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Essays on Institutional Investors and Securities Class Actions

기관투자자와 주주집단소송에 관한 연구

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서울대학교 대학원

경영학과 경영학 전공

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이 논문을 경영학 박사학위논문으로 제출함

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Abstract

Essays on Institutional Investors and Securities Class Actions

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This dissertation is comprised of two essays on institutional investors and securities class actions. The first essay, entitled "*Institutional Investors' Portfolio Adjustment after Shareholder Litigation*," examines how institutional investors change their investment behavior toward non-litigated investees after experiencing litigation. Prior studies report that institutional investors play a key role in securities class actions by monitoring the court process, inducing favorable litigation outcomes for plaintiffs and improving governance in the litigated firms. I extend the prior studies by focusing on changes in the investment strategy of institutional investors after litigation. Using a sample of 102,234 institution-quarter observations in the U.S. over the 2006–2017 period, I document the following. First, institutional investors tilt their portfolios toward investees with higher financial reporting quality after experiencing litigation. Their portfolio adjustments following litigation are interpreted as an attempt to reduce ex ante litigation risk at the portfolio level. Second, the portfolio adjustments are less pronounced when institutional investors have a shorter investment horizon or when they stronger incentive to directly monitor investees' agency conflicts. These results suggest that the portfolio

adjustments based on financial reporting quality are less important when institutional investors heavily rely on private information in their short-term trading or when they benefit more from direct monitoring. Overall, this study provides evidence of the externalities of securities class actions in an investor's portfolio and deepens the understanding of the economic consequences of securities class actions.

The second essay, entitled "*One Leaves, Another Arrives: The Behavior of Hedge Funds around Shareholder Litigation*," investigates the behavior of hedge funds around shareholder litigation, focusing on their activist and trading strategies. Despite their key role in promoting effective governance, hedge funds have been discredited in the litigation setting. I attempt to reconcile this discrepancy by examining the economic decisions of hedge funds in the face of shareholder litigation. Using extensive U.S. data on securities class actions and hedge funds' Schedule 13D filings during the 2001–2019 period, I document the following. Sued firms are more likely than control firms to be subject to hedge fund intervention following litigation. Compared with sued firms without such intervention, sued firms targeted by hedge funds improve their corporate governance and performance more significantly after litigation, consistent with hedge funds influencing the corporate actions of sued firms via voice. Further analysis reveals that such intervention is primarily driven by hedge funds that initiate their investments in a sued firm after litigation, but not by those that already held stakes in the sued firm before litigation. Hedge funds who held shares of the sued firm before litigation are more likely than other types of institutional investors to preemptively dispose of their stakes in the sued firm before litigation begins. This evidence is consistent with informed hedge funds deploying an exit strategy to deal with agency conflicts. Finally, hedge funds with more litigation experience are more likely to intervene in the management of other non-litigated firms in their investment portfolios. I interpret this result as evidence of the externalities of litigation on the behavior of hedge funds. In summary, this study provides a comprehensive understanding of

the voice and exit strategies that hedge funds undertake around shareholder litigation.

Keywords: institutional investors; securities class actions; agency conflicts; financial reporting quality; portfolio adjustment; hedge funds; activists; shareholder activism; voice; exit; corporate governance; investor learning

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Essay 2. One Leaves, Another Arrives: The Behavior of Hedge Funds around Shareholder Litigation

Essay 1

Institutional Investors' Portfolio Adjustment after Shareholder Litigation

I. Introduction

Securities class actions help to mitigate agency conflicts in the capital market (McTier and Wald 2011; Erickson 2017; Bourveau, Lou, and Wang 2018). Institutional investors (hereafter "institutions"), with sufficient incentives and capabilities to monitor class counsel,[1] play an important role in enhancing the effectiveness of securities class actions and contribute to the improvement of governance in the defendant firms (hereafter "defendants") (e.g., Johnson 1997; Cox and Thomas 2006; Thomas 2008; Cheng, Huang, Li, and Lobo 2010; Perino 2012). However, prior studies pay little attention to the extensive portfolio holdings of institutions involved in litigation, presenting only a partial picture of the economic consequences of class actions for the capital market. This study explores this issue. Specifically, it investigates whether and how institutions adjust their investment weights in favor of firms with high-quality financial reporting among the *non-litigated* investees in their portfolios.

Building on prior evidence that management reporting is a central issue in class actions (Kim and Skinner 2012)[2] and that financial reporting quality is a

[1] Class counsel refers to the lawyers or law firms that serve as the attorneys for the class members in a class action. In the context of class actions in my study, class members are a group of individuals who incur investment losses due to alleged misrepresentations by the defendant firm in a class action.

[2] Managers are sued if they allegedly violate disclosure regulations under federal securities laws. Most securities actions are filed pursuant to Section 10(b) of the 1934 Securities Exchange Act and the SEC Rule 10b-5 (Huang, Hui, and Li 2019). The SEC Rule 10(b)-5 explicitly states that it is unlawful to "make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made … not misleading" Lawsuits brought pursuant to violation of the SEC Rule 10(b)-5 are of interest to most research dealing with financial reporting and disclosure issues, and account for about 89% of all class actions during the 1996–2009 period (Kim and Skinner 2012).

primary determinant of litigation (Palmrose and Scholz 2004; Gong, Louis, and Sun 2008; Lev, Ryan, and Wu 2008; Ettredge, Huang, and Zhang 2016), I focus on an institution's reliance on financial reporting quality. If institutions, after experiencing litigation, consider it more important to prevent potential agency conflicts and future litigation, they will pay more attention to the quality of financial reporting in their investment decisions. Thus, I examine whether and when institutions increase their investment weights in investees with high financial reporting quality in their portfolio management after experiencing litigation.

I expect institutions with litigation experience to place greater emphasis on preventing potential agency conflicts ex ante in their portfolio selections, rather than on pursuing class actions ex post to recoup their losses. Although class actions are beneficial to the capital market, they are a last resort for investor protection due to their non-trivial costs. For example, these costs include attorney fees, the time and effort spent in the litigation process (Cheng et al. 2010), and uncertainty about court outcomes that is caused by a misalignment of interests between shareholder plaintiffs and class counsel during the process (e.g., Macey and Miller 1991; Johnson 1997). If shareholder plaintiffs continue to hold stakes in the defendants, they will bear these costs (Cox and Thomas 2009). As institutions generally have large stakes in the defendants, they are constrained to dispose of their holdings immediately after litigation (Coffee 1991; Cheng et al. 2010) and therefore inevitably bear the ultimate costs of class actions, regardless of the court outcomes. Accordingly, institutions with a longer investment horizon (hereafter "long-term institutions") are known to rely more on internal governance, than on ex post

shareholder litigation as a mechanism that disciplines corporate managers (Pukthuanthong, Turtle, Walker, and Wang 2017).

In this study, I investigate whether institutions tilt their portfolios toward firms with high financial reporting quality after experiencing litigation. Given the significant costs of influencing management decisions (e.g., Chen, Harford, and Li 2007), institutions may find it cost-effective to devote greater effort to selecting high-quality investees than to becoming involved in management decisions. Specifically, since high-quality financial reporting not only facilitates external monitoring by the capital market (Huang and Zhang 2012) but also enables institutions to be better prepared to sell their stocks in a timely manner before incurring losses due to agency conflicts (Downar, Ernstberger, and Link 2018), institutions are likely to selectively invest in firms with high financial reporting quality to reduce potential agency conflicts at the portfolio level. However, to the extent that firm-specific gains and losses arising from litigation can be diversified at the portfolio level, the wealth effect of litigation for institutions may be limited and not affect their behavior (e.g., Easterbrook and Fischel 1982; Cox and Thomas 2009; Amiram et al. 2018).

In addition, I explore the factors that moderate investors' selection of investees with high financial reporting quality after shareholder litigation. First, I expect that any increased tendency, if any, to select investees with higher financial reporting quality will be less pronounced for institutions with a shorter investment horizon (henceforth "short-term institutions"). Short-term institutions often trade on private information to exploit their information advantage over outsiders and

maximize private benefits (Ali, Trombley, Durtschi, and Lev 2004; Ke and Petroni 2004; Ke and Ramalingegowda 2005; Yan and Zhang 2009). Their short-term profits may be reduced when they select firms with high-quality financial reporting, because this selection levels the playing field among investors (Bushee 1998, 2001). Therefore, they may be unwilling to systematically tilt their portfolios toward these firms.

Second, I expect the increased reliance, if any, on the selection of investees with high financial reporting quality to be less pronounced for institutions that have sufficient incentive to directly monitor investees than for those without such incentive. Institutions engage in direct monitoring rather than in trading to minimize potential agency conflicts when the net benefits of monitoring outweigh those of trading (Shleifer and Vishny 1986; Kahn and Winton 1998; Maug 1998). When institutions have greater incentive to monitor investees, e.g., when they have large investment stakes or concentrated portfolios, they do not necessarily rely on selecting investees with high-quality financial reporting to minimize agency conflicts, because they can reduce agency conflicts ex post through direct monitoring.

To test the above predictions, I perform empirical analyses using a sample of 102,234 institution-quarter observations from 2006 to 2017, based on 13F filings of institutions obtained from WhaleWisdom. I obtain data on shareholder litigation from the Securities Class Action Clearinghouse (SCAC) at Stanford Law School. Using these data, I define an institution's litigation experience as the number of securities class actions that are filed against firms in the institution's portfolio over

the previous three years scaled by the average number of investees in the portfolio during the same period. I measure the financial reporting quality of an institution's portfolio in a given quarter by aggregating either the accrual estimation error or the level of discretionary accruals of individual investees in the portfolio, following prior studies (Ali, Chen, Yao, and Yu 2008; Bushee, Goodman, and Sunder 2019). In this process, I exclude all defendants (i.e., *litigated* investees) from the institution's portfolio to eliminate any effect from the institution's influence over defendants and focus only on the externalities of shareholder litigation, i.e., the effects of shareholder litigation on the institution's behavior toward *non-litigated* investees in the portfolio.

My empirical analyses reveal the following results. First, I find that the average financial reporting quality of an institution's portfolio increases after the institution experiences litigation. I interpret this result as evidence that institutions adjust their portfolios to reduce agency conflicts ex ante at the portfolio level after re-assessing the negative consequences of litigation. Second, portfolio adjustments in favor of investees with high financial reporting quality are less pronounced for short-term institutions than for long-term ones, which is consistent with short-term-oriented investors taking advantage of asymmetric information to maximize profits. Finally, the tendency of institutions to select firms with high financial reporting quality after experiencing litigation weakens when institutions are better able to directly monitor their investees, which is consistent with the substitutive relation between portfolio selection and active monitoring.

These results are robust to using change specifications, which substantiates

the causal relationship between institutions' litigation experience and institutions' subsequent portfolio adjustments. The results remain unchanged when I measure an institution's litigation experience using the residual frequency of securities class actions that is orthogonal to the institution's portfolio size and multiple blockholdings or when I use accounting restatements as a proxy for low financial reporting quality. I also perform several additional analyses that complement the main results. Most importantly, I demonstrate that after experiencing litigation, institutions can more successfully avoid being involved in litigation in the future. This evidence sheds light on the rational learning of institutions as an underlying mechanism driving my results. I also find that an institution's litigation experience has a long-term effect on the institution's portfolio adjustments: it lasts up to 3.5 years after litigation, although this effect diminishes over time. In addition, I show that the main results regarding institutions' portfolio adjustments after litigation are more pronounced for meritorious litigation than for frivolous litigation, and that institution-firm-quarter level analysis consistently supports my results. Finally, I discover that my inferences continue to hold in an extended analysis of the *quantity* of voluntary disclosure provided via 8–K filings.

My study contributes to the literature on securities class actions by providing a comprehensive understanding of the economic consequences of class actions. By highlighting the externalities of litigation in the capital market, this study extends prior studies on shareholder litigation that mainly focus on the behavior of defendants (e.g., Rogers and Van Buskirk 2009). The results of this study suggest that shareholder litigation plays a socially beneficial role by changing

the investment strategy of institutions and thus adds to the ongoing debate on the efficacy of litigation (e.g., Macey and Miller 1991; Romano 1991; Johnson 1997). In addition, by showing that institutions drive such positive externalities, my study enriches the literature on the role of institutions in shareholder litigation (Cheng et al. 2010; Perino 2012).

The study also contributes to the literature on financial reporting quality by identifying the specific circumstances in which financial reporting becomes an important mechanism for preventing agency conflicts, an issue that has been underexplored in the literature. Prior research shows that high-quality financial reporting contributes to the resolution of agency conflicts (e.g., Armstrong, Guay, and Weber 2010), and institutions encourage high-quality financial reporting of their investees (Velury and Jenkins 2006; Dou, Hope, Thomas, and Zou 2016). However, it is not clear under what circumstances institutions rely more on the financial reporting quality of investees in their asset allocation decisions. By showing that long-term investors and investors with relatively weak monitoring incentives place a higher value on financial reporting quality, this study improves our understanding of the heterogeneity of institutions (e.g., Bushee and Noe 2000; Bushee and Goodman 2007; Yan and Zhang 2009; Blouin, Bushee, and Sikes 2017; Kempf, Manconi, and Spalt 2017).

Lastly, this study contributes to the vast literature on the learning behavior of economic agents (e.g., Chen, Francis, and Jiang 2005; Markov and Tamayo 2006; Seru, Shumway, and Stoffman 2010; Foucault and Fresard 2014; Lennox and Li 2014; Choi, Kahraman, and Mukherjee 2016). To the extent that sophistication is a

precondition for learning (Chen et al. 2005), institutions, characterized as more sophisticated than individual investors (Sias and Starks 1997; Walther 1997), are more likely to exhibit efficient learning behavior. In this sense, this study sheds light on the learning behavior of institutions and demonstrates that institutions change their behavior to reduce agency conflicts ex ante after suffering wealth damage caused by agency conflicts revealed via litigation.

The rest of this article is organized as follows. Section II discusses the related literature and develops the hypotheses. Section III presents the research design. Sections IV and V report the results of testing hypotheses and performing additional analyses, respectively. Section VI concludes the study.

