_{it} + \beta_6\text{LOGPIL}_{it} + \beta_7\text{LOGMV}_{it} + \beta_8\text{INSHARE}_{it} + \beta_9\text{BETA}_{it} + \beta_{10}\text{SKEWNESS}_{it} + \beta_{11}\text{LAGRET}_{it} + \beta_{12}\text{ROE}_{it} + \beta_{13}\text{BM}_{it} + \beta_{14}\text{LEV}_{it} + \beta_{15}\text{TURNOVER}_{it} + \beta_{16}\text{REG}_{it} + \beta_{17}\text{TECH}_{it} + \beta_{18}\text{RETAIL}_{it} + \text{YEAR DUMMIES} + \varepsilon_{it}$.

Second stage: $\text{D\_DISMISS}_{it} = \alpha + \beta_1\text{D\_INLEAD}_{it} + \beta_2\text{D\_IPO}_{it} + \beta_3\text{D\_GAAP}_{it} + \beta_4\text{D\_ACCTFIRM}_{it} + \beta_5\text{LCLASS}_{it} + \beta_6\text{LOGPIL}_{it} + \beta_7\text{LOGMV}_{it} + \beta_8\text{INSHARE}_{it} + \beta_9\text{BETA}_{it} + \beta_{10}\text{SKEWNESS}_{it} + \beta_{11}\text{LAGRET}_{it} + \beta_{12}\text{ROE}_{it} + \beta_{13}\text{BM}_{it} + \beta_{14}\text{LEV}_{it} + \beta_{15}\text{TURNOVER}_{it} + \beta_{16}\text{REG}_{it} + \beta_{17}\text{TECH}_{it} + \beta_{18}\text{RETAIL}_{it} + \text{YEAR DUMMIES} + \delta_{it}$.

individual lead plaintiff subsample in Panel B of Table 4. We find that the total settlement amount and cash settlement amount[37] for cases led by institutions are, on average, more than 10 times larger than the corresponding amounts for cases led by individuals while the differences in size and in potential damage between the two groups are much smaller (e.g., average PIL for cases led by institutions is only around 2 times larger than for cases led by individuals). The relatively larger settlement amount for cases led by institutions is consistent with our hypothesis that institutions are more effective in generating better case outcomes. Results on the determinants of having an institutional lead plaintiff are generally similar to those in Panel B of Table 2.

We replace the dependent variable in equation (4) with the logarithm of the total/cash settlement amount and use the following ordinary least-squares regression to test hypothesis 1b:[38]

$$\begin{aligned} \text{SETTLEMENT}_{it} = \alpha &+ \beta_1\text{D\_INLEAD}_{it} + \beta_2\text{D\_IPO}_{it} + \beta_3\text{D\_GAAP}_{ti} + \beta_4\text{D\_ACCTFIRM}_{it} \\ &+ \beta_5\text{LCLASS}_{it} + \beta_6\text{CAR3}_{it} + \beta_7\text{LOGPIL}_{it} + \beta_8\text{LOGMV}_{it} + \beta_9\text{INSHARE}_{it} \\ &+ \beta_{10}\text{BETA}_{it} + \beta_{11}\text{SKEWNESS}_{it} + \beta_{12}\text{LAGRET}_{it} + \beta_{13}\text{ROE}_{it} + \beta_{14}\text{BM}_{it} \\ &+ \beta_{15}\text{LEV}_{it} + \beta_{16}\text{TURNOVER}_{it} + \beta_{17}\text{REG}_{it} + \beta_{18}\text{TECH}_{it} + \beta_{19}\text{RETAIL}_{it} \\ &+ \text{YEAR DUMMIES} + \varepsilon_{it}\,, \end{aligned} \tag{5}$$

where SETTLEMENT = Logarithm of total settlement amount or cash settlement amount; and all the other variables are as defined in equation (3).

Hypothesis 1b states that lawsuits with institutional lead plaintiffs will lead to larger settlements; therefore, we expect β_1 to be positive even after controlling for potential damages and other characteristics that are correlated with the settlement amount.

In equation (5), similar to equation (4), we include determinants of having an institution serving as the lead plaintiff to control for the institutional investor's preference for lawsuits with large potential settlements. These determinants may also be associated with the settlement amount regardless whether cases are led by individuals or by institutions. Controlling for these determinants will enable us to predict the average effectiveness of institutions in leading the class action case beyond the effects due to the characteristics of the lawsuits.

[37] Cash settlement amount and total settlement amount differ because other non-cash items such as stocks are included in total settlement amount.

[38] We use the logarithm because the settlement amount is highly skewed. The results are qualitatively similar if the dollar amount of the settlement is used.

Extant research offers predictions on the association between some of the determinants and the settlement amount. We provide a brief summary here. However, instead of selecting only those variables that have a predictable association with settlement amount, we include all the variables in our model for ease of comparison.

Bajaj et al. (2003) and Palmrose et al. (2004) provide evidence that allegation of GAAP violation and having an accounting firm as a co-defendant are associated with larger settlements (i.e., the coefficient on D_GAAP and D_ACCTFIRM will be positive). The merit and the severity of the damage may also be measured by the length of time during which the market was misled by the defendant (LCLASS), the severity of market return around the revelation event (CAR3), and the amount of potential investor losses (LOGPIL). Carleton, Weisbach and Weiss (1996) show that the longer the class period the larger the settlement amount. A more negative CAR3 and larger LOGPIL usually lead to a larger amount of legitimate recovery demanded in the complaint and, eventually, to a larger settlement (Bajaj et al. 2003). Therefore, we expect the coefficients on LCLASS and LOGPIL to be positive and the coefficient on CAR3 to be negative.

We use market value (LOGMV) and institutional holding (INSHARE) to proxy for the importance of the firm to the institution. Despite large firms' resources to handle the lawsuit properly, misconduct committed by large firms usually inflicts larger damage on investors due to the larger market capitalization. Therefore, we expect larger firms to pay larger settlements (i.e., the coefficient on LOGMV will be positive).

The next set of variables is used to control for the firm's susceptibility to lawsuits. Firms that are more susceptible to lawsuits generally face more frivolous lawsuits. Prior studies find that systematic risk and return skewness are positively associated with litigation risk (Beck and Bhagat, 1997; Jones and Weingram, 1996). Hence, firms with higher systematic risk and more skewed returns should have a higher probability of facing frivolous lawsuits which often result in smaller amounts of settlement. Moreover, Johnson, Kasznik, and Nelson (2001) find that return skewness is positively associated with prior year return, suggesting higher return skewness is associated with smaller investor loss and

accordingly, a lower settlement amount. Thus, we predict that the coefficients on BETA and SKEWNESS are negative.

The next set of variables controls for firms' prior performance. Better prior performance may reflect higher management quality; hence, investor damages are possibly lower. For instance, Ferris and Pritchard (2001) suggest that the prior year's return is negatively correlated with the market's negative reaction to the lawsuit. Moreover, firms with better prior performance are in a stronger position to defend the lawsuits. Given these arguments, we expect a negative relation between prior performance and the settlement amount. Specifically, we predict the coefficients on LAGRET and ROE to be negative and the coefficient on BM to be positive.

We use debt-to-equity ratio (LEV) and share turnover (TURNOVER) to proxy for the scale of agency costs. More highly leveraged firms have greater incentives to engage in fraud or earnings management to avoid debt covenant violation (Defond and Jiambalvo, 1994). These firms may also have stronger incentives to undertake risky projects (the asset substitution problem). Thus, these firms may be less reluctant to go to trial for fear that any further discovery of wrongdoing may trigger violation of debt covenants. As a result, we expect firms with higher leverage to settle for larger amounts. Greater share turnover leads to more frequent change of monitors and more managerial opportunism (Ferris et al., 2007), and it also indicates a higher level of information asymmetry. Consequently, firms with greater share turnover may have higher likelihoods of committing the alleged misconduct and we expect TURNOVER to be positively associated with the settlement amount. Finally, we control for industry affiliation and year effects using the same three industry dummies and year dummies as in previous models.

We present the results of the multivariate regression in Panel C of Table 4. We use both the total settlement amount and the cash settlement amount.[39] The results of these two regressions are very similar. The institutional lead plaintiff (D_INLEAD) coefficient is positive and statistically significant ($p<0.01$)

[39] We also use scaled settlement amounts and our conclusions on the larger settlement amounts for institutions are not altered.

for both models. It also is economically significant. For example, in the total settlement model, the coefficient on D_INLEAD implies that the presence of an institutional lead plaintiff can increase the total settlement amount by approximately 59.8 percent.[40] This indicates that having an institutional lead plaintiff is associated with both a statistically and an economically larger impact on the settlement amount than having an individual lead plaintiff.

The coefficients on the control variables generally exhibit the predicted signs. The coefficients on all the variables related to the merit and the severity of the lawsuit are significant and have the predicted signs. For the lawsuit merit variables, we find firm size (LOGMV) is positively related to the settlement size. The variables for susceptibility to the litigation also exhibit the signs as predicted as both BETA and SKEWNESS have negative coefficients. We also find prior year's return (LAGRET) to be significantly and negatively associated with both measures of settlement amount, confirming our prediction that worse prior performance leads to larger settlements. The proxies for agency cost and information asymmetry also have estimated coefficients with the predicted signs. LEV is significantly and positively related to the settlement size, suggesting that highly leveraged firms may be more willing to pay a larger amount to settle the lawsuit to avoid a court trial. The coefficient on share turnover (TURNOVER) is significantly positive in the regression with total settlement amount as the dependent variable, indicating that higher information asymmetry is associated with a higher total settlement.