II. Literature Review and Hypothesis Development

2.1. Theoretical framework

2.1.1. Shareholder litigation and agency problems

A securities class action is one of the governance mechanisms that can effectively discipline corporate managers so that managers' interests are aligned with shareholders' (e.g., Romano 1991; Cheng et al. 2010; Erickson 2017). The main functions of a class action include regulating behavior, resolving conflicts, and recovering damage to shareholders (Habib, Jiang, Bhuiyan, and Islam 2014). As such, class actions not only protect shareholders from potential managerial misconduct leading to agency conflicts but also provide them with an ex post settling-up mechanism. Consistent with this view, prior studies empirically find that

through securities class actions, investors can monitor firms and improve corporate governance, which in turn reduces agency problems in their investees (Cheng et al. 2010; McTier and Wald 2011).

However, shareholders incur significant costs in shareholder litigation, which often undermines the efficacy of shareholder litigation itself (Macey and Miller 1991; Romano 1991; Johnson 1997). For example, shareholder plaintiffs incur various litigation costs such as attorney fees and their time and effort required to achieve desirable litigation outcomes (Cheng et al. 2010). More importantly, shareholder litigation comes with its own agency costs (Erickson 2017). Since class members' monitoring of class counsel is ineffective (Macey and Miller 1991), class counsel may pursue her own interest rather than act in the best interests of class members. This conflict of interest often leads to unsatisfactory litigation outcomes regarding the two main objectives of class actions: deterrence and compensation (Johnson 1997; Cox and Thomas 2009).[3] Such litigation costs are particularly detrimental to shareholders who probably continue to hold the defendant's stocks even after the class action is filed (Coffee 1991; Cheng et al. 2010), because the ultimate cost of the class action is borne by the defendant (Cox and Thomas 2009).

[3] The deterrence goal is to "sanction violators and deter future misconduct," and the compensation goal is to "obtain compensation for wronged investors who have suffered losses at the hands of corporate wrongdoers" (Johnson 1997, 155). As long as their compensation is contingent on the money recovered from lawsuits, plaintiff lawyers have weak incentive to promote effective governance that would help address the fundamental causes of law violations (Johnson 1997). In fact, their incentive can work against the deterrence goal, because deterring misconduct will reduce the number of legal cases and, consequently, their income in the future. Furthermore, the self-interested decisions of class counsel are likely to lead to suboptimal litigation outcomes with insufficient compensation for class members (Macey and Miller 1991).

Therefore, the above discussion leads to a premise that shareholders regard it as reasonable to prevent managerial misconduct ex ante, rather than to actually bring class actions against managers and firms to recoup their losses ex post. In line with this view, institutions with a long-term investment horizon tend to monitor firms through internal corporate governance mechanisms, rather than through ex post shareholder litigation (Pukthuanthong et al. 2017).

2.1.2. Shareholder litigation and management reporting

Managers' reporting behavior is one of the main interests of securities class actions. Under federal securities laws, securities class actions are typically brought against managers who allegedly violate disclosure regulations (Helland 2006).[4] Stated differently, managers are required to provide information in accordance with the disclosure rules to avoid being sued in class actions. Corporate theory suggests that agency conflicts are likely to arise in the presence of severe information asymmetry between corporate managers and shareholders (Jensen and Meckling 1976). Therefore, securities class actions can alleviate agency concerns to the extent that they effectively discipline managers' reporting practices (Bourveau et al. 2018; Hopkins 2018).

Supporting this view, prior studies identify financial reporting as one of the main determinants of shareholder litigation (Habib et al. 2014). For example, firms

[4] Specifically, any person who purchases a firm's securities during the class period when misrepresentation is made by corporate managers can claim compensation for investment losses on these securities.

are more likely to be sued when they report higher levels of discretionary accruals (Gong, Louis, and Sun 2008) or restate their financial statements (Palmrose and Scholz 2004; Lev et al. 2008). Similarly, firms with conservative financial reporting are less likely to be sued (Ettredge et al. 2016). Taken together, the above studies suggest that high-quality financial reporting alleviates agency conflicts faced by shareholders, reducing the likelihood of shareholder litigation.

2.1.3. Institutions in the context of shareholder litigation

Extending the above discussions, I now focus on institutions that purportedly play an important role in shareholder litigation (e.g., Johnson 1997; Cox and Thomas 2009; Cheng et al. 2010; Pukthuanthong et al. 2017; Erickson 2017). Since the enactment of the Private Securities Litigation Reform Act (PSLRA) in 1995, institutions, especially public pension funds, have been encouraged to serve as lead plaintiffs to actively monitor their attorneys in the court process (Choi, Fisch, and Pritchard 2005; Silver and Dinkin 2008). As intended by the PSLRA, several studies report that shareholder litigation with institutions as lead plaintiffs results in more favorable litigation outcomes for plaintiffs in terms of settlements, attorney fees, and subsequent governance improvement (Cox and Thomas 2006; Cox, Thomas, and Bai 2008; Cheng et al. 2010; Perino 2012).

Despite ample evidence of the important role of institutions in shareholder litigation, only limited attention has been paid to the fundamental impacts of shareholder litigation on the subsequent behavior of institutions that hold large stakes in numerous firms in the capital market. Although some studies find that

institutions contribute to improved corporate governance after shareholder litigation (e.g., Cox and Thomas 2006; Cheng et al. 2010), their findings only apply to litigated firms, but not to other non-litigated firms in the institutions' portfolios. Thus, these prior findings provide us, at best, with a partial picture of institutional behavior following shareholder litigation.

2.2. Hypothesis development

2.2.1. Institutions' litigation experience and portfolio management

Building on prior research on the role of financial reporting quality in preventing shareholder litigation (e.g., Palmrose and Scholz 2004; Gong et al. 2008; Lev et al. 2008; Ettredge et al. 2016), I investigate whether institutions increase their investment weights in investees with high financial reporting quality after experiencing shareholder litigation.

As investors incur significant losses during shareholder litigation (Gande and Lewis 2009; Rogers and Van Buskirk 2009), their perceived agency costs may increase following litigation. Accordingly, investors may be more concerned about the adverse consequences of agency conflicts in their investees. Furthermore, the literature on investors' learning behavior (Chen et al. 2005; Seru et al. 2010; Choi et al. 2016) implies that after experiencing litigation, institutions may adjust their behavior to reduce potential agency conflicts at the portfolio level.

I argue that high-quality financial reporting helps institutions to mitigate agency conflicts at the portfolio level in a cost-effective manner. Prior studies

suggest that an institution needs to choose between monitoring versus trading (Shleifer and Vishny 1986; Kahn and Winton 1998; Maug 1998). This choice depends on the benefits and costs of monitoring vis-à-vis trading, and the net benefits of monitoring are limited in the presence of a diversified ownership structure (Chen et al. 2007). In this case, an institution may prefer firms with high financial reporting quality. High-quality financial reporting allows a group of investors as a whole to gather firm-specific information at a low cost and use this information for their monitoring activities (Bushman and Smith 2001; Lambert 2001), which in turn facilitates external monitoring of the capital market (Huang and Zhang 2012). Furthermore, in terms of trading behavior, high-quality financial reporting enables an institution to dispose of its shareholdings in a timely manner and thus limit potential losses arising from self-interested management actions (Downar et al. 2018). Taken together, by selectively investing in firms with high financial reporting quality, an institution can reduce its agency costs at the portfolio level without incurring high costs of directly intervening in management decisions.

Nevertheless, contrary to the above argument, institutions may not change their behavior after experiencing litigation. According to the circularity problem of litigation (e.g., Easterbrook and Fischel 1982; Cox and Thomas 2009; Amiram et al. 2018), the wealth effect of litigation may be limited for institutions. Institutions can realize gains or losses due to the wrongdoing of managers that causes litigation, and such firm-specific gains and losses,[5] which occur randomly, would amount to

[5] For example, if a manager artificially inflates the stock price by disclosing materially misleading information, investors can realize gains (losses) by selling their shares at the inflated (corrected)

zero at the portfolio level. In this case, it is ambiguous how institutions alter their behavior after litigation.

Therefore, whether an institution selectively invests in firms with high financial reporting quality after experiencing shareholder litigation is an empirical question. Based on the two contrasting predictions discussed above, my first hypothesis is stated in the null form as follows:

> ***H1:*** *Institutions' reliance on the financial reporting quality of non-litigated investees in portfolio management remains unchanged after institutions experienced shareholder litigation.*

2.2.2. Institutions' investment horizon and response to litigation experience

Next, I examine the investment horizon as a factor that moderates institutions' response to shareholder litigation. This examination is based on the reasoning that the investment horizon is associated with institutions' reliance on financial reporting quality in investment decisions, and thus with the net benefits of portfolio adjustments based on financial reporting quality.

Financial reporting quality may not be a primary factor in the investment decisions of short-term institutions. Short-term institutions are well informed and

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price before (after) such misrepresentation is revealed to the public. If sellers realize gains due to the investee's misrepresentation, their gains may be offset when they fall victim to other investees' misrepresentation. In addition, if buyers hold shares at the time of settlement, they may end up paying indirectly, because defendants bear the settlement costs. Therefore, securities class actions can be seen as having little wealth effect for investors who hold diversified portfolios over the lifetime investment horizon. This phenomenon hampers the compensatory mission of class actions, which is called the circularity problem (Amiram et al. 2018).

trade actively to exploit their information advantage (Ali et al. 2004; Ke and Petroni 2004; Ke and Ramalingegowda 2005; Yan and Zhang 2009; Maffett 2012). In addition, although high-quality financial reporting facilitates external monitoring of the capital market (Huang and Zhang 2012), short-term institutions may not be interested in reducing agency costs the gains of which are shared by all shareholders (e.g., Bushee 1998). Instead, they trade to maximize private gain using their private information (Chen et al. 2007). As such, financial reporting quality, as a mechanism preventing agency conflicts, may be of little value to them.

In addition, the net benefits of portfolio adjustments oriented toward high-quality financial reporting may be lower for short-term institutions than for long-term ones. Although the costs of portfolio adjustments are non-trivial (Keim and Madhavan 1997), the benefits materialize over a long period of time because it takes time for investors to realize sufficient profits from reduced agency conflicts and management effort to maximize firm value (Chen et al. 2007). Moreover, high-quality financial reporting may crowd the information advantage of short-term investors (Maffett 2012), ultimately reducing their investment profits. Accordingly, short-term institutions may have little incentive to tilt their portfolios toward firms with high reporting quality even after experiencing litigation.

Summarizing the above discussion, I expect that short-term institutions will be less likely than long-term institutions to tilt their portfolios toward firms with high financial reporting quality after experiencing shareholder litigation. This expectation leads to my second hypothesis as follows:

H2: *The increased reliance, if any, on the financial reporting quality of non-*

litigated investees in portfolio management following litigation experience is less pronounced for short-term institutions than for long-term institutions.

2.2.3. Institutions' monitoring incentive and response to litigation experience

Finally, I focus on an institution's monitoring incentive as another factor that moderates institutions' response to shareholder litigation. In the above discussion, I argue that institutions prefer firms with high financial reporting quality to reduce agency conflicts at the portfolio level. If this preference is driven by agency concerns, I expect that the importance of financial reporting quality would decrease if an institution has sufficient monitoring incentive to intervene directly in management decisions.

Prior studies highlight a free riding problem in monitoring activities (Bethel, Liebeskind, and Opler 1998; Denis and Serrano 1996; Grossman and Hart 1980; Shivdasani 1993; Shleifer and Vishny 1986). An activist shareholder bears the full costs of monitoring, but shares the benefits of monitoring with other shareholders of the firm. In this framework, the large institutional stake in a firm not only increases the benefits of monitoring, but also enables the investor to enjoy economies of scale in monitoring activities and reduce the costs of monitoring, which in turn leads to more effective monitoring (Chen et al. 2007; Edmans and Manso 2011).

In addition to the institutional stake in a firm, the structure of the investor's portfolio is important in shaping the incentive for and effectiveness of monitoring.

Due to limited resources for monitoring activities, an institution should optimally allocate its resources across the numerous investees in its portfolio (e.g., Dharwadkar, Goranova, Brandes, and Khan 2008; Fich, Harford, and Tran 2015). If its portfolio consists of more diversified holdings, an institution faces greater costs of monitoring its investees. As a result, the costs of monitoring may outweigh the benefits, reducing the effectiveness of monitoring (Schmidt and Fahlenbrach 2017). Thus, an institution may find it cost-effective to tilt its portfolio toward investees with high financial reporting quality rather than to exert efforts to directly monitor management. On the contrary, an institution can greatly benefit from its monitoring activities in a highly concentrated portfolio where its funds are invested in a small number of investees.[6] In this case, institutions may choose to directly monitor their investees, reducing the importance of financial reporting quality as a tool to tackle agency costs at the portfolio level.

Taken together, I predict that the increased tendency of institutions to select firms with high financial reporting quality following litigation experience will be attenuated when the institutions' monitoring incentive is strong, i.e., when they have large stakes in their investees or have concentrated portfolios. This prediction leads to my final hypothesis as follows:

> ***H3:*** *The increased reliance, if any, on the financial reporting quality of non-litigated investees in portfolio management following litigation experience is less pronounced for institutions with sufficient monitoring incentives than*

[6] Consistent with this view, Fich et al. (2015) report that institutional monitoring is most effective when the investee firm represents a significant fraction of the funds in the portfolio.

for those without such incentives.

III. Research Design

3.1. Variable measurement

3.1.1. Institution's experience of shareholder litigation

The variable of interest is designed to measure the frequency with which an institution has faced shareholder litigation against its investees. For each month and each institution, I count the number of securities class action lawsuits brought against an institution's investees during the previous three years. When counting this number, I require an institution to have ownership in the sued firm during the class period of the lawsuit.[7] As an institution with a larger number of investees is more likely to experience class action lawsuits against its investees, I control for the three-year average number of investees in the institution's portfolio. Therefore, I define an institution's experience of shareholder litigation as [the number of securities class action lawsuits brought against the institution's investee firms over the previous three years] scaled by [the average number of investees in the portfolio measured over the previous three years] and denote it as *Litigation*.[8]

[Insert Figure 1 about here]

[7] This requirement allows me to effectively identify institutions that have presumably been damaged due to the cause of a class action lawsuit. Put differently, if institutions never had ownership during the class period, their investments would not be damaged enough to cause significant changes in their behavior afterwards.

[8] Alternatively, I construct a value-weighted measure of an institution's litigation experience by taking into account the average dollar amounts invested by an institution in litigated investees during class periods, and confirm that my results are robust to using this measure (untabulated).

3.1.2. Financial reporting quality of investees in the portfolio

I measure the average financial reporting quality of an institution's investees in the portfolio following prior studies (Ali et al. 2008; Bushee et al. 2019). I first measure an investee's financial reporting quality and calculate its quarterly decile rank (*RFRQ*), ranging from 1 to 10, from the Compustat/CRSP universe of firms with non-missing data. I then aggregate the financial reporting quality of all investees at the portfolio level (*FRQ_P*) by calculating the weighted average of *RFRQ* across all investees in the portfolio.[9] A higher value of *FRQ_P* indicates the extent to which an institution's portfolio is tilted toward firms with lower financial reporting quality.

The financial reporting quality of an investee is measured using two proxies: the quality of accrual estimation and the absolute value of discretionary accruals. First, to measure the quality of accrual estimation, I estimate Equation (1), suggested by Dechow and Dichev (2002) and modified by McNichols (2002), for each industry-year using annual financial data:

$$\Delta WCA_{i,t} = b_0 + b_1 OCF_{i,t-1} + b_2 OCF_{i,t} + b_3 OCF_{i,t+1} + b_4 \Delta REV_{i,t} + b_5 PPE_{i,t} + e_{i,t}, \quad (1)$$

where for firm i and year t, ΔWCA is the annual change in working capital; OCF is cash flows from operating activities; ΔREV is the annual change in revenue; and PPE is gross property, plant, and equipment. All variables are scaled by average

[9] I use the fraction of funds invested in a given investee in the entire portfolio as the weight when calculating the weighted average. This approach also applies to calculating the weighted average of other portfolio characteristics of the institution.

total assets. I require at least ten observations for each industry-year. After calculating the standard deviation of the residuals estimated from Equation (1) for each firm from year *t*–4 to year *t*, I define the standard deviation calculated at the previous year (i.e., the standard deviation of the residuals from year *t*–5 to year *t*–1) as an inverse proxy for the financial reporting quality (*FRQ1*) of an investee in a given quarter *t* of the current year.[10] A higher value of *FRQ1* indicates a greater error in accrual estimation, and therefore lower financial reporting quality.

To measure the discretionary portion of accruals, I estimate Equation (2), suggested by Collins, Pungaliya, and Vijh (2017), for each industry-year using quarterly financial data:

$$ACC_{i,t} = b_0 + b_1 Q1_{i,t} + b_2 Q2_{i,t} + b_3 Q3_{i,t} + b_4 Q4_{i,t} + b_5(\Delta REV_{i,t} - \Delta REC_{i,t}) + b_6 ACC_{i,t-4} + \sum_k b_{7,k} ROAD_{k,i,t} + \sum_k b_{8,k} SGD_{k,i,t} + \sum_k b_{9,k} MBD_{k,i,t-1} + \varepsilon_{i,t}, \quad (2)$$

where for firm *i* and quarter *t*, *Q1* to *Q4* are indicator variables of fiscal quarters; *ACC* is total accruals; Δ*REV* is the quarterly change in revenue; Δ*REC* is the quarterly change in accounts receivable. *ACC*, Δ*REV*, and Δ*REC* are scaled by lagged total assets. In addition, indicator variables for quintile groups based on return on assets (*ROAD*), sales growth (*SGD*), and market-to-book ratio (*MBD*) are included to control for non-linear relationships between these firm characteristics

[10] Since I am interested in how institutions manage their portfolios in quarter *t*, I use an investee's financial reporting quality measured for the previous fiscal year to ensure that financial reporting quality is observable in quarter *t* when investors adjust their portfolios. For example, when examining the financial reporting quality of an investee in the portfolio at the end of each quarter in 2008, I use *FRQ1* measured for fiscal year 2007.

and accruals.[11] For this estimation, I require at least 20 observations for each industry-year. After estimating the residual term, which represents discretionary accruals, from Equation (2), I define the average absolute value of discretionary accruals from quarter *t*–4 to quarter *t*–1 as another inverse proxy for the financial reporting quality (*FRQ2*) of an investee firm in a given quarter *t*.[12] A higher value of *FRQ2* indicates a greater deviation from the normal level of accruals, and therefore lower financial reporting quality.

3.2. Model specifications

My multivariate analyses are based primarily on Equation (3):

$$\begin{aligned} FRQ\_P_{i,t} = {} & \beta_0 + \beta_1 Litigation_{i,t} + \beta_2 BM\_P_{i,t} + \beta_3 PastRet\_P_{i,t} + \beta_4 Size\_P_{i,t} \\ & + \beta_5 Beta\_P_{i,t} + \beta_6 IdioRisk\_P_{i,t} + \beta_7 Turnover\_P_{i,t} + \beta_8 NumInst\_P_{i,t} \\ & + \beta_9 SUE\_P_{i,t} + \beta_{10} Accrual\_P_{i,t} + \beta_{11} Age\_P_{i,t} + \beta_{12} Loss\_P_{i,t} \\ & + \beta_{13} Leverage\_P_{i,t} + \sum \gamma_t + \sum \delta_i + \varepsilon_{i,t} , \end{aligned} \quad (3)$$

where for institution *i* and quarter *t,* the dependent variable ($FRQ\_P_{i,t}$) is the average financial reporting quality of investees in the portfolio of institution *i* at the end of quarter *t*. As explained previously, a higher value of $FRQ\_P_{i,t}$ indicates that the institution's portfolio consists of firms with lower financial reporting quality.

[11] Specifically, $ROAD_{k,i,t}$ is an indicator variable that equals one if a firm's return on assets is in the *k*-th quintile of the sample distribution; $SGD_{k,i,t}$ equals one if a firm's sales growth from quarter *t*–4 to quarter *t* is in the *k*-th quintile; and $MBD_{k,i,t-1}$ equals one if a firm's market-to-book ratio at the end of quarter *t*–1 is in the *k*-th quintile. As I include a constant term in the regression, I only include indicators for quintile $k = 1, 2, 4,$ and 5.

[12] As explained previously, I use the average absolute value of discretionary accruals from quarter *t*–4 to quarter *t*–1 as a proxy for financial reporting quality observable during quarter *t* when institutions manage their portfolios.

$FRQ\_P_{i,t}$ takes $FRQ1\_P_{i,t}$ or $FRQ2\_P_{i,t}$, depending on how financial reporting quality is measured. The variable of interest is *Litigation*, which captures an institution's experience of shareholder litigation against the institution's investees during the previous three years. To test H1, I examine whether β_1 is significantly different from zero.

Following Bushee et al. (2019), I control for trading strategies and firm characteristics that have been shown in prior research to be associated with financial reporting quality at the portfolio level. The control variables include value stock (*BM_P*), momentum stock (*PastRet_P*), firm size (*Size_P*), beta (*Beta_P*), idiosyncratic risk (*IdioRisk_P*), share turnover (*Turnover_P*), number of institutions (*NumInst_P*), standardized unexpected earnings (*SUE_P*), total accruals (*Accrual_P*), firm age (*Age_P*), loss indicator (*Loss_P*), and leverage (*Leverage_P*).[13] In addition to the above control variables, I include quarter and institution fixed effects ($\sum\gamma_t$ and $\sum\delta_i$, respectively) to eliminate the potential impacts of unobservable time- and institution-specific factors. Throughout all analyses, I estimate the equations using ordinary least squares (OLS) regression and base my statistical inferences on *t*-statistics calculated using standard errors clustered by institution.[14] Detailed definitions of the variables are presented in Appendix I.

To test H2 and H3, I modify Equation (3) to include *TestVar* and its

[13] To construct these control variables at the institution-quarter level, I first calculate the quarterly decile rank for each characteristic of an investee from the Compustat/CRSP universe of firms with non-missing data, and then compute the weighted average of each characteristic's decile rank across all investees in the institution's portfolio.

[14] The main results remain qualitatively similar when standard errors are clustered by institution and by quarter.

interaction with *Litigation*, as shown in Equation (4):[15]

$$\begin{aligned} FRQ\_P_{i,t} = {} & \beta_0 + \beta_1 Litigation_{i,t} + \beta_2 Litigation_{i,t} \times TestVar_{i,t} + \beta_3 TestVar_{i,t} + \beta_4 BM\_P_{i,t} \\ & + \beta_5 PastRet\_P_{i,t} + \beta_6 Size\_P_{i,t} + \beta_7 Beta\_P_{i,t} + \beta_8 IdioRisk\_P_{i,t} \\ & + \beta_9 Turnover\_P_{i,t} + \beta_{10} NumInst\_P_{i,t} + \beta_{11} SUE\_P_{i,t} + \beta_{12} Accrual\_P_{i,t} \\ & + \beta_{13} Age\_P_{i,t} + \beta_{14} Loss\_P_{i,t} + \beta_{15} Leverage\_P_{i,t} + \sum \gamma_t + \sum \delta_i + \varepsilon_{i,t} . \end{aligned} \quad (4)$$

To test H2, I introduce two indicator variables as candidates for *TestVar*: *CR_High* and *Transient*, which represent short-term and transient investors, respectively. Based on H2, I expect β_2 to be positive. To characterize an institution's investment horizon, I calculate the churn rate of each institution following Yan and Zhang's (2009) approach.[16] I compute the aggregate purchase ($CR\_Purchase_{i,t}$) and sale ($CR\_Sell_{i,t}$) of shares using data on holding changes for each institution-quarter as follows:

$$CR\_Purchase_{i,t} = \sum_{k=1}^{N_{i,t}} \left| S_{i,k,t} P_{k,t} - S_{i,k,t-1} P_{k,t-1} - S_{i,k,t-1} \Delta P_{k,t} \right| \quad if \;\; S_{i,k,t} > S_{i,k,t-1} \quad (5)$$

$$CR\_Sell_{i,t} = \sum_{k=1}^{N_{i,t}} \left| S_{i,k,t} P_{k,t} - S_{i,k,t-1} P_{k,t-1} - S_{i,k,t-1} \Delta P_{k,t} \right| \quad if \;\; S_{i,k,t} \le S_{i,k,t-1}, \quad (6)$$

where $P_{k,t}$ and $P_{k,t-1}$ are the share prices of investee k at the end of quarter t and quarter t–1, respectively; $S_{i,k,t}$ and $S_{i,k,t-1}$ are the number of shares of investee k that are held by institution i at the end of quarter t and quarter t–1, respectively; and $N_{i,t}$ is the number of investees in the portfolio of institution i at the end of quarter t.

[15] In my main analyses, I propose a parsimonious model to test H2 and H3 separately. My main results remain unchanged when I test H2 and H3 simultaneously in the same regression (untabulated).
[16] Conceptually, the churn rate captures how actively an institution, at the portfolio level, buys and sells shares of investees in a given quarter.

Stock splits and stock dividends are adjusted by the CRSP price adjustment factor. The churn rate of institution *i* for quarter *t* ($CR\_Q_{i,t}$) is given by:

$$CR\_Q_{i,t} \equiv \frac{min\ (\ CR\_Purchase_{i,t}, CR\_Sell_{i,t}\ )}{\sum_{k=1}^{N_{i,t}} \frac{S_{i,k,t}P_{k,t} + S_{i,k,t-1}P_{k,t-1}}{2}}. \quad (7)$$

After obtaining the quarterly churn rate (*CR_Q*) from Equation (7), I compute the average of the churn rate over the past four quarters to normalize the trading behavior of institution *i* in recent quarters. *CR_High* takes a value of one if the four-quarter average churn rate is greater than the quarterly sample median, and zero otherwise. By definition, institutions with *CR_High* = 1 have a short-term investment horizon.

I classify institutions as transient, quasi-indexer, or dedicated investors following the approach described in Bushee (1998, 2001). Specifically, using institution-quarter-level data obtained from WhaleWisdom, I construct eight variables that characterize portfolio turnover and holding structure on a quarterly basis. Each of these quarterly variables is averaged over all available quarters in a calendar year to calculate the annual values for each institution. I perform a factor analysis to extract two factors, i.e., portfolio turnover and block size, from these annual values and then conduct a cluster analysis to identify three types of institutions, i.e., transient, quasi-indexer, and dedicated institutions, each clustered with similar factor scores. *Transient* takes a value of one for transient institutions, which are characterized by high levels of portfolio turnover and low levels of block size, and zero otherwise. The detailed procedures for the above classification

scheme are presented in Appendix II.

To test H3, I introduce two indicator variables, *Own_High* and *Conc_High*, both of which capture institutions with greater monitoring incentive. These two variables are used as candidates for *TestVar* in Equation (4). According to H3, I expect β_2 to be positive. The first measure, *Own_High*, represents the average size of investment stakes in the portfolio. I calculate the weighted average of share ownership in all investee firms in the portfolio at the end of quarter *t* as follows:

$$Own\_Q_{i,t} = \sum_{k=1}^{N_{i,t}} PctShare_{i,k,t} \times W_{i,k,t} \,, \tag{8}$$

where $PctShare_{i,k,t}$ is the fraction of investee *k*'s shares held by institution *i* at the end of quarter *t*; and $W_{i,k,t}$ is the fraction of funds invested in investee *k* in the portfolio of institution *i* at the end of quarter *t*. I compute *Own* as the average value of *Own_Q* from quarters *t* to quarter *t*–3. *Own_High* takes a value of one for institution-quarters with a value of *Own* greater than the quarterly sample median, and zero otherwise. By definition, institutions with *Own_High* = 1 have relatively large stakes in their investees.

The second measure, *Conc_High*, is based on the extent to which a portfolio is concentrated in terms of investment weights. I first compute the Herfindahl–Hirschman Index (*HHI_Q*) of institution *i*'s investment weights for all investees in the portfolio of institution *i* at the end of quarter *t* as follows:

$$HHI\_Q_{i,t} = \frac{1}{N_{i,t}} \sum_{k=1}^{N_{i,t}} W_{i,k,t}^2 \,, \tag{9}$$

where $W_{i,k,t}$ and $N_{i,t}$ are defined as above. I compute *HHI* as the average value of

HHI_Q from quarter *t* to quarter *t*–3. *Conc_High* takes a value of one if an institution-quarter has an *HHI* value greater than the quarterly sample median, and zero otherwise. By definition, institutions with *Conc_High* = 1 have relatively concentrated portfolios.