We further decompose the institutional lead plaintiffs into public pension fund (D_PUBPEN), union pension fund (D_UNIPEN), mutual fund (D_MUTFUN), and other categories of institutions (D_OTHINS). The results in both models indicate that the coefficients on the public pension fund dummy (D_PUBPEN) and other institution dummy (D_OTHINS) are significant, while the coefficients on the union pension fund dummy (D_UNIPEN) and mutual fund dummy are only marginally significant ($p<0.10$ using a one-tailed test). Untabulated results indicate that the coefficient of D_PUBPEN is significantly larger than the coefficient on any other type of institution. As a robustness check, we also

[40] When the dependent variable is log transformed, the OLS coefficient has a natural interpretation of percentage change in the untransformed dependent variable (Wooldridge, 2002).

use 2SLS regressions (untabulated) to control for the endogeneity issue as discussed in section 4.2.1, and our conclusions remain the same.

As reported in the descriptive statistics, lawsuits with institutional lead plaintiffs take longer to settle than lawsuits led by individual plaintiffs. We use hazard models to examine the reasons for this difference. Generally, the hazard model transforms the dependent variable (e.g., the time to settlement) into a hazard rate. The estimated value of the dependent variable in a hazard model is the estimated probability of surviving longer than a specific time period at a given time. We employ the widely used Cox Proportional Hazard Model[41]to analyze the impact of having an institutional lead plaintiff on the case settlement time. One advantage of the Cox Proportional Hazard Model is that it does not require assumptions on the distributional properties (e.g., multivariate normality) that may be violated by empirical data.[42] We use the time to settlement of the lawsuit as the dependent variable and report the results of various models in Table 4, Panel D. Since the hazard model uses transformed hazard rates for settlement time, the coefficients will have opposite signs to those of the OLS regression. Recall that the simple comparison of average settlement time between lawsuits led by individual and institutional plaintiffs (reported in Table 2) indicates that the lawsuits with institutional lead plaintiffs have significantly longer settlement time (1,043 days) than the lawsuits led by individuals (980 days). If this is also true in multivariate regressions, we expect the institutional lead plaintiff dummy (D_INLED) to have a positive coefficient in the OLS regression of settlement time, and a negative coefficient in the hazard model.

We first report results for a simple model with D_INLEAD only. The coefficient is negative (-0.081) but insignificant. Like settlement amount, settlement time is affected by many factors. Without controlling for these factors, our results may be biased. Hence, we add the control variables that were used in our previous regression for settlement amount. Moreover, we believe one important factor that

[41] For more discussion of hazard models, please refer to Cox and Oakes (1984), Whalen (1991), Chen and Lee (1993), Abdel-khalik (1993), Henebry (1996), Trimbath, Frydman and Frydman (2001) and Gregoriou, Kooli and Rouah (2008).
[42] We also used the Weibull hazard model and the results are very similar.

can drag out the lawsuit is the high settlement amount desired by the lead plaintiff; hence, in the second model in Panel D, we also include the decile rank of the settlement amount. [43] We predict that a larger settlement amount requires a longer negotiation to reach settlement. That is, we expect a negative coefficient on rank (TOTAL SETTLEMENT). Indeed, we find that rank (TOTAL SETTMENT) has a significantly negative coefficient. In addition, we find significant positive coefficients on D_GAAP and CAR3 and a significant negative coefficient on LOGPIL, implying a shorter time to settle when the lawsuit involves GAAP violation and smaller damages. [44] We also find lawsuits against firms in the high-tech industry require shorter time to settle, as indicated by the significantly positive coefficient on TECH. The coefficient on D_INLEAD becomes positive but remains insignificant.

While these findings are interesting in their own right, our focus is on the monitoring effectiveness of institutional lead plaintiffs in the litigation process. An insignificant coefficient on D_INLEAD implies institutional lead plaintiffs do not differ from individual lead plaintiffs in their impact on the settlement time. This may result because it is not always better to prolong the lawsuit. For example, if a prolonged lawsuit cannot increase the settlement amount, it is better for the lead plaintiff to settle sooner rather than later. Hence, we conjecture that the effectiveness of the institutional lead plaintiff in managing the settlement period depends upon the characteristics of the lawsuit. In particular, we expect that institutional investors are more efficient and have more leverage in the negotiation process and, therefore, are able to garner a larger settlement in a relatively shorter time period. To test this prediction, we add the interaction of rank (TOTAL SETTLEMENT) with D_INLEAD, and predict a positive coefficient on D_INLEAD × rank (TOTAL SETTLEMENT). That is, at a given settlement amount, institutional lead plaintiffs will be able to settle the lawsuit more quickly than individuals. The significantly positive coefficient (0.740) on D_INLEAD × rank (TOTAL SETTLEMENT) reported in the

[43] We use rank (TOTAL SETTLEMENT) to avoid the high correlation between settlement and other variables (as shown in Panel C). When we use log (TOTAL SETTLEMENT), the Pseudo R^2 is higher but the significance of the coefficients is weaker. However, the coefficient on log (TOTAL SETTLEMENT) is still significantly negative and the coefficient on its interaction with D_INLEAD is significantly positive.

[44] Note that the coefficients on CAR3 and LOGPIL have opposite signs in Panel C and Panel D. This is because lower (more negative) CAR3 and higher LOGPIL are associated with potentially larger damages.

third model in Table 4, Panel D confirms our conjecture. In addition, the significantly negative coefficient (-0.666) on rank (TOTAL SETTLEMENT) is consistent with the finding in Model 2. We also find significant coefficients for the interaction variables including D_INLEAD x LCLASS (0.042), D_INLEAD x ROE (-0.314), D_INLEAD x BM (-0.396), D_INLEAD x REG (0.529) and D_INLEAD x TECH (0.428). They basically suggest that institutional lead plaintiffs will prolong the lawsuits when the defendant firms have higher profits and will expedite the lawsuits when the class period length is longer and the defendants are in the regulated and technology industries.[45]

In summary, the results in Table 4 show that institutional lead plaintiffs (especially public pension funds) are capable of generating larger settlements. In addition, these institutions seem to be strategically managing the settlement time as required by the circumstances of the lawsuits.

4.3. Impact of institutional lead plaintiff on subsequent governance changes

Next, we examine hypothesis 2 regarding the impact of having an institutional lead plaintiff on subsequent corporate governance changes. We predict that institutional owners have longer-term interests in defendant firms and thus will use their leverage in the securities litigation to press for corporate governance improvements. We focus on board independence, measured as the percentage of independent directors in the full-board, the percentage of independent directors in the audit committee, and whether the board has a lead director. As indicated by prior literature (e.g., Shleifer and Vishny, 1997; Denis, 2001; Hermalin and Weisbach, 2003; Klein 2002), more independent full-boards and audit committees force management to take actions that are more in line with shareholders' interests.[46] Having a lead director also improves the board's independence in leadership (Taub, 2006). Following Farber (2005) and Ferris et al. (2007), we examine changes in board independence within three years following filing of the lawsuit.[47] The year in which the lawsuit is filed is defined as event year 0, and other event years (year -1,

[45] We also estimate a model that excludes *actual* settlement amount and includes potential damages as proxies of expected settlement. The pseudo R^2 is significantly lower indicating the importance of *actual* settlement amount in explaining *actual* settlement time.

[46] For example, firms with a higher percentage of independent board members are associated with better management turnover decisions and acquisition decisions (Denis, 2001; Hermalin and Weisbach, 2003).

[47] As noted previously, since the lead plaintiff is appointed shortly after the lawsuit is filed, the effect of having an

year +1, year +2, and year +3) are defined accordingly. We collect board data for the period 1997 – 2004 from the Institutional Responsibility Research Center (IRRC) board database, which covers S&P 1,500 firms, and we supplement the IRRC data by manual collection.[48] To address the confounding impact of regulatory changes in NYSE and SEC corporate governance requirements during the sample period, we use those firms in the IRRC database that were not sued during our sample period as control firms.[49] We then adjust the corporate governance levels of the lawsuit firms for the mean levels of the control firms for the same year. For the analysis, we require firms to have governance data for all five years from year -1 to year + 3. Our final sample consists of 120 observations with individual lead plaintiffs and 45 observations with institutional lead plaintiffs. With respect to the specific types of institutional owners, 38 of the institutional lead plaintiffs are either public or union pension funds.

We present the results of post-litigation changes in corporate governance in Panel A of Table 5, and also depict them in Figure 2. In year -1, the average percentage of independent full-board members for defendant firms with institutional lead plaintiffs is 0.50 percent lower than that of the control firms, compared to 3.56 percent higher for defendant firms with individual lead plaintiffs. After the litigation filing, full-board independence increases for the institutional lead plaintiff subsample only. By year +3, full-board independence for defendant firms with institutional lead plaintiffs has increased by 11.70 percent from its year -1 level, compared to a 0 percent increase for the individual lead plaintiff subsample. This suggests that securities litigation does not automatically lead to governance improvement. Rather, it is the institutional involvement that drives, either directly or indirectly, governance changes. The difference in increases in board independence between these two subsamples is significant at $p<0.01$ for

---

institutional lead plaintiff on corporate governance improvement can be observed right after the lawsuit filing.