3.3. Data and sample construction

My empirical analyses rely on data obtained from various sources. I obtain data on securities class action lawsuits filed between 2001 and 2017 from the SCAC at Stanford Law School. The SCAC provides detailed information on class action lawsuits, including the names of the defendants, the stock exchanges where the defendants' stocks are traded, class periods, and case descriptions. By manually inspecting the detailed information on each lawsuit and comparing it with the information obtained from the CRSP database and Form 10-K/Q filings available from the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR) of the U.S. Securities and Exchange Commission (SEC), I identify permanent security identification number (PERMNO) assigned by CRSP for each defendant.

I obtain institutional ownership data from WhaleWisdom, a commercial provider of detailed information on Form 13F filings starting in 2001. An institution is required to report its shareholdings at the end of each calendar quarter. One notable advantage of using data from WhaleWisdom is that these data allow me to identify institutions with their unique Central Index Key (CIK) numbers and thus trace each institution's historical involvement in class action lawsuits against the institution's investees. In addition, I obtain data on financial statements and stock

market returns from Compustat and CRSP, respectively.

Using these databases, I construct two samples. The first sample consists of class action lawsuits and is used to measure my variable of interest (*Litigation*); the second sample consists of institution-quarter observations and is used to test main hypotheses. I report the sample selection procedures for these two samples in Table 1.

The first sample begins with 3,073 class action lawsuits filed between 2003 and 2017. From this sample, I remove 359 cases against firms that are not listed on the NYSE, AMEX, or NASDAQ exchange; 402 cases against non-U.S. firms; 570 cases that do not involve a violation of the SEC Rule 10(b)-5 pursuant to the 1934 Securities Exchange Act; and 192 cases against firms without PERMNO or stock return data from CRSP. Finally, I obtain 1,550 class action lawsuits available for my analyses. I summarize the above procedure in Panel A of Table 1.

To construct the second sample used to test my hypotheses, I begin with 157,032 institution-quarters available from WhaleWisdom during the 2006–2017 period.[17] From this initial sample, I remove all institutions that (i) have existed for less than three years; (ii) are not classified as either transient, quasi-indexer, or dedicated investors; (iii) have less than ten investees in their portfolios, or (iv) do

[17] I choose 2006 as the first year of the sample period, because my test variable (*Litigation*) is based on class action lawsuits filed in the previous three years, and only lawsuits filed since 2003 are considered suitable for my research design. As noted above, I require an institution to have ownership during class periods when identifying lawsuits involving the institution, which means that institutional ownership data should be available during these class periods. As my data on institutional holdings start in 2001 and class periods on average begin 294 days before the filing date (Rogers and Van Buskirk 2009), I believe it is reasonable to use only lawsuit cases that are filed in and after 2003.

not have the data required for my empirical analyses. This filtering procedure leads to 102,234 institution-quarter observations over the 2006–2017 period in the final sample.

[Insert Table 1 about here]

IV. Empirical Results

4.1. Descriptive statistics

In Table 2, I report the summary statistics of the defendants and the distribution of lawsuit cases by year or by industry. In Panel A, I find that on average, the defendants (sued in class action lawsuits) have total assets of US$ 31,935 million and a market capitalization of US$ 7,946 million. Their stocks have been traded on their respective stock exchanges for 16 years on average, indicating that they are mature firms rather than start-ups or young firms. More importantly, I find that during class periods, on average 213 institutions have stakes in the defendants with aggregate ownership of 62.2% and an aggregate investment value of US$ 5,910 million. From these statistics, I conclude that institutional stakes in the defendants are substantial enough to create the institutions' economic incentive.

In Panels B and C, I present the distribution of class action lawsuits by filing year and by industry of the defendant, respectively. In Panel B, I note that all lawsuits are distributed fairly evenly over the years, with the highest frequency in 2004 and the lowest in 2011. In Panel C, I find that the defendants in the pharmaceutical industry account for about 16.2% of the sample, which is about 2.8

times higher than the proportion of this industry in the Compustat/CRSP universe. I also note that the industries identified as highly litigious in my sample are consistent with those reported in prior studies (Francis, Philbrick, and Schipper 1994; Kim and Skinner 2012).

[Insert Table 2 about here]

In Table 3, I present the descriptive statistics of the sample used for the main analyses. Panel A reports the summary statistics of the main variables. I find that the mean values of *FRQ1_P* and *FRQ2_P* are 4.096 and 4.817, respectively, and both are less than 5.5.[18] These values indicate that institutions' portfolios are on average tilted toward firms with high financial reporting quality. In addition, I note that the mean value of *Litigation* is 0.199, suggesting that about 20% of the investees in an institution's portfolio have been involved in class action lawsuits in the previous three years. Furthermore, I find that the mean value of *MVE_P* is 9.122, and the mean value of *IdioRisk_P* is 3.616. These statistics suggest that institutions are more likely to invest in larger firms with lower idiosyncratic risk. Overall, the portfolio characteristics presented in Panel A are consistent with my prediction and those reported by Bushee et al. (2019).

Next, Panel B presents the distribution of my sample by year and by institution type. I first find that the number of unique institutions in my sample increases monotonically over time, consistent with the increasing dominance of

[18] If an investee's financial reporting quality is at the median level, its decile rank is calculated as 5.5 (the median value of the decile rank ranging from 1 to 10). Thus, when *FRQ_P* is less than 5.5, it indicates that a portfolio consists of investees with relatively high financial reporting quality.

institutions in the capital market. In addition, I find that transient, quasi-indexer, and dedicated investors account for about 29%, 68%, and 3%, respectively, of my sample, and the relative proportions of the three investor groups are comparable to those reported by Bushee et al. (2019). Finally, Panel C presents the correlations among the main variables. The two main dependent variables, *FRQ1_P* and *FRQ2_P*, are positively correlated with each other, with a correlation coefficient of 0.42. This result suggests that these two variables, although correlated to some extent, capture different aspects of financial reporting quality. In addition, the correlations of *Litigation* with other control variables are reasonably low, suggesting that multicollinearity is not a major issue in my study.

[Insert Table 3 about here]

4.2. Analysis of H1

Table 4 presents the results of H1. In column (1), I use *FRQ1_P*, based on the accrual estimation error (Dechow and Dichev 2002), as the dependent variable. I find that the coefficient on *Litigation* is negative (coefficient = –0.851) and statistically significant at the 1% level (*t*-statistic = –8.81). In terms of economic significance, a one standard deviation increase in *Litigation* lowers *FRQ1_P* by 0.103 (= 0.851 ×0.121), which means that about 10% of the total investment value is reallocated to firms whose financial reporting quality is one-decile-rank higher in a given quarter. This result is consistent with H1, indicating that institutions manage their portfolios toward firms with higher financial reporting quality after

experiencing more class action lawsuits against their investees.[19] In column (2), I find that my result is robust to using *FRQ2_P*, based on the absolute value of discretionary accruals (Collins et al. 2017), as the dependent variable.

Furthermore, I note that because dedicated investors, unlike transient and quasi-indexer investors, have large investment stakes in a small number of investees, their portfolio adjustments following litigation may not represent the behavior of institutions in general. To address this concern, I re-estimate the regression models of columns (1) and (2) after removing all dedicated investors from the sample, reducing my sample to 99,156 observations. I report the results in columns (3) and (4) with this reduced sample. In column (3), I find that the coefficient on *Litigation* is significant and negative (coefficient = –0.820; *t*-statistic = –8.56) and its magnitude is similar to that in column (1). I also obtain a similar result in column (4).

Regarding the control variables, I find that portfolio characteristics, in general, explain financial reporting quality at the portfolio level in an expected manner. For example, investees with higher market (*Beta_P*) and idiosyncratic risks (*IdioRisk_P*) have lower financial reporting quality. In addition, mature investees (*Age_P*) with a higher book-to-market ratio (*BM_P*) and greater monitoring from debt investors (*Leverage_P*) have higher financial reporting quality. I omit the

[19] By definition of *FRQ1_P*, adjusting investment portfolios toward firms with higher financial reporting quality means that institutions choose to invest in new investees with higher financial reporting quality and/or increase (decrease) their investment weights in existing investee firms with higher (lower) financial reporting quality. I also perform an additional test with *FRQ_P* calculated separately for new and existing investees later in Section 5.1.

detailed explanations of the other control variables for brevity.

[Insert Table 4 about here]

4.3. Analysis of H2

Table 5 presents the results of H2, which focuses on the investment horizon as a factor that moderates the association reported above for H1. In Panel A, I report the results using the churn rate (Yan and Zhang 2009) as a measure of the investment horizon. In column (1) where *FRQ1_P* is used as the dependent variable, I find that the coefficient on *Litigation* is negative (coefficient = –1.588) and statistically significant at the 1% level (*t*-statistic = –13.00), consistent with the results of H1. More importantly, I find that the coefficient on *Litigation*×*CR_High* is positive (coefficient = 1.272) and statistically significant at the 1% level (*t*-statistic = 10.55). Supporting H2, these results suggest that institutions' preference for high financial reporting quality increases after litigation experience, but to a lesser extent for short-term institutions than for long-term institutions. I also note that the above results are robust to using *FRQ2_P* as the dependent variable in column (2), and to excluding dedicated investors from the sample in columns (3) and (4).

In Panel B, I focus on transient investors as short-term institutions whose portfolios are diversified with a high turnover rate (Bushee 2001). In column (1), I find that the coefficient on *Litigation* is significant and negative (coefficient = –1.513; *t*-statistic = –13.15) but that on *Litigation*×*Transient* is significant and positive (coefficient = 1.412; *t*-statistic = 10.69). Consistent with the results in Panel

A, these results suggest that short-term institutions are less likely than long-term institutions to adjust their portfolios toward firms with higher financial reporting quality after experiencing litigation. In addition, I confirm that these results continue to hold when I use *FRQ2_P* as the dependent variable, as shown in column (2), or when I exclude dedicated investors from the sample, as shown in columns (3) and (4).

Given the above results, I further explore whether short-term institutions do not care about the financial reporting quality of investee firms. In Panel A of Table 5, I find that the sum of the coefficients on *Litigation* and *Litigation*×*CR_High* is significant and negative in all columns (untabulated). However, in Panel B, I find that the sum of the coefficients on *Litigation* and *Litigation*×*CR_Transient* is significant and negative in columns (2) and (4) but not significant in columns (1) and (3) (untabulated). In summary, I find weak evidence that financial reporting quality matters even for short-term institutions.

[Insert Table 5 about here]

4.4. Analysis of H3

Table 6 presents the results of H3, where I investigate whether institutions' monitoring incentive is important in shaping the institutions' portfolio adjustments following litigation. In Panel A, I focus on an institution's average investment stakes in investee firms in the institution's portfolio (*Own_High*) as a proxy for the institution's monitoring incentive. In column (1), I find that the coefficient on

Litigation is significant and negative (coefficient = –1.342; *t*-statistic = –12.97) and that on *Litigation*×*Own_High* is significant and positive (coefficient = 0.986; *t*-statistic = 7.33). I interpret these results as evidence that institutions with more experience of litigation prefer investees with higher financial reporting quality, but this tendency decreases with their average holdings in investees. In addition, I note that the above results remain unchanged when *FRQ2_P* is used as the dependent variable, as shown in column (2) or when dedicated investors are removed from the sample, as shown in columns (3) and (4).

In Panel B, I use an institution's portfolio concentration (*Conc_High*) as another proxy for the institution's monitoring incentive. In column (1), I find a significant and negative coefficient on *Litigation* (coefficient = –1.331; *t*-statistic = –13.00) and a significant and positive coefficient on *Litigation*×*Conc_High* (coefficient = 0.965; *t*-statistic = 7.56). These results suggest that an institution's incentive for direct monitoring moderates the extent to which that the institution relies on high-quality financial reporting in its asset allocation after experiencing litigation. Once again, I confirm the robustness of my findings to using *FRQ2_P* as the dependent variable as shown in column (2) or to excluding dedicated investors from the regressions as shown in columns (3) and (4).

It should be noted that the results from Panels A and B imply that my main results are driven by institutions' portfolio adjustments rather than by institutions' direct intervention in investee firms for the purpose of improving financial reporting quality. If my results were attributable to direct intervention, they would be more pronounced for institutions with greater monitoring incentive, which is contrary to

my results.

In addition, untabulated analysis shows that the sum of the coefficients on *Litigation* and *Litigation*×*Own_High* (*Litigation*×*Con_High*) is still negative and statistically significant at the conventional level in all columns in Panel A (Panel B) of Table 5. These results suggest that even institutions with sufficient monitoring incentive exhibit a slight preference for firms with higher financial reporting quality after experiencing litigation.

[Insert Table 6 about here]

V. Additional Analyses

5.1. Newly purchased stocks versus existing stocks

To provide additional evidence on H1, I examine whether an institution's portfolio management following litigation experience is driven by newly selected stocks, existing stocks, or both. In doing so, I introduce three dependent variables: FRQ_{NEW}_P, FRQ_{OLD}_P, and $FRQ_{NEW\text{-}OLD}\_P$. I define FRQ_{NEW}_P (FRQ_{OLD}_P) as the weighted average of financial reporting quality of all investees in which an institution initiates its investments during (before) quarter *t*. I define $FRQ_{NEW\text{-}OLD}\_P$ as the difference between FRQ_{NEW}_P and FRQ_{OLD}_P. Each investee's financial reporting quality is measured using *FRQ1* or *FRQ2*, and is used to calculate the three dependent variables. By definition, FRQ_{NEW}_P (FRQ_{OLD}_P) represents the extent to which an institution puts emphasis on higher financial reporting quality when purchasing new stocks (when managing investment weights in old stocks).