[48] From the sample of 1,213 litigations filed from 1996 to July 20, 2005 and were resolved by June 1, 2006, we have 270 observations with individual lead plaintiffs and 103 observations with institutional lead plaintiffs with available data in year -1 (the year before the lawsuit filing) in the IRRC board database. If those observations have at least two years but not all five event years (year -1 to year +3) of data covered by IRRC, we manually collect the board data from the proxy statements for those missing years up to year 2004. Limiting the sample to observations with at least two years of coverage in IRRC ensures that these observations have similar sizes since IRRC covers the 1,500 largest firms in the United States. There are 88 individual lead plaintiffs and 28 institutional lead plaintiffs with all five years of board data available in IRRC and the results are qualitatively similar if we limit the sample to those observations.

[49] For example, the NYSE and NASDAQ proposals approved by the SEC in November 2003 require listed firms to have a majority of independent board members.

all three years (year +1, year +2, and year +3). As a result, at year +3, the adjusted level of board independence for defendant firms with institutional lead plaintiffs rises to 11.21 percent, significantly higher than the corresponding change for defendant firms with individual lead plaintiffs.

The changes in audit committee independence exhibit similar patterns. Firms with institutional lead plaintiffs experience a significantly higher increase in audit committee independence than firms with individual lead plaintiffs. We also find that, after lawsuit filings, defendant firms with institutional lead plaintiffs are more likely to establish a lead director position than defendant firms with individual lead plaintiffs. As reported in Panel A of Table 3, from year -1 to year +3, the adjusted percentage of firms with a lead director increases from 2.83 percent to 12.31 percent for defendant firms with institutional lead plaintiffs, while the corresponding change for defendant firms with individual lead plaintiffs is negative (it decreases from 3.46 percent to 2.78 percent).

One concern is that the positive association between having an institutional lead plaintiff and subsequent improvement in corporate governance may be induced by variables that lead to both events. For example, GAAP violation may increase both the likelihood of having an institutional lead plaintiff and subsequent changes in corporate governance. To control for this potential endogeneity problem, we estimate the following multivariate regression for the change analysis:

$$\begin{aligned} \text{CHG\_YEAR+3}_{it} = \alpha &+ \beta_1 \text{D\_INLEAD}_{it} + \beta_2 \text{D\_GAAP}_{it} + \beta_3 \text{D\_ACCTFIRM}_{it} + \beta_4 \text{LCLASS}_{it} \\ &+ \beta_5 \text{CAR3}_{it} + \beta_6 \text{LOGPIL}_{it} + \beta_7 \text{LOGMV}_{it} + \beta_8 \text{INSHARE}_{it} + \beta_9 \text{TECH}_{it} \\ &+ \text{YEAR DUMMIES} + \varepsilon_{it}\,, \end{aligned} \tag{6}$$

where CHG_YEAR+3_i represents the change (based on the adjusted level) in one of the three corporate governance measures (the percentage of independent board members, the percentage of independent audit committee members, and whether there is a lead director) from year -1 to year +3 for firm *i*, and all the other variables are as defined in equation (3).

The dependent variable measures the change in one of these three indicators of board independence (percentage of independent board members in the full board, percentage of independent audit committee members, and whether there is a lead director) from year -1 to year +3 based on the control-group adjusted levels. Other variables in equation (6) are those determinants of having an

institutional lead plaintiff that are statistically significant in equation (1) (discussed in Section 4.1);[50] we include those variables in the regression to alleviate the endogeneity problem.[51]

The additional data requirements reduce the sample size to 155 lawsuits (111 with individual lead plaintiffs and 44 with institutional lead plaintiffs). We present the regression results in Panel B of Table 5. The coefficient on D_INLEAD is significant at $p<0.01$ in the regression for the full-board independence, indicating that the positive associations between the presence of an institutional lead plaintiff and increase in percentage of independent board members in the full board, as shown in Panel A of Table 5, are not caused by these endogenous determinants of having an institutional lead plaintiff. We also note that having allegations of GAAP violation and having an accounting firm as a co-defendant (D_ACCTFIRM) greatly increase the defendant firm's likelihood of increasing the percentage of independent board members. This suggests that defendant firms respond to serious accounting accusations by improving board independence, and having an institutional lead plaintiff further pushes the defendant firms to take such an action. We do not find a significant coefficient on D_INLEAD for change in audit committee independence and change in lead director position.[52]

We also estimate the regression with three institution type dummies, including dummies for public pension fund (D_PENPEN), union pension fund (D_UNIPEN), and other institutional investors

[50] The results are similar when we include all the determinants.

[51] Please refer to Section 4.1, equation (3), and Panel B of Table 2 for details of these significant determinants of having an institutional lead plaintiff. These variables include whether GAAP violation is alleged in the lawsuit (D_GAAP), whether an accounting firm is named as a co-defendant (D_ACCTFIRM), the length of class period (LCLASS), the three-day cumulative abnormal return at the revelation event (CAR3), the log of potential investor loss (LOGPIL), the log of market value (LOGMV), the institutional shareholding (INSHARE), and whether the firm being sued is a technology firm (TECH).

[52] The 1999 SEC requirement of having all audit committee members being independent reduces the variance of changes in the audit committee and probably leads to an insignificant coefficient on D_INLEAD. As shown in the next paragraph, the three types of institutional lead plaintiffs have different directional impacts on having a lead director position, probably leading to an insignificant overall coefficient on D_LEAD. We also estimate a levels regression analysis (not tabulated), where we regress the annual adjusted levels of these three corporate governance measures on dummies for the event years 0, +1, +2, and +3 plus all the other determinants of having an institutional lead plaintiff included in equation (6). We then estimate the regression for all lawsuits, lawsuits with individual lead plaintiffs, and lawsuits with institutional lead plaintiffs, respectively. We find significantly positive coefficients for year +1, year +2, and year +3 when we estimate the regressions for lawsuits with institutional lead plaintiffs, and this is the case for all three board independence measures. This shows that, relative to year 0, defendant firms with institutional lead plaintiffs experience significant improvement in corporate governance in year +1 to year +3. We do not find any significant coefficients for these event year dummies when we estimate the regression for either all lawsuits or lawsuits with individual lead plaintiffs, indicating that having an individual lead plaintiff does not lead to corporate governance improvement.

(D_OTHINS).[53] We find the coefficient on D_PUBPEN is significantly positive for both change in full-board independence ($p<0.01$, one-tailed test) and change in lead director ($p<0.10$, one-tailed test). On the other hand, the coefficient on D_UNIPEN is negative and insignificant in all three regressions. The coefficient on D_OTHINS is significantly positive only in the full-board independence model and is negative in the change in lead director model.

To summarize, the results reported in Table 5 support our hypothesis 2 that institutional lead plaintiffs are associated with greater subsequent corporate governance reform. In contrast, lawsuits led by individuals are not associated with a significant improvement in corporate governance of defendant firms, suggesting that the impact of securities class action on governance changes depends on the type of lead plaintiff.

5.0. Conclusion

This paper examines whether securities litigation can be used by institutional investors as a mechanism to discipline and monitor defendant firms. Securities litigation has long been criticized as attorney-driven and ineffective in punishing defendant firms. We conjecture that, relative to individual investors, institutional investors are more resourceful and motivated to achieve more favorable immediate litigation outcomes once they choose to serve as the lead plaintiff. Furthermore, institutional investors have larger and longer-term interests in the defendant firms and in the health of the corporate America and thus should be more motivated in pressing firms for governance reforms.

Based on a large sample from 1996 to 2005, we find that institutional lead plaintiffs, as opposed to individual plaintiffs, increase the likelihood of the lawsuit surviving the motion to dismiss and help achieve larger settlements. This result holds for various types of institutional investors including public pension funds. We further find that defendant firms with institutional lead plaintiffs experience greater improvement in corporate governance subsequent to the lawsuit filing. These results are robust to

[53] We do not include mutual funds as a separate category because there are only 3 mutual fund observations in the sample.

controlling for the endogeneity that arises when institutional owners cherry-pick only those lawsuits with a large potential settlement and a higher likelihood of winning.

Our paper contributes to the understanding of how institutional investors can use existing legal channels to exert their monitoring power and the impact of such institutional investors' engagement on litigation outcomes. Our evidence indicates that institutional investors' involvement in securities litigation enhances not only investors' success in seeking financial recovery, but also the quality of the defendant firms' corporate governance. In light of the ineffectiveness of traditional institutional monitoring channels (e.g., private communication and filing proposals, etc.) and the increasing number of securities litigations, institutional investors could use litigation as a mechanism to discipline management and to secure the long-term health of the firms.

Several issues can be further explored by future research. First, as we discussed previously, anecdotal evidence shows that institutions that opt out of several mega cases have made larger financial recoveries than class members who stayed in the class action. Future research could examine whether opting out of class action to file individual lawsuits is a more effective monitoring tool than leading the class action. Second, an emerging literature on hedge fund activism (e.g., Brav et al., 2008; Greenwood and Schor, 2007; Kahan and Rock, 2006; Klein and Zur, 2008) provides both anecdotal and empirical evidence that hedge funds have been successful in their attempts to influence corporate strategies, payout policies, and corporate governance. It would be interesting to investigate whether hedge funds use securities litigation to discipline and monitor corporations and whether the effects of hedge funds' disciplining and monitoring efforts differ from those of pension funds.