$FRQ_{NEW–OLD\_P}$ indicates the extent to which an institution relies on an investee's financial reporting quality more when initiating its new investments than when adjusting its existing investments.[20]

I re-estimate a modified version of Equation (3) where either FRQ_{NEW_P}, FRQ_{OLD_P}, or $FRQ_{NEW–OLD\_P}$, is used as the dependent variable. I report the results in Table 7, where the dependent variable is based on *FRQ1* [*FRQ2*] as a proxy for the financial reporting quality of an individual investee in columns (1), (3), and (5) [(2), (4), and (6)]. I find that the coefficient on *Litigation* is significant and negative in columns (1) to (4), and is not statistically significant in columns (5) and (6). These results suggest that financial reporting quality is important for institutions both and equally in initiating their new investments and in adjusting their existing investments in their portfolios.

[Insert Table 7 about here]

5.2. Residual approach: abnormal experience of litigation

To confirm the robustness of my results, I repeat the main analyses using an alternative test variable that is based on the residual approach. The residual approach aims to control for an institution's size and monitoring capability simultaneously in quantifying the institution's experience of litigation. Specifically, I use the residual term estimated from Equation (10) as an alternative proxy for an

[20] By definition, the positive value of $FRQ_{NEW–OLD\_P}$ indicates that FRQ_{NEW_P} is greater than FRQ_{OLD_P}, and thus that an institution prefers investees with high-quality financial reporting more in adjusting its existing investments than in initiating its new investments.

institution's litigation experience (*Litigation_resid*):

$$Log(1+\#\ of\ class\ action\ lawsuits)_{i,t} = \beta_0 + \beta_1\ Log(assets\ under\ mgmt.)_{i,t} + \beta_2\ Log(1+\#\ of\ investees)_{i,t} + \beta_3\ Log(1+\#\ of\ blockholdings)_{i,t} + \varepsilon_{i,t}\ , \quad (10)$$

where for institution *i* and quarter *t*, the dependent variable is the natural logarithm of one plus the number of class action lawsuits that have been brought against investees in the portfolio during the last three years (12 quarters). In the right-hand side, I include assets under management [*Log(assets under mgmt.*)] and the number of investees [*Log(1+# of investees)*] in an institution's portfolio to control for institution size, and the number of blockholdings [*Log(1+# of blockholdings*)] to control for an institution's monitoring capability (Kang, Luo, and Na 2018). Each independent variable is averaged over the previous 12 quarters and log-transformed to address its skewness.

To estimate Equation (10), I use 116,895 institution-quarter observations where institutions have existed for at least three years over the 2006–2017 period. In Panel A of Table 8, I first report the descriptive statistics of the variables used in Equation (10). I find that the mean value of *Log(1+# of class action lawsuits)* is 2.72, indicating that an institution has experienced on average 30 class action lawsuits filed against its investees during the previous three years. This statistic suggests that class action lawsuits are economically significant for institutions in general, given that an institution' portfolio consists of on average 209 investee firms (untabulated).

I report the estimation result in Panel B of Table 8. It is notable that the

adjusted R^2 of the model is 0.806, which indicates that variation in an institution's litigation experience is reasonably explained by the independent variables in the model. I also find that an institution's litigation experience is positively associated with the log-transformed assets under management and number of investees in the portfolio, and negatively with the log-transformed number of blockholdings in the portfolio. This evidence is consistent with my prediction that an institution that is larger or with less blockholdings will experience a greater number of class action lawsuits brought against its investees.

Finally, Panels C to E of Table 8 show the main results with *Litigation_resid* as an alternative test variable. In Panel C where H1 is tested, I find a significant and negative coefficient on *Litigation_resid* in all columns. In Panel D where H2 is tested, the coefficient on *Litigation_resid* is significant and negative, and the coefficient on *Litigation_resid*×*TestVar* is significant and positive in all columns. In Panel E for H3, the coefficients on *Litigation_resid* and *Litigation_resid*×*TestVar* are negative and positive, respectively, and they both are statistically significant in all columns. Collectively, I find robust evidence supporting my main results using the residual approach.

[Insert Table 8 about here]

5.3. Change analyses

I perform main analyses using change specifications to address concern that my main results could be driven by correlated omitted variables. After dropping institution fixed effects, I estimate a change specification of Equation (11) to test

H1 and another change specification of Equation (12) to test H2 and H3 as follows:

$$\begin{aligned}\Delta FRQ\_P_{i,t} = {} & \beta_0 + \beta_1 \Delta Litigation_{i,t} + \beta_2 \Delta BM\_P_{i,t} + \beta_3 \Delta PastRet\_P_{i,t} + \beta_4 \Delta Size\_P_{i,t} \\ & + \beta_5 \Delta Beta\_P_{i,t} + \beta_6 \Delta IdioRisk\_P_{i,t} + \beta_7 \Delta Turnover\_P_{i,t} \\ & + \beta_8 \Delta NumInst\_P_{i,t} + \beta_9 \Delta SUE\_P_{i,t} + \beta_{10} \Delta Accrual\_P_{i,t} + \beta_{11} \Delta Age\_P_{i,t} \\ & + \beta_{12} \Delta Loss\_P_{i,t} + \beta_{13} \Delta Leverage\_P_{i,t} + \sum \gamma_t + \varepsilon_{i,t} . \end{aligned} \quad (11)$$

$$\begin{aligned}\Delta FRQ\_P_{i,t} = {} & \beta_0 + \beta_1 \Delta Litigation_{i,t} + \beta_2 \Delta Litigation_{i,t} \times TestVar_{i,t} + \beta_3 TestVar_{i,t} \\ & + \beta_4 \Delta BM\_P_{i,t} + \beta_5 \Delta PastRet\_P_{i,t} + \beta_6 \Delta Size\_P_{i,t} + \beta_7 \Delta Beta\_P_{i,t} \\ & + \beta_8 \Delta IdioRisk\_P_{i,t} + \beta_9 \Delta Turnover\_P_{i,t} + \beta_{10} \Delta NumInst\_P_{i,t} \\ & + \beta_{11} \Delta SUE\_P_{i,t} + \beta_{12} \Delta Accrual\_P_{i,t} + \beta_{13} \Delta Age\_P_{i,t} + \beta_{14} \Delta Loss\_P_{i,t} \\ & + \beta_{15} \Delta Leverage\_P_{i,t} + \sum \gamma_t + \varepsilon_{i,t} . \end{aligned} \quad (12)$$

In my analyses using change specifications, I focus on whether i) changes in an institution's litigation experience from quarter t–2 to quarter t–1 ($\Delta Litigation$) lead to changes in the portfolio-level financial reporting quality from quarter t–1 to quarter t (ΔFRQ_P), and ii) this association varies with an institution's investment horizon and monitoring incentive. Regarding two cross-sectional variables for each of H2 and H3, I require an institution-quarter to have a cross-sectional variable constant during quarters t–1 through t when that cross-sectional variable is used in the empirical model.[21] By doing so, I ensure that my results are not affected by changes in each cross-sectional variable tested in the analysis. Accordingly, the sample size differs depending on which cross-sectional variable is used in the

[21] Specifically, I use *CR_High* and *Transient* in testing H2, and *Own_High* and *Conc_High* in testing H3. In testing H2 with *CR_High*, I require each institution-quarter observation to have the constant value for *CR_High* during quarters t–1 and t.

regression model.

In Table 9, I report the results using change specifications. In Panel A where H1 is tested, I find that the coefficient on Δ*Litigation* is significant and negative in all columns. Supporting H1, this result indicates that the increase in an institution's litigation experience leads to a subsequent increase in the portfolio-level financial reporting quality. In Panel B for H2, I find that the coefficient on Δ*Litigation* is significant and negative in all columns and the coefficient on Δ*Litigation*×*CR_High* (Δ*Litigation*×*Transient*) is significant and positive in columns (1) and (2) [(3) and (4)]. These results confirm the evidence from H2 that an institution's investment horizon moderates the institution's tendency to select investees with high-quality financial reporting after litigation. Lastly, in Panel C where H3 is tested, I continue to find a significant and negative coefficient on Δ*Litigation* in all columns. I also find a positive coefficient on Δ*Litigation*×*Own_High* (Δ*Litigation*×*Conc_High*) in columns (1) and (2) [(3) and (4)], although the coefficient lacks statistical significance when Δ*FRQ1_P* is used as the dependent variable, as shown in columns (1) and (3). The results suggest that institutions' monitoring incentive moderates the importance of financial reporting quality in portfolio management after litigation. Taken together, the results with change specifications support my main results, supporting the causal inferences drawn from the main analyses.

[Insert Table 9 about here]

5.4. Alternative proxy for financial reporting quality

In this subsection, I investigate the sensitivity of my findings to using the incidence of accounting restatements as an inverse proxy for financial reporting quality. Using data on accounting restatements, I first define *Restate* as one if a firm restates its financial statements at least once during the previous three years (i.e., from quarter t–12 to quarter t–1), and zero otherwise. I then calculate the weighted average of *Restate* across all investees in an institution's portfolio at the end of quarter t and denote it as *Restate_P*. I re-estimate Equations (3) and (4) using *Restate_P* as the dependent variable to revisit the main analyses.

Table 10 presents the results. In column (1), I find that the coefficient on *Litigation* is significant and negative, consistent with the results of H1. In columns (2) and (3), I find that the coefficient on *Litigation* is significant and negative, and the coefficient on *Litigation*×*CR_High* or *Litigation*×*Transient* is significant and positive, which supports H2. Finally, in columns (4) and (5), I observe that the coefficient on *Litigation* is negative, the coefficient on *Litigation*×*Own_High* or *Litigation*×*Conc_High* is positive, and they both are statistically significant at the conventional level, which confirms H3. Taken together, the results show that after experiencing litigation, institutions tilt their portfolios toward investees with fewer misstatements, and that this tendency weakens as institutions are short-term focused or have sufficient incentive to monitor management behavior.

[Insert Table 10 about here]

5.5. Effectiveness of learning from litigation experience

One remaining question is whether after experiencing litigation, institutions can successfully avoid being involved in litigation in the future. If institutions select firms with higher financial reporting quality in their portfolios after experiencing litigation, and if that selection is motivated to mitigate litigation risk at the portfolio level, I expect institutions with more litigation experience in the past to avoid future litigation more successfully. To test this expectation, I estimate a modified version of Equation (3), where $Litigation_{i,t+12}$ measured at the end of quarter t+12 is used as the dependent variable, using OLS regression. By definition, $Litigation_{i,t+12}$ captures how frequently an institution's investees are sued during the subsequent three years from quarter t+1 to quarter t+12.

I report the results in Table 11. In column (1), I find that the coefficient on $Litigation_{i,t}$ is significant and negative, indicating that as institutions experienced litigation more frequently during the last three years, they will be less frequently involved in litigation against their investees over the subsequent three years ahead. In column (2), I find similar results after additionally controlling for institutional characteristics: assets under management [*Log(assets under mgmt.*)], the number of investees [*Log(1+# of investees)*], and the number of blockholdings [*Log(1+# of blockholdings*)] in an institution's portfolio. Taken together, the above results suggest that institutions' portfolio adjustment in favor of investees with high-quality financial reporting is effective in reducing litigation risk in the future, and that it is the rational learning of institutions that drives my main results.

[Insert Table 11 about here]

5.6. Long-term effect of litigation experience

Focusing on a long-term effect of an institution's experience of shareholder litigation, I further examine whether *Litigation*, which represents an institution's litigation experience from the past three years, is associated with the portfolio-level financial reporting quality in the future period, and how long the association persists. I first measure the average financial reporting quality of all investees in an institution's portfolio at the end of each quarter over the four years ahead. I then re-estimate Equation (3) using *FRQ1_P* or *FRQ2_P*, which is measured at the end of quarter t+m (m = 1, 2, 3, …, 16), as the dependent variable.

In Figure 1, I present the coefficient on *Litigation* as well as its t-statistic estimated from each regression from quarter t+1 to quarter t+16. The x-axis represents quarter t+m (relative to quarter t) at the end of which the dependent variable (*FRQ1_P* or *FRQ2_P*) is measured. The y-axis on the left (right) side displays the coefficient on *Litigation* (the coefficient's t-statistic). In the top figure with *FRQ1_P*, I find that the coefficient on *Litigation* remains statistically significant up to quarter t+14. More importantly, the coefficient reaches its lowest value (–0.905) in quarter t+2 and then approaches to zero gradually as time elapses. These results suggest that an institution's experience of shareholder litigation has a significant, long-lasting impact on the institution's reliance on financial reporting quality in portfolio management for 3.5 years. In the bottom figure, this inference remains unchanged with *FRQ2_P* as the dependent variable, although the coefficient on *Litigation* reaches its lowest value (–0.553) later in quarter t+6.

[Insert Figure 1 about here]

5.7. Experience of meritorious versus frivolous litigation

In addition to the main results of H1, I explore whether the effect of an institution's litigation experience varies with the merits of a lawsuit. I expect that the results will be stronger for meritorious litigation than for frivolous litigation, to the extent that the merits of litigation are a precondition for changes in institutions' investment behavior following litigation. To test this expectation, I classify all lawsuits in my sample into meritorious and frivolous lawsuits by assuming a lawsuit to be meritorious if the lawsuit results in settlements.[22] I measure an institution's litigation experience separately for meritorious lawsuits (*Litigation_meritorious*) and for frivolous lawsuits (*Litigation_frivolous*), and estimate a modified version of Equation (3) where *Litigation* is replaced with its two variants.

In Table 12, I report the results based on the full sample. In column (1) where *FRQ1_P* is used as the dependent variable, I find that the coefficients on *Litigation_meritorious* and *Litigation_frivolous* are both significant and positive at the conventional level, but the coefficient on the former (–1.041) is about 1.5 times larger than that on the latter (–0.678) although the coefficient difference (A–B) is marginally not significant (*p*-value = 0.164). In column (2) where *FRQ2_P* is used as the dependent variable, I find a similar result with the coefficient difference

[22] Therefore, ongoing or dismissed lawsuits are classified as frivolous lawsuits. I acknowledge that this classification method may not be complete, given that ongoing lawsuits could be closed with significant settlements in the future. Alternatively, I find that my results remain unchanged when I classify ongoing lawsuits as meritorious lawsuits.

statistically significant at the 10% level (p-value = 0.052). Taken together, the above results confirm my expectation that the effect of institutions' litigation experience will be stronger for meritorious litigation than for frivolous one.

[Insert Table 12 about here]

5.8. Selling shares of investees with low financial reporting quality

In this subsection, I perform institution-firm-quarter-level analysis to focus on institutions' exit behavior after litigation experience. Specifically, I test whether institutions more actively sell their shares of investees with low financial reporting quality after experiencing litigation. I estimate the following Equation (13), based on the model suggested by Chen et al. (2007):

$$\begin{aligned} &LargeDecrease_{i,f,t}\ (NegativeChange_{i,f,t}) \\ &= \beta_0 + \beta_1 Litigation_{i,t-1} + \beta_2 LowFRQ_{f,t-1} + \beta_3 LowFRQ_{f,t-1} \times Litigation_{i,t-1} \\ &+ \beta_4 PercentOwn_{f,t-1} + \beta_5 PortfolioWeight_{f,t-1} + \beta_6 AUM_{f,t-1} + \beta_7 FirmSize_{f,t-5} \\ &+ \beta_8 BTM_{f,t-5} + \beta_9 Return_{f,t} + \beta_{10} Return_{f,t-1} + \beta_{11} Turnover_{f,t} + \beta_{12} Turnover_{f,t-1} \\ &+ \beta_{13} Turnover_{f,t-4} + \sum\gamma_i + \sum\delta_f + \sum\eta_{t,k} + \varepsilon_{i,f,t}\ , \end{aligned} \tag{13}$$

where for institution i, firm f, industry k, and quarter t, the dependent variable is $LargeDecrease_{i,f,t}$ or $NegativeChange_{i,f,t}$, capturing institution i's disposal of stakes in the firm f during quarter t. I define *LargeDecrease* as one if a change in shareholdings is in the bottom quintile of the sample distribution, and zero otherwise, and define *NegativeChange* as the absolute change in the fraction of firm f's shares held by institution i if the change is negative, and zero otherwise. These

two variables take higher values when institution *i* significantly reduces its ownership in firm *f* during quarter *t*. In the right-hand side, I include *Litigation*, an indicator for investees with low financial reporting quality (*LowFRQ*), and the interaction between *Litigation* and *LowFRQ* (*Litigation*×*LowFRQ*). I define *LowFRQ* as one if the measure of an investee's financial reporting quality (i.e., *FRQ1* or *FRQ2*) is in the top quintile of the sample distribution, and zero otherwise. I expect the coefficient on *LowFRQ*×*Litigation* to be positive if institutions become more likely to sell their stakes in firms with low financial reporting quality after experiencing litigation.

Following prior studies (e.g., Chen et al. 2007; Kempf et al. 2017), I include control variables that are associated with an institution's trading behavior: lagged fraction of shares held by an institution ($PercentOwn_{t-1}$), lagged weight of the stock in an institution's portfolio ($PortfolioWeight_{t-1}$), lagged assets under management of an institution (AUM_{t-1}), five-quarter-lagged firm size ($FirmSize_{t-5}$) and book-to-market ratio (BTM_{t-5}), current and lagged stock returns ($Return_t$ and $Return_{t-1}$), and current, lagged, and four-quarter-lagged share turnover ($Turnover_t$, $Turnover_{t-1}$, and $Turnover_{t-4}$). Finally, I include institution ($\sum\gamma_i$), firm ($\sum\delta_f$), and quarter×industry ($\sum\eta_{t,k}$) fixed effects in the regression, and cluster standard errors by institution and quarter in assessing statistical significance.

In Panel A of Table 13, I report the descriptive statistics of 16,824,989 institution-firm-quarter observations used for this analysis. I find that the mean value of *LargeDecrease* is 0.2, suggesting that about 20% of the observations in the sample are coded as indicating a significant drop in an institution's share ownership

of a given firm during quarter *t*. In addition, I note that on average 14% of investees in an institution's portfolio have been litigated during the last three years, as evidenced by the mean value (0.14) of *Litigation*.[23] In Panel B, I find that the coefficient on *Low FRQ*×*Litigation* is significant and positive in all columns, which indicates that institutions with more litigation experience are more likely to reduce their ownership in firms with lower financial reporting quality. Corroborating the results of H1, this evidence suggests that financial reporting quality becomes an important factor institutions take into account in their portfolio management after they have experienced more litigation.

[Insert Table 13 about here]

5.9. Analysis of disclosure quantity

In this subsection, I explore whether disclosure quantity of investees is also important for institutions in managing their portfolios after experiencing litigation. Specifically, I measure an investee's disclosure quantity using 8–K filings obtained from SEC EDGAR. 8–K filings are known to deliver valuable information to capital market participants (e.g., Noh, So, and Weber 2019). In this analysis, I introduce two proxies, *Vol8K* and *Vol8K_resid*, that measure the frequency of voluntary disclosure. I define *Vol8K* as the natural logarithm of one plus the number of

[23] The mean value, 0.14, is lower than that (0.199) from the institution-quarter level sample used for the previous analyses. This fact means that by definition of *Litigation*, institutions with more investees in their portfolios tend to have relatively lower values of *Litigation*, and they are given more weights in this institution-firm-quarter level sample, which leads the mean value of *Litigation* to be adjusted downward in this sample.

voluntary disclosure items in 8–K filings,[24] and *Vol8K_resid* as the residual number of voluntary disclosure items, which is estimated from the following Equation (14) using OLS regression:

$$\begin{aligned} Vol8K_{f,t} = {} & \beta_0 + \beta_1 \, Inst.\ ownership_{f,t-1} + \beta_2 \, Top\ 5\ inst.\ ownership_{f,t-1} + \beta_3 \, Size_{f,t-1} \\ & + \beta_4 \, Leverage_{f,t-1} + \beta_5 \, Loss_{f,t-1} + \beta_6 \, Book\text{-}to\text{-}market_{f,t-1} + \beta_7 \, Return_{f,t-1} \\ & + \beta_8 \, Return\ volatility_{f,t-1} + \beta_9 \, EPS\ increase_{f,t-1} + \beta_{10} \, Absolute\ \Delta EPS_{f,t-1} \\ & + \sum \gamma_t + \sum \delta_k + \varepsilon_{f,t} \, , \end{aligned} \tag{14}$$

where for firm f, industry k, and quarter t, the dependent variable is the natural logarithm of one plus the number of voluntary 8–K items disclosed during quarter t. Following Abramova et al. (2020), I include a battery of determinants of firm disclosure, each measured at the end of quarter t–1: fraction of shares held by all institutions (*Inst. ownership*) and the five largest institutions (*Top 5 inst. ownership*), market capitalization (*Size*), leverage (*Leverage*), loss indicator (*Loss*), book-to-market ratio (*Book-to-market*), quarterly stock returns (*Return*), standard deviation of daily returns (*Return volatility*), indicator for the increase in EPS (*EPS increase*), and absolute change in EPS (*Absolute ΔEPS*). Moreover, I include quarter ($\sum \gamma_t$) and industry ($\sum \delta_k$) fixed effects to control for potential impacts of time- and industry-specific unobservable factors. Detailed definitions of the variables are presented in Appendix I.

In Panel A of Table 14, I present the descriptive statistics of the sample,

[24] Following prior studies (Bourveau et al. 2018; He and Plumlee 2020), I classify item numbers 2.02 (Results of Operations and Financial Condition), 7.01(Regulation FD Disclosure), and 8.01 (Other Events) in 8–K filings as voluntary disclosures, and count them separately if more than one voluntary items are included in the 8–K filing.

consisting of 178,575 firm-quarters used to examine determinants of voluntary disclosure. I note that the mean value of *Vol8K* is 2.211, indicating that a firm discloses on average 2.2 voluntary items via 8–K filings each quarter. In Panel B, I report the result of estimating Equation (14). I find that the frequency of voluntary disclosure is associated positively with institutional ownership, firm size, leverage, loss indicator, return volatility, and absolute change in EPS, and negatively with book-to-market and EPS increase indicator. These results are generally consistent with those reported in prior studies, as well as with my prediction.

Regarding institution-quarter level analysis, I construct two portfolio-level measures using *Vol8K* and *Vol8K_resid*. For each investee *f* and quarter *t*, I compute the average of *Vol8K* (*Vol8K_resid*) from quarter *t*–1 to quarter *t*–4 to normalize the seasonality of corporate disclosures. Next, I assign a quarterly decile rank based on the four-quarter average value of *Vol8K* (*Vol8K_resid*) among all firms in the Compustat/CRSP universe, and then calculate the weighted average of that decile rank across all investees in an institution's portfolio, which is denoted as *Vol8K_P* (*Vol8K_resid_P*). A greater value of *Vol8K_P* (*Vol8K_resid_P*) indicates the extent to which an institution tilts its portfolio toward firms providing more voluntary disclosure unconditional (conditional) on determinants of corporate disclosure.

Panel C of Table 14 shows the results of the main analyses using *Vol8K_P* as the dependent variable in all regressions. In column (1), I find that the coefficient on *Litigation* is significant and positive in all columns, indicating that after experiencing litigation, institutions increase their holdings in firms with more voluntary disclosure. Furthermore, I find that the coefficient on *Litigation*×*TestVar*

is significant and negative in the other columns, suggesting that the portfolio adjustments toward firms with more voluntary disclosure are less pronounced when institutions are short-term focused, as shown in columns (2) to (3), or when institutions have sufficient monitoring incentives, as shown in columns (4) to (5). These results remain qualitatively similar when I use *Vol8K_resid_P* as the dependent variable, as shown in Panel D. I interpret these results as evidence that not only the quality of financial reporting but also the quantity of voluntarily disclosed public information are important factors that institutions consider in their portfolio adjustments following litigation.

[Insert Table 14 about here]

VI. Concluding Remarks

In this study, I explore the externalities of securities class actions for the asset allocation decisions of institutions with regard to *non-litigated* firms in the institutions' portfolios. My analyses provide robust and systematic evidence that institutions alter their behavior toward *non-litigated* firms in their portfolios. In particular, they tilt their portfolios toward firms with high financial reporting quality after experiencing litigation. Furthermore, the documented importance of financial reporting quality in portfolio adjustments is conditional on the investment horizon and monitoring incentive of institutions. I believe that my study enriches the literature on the economic consequences of shareholder litigation for the capital market, by providing a comprehensive understanding of institutions' adaptive

investment strategies following litigation experience.

Despite its contributions to the literature, my study has some caveats to be addressed further in future research. First, this study focuses only on institutions' portfolio adjustment following litigation. Although the portfolio adjustment is the primary tactic of institutions, they may change their behavior in other dimensions, such as monitoring behavior, after experiencing litigation. Therefore, examining institutions' various responses to litigation will be a meaningful extension of my study. Second, the implications of litigation for institutions may depend on detailed contexts of litigation. I partially address this issue by incorporating the merits of litigation into the analysis. Additional data on details of litigation will enable researchers to provide further evidence on how institutions' behavior varies with the nature of litigation. Finally, this study does not explore time-series changes in the effect of an institution's litigation experience due to the relatively short sample period covered by the data. An institution's behavior following litigation may change over time as the institution's litigation experience accumulates, and this possibility deserves further investigation. I hope future studies will be able to address the above issues and deepen the understanding of institutions' response to litigation.

References

Abramova, I., J. E. Core, A. Sutherland, E. Dehaan, E. Floyd, J. Gillette, T. Gormley, et al. 2020. Institutional investor attention and firm disclosure. *The Accounting Review* 95 (6): 1–21.

Ali, A., X. Chen, T. Yao, and T. Yu. 2008. Do mutual funds profit from the accruals anomaly? *Journal of Accounting Research* 46 (1): 1–26.

Ali, A., M. Trombley, C. Durtschi, and B. Lev. 2004. Changes in institutional ownership and subsequent earnings announcement abnormal returns. *Journal of Accounting, Auditing & Finance* 19 (3): 221–248.

Amiram, D., Z. Bozanic, J. D. Cox, Q. Dupont, J. M. Karpoff, and R. Sloan. 2018. Financial reporting fraud and other forms of misconduct: A multidisciplinary review of the literature. *Review of Accounting Studies* 23 (2): 732–783.

Armstrong, C. S., W. R. Guay, and J. P. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics* 50 (2–3): 179–234.

Bethel, J. E., J. P. Liebeskind, and T. Opler. 1998. Block share purchases and corporate performance. *The Journal of Finance* 53 (2): 605–634.

Blouin, J. L., B. J. Bushee, and S. A. Sikes. 2017. Measuring tax-sensitive institutional investor ownership. *The Accounting Review* 92 (6): 49–76.

Bourveau, T., Y. Lou, and R. Wang. 2018. Shareholder litigation and corporate disclosure: Evidence from derivative lawsuits. *Journal of Accounting Research* 56 (3): 797–842.

Bushee, B. J. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73 (3): 305–333.

———. 2001. Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research* 18 (2): 207–246.

Bushee, B. J., and T. H. Goodman. 2007. Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research* 45 (2): 289–321.

Bushee, B. J., T. H. Goodman, and S. V. Sunder. 2019. Financial reporting quality, investment horizon, and institutional investor trading strategies. *The Accounting Review* 94 (3): 87–112.

Bushee, B. J., and C. F. Noe. 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38

(2000): 171–202.

Bushman, R. M., and A. J. Smith. 2001. Financial accounting information and corporate governance. *Journal of Accounting and Economics* 32 (1–3): 237–333.

Chen, Q., J. Francis, and W. Jiang. 2005. Investor learning about analyst predictive ability. *Journal of Accounting and Economics* 39 (1): 3–24.

Chen, X., J. Harford, and K. Li. 2007. Monitoring: Which institutions matter? *Journal of Financial Economics* 86 (2): 279–305.

Cheng, C. S. A., H. H. Huang, Y. Li, and G. Lobo. 2010. Institutional monitoring through shareholder litigation. *Journal of Financial Economics* 95 (3): 356–383.

Choi, D., B. Kahraman, and A. Mukherjee. 2016. Learning about mutual fund managers. *The Journal of Finance* 71 (6): 2809–2860.

Choi, S. J., J. E. Fisch, and A. C. Pritchard. 2005. Do institutions matter? The impact of the lead plaintiff provision of the Private Securities Litigation Reform Act. *Washington University Law Quarterly* 83 (4): 869–906.