Appendix: Variable Definitions

Variable		Definition
Total Settlement	=	total settlement amount in dollars.
Cash Settlement	=	cash settlement amount in dollars.
D_INLEAD	=	1 if the lawsuit has an institutional investor as lead plaintiff, and 0 otherwise.
D_PUBPEN	=	1 if the lawsuit has a public pension fund as lead plaintiff, and 0 otherwise.
D_UNIPEN	=	1 if the lawsuit has a union pension fund as lead plaintiff, and 0 otherwise.
D_MUTFUN	=	1 if the lawsuit has a mutual fund as lead plaintiff, and 0 otherwise.
D_OTHINS	=	1 if the lawsuit has other categories of institutions (as in Panel A of Table 1) serving as lead plaintiff, and 0 otherwise.
D_IPO	=	1 if an IPO violation is alleged, and 0 otherwise.
D_GAAP	=	1 if a GAAP violation is alleged, and 0 otherwise.
D_ACCTFIRM	=	1 if an accounting firm is named as a defendant, and 0 otherwise.
LCLASS	=	class period length.
CAR3	=	3-day (-1, 1) cumulative abnormal return calculated from the market model; the class period end date is defined as event day 0.
PIL	=	Potential Investor Loss, the difference between the highest value of the market capitalization during the class period and the market capitalization on the day after the end of the class period, scaled by the market value at the fiscal year end immediately prior to the end of the class period.
LOGMV	=	log of market value (Compustat #199*Compustat #25) at the fiscal year end immediately prior to the end of the class period.
INSHARE	=	the percentage of institutional ownership of the firm, measured at the fiscal year end immediately prior to the end of the class period.

SKEWNESS	=	the third moment of the return distribution over the one-year, calendar-day window [-375, -10] relative to the class period end date.
LAGRET	=	the compounded raw return over the one-year, calendar-day window [-375, -10] relative to the class period end date.
ROE	=	Industry-adjusted ROE (Compustat #18/(Compustat #216+Compustat #74)), computed as firm ROE minus median ROE of the corresponding Fama-French industry, measured at the fiscal year-end immediately prior to the end of the class period.
BM	=	book value of equity (Compustat #60) plus book value of deferred taxes (Compustat #74) divided by market value of equity (Compustat #199*Compustat #25).
BETA	=	market beta measured at the fiscal year-end immediately prior to the end of the class period.
LEV	=	total liabilities divided by total assets (Compustat #181/Compustat #6), measured at the fiscal year-end immediately prior to the end of the class period.
TURNOVER	=	$1-(1-Turn)^n$, where Turn is average daily trading volume divided by the number of shares outstanding, and n is the number of trading days in the one-year, calendar-day window [-375, -10] relative to the class period end date.
REG	=	1 if the sued firm belongs to an industry with SIC code 4812–4813, 4833, 4841, 4811–4899, 4922–4924, 4931, 4941, 6021–6023, 6035–6036, 6141, 6311, 6321, or 6331, and 0 otherwise.
TECH	=	1 if the sued firm belongs to an industry with SIC code 2833–2836, 3570–3577, 3600–3674, 7371–7379 or 8731–8734, and 0 otherwise.
RETAIL	=	1 if the sued firm belongs to an industry with SIC code between 5200 and 5961, and 0 otherwise.
%OUTDIR	=	Board Independence, measured as percentage of independent directors in the board of directors.
%ACINDEP	=	Audit Committee Independence, measured as percentage of independent directors in the Audit Committee.
Lead Director	=	1 if the company's board has a lead director or presiding independent director, and 0 otherwise.

References

Abdel-khalik, A., 1993. Discussion of "Financial ratios and corporate endurance: A case of the oil and gas industry. Contemporary Accounting Research 9, 695-705.

Ali, A., Kallapur, S., 2001. Securities price consequences of the private securities litigation reform act of 1995 and related events. The Accounting Review 76, 431-460.

Bajaj, M., Mazumdar, S., Sarin, A., 2003. Empirical analysis of securities class action settlements. Santa Clara law Review 43, 101-132.

Beck, J., Bhagat, S., 1997. Shareholder litigation: share price movements, news releases, and settlement amounts. Managerial and Decision Economics 8, 563-586.

Becker, E., 2003. Panel discussion, the Private Securities Law Reform Act: Is it working? Fordham Law Review 71, 2363-2394

Berger, M., Coffey, J., Silk, G., 2001. A forward-looking statement: Institutional investors as lead plaintiffs: is there a new and changing landscape? St. John's Law Review 75, 31-46.

Black, B., 1992. Agents watching agents: the promise of institutional investor voice. UCLA Law Review 39, 811- 863.

Black, B., Coffee, J., 1994. Hail Britannia? Institutional investor behavior under limited regulation. Michigan Law Review 91, 1997-2086.

Brav, A., Jiang, W., Thomas, R., Partnoy, F., 2008. Hedge fund activism, corporate governance, and firm performance. The Journal of Finance 63, 1729-1775.

Bushee, B., 1998. The influence of institutional investors on myopic R&D investment behavior. The Accounting Review 73, 305-333.

Bushee, B., Noe, C., 2000. Corporate disclosure practices, institutional investors, and stock return volatility. Journal of Accounting Research 38, 171-202.

Business Wire, 2004. Bernstein Litowitz Berge & Grossmann and Louisiana Pension Funds announce significant corporate governance reforms achieved in partial settlement of securities class action against SkillSoft. Oct 19.

Carleton, M., Weisbach, M., Weiss, E., 1996. Securities class action lawsuits: a descriptive study. Arizona Law Review 38, 491-511.

Carleton, W., Nelson, J., Weisbach, M., 1998. The influence of institutions on corporate governance through private negotiations: Evidence from TIAA-CREF, Journal of Finance 53, 1335-1362.

Chen, X., Harford, J., Li, K., 2007. Monitoring: Which institutions matter? Journal of Financial Economics 86, 279-305.

Chen, K., Lee, C., 1993. Financial ratios and corporate endurance: A case of the oil and gas industry. Contemporary Accounting Research 9, 667-694.

Choi, S., Fisch, J., Pritchard, A., 2006. Do institutions matter? The impact of the lead plaintiff provision of the Private Securities Litigation Reform Act. Columbia Law Review 106, 1587-1640.

Cleveland, A., 2002. Fiduciary responsibilities of pension funds: recoveries in securities class actions. The Corporate Governance Advisor 24 (May/June), 24-26.

Coffee, J., 1991. Liquidity versus control: The institutional investor voice. Columbia Law Review 91, 1277-1338.

Coffee, J., 2008. Accountability and competition in securities class actions: Why 'exit' works better than 'voice'. Columbia Law and Economics Working Paper.

Core, J., 2000. The directors' and officers' insurance premium: an outside assessment of the quality of corporate governance. Journal of Law, Economics, and Organization 16, 449-477.

Cox, D., Oakes D., 1984. Analysis of Survival Data. Chapman and Hall.

Cox, J., Thomas. R., 2006. Empirically reassessing the lead plaintiff provision: Is the experiment paying off? Columbia Law Review 106, 1489-1533.

Cremers, M., Nair, V., 2005. Governance mechanisms and equity prices. Journal of Finance 60 (6), 2859-2894.

Davis, E.P., Steil. B., 2001. Institutional investors. MIT Press, MA.

Denis, D., 2001. Twenty-five years of corporate governance research … and counting. Review of Financial Economics 10, 191-212.

DeFond, M., Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. Journal of Accounting & Economics 17, 145-176.

Del Guercio, D., Hawkins, J., 1999. The motivation and impact of pension fund activism. Journal of Financial Economics 52, 293-340.

Eisenhofer, J., Leban, A., 1999. The lead plaintiff provision: Does it work? The Corporate Governance Advisor 7, 9-15.

Laise, E., 2005. Picked Clean. Smart Money 14, 80-86.

Fama, E., MacBeth, J., 1973. Risk, return, and equilibrium: Empirical tests. Journal of Political Economy LXXXI, 607-636.

Farber, D., 2005. Restoring trust after fraud: does corporate governance matter? The Accounting Review 80 (2), 539-561.

Ferris, S., Pritchard, A., 2001. Stock price reactions to securities fraud class actions under the private securities litigation reform act. Unpublished working paper. University of Michigan.

Ferris, S., Jandik, T., Lawless, R., Makhija, A., 2007. Derivative lawsuits as a corporate governance mechanism: empirical evidence on board changes surrounding filings. Journal of Financial and Quantitative Analysis 42, 143-166.

Fields, T., Lys, T., Vincent, L., 2001. Empirical research on accounting research. Journal of Accounting and Economics 31, 255-307.

Field, L., Lowry, M., Shu, S., 2005. Does disclosure deter or trigger litigation? Journal of Accounting and Economics 39, 487-507.

Fisch, J., 1997. Class action reform: Lessons from securities litigation. Arizona Law Review 39, 533-559.

Fisch, J., 2001. Aggregation, auctions, and other developments in the selection of lead counsel under the PSLRA. Law and Contemporary Problem 64, 53-96.

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

Gillan, S., Starks, L., 2000. Corporate governance proposals and shareholder activism: the role of institutional investors. Journal of financial Economics 57, 275-305.

Greenwood. R., Schor, M., 2007. Investor activism and takeovers. Working paper. Harvard University and Morgan Stanley.

Gregoriou, G., Kooli, M., Rouah. F., 2008. Survival of strategic, market defensive, diversified and conservative fund of hedge funds: 1994–2005. Journal of Derivatives & Hedge Funds 13, 273-286.

Grossman, S., Hart, O., 1980. Takeover bids, the free rider problem, and the theory of the corporation. Bell Journal of Economics 11, 42-64.

Hawley, J., Williams, A., Miller, J., 1994. Getting the herd to run: shareholder activism at the California public employees retirement system (CalPERS). Business and the Contemporary World 6, 26-48.