Coffee, J. C. 1991. Liquidity versus control: The institutional investor as corporate monitor. *Columbia Law Review* 91 (6): 1277–1368.

Collins, D. W., R. S. Pungaliya, and A. M. Vijh. 2017. The effects of firm growth and model specification choices on tests of earnings management in quarterly settings. *The Accounting Review* 92 (2): 69–100.

Cox, J. D., and R. S. Thomas. 2006. Does the plaintiff matter? An empirical analysis of lead plaintiffs in securities class actions. *Columbia Law Review* 106 (7): 1587–1640.

———. 2009. Mapping the American shareholder litigation experience: A survey of empirical studies of the enforcement of the U.S. securities law. *European Company and Financial Law Review* 6 (2–3): 164–203.

Cox, J. D., R. S. Thomas, and L. Bai. 2008. There are plaintiffs and ... there are plaintiffs: An empirical analysis of securities class action settlements. *Vanderbilt Law Review* 61 (2): 355–386.

Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accruals estimation errors. *The Accounting Review* 77 (Supplement): 35–59.

Denis, D. J., and J. M. Serrano. 1996. Active investors and management turnover following unsuccessful control contests. *Journal of Financial Economics* 40

(2): 239–266.

Dharwadkar, R., M. Goranova, P. Brandes, and R. Khan. 2008. Institutional ownership and monitoring effectiveness: It's not just how much but what else you own. *Organization Science* 19 (3): 419–440.

Dou, Y., O. K. Hope, W. B. Thomas, and Y. Zou. 2016. Individual large shareholders, earnings management, and capital-market consequences. *Journal of Business Finance and Accounting* 43 (7–8): 872–902.

Downar, B., J. Ernstberger, and B. Link. 2018. The monitoring effect of more frequent disclosure. *Contemporary Accounting Research* 35 (4): 2058–2081.

Easterbrook, F. H., and D. R. Fischel. 1982. Corporate control transactions. *Yale Law Journal* 91 (4): 698–738.

Edmans, A., and G. Manso. 2011. Governance through trading and intervention: A theory of multiple blockholders. *Review of Financial Studies* 24 (7): 2395–2428.

Erickson, J. 2017. The gatekeepers of shareholder litigation. *Oklahoma Law Review* 70 (1): 237–279.

Ettredge, M. L., Y. J. Huang, and W. Zhang. 2016. Conservative reporting and securities class action. *Accounting Horizons* 30 (1): 93–118.

Fich, E. M., J. Harford, and A. L. Tran. 2015. Motivated monitors: The importance of institutional investors' portfolio weights. *Journal of Financial Economics* 118 (1): 21–48.

Foucault, T., and L. Fresard. 2014. Learning from peers' stock prices and corporate investment. *Journal of Financial Economics* 111 (3): 554–577.

Francis, J., D. Philbrick, and K. Schipper. 1994. Shareholder litigation and corporate disclosures. *Journal of Accounting Research* 32 (2): 137–164.

Gande, A., and C. M. Lewis. 2009. Shareholder-initiated class action lawsuits: Shareholder wealth effects and industry spillovers. *Journal of Financial and Quantitative Analysis* 44 (4): 823–850.

Gong, G., H. Louis, and A. X. Sun. 2008. Earnings management, lawsuits, and stock-for-stock acquirers' market performance. *Journal of Accounting and Economics* 46 (1): 62–77.

Grossman, S. J., and O. D. Hart. 1980. Takeover bids, the free-rider problem, and the theory of the corporation. *The Bell Journal of Economics* 11 (1): 42–64.

Habib, A., H. Jiang, M. B. U. Bhuiyan, and A. Islam. 2014. Litigation risk,

financial reporting and auditing: A survey of the literature. *Research in Accounting Regulation* 26 (2): 145–163.

He, J., and M. A. Plumlee. 2020. Measuring disclosure using 8-K filings. *Review of Accounting Studies* 25: 903–962.

Helland, E. 2006. Reputational penalties and the merits of class-action securities litigation. *Journal of Law and Economics* 49 (2): 365–395.

Hopkins, J. 2018. Do Securities Class Actions Deter Misreporting? *Contemporary Accounting Research* 35 (4): 2030–2057.

Huang, A., K. W. Hui, and R. Z. Li. 2019. Federal judge ideology: A new measure of ex ante litigation risk. *Journal of Accounting Research* 57 (2): 431–489.

Huang, P., and Y. Zhang. 2012. Does enhanced disclosure really reduce agency costs? Evidence from the diversion of corporate resources. *The Accounting Review* 87 (1): 199–229.

Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305–360.

Johnson, K. L. 1997. Deterrence of corporate fraud through securities litigation: The role of institutional investors. *Law and Contemporary Problems* 60 (4): 155–166.

Kahn, C., and A. Winton. 1998. Ownership structure, speculation, and shareholder intervention. *The Journal of Finance* 53 (1): 99–129.

Kang, J. K., J. Luo, and H. S. Na. 2018. Are institutional investors with multiple blockholdings effective monitors? *Journal of Financial Economics* 128 (3): 576–602.

Ke, B., and K. Petroni. 2004. How informed are actively trading institutional investors? Evidence from their trading behavior before a break in a string of consecutive earnings increases. *Journal of Accounting Research* 42 (5): 895–927.

Ke, B., and S. Ramalingegowda. 2005. Do institutional investors exploit the post-earnings announcement drift? *Journal of Accounting and Economics* 39 (1): 25–53.

Keim, D. B., and A. Madhavan. 1997. Transactions costs and investment style: An inter-exchange analysis of institutional equity trades. *Journal of Financial Economics* 46 (3): 265–292.

Kempf, E., A. Manconi, and O. Spalt. 2017. Distracted shareholders and corporate actions. *Review of Financial Studies* 30 (5): 1660–1695.

Kim, I., and D. J. Skinner. 2012. Measuring securities litigation risk. *Journal of Accounting and Economics* 53 (1–2): 290–310.

Lambert, R. A. 2001. Contracting theory and accounting. *Journal of Accounting and Economics* 32 (1–3): 3–87.

Lennox, C., and B. Li. 2014. Accounting misstatements following lawsuits against auditors. *Journal of Accounting and Economics* 57 (1): 58–75.

Lev, B., S. G. Ryan, and M. Wu. 2008. Rewriting earnings history. *Review of Accounting Studies* 13 (4): 419–451.

Macey, J. R., and G. P. Miller. 1991. The plaintiffs' attorney's role in class action and derivative Litigation: Economic analysis and recommendations for reform. *The University of Chicago Law Review* 58 (1): 1–118.

Maffett, M. 2012. Financial reporting opacity and informed trading by international institutional investors. *Journal of Accounting and Economics* 54 (2–3): 201–220.

Markov, S., and A. Tamayo. 2006. Predictability in financial analyst forecast errors: Learning or irrationality? *Journal of Accounting Research* 44 (4): 725–761.

Maug, E. 1998. Large shareholders as monitors: Is there a trade-off between liquidity and control? *The Journal of Finance* 53 (1): 65–98.

McNichols, M. F. 2002. Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 61–69.

McTier, B. C., and J. K. Wald. 2011. The causes and consequences of securities class action litigation. *Journal of Corporate Finance* 17 (3): 649–665.

Noh, S., E. C. So, and J. P. Weber. 2019. Voluntary and mandatory disclosures: Do managers view them as substitutes? *Journal of Accounting and Economics* 68 (1): Article 101243.

Palmrose, Z.-V., and S. Scholz. 2004. The circumstances and legal consequences of non-GAAP reporting: Evidence from restatements. *Contemporary Accounting Research* 21 (1): 139–180.

Perino, M. 2012. Institutional activism through litigation: An empirical analysis of public pension fund participation in securities class actions. *Journal of Empirical Legal Studies* 9 (2): 368–392.

Pukthuanthong, K., H. Turtle, T. Walker, and J. Wang. 2017. Litigation risk and institutional monitoring. *Journal of Corporate Finance* 45: 342–359.

Rogers, J. L., and A. Van Buskirk. 2009. Shareholder litigation and changes in disclosure behavior. *Journal of Accounting and Economics* 47 (1–2): 136–156.

Romano, R. 1991. The shareholder suit: Litigation without foundation? *The Journal of Law, Economics, and Organization* 7 (1): 55–88.

Schmidt, C., and R. Fahlenbrach. 2017. Do exogenous changes in passive institutional ownership affect corporate governance and firm value? *Journal of Financial Economics* 124 (2): 285–306.

Seru, A., T. Shumway, and N. Stoffman. 2010. Learning by trading. *The Review of Financial Studies* 23 (2): 705–739.

Shivdasani, A. 1993. Board composition, ownership structure, and hostile takeovers. *Journal of Accounting and Economics* 16 (1–3): 167–198.

Shleifer, A., and R. W. Vishny. 1986. Large shareholders and corporate control. *Journal of Political Economy* 94 (3): 461–488.

Sias, R. W., and L. T. Starks. 1997. Return autocorrelation and institutional investors. *Journal of Financial Economics* 46 (1): 103–131.

Silver, C., and S. Dinkin. 2008. Incentivizing institutional investors to serve as lead plaintiffs in securities fraud class actions. *Depaul Law Review* 57 (2): 471–508.

Thomas, R. S. 2008. The evolving role of institutional investors in corporate governance and corporate litigation. *Vanderbilt Law Review* 61 (2): 299–313.

Velury, U., and D. S. Jenkins. 2006. Institutional ownership and the quality of earnings. *Journal of Business Research* 59 (9): 1043–1051.

Walther, B. R. 1997. Investor sophistication and market earnings expectations. *Journal of Accounting Research* 35 (2): 157–179.

Yan, X., and Z. Zhang. 2009. Institutional investors and equity returns: Are short-term institutions better informed? *The Review of Financial Studies* 22 (2): 893–924.

Appendix I. Variable Definitions

Variable		Definition
Variables of financial reporting quality		
FRQ_P	=	weighted average of the decile rank, on a [1, 10] scale, of *FRQ* across all investees in an institution's portfolio. The decile rank is calculated each quarter among all firms with non-missing data for *FRQ* in the Compustat/CRSP universe. *FRQ* is either *FRQ1* or *FRQ2*, depending on the measure of the financial reporting quality of an investee firm.
FRQ1	=	accrual estimation error, calculated as the standard deviation of the residual term over the last five years for each firm. The residual term is estimated from the following model suggested by Dechow and Dichev (2002) and augmented by McNichols (2002): $$\Delta WCA_{i,t} = b_0 + b_1 OCF_{i,t-1} + b_2 OCF_{i,t} + b_3 OCF_{i,t+1} + b_4 \Delta REV_{i,t} + b_5 PPE_{i,t} + e_{i,t}, \quad (1)$$ where ΔWCA is the annual change in working capital scaled by average total assets; *OCF* is operating cash flows scaled by average total assets; ΔREV is the annual change in revenue scaled by average total assets; and *PPE* is gross property, plant, and equipment scaled by average total assets. The regression is estimated for each year and industry with at least ten observations with non-missing data.
FRQ2	=	the average absolute value of discretionary accruals over the last four quarters. Discretionary accruals are calculated as the residual term estimated from the following model suggested by Collins et al. (2017): $$ACC_{i,t} = b_0 + b_1 Q1_{i,t} + b_2 Q2_{i,t} + b_3 Q3_{i,t} + b_4 Q4_{i,t} + b_5 (\Delta REV_{i,t} - \Delta REC_{i,t}) + b_6 ACC_{i,t-4} + \sum_k b_{7,k} ROAD_{k,i,t} + \sum_k b_{8,k} SGD_{k,i,t} + \sum_k b_{9,k} MBD_{k,i,t-1} + \varepsilon_{i,t}, \quad (2)$$ where *ACC* is quarterly accruals scaled by lagged total assets; *Q1* to *Q4* are indicators of fiscal quarters; ΔREV is the quarterly change in revenue scaled by lagged total assets; ΔREC is the quarterly change in accounts receivable scaled by lagged total assets; and $ROAD_k$, SGD_k, and MBD_k are indicators of firms that belong to the *k*-th quintile group based on their return on assets, sales growth, and market-to-book ratio, respectively. The regression is estimated for each year and industry with at least 20 observations with non-missing data.
Variables of an institution's experience of litigation		
Litigation	=	number of securities class actions that are filed against investee firms in the portfolio of an institution during the previous three years (quarter

Variable		Definition
		t–1 to quarter *t*–12) scaled by the average number of investee firms in the portfolio over the corresponding three years.
Variables used for cross-sectional tests		
CR_High	=	indicator variable that equals one if an institution's average churn rate during the previous four quarters (*CR*) is greater than the sample median value, and zero otherwise.
Transient	=	indicator variable that equals one if an institution is classified as a transient investor based on the classification scheme proposed by Bushee (1998, 2001).
Own_High	=	indicator variable that equals one if an institution's four-quarter average ownership in the investee firms in the institution's portfolio (*Own*) is greater than the sample median value, and zero otherwise.
Conc_High	=	indicator variable that equals one if an institution's four-quarter average Herfindahl–Hirschman Index of investment weights for all investees in the institution's portfolio is greater than the sample median value, and zero otherwise.
Control variables		
X_P	=	weighted average of the decile rank, on a [1, 10] scale, of a given control variable *X* across all investees in an institution's portfolio. The decile rank is calculated each quarter for all firms with non-missing data for the control variable of interest in the Compustat/CRSP universe. The control variables include *BM*, *PastRet*, *FirmSize*, *Leverage*, *Beta*, *IdioRisk*, *Turnover*, *NumInst*, *SUE*, *Accruals*, *Age*, and *Loss*.
BM	=	book-to-market ratio, defined as the book value of equity scaled by the market value of equity.
PastRet	=	buy-and-hold return measured during the 11 months prior to the end month of the calendar quarter.
FirmSize	=	natural logarithm of the market value of equity.
Leverage	=	book leverage, defined as the sum of short-term and long-term debts divided by total assets.
Beta	=	sensitivity of stock returns to excess returns of the market portfolio, estimated from the regression of stock returns on market returns in excess of the risk-free rate over the previous 60 months.
IdioRisk	=	idiosyncratic risk, calculated as the standard deviation of the residual term estimated from the regression of stock returns on market returns in excess of the risk-free rate over the previous 60 months.
Turnover	=	average of monthly share turnover, calculated as trading volume scaled by the number of shares outstanding, over the last 12 months.
NumInst	=	number of institutions holding shares of a firm at the end of the calendar quarter.