Healy, P., Palepu, K., 2001. Information asymmetry, corporate disclosure, and the capital market: A review of the empirical disclosure literature. Journal of Accounting and Economics 31, 405-440.

Henebry, K., 1996. Do cash flow variables improve the predictive accuracy of a cox proportional hazards model for bank failure? The Quarterly Review of Economics and Finance 36, 395 - 409.

Hermalin, B., Weisbach, M., 2003. Boards of directors as an endogenously determined institution: a survey of the economic literature. Federal Reserve Bank of New York. Economic Policy Review 9, 7-26.

Johnson, M., Nelson, K., Pritchard, A., 2000. In re silicon Graphics Inc,: Shareholder wealth effects resulting from the interpretation of the Private Securities Litigation Reform Act's pleading standard. Southern California Law Review 73, 773-810.

Johnson, M., Kasznik, R., Nelson, K., 2001. The impact of securities litigation reform on the disclosure of forward-looking information by high technology firms. Journal of Accounting Research 89, 297-327.

Jones, C., Weingram, S., 1996. The determinants of 10b-5 litigation. Unpublished working paper, Stanford University.

Karpoff, J., 2001. Does shareholder activism work? A survey of empirical findings. Unpublished working paper, University of Washington.

Khan, M., Rock, E., 2006. Hedge funds in corporate governance and corporate control. Working paper. New York University and University of Pennsylvania.

Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. Journal of Accounting and Economics 33, 375-400.

Klein, A., Zur, E., 2008. Entrepreneurial shareholder activism: Hedge funds and other private investors. Forthcoming in Journal of Finance.

Lane, W., Looney S., Wansley, W., 1986. Application of the cox proportional hazards model to bank failure. Journal of Banking and Finance 4, 511-531.

Macey, J., Miller, G., 1991. The plaintiffs' attorney's role in class action and derivative litigation: economic analysis and recommendations for reform. University of Chicago Law Review 58, 1-118.

McGrath, D., 1997. Firms back litigation bill. Electronic News 43 (2189): 102.

Murphy, K., Van Nuys, K., 1994. State pension funds and shareholder inactivism. Unpublished working paper, Harvard Paper.

Pacelle, M., 1999. Cendant agrees in its settlement to change corporate governance. Wall Street Journal, December 8, A4.

Palmrose, Z-V., Richardson, V., Scholz, S., 2004. The circumstances and legal consequences of non-GAAP reporting: evidence from restatements. Contemporary Accounting Research 21, 139-180.

Parriono, R., Weisbach, M., 1999. Measuring investment distortions arising from stockholder-bondholder conflicts. Journal of Financial Economics 53, 3-42.

Plitch, P., 2005. Governance at gunpoint. Wall Street Journal, October 17, 2005, R6.

Pound, J., 1988. Proxy contests and the efficiency of shareholder oversight. Journal of Financial Economics 20, 237-65.

PR Newswire, 2001. Florida State Board of Administration announces settlement with Vesta Insurance Group, Inc. October 16.

PR Newswire, 2003. Amalgamated Bank achieves groundbreaking boardroom changes empowering independent directors. March 19.

Qiu, L., 2003. Public pension fund activism and M&A activity. Unpublished working paper, Yale University.

Romano, R., 1991. The shareholder suit: litigation without foundation? The Journal of Law, Economics, & Organization 7, 55-87.

Romano, R., 1993. Public pension fund activism in corporate governance reconsidered. Columbia Law Review 93, 795-853.

Romano, R., 2001. Making institutional investor activism a valuable mechanism of corporate governance. Yale Journal of Regulation 18, 174 - 251.

Sahlman, W. A., 1990. The structure and governance of venture capital organizations. Journal of Financial Economics 27, 473-521.

Shleifer, A., Vishny. R., 1997. A survey of corporate governance. The Journal of Finance 52, 737-783.

Simmons, L., Ryan, E., 2003. Post-reform act securities lawsuits: settlements reported through December 2003. Cornerstone Research,

Skinner, D., 1997. Earnings disclosures and stockholder lawsuits. Journal of Accounting and Economics 23, 249-283.

Taub, S., 3 Aug. 2006. CEO-as-Chairman Still the Rule in US - US companies are far more likely to appoint a lead independent director than separate CEO and chairman into separate roles. 28 July 2008 〈http://www.cfo.com/printable/article.cfm/7264811/c_2984395?f=options〉

Thompson, R., Thomas, R., 2004. The new look of shareholder litigation: acquisition-oriented class actions. Vanderbilt Law Review 133, 148-156.

Trimbath S., Frydman H., Frydman R., 2001. Cost inefficiency, size of firms and takeovers. Review of Quantitative Finance and Accounting 17, 397-420.

Weiss, E., Beckerman, J., 1995. Let the money do the monitoring: how institutional investors can reduce agency costs in securities class actions. Yale Law Journal 104, 2053-2128.

Whalen, G., 1991. A proportional hazards model of bank failure: an examination of its usefulness as an early warning tool. Economic Review 27, 21-31.

Wooldridge, J., 2002. Econometric analysis of cross section and panel data. The MIT Press, Massachusetts.

Woidtke, T., 2002, Agents watching agents?: Evidence from pension fund ownership and firm value. Journal of Financial Economics 63, 99-131.

Table 1: Descriptive Statistics on the Lawsuit Sample

This table reports the descriptive statistics for a sample of 1,811 lawsuits that were filed during 01/01/1996 – 07/20/2005 and were resolved up to 06/01/2006. Panel A presents the breakdown of types of lead plaintiffs in this sample. Panel B shows the participation frequency of institutional lead plaintiffs. Panel C provides a list of most active institutions participating as lead plaintiffs. Please see Appendix for the variable definitions.

Panel A: Breakdown of types of lead plaintiff (n=1,811)

Type of Lead Plaintiff	# of Lawsuits
Individual lead plaintiff	1,525
At least one public/union pension fund or mutual fund:	178
Public Pension	97
Union Pension	61
Mutual Fund	12
Co-led by public/union pension fund and mutual fund	8
Other categories of institutions:	108
Hedge Fund	18
Non-Financial Firm	18
Trust	7
Corporate Pension Fund	6
Brokerage	5
Investment Advisor	4
Endowment	3
Bank	1
Private Equity/Venture Capital	1
Miscellaneous Investment*	13
Others**	15
Co-led by more than one types of other institutions	17

* Miscellaneous Investment includes investment funds other than those mentioned above.
**Others include institutions (e.g., mortgage brokers, commodity trading houses, etc.) that cannot be classified into any of the above categories.

Panel B: Participation frequency of institutional lead plaintiffs

# of times serving as lead plaintiff	# of Institutions	Percent
1	214	78.1
2	33	12.04
3	13	4.74
4	6	2.19
5	3	1.09
6	3	1.09
12	1	0.36
14	1	0.36
Total	274	100

Table 1: Descriptive Statistics on the Lawsuit Sample (Continued)

Panel C: Most active institutional lead plaintiffs

Institution	# of times serving as lead plaintiff
Teachers' Retirement System of Louisiana	14
Florida State Board of Administration	12
Louisiana School Employees' Retirement System	6
Louisiana State Employees Retirement System	6
Plumbers & Pipefitters National Pension Fund	6
1199 SEIU Greater New York Pension Fund (f/k/a Local 144 Nursing Home Pension Fund)	5
Fuller & Thaler Asset Management, Inc.	5
Philadelphia Board of Pensions & Retirement	5
Carpenters Pension Trust for Southern California	4
Central Laborers' Pension Fund	4
Great Neck Capital Appreciation Investment Partnership, L.P.	4
Louisiana Municipal Police Employees' Retirement System	4
New Hampshire Retirement System	4
New York State Common Retirement Fund	4
CalPERS	3
Employers-Teamsters Local 175 & 505 Pension Trust Fund Plan	3
Hawaii Electricians Annuity Fund	3
Jacksonville Police & Fire Pension Fund	3
Louisiana Sheriffs' Pension and Relief Fund	3
Massachusetts State Carpenters Guaranteed Annuity Fund	3
Massachusetts State Carpenters Pension Fund	3
Massachusetts State Guaranteed Annuity Fund	3
Minnesota State Board of Investment	3
New England Health Care Employees Pension Fund	3
PACE Industry Union Management Pension Fund	3
State of Wisconsin Investment Board	3
Stoneridge Investment Partners	3

Table 2: Determinants of Having an Institutional Lead Plaintiff

We examine the determinants of having an institutional lead plaintiff. The sample used in this analysis consists of 1,213 lawsuits that were filed during 01/01/1996 – 07/20/2005 and resolved up to 06/01/2006 and have non-missing values in dependent variables and all the control variables. Of these 1,213 lawsuits, 212 and 1001 are led by institutional investors and individual investors respectively. Panel A shows univariate comparisons of variables between lawsuits led by institutional investors and lawsuits led by individuals. The last two columns provide t-tests of mean differences and Wilcoxon rank sum tests of median differences between the individual lead plaintiff and the institutional lead plaintiff columns. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively (one-tailed). Panel B presents the results of multivariate analyses. The dependent variable is Institutional Lead Plaintiff (D_INLEAD), which is a dummy variable that equals 1 if the lawsuit was led by institutional investors and 0 if it had individuals as lead plaintiff. Determinants of having an institutional variable are categorized into six groups: (1) merit and potential damage, (2) importance to institutional investors, (3) susceptibility to lawsuit, (4) prior performance, (5) severity of agency cost, and (6) industry affiliation. LCLASS in the model is the raw value of class period length divided by 100. P values are two-sided. Intercepts and year dummies are not shown. Please see Appendix for the variable definitions.

Panel A: Univariate Comparisons (n=1,213)

	Individual Lead Plaintiff (1001 Lawsuits)		Institutional Lead Plaintiff (212 Lawsuits)		Differences	
	Mean	Median	Mean	Median	Mean	Median
D_IPO	0.062	0	0.042	0	0.019*	0
D_GAAP	0.337	0	0.561	1	-0.225***	-1***
D_ACCTFIRM	0.053	0	0.170	0	-0.117***	0***
LCLASS (days)	383.240	284	621.387	483	-238.147***	-199***
CAR3	-0.208	-0.183	-0.243	-0.189	0.036***	0.006**
PIL (in $ thousand)	1,386,269	172,018	3,982,315	685,914	-2,596,045	-513,896***
LOGMV	6.233	6.151	7.570	7.505	-1.337	-1.354***
INSHARE	0.425	0.428	0.560	0.583	-0.135***	-0.154***
BETA	1.124	1.023	1.209	1.048	-0.085***	-0.025*
SKEWNESS	0.310	0.298	-0.250	0.079	0.560***	0.220***
LAGRET	0.014	0.037	-0.212	-0.189	0.226***	0.226***
ROE	-0.211	-0.002	-0.172	0.003	-0.038***	-0.005
BM	0.447	0.296	0.451	0.333	-0.003***	-0.037
LEV	0.501	0	0.569	1	-0.068**	0***
TURNOVER	0.818	1	0.825	1	-0.007**	0
REG	0.092	0	0.165	0	-0.073***	0***
TECH	0.344	0	0.226	0	0.117***	0***
RETAIL	0.062	0	0.071	0	-0.009***	0

Table 2: Determinants of Having an Institutional Lead Plaintiff (Continued)

Panel B: Multivariate Probit Regression on Determinants of Having an Institutional Lead Plaintiff (n=1,213)

	Coeff.	P Value
Merit and potential damage		
D_IPO	0.117	(0.587)
D_GAAP	**0.360**	(0.000)
D_ACCTFIRM	**0.548**	(0.001)
LCLASS	**0.032**	(0.004)
CAR3	**-0.454**	(0.026)
LOGPIL	**0.032**	(0.045)
Importance to institutional investors		
LOGMV	**0.165**	(0.000)
INSHARE	**0.521**	(0.019)
Susceptibility to lawsuit		
BETA	0.042	(0.620)
SKEWNESS	-0.047	(0.240)
Prior performance		
LAGRET	-0.111	(0.117)
ROE	-0.041	(0.398)
BM	0.025	(0.826)
Agency cost and information asymmetry		
LEV	0.096	(0.651)
TURNOVER	0.136	(0.672)
Industry affiliation		
REG	0.149	(0.343)
TECH	**-0.244**	(0.051)
RETAIL	-0.019	(0.925)
Pseudo R^2		0.202

Table 3: Institutional Lead Plaintiff and Likelihood of the Case being Dismissed (n=1,213)

We examine the impact of having an institutional lead plaintiff on the likelihood of the case being dismissed. Sample used in this analysis is the same 1,213 lawsuits (212 and 1,001 are led by institutional and individual lead plaintiffs, respectively.) in Table 2. The variable of interest is Institutional Lead Plaintiff (D_INLEAD) that equals 1 if the lawsuit is led by institutional investor(s) and 0 otherwise. In the 2SLS regression, the variable CAR3 serves as the instrumental variable in the first stage and the predicted value of D_INLEAD is used in the second stage. Only the results of the second stage are presented. Also included in the regressions are determinants of having an institutional lead plaintiff, which are categorized into six groups: (1) merit and potential damage, (2) importance to institutional investors, (3) susceptibility to lawsuit, (4) prior performance, (5) severity of agency cost, and (6) industry affiliation. LCLASS in the model is the raw value of class period length divided by 100. P values are two-tailed. Intercepts and year dummies are not shown. See Appendix for the variable definitions.

	Probit Regression				2SLS Regression	
	Coeff	P Value	Coeff	P Value	Coeff	P Value
D_INLEAD	**-1.004**	(0.000)			**-1.055**	(0.081)
D_PUBPEN			**-0.672**	(0.000)		
D_UNIPEN			**-0.977**	(0.000)		
D_MUTFUN			-1.037	(0.121)		
D_OTHINS			**-1.681**	(0.000)		
Merit and potential damage						
D_IPO	-0.213	(0.246)	-0.196	(0.291)	-0.214	(0.243)
D_GAAP	**-0.322**	(0.000)	**-0.332**	(0.000)	**-0.318**	(0.002)
D_ACCTFIRM	**-0.465**	(0.026)	**-0.483**	(0.022)	**-0.450**	(0.052)
LCLASS	-0.018	(0.154)	-0.019	(0.137)	-0.018	(0.191)
CAR3	-0.151	(0.384)	-0.143	(0.416)		
LOGPIL	**-0.117**	(0.000)	**-0.118**	(0.000)	**-0.116**	(0.000)
Importance to institutional investors						
LOGMV	**0.189**	(0.000)	**0.181**	(0.000)	**0.187**	(0.000)
INSHARE	**0.546**	(0.005)	**0.559**	(0.004)	**0.567**	(0.005)
Susceptibility to lawsuit						
BETA	0.119	(0.107)	0.119	(0.112)	0.121	(0.102)
SKEWNESS	0.001	(0.969)	-0.000	(0.994)	-0.002	(0.963)
Prior performance						
LAGRET	0.048	(0.410)	0.049	(0.403)	0.051	(0.379)
ROE	0.026	(0.479)	0.026	(0.488)	0.027	(0.479)
BM	0.076	(0.441)	0.072	(0.465)	0.068	(0.489)
Agency cost and information asymmetry						
LEV	0.151	(0.395)	0.167	(0.351)	0.149	(0.404)
TURNOVER	0.098	(0.707)	0.096	(0.715)	0.121	(0.646)
Industry affiliation						
REG	**-0.314**	(0.037)	**-0.320**	(0.035)	**-0.317**	(0.037)
TECH	-0.122	(0.242)	-0.131	(0.212)	-0.122	(0.264)
RETAIL	-0.044	(0.806)	-0.054	(0.760)	-0.053	(0.764)
Pseudo R^2		0.204		0.212		N/A

Table 4: Institutional Lead Plaintiff and Settlement Amounts

We examine the impact of having an institutional lead plaintiff on settlement amounts. The sample used in this analysis consists of 735 lawsuits that were filed during 01/01/1996 – 07/20/2005 and settled up to 06/01/2006, and have non-missing values in dependent variables and all the control variables. Of these 735 lawsuits, 178 and 557 are led by institutional and individual lead plaintiffs respectively. Panel A presents the breakdown of types of lead plaintiffs in this sample. Panel B shows univariate comparisons of variables between lawsuits led by institutional investor(s) and lawsuits led by individuals. The last two columns provide t-tests of mean differences and Wilcoxon rank sum tests of median differences between the individual lead plaintiff and the institutional lead plaintiff columns. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively (one-tailed). Panel C presents the results of multivariate analyses. Two measures of settlements, log of total and cash settlements, are used as the dependent variable. The key variable of interest is Institutional Lead Plaintiff (D_INLEAD), which is a dummy variable that equals 1 if the lawsuit is led by institutional investor(s) and 0 if it has individuals as lead plaintiff. Panel D presents the results of Hazard Model of time to settlement. The dependent variable is the time to settlement, and hazard model regression technique transforms the time to settlement into the hazard rate. Also included in the regressions are determinants of having an institutional lead plaintiff, that are categorized into six groups: (1) merit and potential damage, (2) susceptibility to lawsuit, (3) susceptibility to lawsuit, (4) prior performance, (5) severity of agency cost, and (6) industry affiliation. LCLASS in the model is the raw value of class period length divided by 100. Rank (TOTAL SETTLEMENT) is the percentile ranking of total settlement amount. P values are two-tailed. Intercepts and year dummies are not shown. Please see Appendix for the variable definitions.

Panel A: Breakdown of types of lead plaintiffs (n = 735)

Type of Lead Plaintiff*	# of Lawsuits
Individual lead plaintiff	557
At least one public/union pension fund or mutual fund	111
Public Pension	58
Union Pension	39
Mutual Fund	6
Co-led by public/union pension fund and mutual fund	8
Other categories of institutions:	67
Hedge Fund	15
Non-Financial Firm	11
Trust	5
Brokerage	3
Investment Advisor	3
Corporate Pension Fund	2
Endowment	2
Bank	1
Private Equity/Venture Capital	1
Miscellaneous Investment*	4
Others **	11
Co-led by the above other categories of institutions	9

* Miscellaneous Investment includes investment funds other than those mentioned above.
**Others include institutions (e.g., mortgage brokers, commodity trading houses, etc.) that cannot be classified into any of the above categories.

Table 4: Institutional Lead Plaintiff and Settlement Amounts (Continued)

Panel B: Univariate Comparisons (n=735)

	Individual Lead Plaintiff (557 Lawsuits)		Institutional Lead Plaintiff (178 Lawsuits)		Differences	
	Mean	Median	Mean	Median	Mean	Median
Total settlement (in $ thousand)	9,762	4,250	104,248	15,737	-94,486	-11,487
Cash settlement (in $ thousand)	8,380	4,000	97,712	15,025	-89,332*	-11,025***
Settlement speed	980	920	1043	958	-63	-38***
D_IPO	0.074	0	0.051	0	0.023*	0***
D_GAAP	0.424	0	0.579	1	-0.155***	-1***
D_ACCTFIRM	0.075	0	0.202	0	-0.127***	0**
LCLASS (days)	434.786	336	662.180	534	-227.393***	-198***
CAR3	-0.208	-0.177	-0.248	-0.200	0.039***	0.022***
PIL (in $ thousand)	997,518	166,888	3,777,746	665,320	-2,780,227	-498,431***
LOGMV	5.895	5.838	7.453	7.440	-1.558	-1.602***
INSHARE	0.379	0.384	0.543	0.565	-0.164***	-0.181***
BETA	1.104	1.013	1.189	1.022	-0.086***	-0.009
SKEWNESS	0.281	0.286	-0.312	0.020	0.593***	0.266
LAGRET	-0.038	-0.013	-0.267	-0.213	0.228***	0.199
ROE	-0.280	-0.016	-0.213	-0.003	-0.067***	-0.014
BM	0.452	0.298	0.467	0.353	-0.015***	-0.055***
LEV	0.497	0	0.572	1	-0.075**	0***
TURNOVER	0.819	1	0.824	1	-0.005**	0***
REG	0.101	0	0.169	0	-0.068***	0*
TECH	0.354	0	0.213	0	0.140***	0***
RETAIL	0.052	0	0.079	0	-0.027***	0

Table 4: Institutional Lead Plaintiff and Settlement Amounts (Continued)

Panel C: Multivariate Regressions (n=735)

	Log(Total Settlement)				Log(Cash Settlement)			
	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value
D_INLEAD	**0.598**	(0.000)			**0.623**	(0.000)		
D_PUBPEN			**1.039**	(0.000)			**1.040**	(0.000)
D_UNIPEN			0.336	(0.105)			**0.341**	(0.100)
D_ MUTFUN			0.584	(0.178)			0.488	(0.261)
D_OTHINS			**0.334**	(0.042)			**0.384**	(0.019)
Merit and potential damage								
D_IPO	**0.596**	(0.001)	**0.632**	(0.001)	**0.561**	(0.003)	**0.598**	(0.001)
D_GAAP	**0.212**	(0.033)	**0.189**	(0.056)	**0.196**	(0.049)	**0.174**	(0.079)
D_ACCTFIRM	**0.398**	(0.012)	**0.382**	(0.015)	**0.444**	(0.005)	**0.431**	(0.006)
LCLASS	**0.037**	(0.004)	**0.039**	(0.002)	0.010	(0.351)	0.012	(0.296)
CAR3	**-0.620**	(0.002)	**-0.592**	(0.002)	**-0.626**	(0.001)	**-0.601**	(0.002)
LOGPIL	**0.228**	(0.000)	**0.229**	(0.000)	**0.240**	(0.000)	**0.242**	(0.000)
Importance to institutional investors								
LOGMV	**0.292**	(0.000)	**0.278**	(0.000)	**0.266**	(0.000)	**0.252**	(0.000)
INSHARE	0.055	(0.808)	0.026	(0.910)	0.131	(0.563)	0.110	(0.626)
Susceptibility to Lawsuits								
BETA	-0.070	(0.397)	-0.075	(0.361)	-0.079	(0.339)	-0.084	(0.307)
SKEWNESS	**-0.063**	(0.100)	-0.058	(0.128)	**-0.064**	(0.099)	-0.059	(0.122)
Prior performance								
LAGRET	**-0.110**	(0.072)	**-0.105**	(0.082)	**-0.140**	(0.021)	**-0.136**	(0.024)
ROE	-0.022	(0.621)	-0.019	(0.679)	-0.021	(0.634)	-0.018	(0.688)
BM	-0.155	(0.172)	-0.156	(0.165)	-0.156	(0.170)	-0.156	(0.167)
Severity of agency Cost								
LEV	**0.509**	(0.013)	**0.505**	(0.013)	**0.514**	(0.013)	**0.512**	(0.012)
TURNOVER	**0.524**	(0.082)	**0.535**	(0.073)	0.293	(0.327)	0.300	(0.313)
Industry affiliation								
REG	-0.180	(0.266)	-0.169	(0.297)	-0.168	(0.299)	-0.155	(0.339)
TECH	0.128	(0.277)	0.126	(0.280)	0.088	(0.453)	0.087	(0.458)
RETAIL	-0.138	(0.506)	-0.161	(0.434)	-0.099	(0.633)	-0.117	(0.569)
Adjusted R^2		0.503		0.512		0.489		0.496

Table 4: Institutional Lead Plaintiff and Settlement Amounts (Continued)

Panel D: Hazard Model of Time to Settlement (n=735)

	Hazard Model of Time to Settlement					
	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value
D_INLEAD	-0.081	(0.345)	0.067	(0.516)	0.204	(0.887)
Merit and potential damage						
D_IPO			-0.067	(0.667)	-0.008	(0.965)
D_GAAP			**0.182**	(0.029)	**0.236**	(0.014)
D_ACCTFIRM			-0.161	(0.228)	-0.190	(0.288)
LCLASS			0.000	(0.971)	-0.014	(0.263)
CAR3			**0.401**	(0.017)	**0.517**	(0.011)
LOGPIL			**-0.068**	(0.035)	**-0.063**	(0.076)
Importance to institutional investors						
LOGMV			-0.003	(0.929)	0.029	(0.538)
INSHARE			0.070	(0.711)	0.052	(0.820)
Susceptibility to Lawsuits						
BETA			-0.039	(0.559)	-0.032	(0.679)
SKEWNESS			0.019	(0.567)	0.037	(0.331)
Prior performance						
LAGRET			0.063	(0.189)	0.079	(0.135)
ROE			0.006	(0.865)	0.023	(0.520)
BM			-0.107	(0.243)	-0.054	(0.613)
Severity of agency Cost						
LEV			0.085	(0.599)	0.231	(0.206)
TURNOVER			-0.120	(0.631)	-0.198	(0.482)
Industry affiliation						
REG			-0.096	(0.471)	-0.240	(0.141)
TECH			**0.201**	(0.041)	0.130	(0.227)
RETAIL			-0.154	(0.354)	-0.282	(0.160)
rank (TOTAL SETTLEMENT)			**-0.508**	(0.003)	**-0.666**	(0.001)

Table 4: Institutional Lead Plaintiff and Settlement Amounts (Continued)

Panel D: Hazard Model of Time to Settlement (n=735) (Continued)

D_INLEAD × D_IPO			-0.245	(0.551)
D_INLEAD × D_GAAP			-0.214	(0.296)
D_INLEAD × D_ACCTFIRM			0.189	(0.502)
D_INLEAD × LCLASS			**0.042**	(0.045)
D_INLEAD × CAR3			-0.484	(0.204)
D_INLEAD × LOGPIL			0.008	(0.928)
D_INLEAD × LOGMV			-0.116	(0.212)
D_INLEAD × INSHARE			-0.093	(0.827)
D_INLEAD × BETA			-0.064	(0.667)
D_INLEAD × SKEWNESS			-0.095	(0.208)
D_INLEAD × LAGRET			-0.134	(0.321)
D_INLEAD × ROE			**-0.314**	(0.002)
D_INLEAD × BM			**-0.396**	(0.081)
D_INLEAD × LEV			-0.464	(0.280)
D_INLEAD × TURNOVER			-0.068	(0.916)
D_INLEAD × REG			**0.529**	(0.080)
D_INLEAD × TECH			**0.428**	(0.094)
D_INLEAD × RETAIL			0.301	(0.428)
D_INLEAD × rank (TOTAL SETTLEMENT)			**0.740**	(0.091)
Pseudo R^2	0.000	0.019		0.022

Table 5: Post-Litigation Corporate Governance Changes

We examine the impact of having an institutional lead plaintiff on post-litigation board independence change. The year in which the lawsuit was filed is defined as Event Year 0, and other event years are defined accordingly. All levels and changes of board independence of the lawsuit firms are adjusted for the annual mean levels of a control group that was not sued during our sample period. Panel A reports changes in board independence measures (% of independent directors in the full-board, % of independent audit committee members, and % of firms with a lead director) for lawsuits with individual lead plaintiff and institutional lead plaintiffs, respectively. Changes are measured relative to the levels in Year -1. Panel B reports the result of change analysis in a multivariate regression (Model 6), where the changes in these three board independence measures from Year –1 to year +3 are regressed on a dummy variable of having an institutional lead plaintiff (D_INLEAD). These significant determinants of having an institutional lead plaintiff as examined in Table 2 are included in the regressions in Panel B and Panel C. LCLASS in the model is the raw value of class period length divided by 100. P-values are shown in parentheses. Constant terms are included but not shown. ***, **, and * indicate significance at the 1%, 5% and 10% levels respectively (one-tailed).

Panel A: Univariate Test (n=165)

		Levels		Changes								Levels	
	Lead Plaintiff	Year -1		Year 0	Year +1		Year +2		Year +3			Year +3	
Sample size	Individuals	120		120	120		120		120			120	
	Institutions	45		45	45		45		45			45	
Full-Board Independence	Individuals	3.56%		-0.20%	-0.73%		-1.27%		0.00%			3.56%	
	Institutions	-0.50%		1.71%	6.86%		7.08%		11.70%			11.21%	
	Difference	4.05%	*	-1.91%	-7.59%	***	-8.35%	***	-11.71%	***		-7.65%	***
Audit Committee Independence	Individuals	3.63%		-0.45%	-2.26%		-3.50%		-3.04%			0.59%	
	Institutions	-2.64%		1.38%	4.10%		3.63%		5.97%			3.32%	
	Difference	6.27%	**	-1.82%	-6.36%	***	-7.13%	***	-9.01%	***		-2.73%	
%of Firms with Lead Director	Individuals	3.46%		1.46%	0.65%		0.68%		-0.68%			2.78%	
	Institutions	2.83%		6.42%	10.46%		4.70%		9.47%			12.31%	
	Difference	0.63%		-4.96%	-9.81%	***	-4.02%	***	-10.15%	***		-9.53%	***

Table 5: Post-Litigation Corporate Governance Changes (Continued)

Panel B Regression Analysis – Change analysis (n=155)

	Change in Full Board Independence				**Change in Audit Committee Independence**				**Change in Lead Director**			
	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value	Coeff.	P Value
D_INLEAD	**7.219**	(0.003)			1.426	(0.644)			0.037	(0.593)		
D_PUBPEN			**7.809**	(0.003)			2.749	(0.410)			**0.102**	(0.170)
D_UNIPEN			-1.062	(0.828)			-1.503	(0.798)			-0.115	(0.402)
D_OTHINS			**12.857**	(0.006)			7.106	(0.226)			**-0.178**	(0.169)
Determinants of having an institutional lead plaintiff												
D_GAAP	**3.046**	(0.158)	**3.004**	(0.156)	1.261	(0.645)	0.168	(0.950)	-0.016	(0.796)	-0.042	(0.483)
D_ACCTFIRM	**13.054**	(0.007)	**13.636**	(0.004)	7.124	(0.235)	**8.016**	(0.180)	0.036	(0.799)	0.019	(0.891)
LCLASS	0.104	(0.696)	0.298	(0.249)	**0.514**	(0.128)	**0.610**	(0.067)	**0.017**	(0.027)	**0.017**	(0.022)
CAR3	**-12.919**	(0.014)	**-12.142**	(0.019)	**-13.040**	(0.049)	**-12.114**	(0.062)	**-0.225**	(0.121)	-0.160	(0.259)
LOGPIL	**-0.334**	(0.058)	**-0.346**	(0.047)	-0.260	(0.247)	-0.260	(0.238)	0.007	(0.201)	**0.010**	(0.047)
LOGMV	**1.229**	(0.082)	**1.717**	(0.016)	**3.337**	(0.000)	**3.222**	(0.000)	**0.067**	(0.001)	**0.074**	(0.000)
INSHARE	**9.182**	(0.100)	**10.369**	(0.063)	1.554	(0.829)	0.450	(0.950)	**-0.411**	(0.011)	**-0.500**	(0.002)
TECH	-1.434	(0.515)	-1.095	(0.616)	**-4.446**	(0.118)	-3.303	(0.241)	-0.014	(0.823)	-0.012	(0.845)
Adjusted R^2		0.244		0.272		0.180		0.180		0.149		0.208

Figure 1
Lawsuits with Institutional Lead Plaintiff

This graph shows the distribution of the number and the percentage of lawsuits led by Institutional Investors. The lawsuit sample includes 1811 lawsuits that were filed during 01/01/1996 – 07/20/2005 and were resolved (either dismissed or settled) up to 06/01/2006, without the imposition of any further data availability requirements.

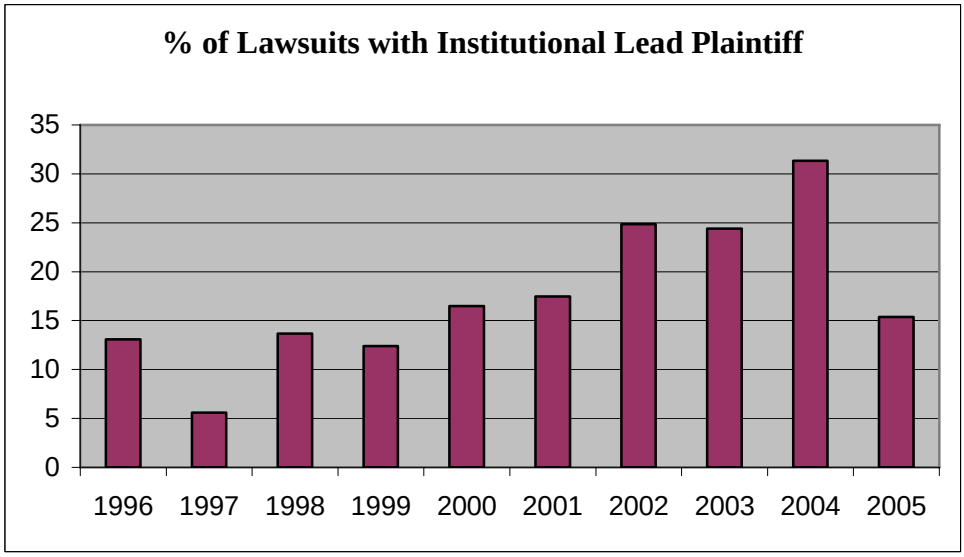
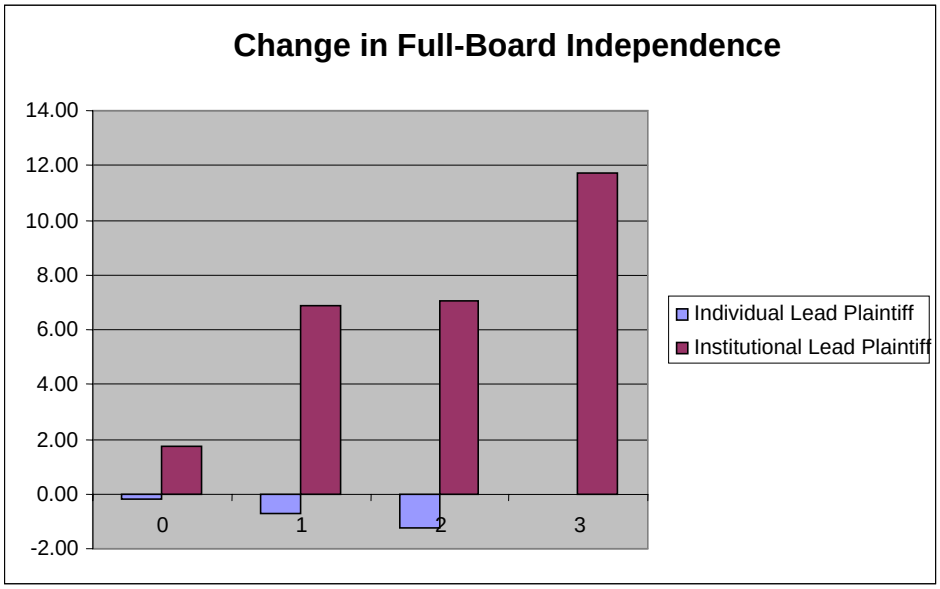


Figure 2
Post-Litigation Corporate Governance Changes

This graph shows the mean changes in board independence (measured as full-board independence, audit committee independence, and whether there is a lead director) for lawsuits with individual lead plaintiff and lawsuits with institutional lead plaintiffs, respectively. Sample here include 120 lawsuits with individual lead plaintiff and 45 lawsuits with institutional lead plaintiffs. The year in which the lawsuit was filed is defined as Event Year 0, and other event years are defined accordingly. Changes are measured relative to the levels in Year -1. The levels of board independence of the lawsuit firms are adjusted for the mean levels of a control group that was not sued during our sample period.



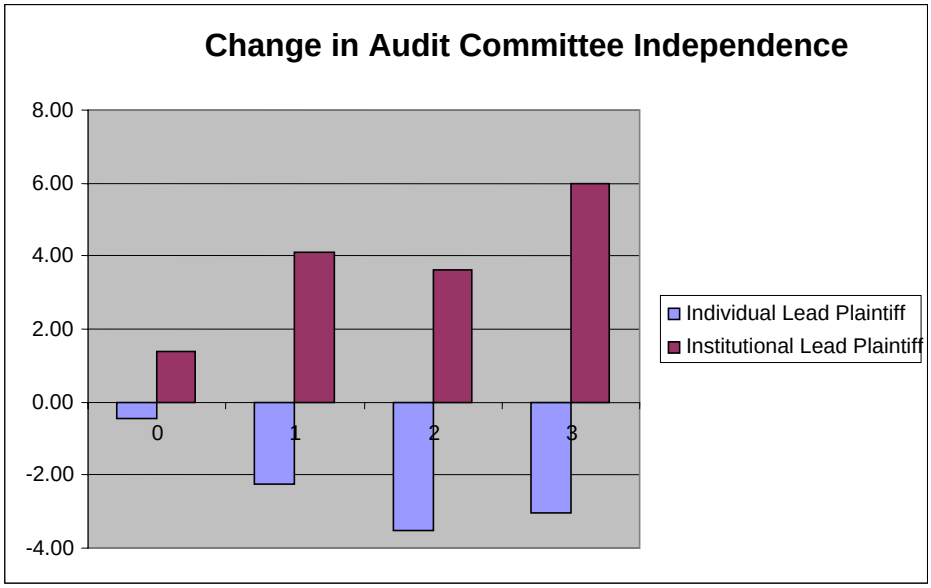


Figure 2
Post-Litigation Corporate Governance Changes (Continued)