Variable		Definition
SUE	=	standardized unexpected earnings, calculated as the seasonally adjusted change in quarterly earnings per share scaled by the standard deviation of the seasonally adjusted change in quarterly earnings per share over the previous eight quarters.
Accruals	=	total accruals divided by average total assets.
Age	=	firm age, calculated as the number of years for which a firm has been in the CRSP database.
Loss	=	indicator variable that equals one if income before extraordinary items in the previous fiscal year is negative, and zero otherwise.

Appendix II. Classification of Institutions

Following the approach described in Bushee (1998, 2001), I classify institutions as transient, quasi-indexer, and dedicated investors. The classification is based on institutional holding data over the 2002–2018 period, available from WhaleWisdom.

The first step is to construct eight variables representing eight portfolio characteristics on a quarterly basis and to average each of the eight variables over all quarters in a given calendar year. This procedure yields 46,952 institution-year observations in the sample. In Panel A of Table A1, I present the descriptive statistics of the eight portfolio characteristics that will be used as input variables for a factor analysis. The definitions of the variables are as follows: *APH* is the average percentage ownership in an institution's portfolio; *CONC* is the average investment size in US$ millions in an institution's portfolio; *LBPH* is the fraction of funds invested in blocks in an institution's portfolio; *LBPF* is the fraction of portfolio firms held in large blocks in an institution's portfolio; *PT1* is the quarterly portfolio turnover percentage; *PT2* is the quarterly portfolio turnover percentage calculated with only sales transactions; *STAB1* is the fraction of holdings held continuously for at least two years; and *STAB2* is the fraction of portfolio firms held continuously for at least two years.

The second step is to perform a factor analysis in which two factors, *BLOCK* and *PTURN*, are estimated using principal factor analysis with oblique promax rotation. In Panel B of Table A1, I present the factor loadings for the eight portfolio

characteristics. The *BLOCK* factor captures the average size of stakes held in an institution's portfolio. Thus, institutions with higher *BLOCK* scores have larger average investments and blocks, as evidenced by the higher values of *APH*, *CONC*, *LBPH*, and *LBPF*. The *PTURN* factor measures the level of portfolio turnover. Accordingly, institutions with higher *PTURN* scores trade more frequently, as evidenced by the higher values of *PT1* and *PT2*, and are less likely to have a long-term investment horizon of two years or more, as shown by the lower values of *STAB1* and *STAB2*.

The third step is to identify three cluster groups, each with similar factor scores. In Panel C of Table A1, I present the results of the clustering analysis, in which 26,288 institution-years are classified as quasi-indexer investors; 18,201 as transient investors; and 2,463 as dedicated investors. Consistent with my expectation, the mean *BLOCK* score is the highest for dedicated investors, and the mean *PTURN* score is the highest for transient investors. Overall, the statistics are consistent with those of Bushee (2001).

Finally, I examine the persistence of classification membership over the years to confirm the validity of this classification scheme. I report the results in Panel D of Table A1. I find that about 94.2% of the quasi-indexer investors in year t remain in the same group in year t+1. Similarly, 75.0% (83.6%) of the transient (dedicated) investors in year t remain in the same group in year t+1. I find similar results for year t+3 although the persistence decreases slightly over time. Among the three cluster groups, transient investors are the most likely to move to another group in subsequent periods, consistent with Bushee (1998).

TABLE A1. Clustering analysis based on institutions' behavior

Panel A. Descriptive statistics of the input variables (N = 46,952)

Variable	Mean	Std.	P10	P25	P50	P75	P90
APH	0.012	0.030	0.000	0.000	0.002	0.010	0.029
CONC	20.748	54.357	0.797	1.722	4.227	13.354	45.044
LBPH	0.063	0.178	0.000	0.000	0.000	0.010	0.188
LBPF	0.037	0.123	0.000	0.000	0.000	0.004	0.083
PT1	0.236	0.205	0.067	0.095	0.157	0.303	0.533
PT2	0.105	0.096	0.023	0.038	0.070	0.138	0.249
STAB1	0.513	0.335	0.001	0.196	0.563	0.825	0.930
STAB2	0.417	0.286	0.003	0.148	0.429	0.667	0.793

Panel B. Factor analysis

	Factor	
Variable	*BLOCK*	*PTURN*
APH	0.913	0.021
CONC	0.536	-0.077
LBPH	0.962	0.007
LBPF	0.910	0.008
PT1	-0.017	0.804
PT2	-0.031	0.672
STAB1	-0.014	-0.936
STAB2	0.005	-0.922
Variance explained by each factor	0.507	0.482

Panel C. Portfolio characteristics of institutional investor groups

	Institutional investor groups					
	Quasi-indexer		Transient		Dedicated	
Factor	Mean	Std.	Mean	Std.	Mean	Std.
BLOCK	-0.216	0.342	-0.182	0.384	3.650	1.307
APH	0.005	0.010	0.007	0.011	0.116	0.060
CONC	16.672	43.469	13.049	30.893	121.153	135.702
LBPH	0.023	0.067	0.030	0.077	0.728	0.208
LBPF	0.011	0.039	0.017	0.046	0.463	0.252
PTURN	-0.703	0.431	1.027	0.531	-0.084	0.867
PT1	0.123	0.064	0.402	0.228	0.211	0.185
PT2	0.060	0.043	0.173	0.113	0.089	0.076
STAB1	0.757	0.166	0.160	0.153	0.532	0.341
STAB2	0.617	0.169	0.123	0.119	0.445	0.292
# of obs.	26,288		18,201		2,463	

Panel D. Persistence of classification membership over the years

	One-year ahead (Year *t*+1)			Three-year ahead (Year *t*+3)		
Year *t*	Quasi-indexer	Transient	Dedicated	Quasi-indexer	Transient	Dedicated
Quasi-indexer	94.2	5.3	0.5	91.0	8.0	1.0
Transient	23.7	75.0	1.4	36.4	61.4	2.2
Dedicated	8.1	8.3	83.6	16.8	10.9	72.3

TABLES

TABLE 1. Sample selection procedures

This table presents the sample selection procedures for the samples used in the empirical analyses. Panel A summarizes the procedure for the sample of class action lawsuits, which is used to measure institutions' experience of shareholder litigation. Panel B describes the procedure for the sample of institution-quarters, which is used for tests of main hypotheses.

Panel A. Sample of securities class action lawsuits

Sample selection procedures	Number of lawsuits
Lawsuits filed between 2003 and 2017 and available from the SCAC at Stanford Law School	3,073
(-) Lawsuits against firms not listed on the NYSE, AMEX, or NASDAQ stock exchange	(359)
(-) Lawsuits against non-U.S. firms	(402)
(-) Lawsuits that do not involve a violation of Rule 10(b)-5 of the Securities Exchange Act	(570)
(-) Lawsuits against firms without PERMNO or data from CRSP	(192)
Sample of lawsuits used in empirical analyses	1,550

Panel B. Sample for tests of hypotheses

Sample selection procedures	Institution-quarter observations
Institution-quarters during the 2006–2017 period, available from WhaleWisdom	157,032
(-) Institutions established less than three years ago	(40,137)
Sample for the estimation of Equation (10) (Section 5.2)	116,895
(-) Institutions that are not classified as either transient, quasi-indexer, or dedicated investors	(4,350)
(-) Institutions with less than ten investee firms in the portfolio	(9,489)
(-) Institutions without sufficient data for the calculation of variables	(822)
Sample for tests of hypotheses	102,234

TABLE 2. Descriptive statistics of securities class actions between 2003 and 2017

This table presents the descriptive statistics of all securities class action lawsuits filed between 2003 and 2017. Panel A presents the summary statistics of the defendant firms in the lawsuits. Panel B presents the distribution of the lawsuits by year of filing. Panel C presents the distribution of the lawsuits by industry of the defendant firm based on the Fama–French 48 industry classification.

Panel A. Summary statistics of the defendant firms (N = 1,550)

Variable	Mean	Std.	P25	P50	P75
Total assets ($ mil.)	31,935.0	142,859.9	204.2	854.7	4,658.7
Market value of equity ($ mil.)	7,945.8	24,123.4	235.0	845.1	3,160.3
Firm age (years)	16.5	16.0	5.0	12.0	22.0
Number of institutions	212.8	252.9	72.3	129.6	237.5
Institutional ownership	62.2%	29.3%	41.7%	68.2%	86.5%
Investment value ($ mil.)	5,910.4	16,310.7	164.0	752.0	2,950.2

Panel B. Distribution by filing year

Year of filing	Frequency of lawsuits	
2003	144	9.3%
2004	155	10.0%
2005	124	8.0%
2006	76	4.9%
2007	92	5.9%
2008	111	7.2%
2009	73	4.7%
2010	71	4.6%
2011	68	4.4%
2012	81	5.2%
2013	97	6.3%
2014	96	6.2%
2015	110	7.1%
2016	118	7.6%
2017	134	8.7%
Total	1,550	100.0%

Panel C. Distribution by industry

Industry description	Frequency of lawsuits		Distribution in Compustat/CRSP
Pharmaceutical Products	251	16.2%	5.8%
Business Services	203	13.1%	12.1%
Banking	114	7.4%	12.5%
Electronic Equipment	97	6.3%	5.9%

Industry description	Frequency of lawsuits		Distribution in Compustat/CRSP
Retail	91	5.9%	4.3%
Medical Equipment	87	5.6%	3.1%
Computers	76	4.9%	3.8%
Insurance	62	4.0%	3.1%
Healthcare	44	2.8%	1.3%
Trading	44	2.8%	5.6%
Personal Services	43	2.8%	0.9%
Communication	33	2.1%	3.4%
Other industries (each representing less than 2%)	405	26.1%	38.1%
Total	1,550	100.0%	100.0%

TABLE 3. Descriptive statistics of the test sample

This table presents the descriptive statistics of the final sample, consisting of 102,234 institution-quarter observations used in the main analyses. Panel A presents the summary statistics of the variables used in the main analyses. Panel B presents the distribution of the sample by year and by institution type. Panel C presents the Pearson correlations among the variables used in the main analyses. The correlation coefficients in bold are statistically significant at least at the 5% level for two-tailed tests. See Appendix I for detailed definitions of the variables.

Panel A. Summary statistics of the main variables (N = 102,234)

Variable	Mean	Std.	P10	P25	P50	P75	P90
FRQ1_P	4.096	0.997	2.840	3.443	4.088	4.629	5.291
FRQ2_P	4.817	0.802	3.939	4.362	4.747	5.222	5.821
Litigation	0.199	0.121	0.078	0.113	0.171	0.255	0.362
BM_P	4.123	0.978	2.996	3.501	4.020	4.595	5.402
PastRet_P	6.478	0.955	5.251	5.835	6.482	7.132	7.712
MVE_P	9.122	1.042	7.705	8.875	9.520	9.806	9.919
Leverage_P	6.006	0.820	5.019	5.600	6.077	6.471	6.885
Beta_P	5.312	1.039	4.024	4.603	5.249	5.946	6.685
IdioRisk_P	3.616	1.346	2.173	2.627	3.304	4.333	5.569
Turnover_P	6.261	1.128	4.772	5.448	6.252	7.053	7.750
NumInst_P	9.489	0.678	8.567	9.347	9.764	9.926	9.982
SUE_P	6.021	0.892	4.889	5.506	6.048	6.591	7.120
Accruals_P	5.502	0.711	4.676	5.141	5.530	5.901	6.296
Age_P	7.606	1.341	5.661	6.873	7.934	8.587	9.047
Loss_P	0.089	0.129	0.000	0.010	0.043	0.109	0.237
CR	0.130	0.144	0.019	0.037	0.076	0.160	0.330
Transient	0.292	0.455	0.000	0.000	0.000	1.000	1.000
Own	0.008	0.017	0.000	0.000	0.002	0.009	0.023
Conc	0.000	0.001	0.000	0.000	0.000	0.000	0.001

Panel B. Distribution by year and by institution type

Year	Transient	Quasi-indexer	Dedicated	All types	Percentage (%)
2006	2,009	4,179	184	6,372	6.2
2007	2,236	4,409	206	6,851	6.7
2008	2,530	4,551	235	7,316	7.2
2009	2,516	4,767	213	7,496	7.3
2010	2,700	5,058	232	7,990	7.8
2011	2,806	5,395	241	8,442	8.2
2012	2,520	5,852	252	8,624	8.4
2013	2,447	6,140	243	8,830	8.6
2014	2,557	6,519	300	9,376	9.2
2015	2,502	6,990	343	9,835	9.6
2016	2,477	7,478	321	10,276	10.1

Year	Transient	Quasi-indexer	Dedicated	All types	Percentage (%)
2017	2,595	7,923	308	10,826	10.6
Total	29,895	69,261	3,078	102,234	100.0
Percentage (%)	29.3	67.7	3.0	100.0	

Panel C. Correlations

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
[1] *FRQ1_P*	1.00																	
[2] *FRQ2_P*	**0.42**	1.00																
[3] *Litigation*	**-0.10**	**0.07**	1.00															
[4] *BM_P*	**0.05**	**-0.32**	**-0.18**	1.00														
[5] *PastRet_P*	**-0.03**	**0.12**	**0.05**	**-0.36**	1.00													
[6] *MVE_P*	**-0.45**	**-0.37**	**0.04**	**-0.30**	**0.12**	1.00												
[7] *Leverage_P*	**-0.09**	**-0.32**	**-0.12**	**0.10**	**-0.09**	**0.27**	1.00											
[8] *Beta_P*	**0.42**	**0.27**	0.00	**0.25**	-0.00	**-0.47**	**-0.07**	1.00										
[9] *IdioRisk_P*	**0.49**	**0.43**	**0.09**	**0.17**	**0.04**	**-0.75**	**-0.19**	**0.74**	1.00									
[10] *Turnover_P*	**0.11**	**0.22**	**0.32**	**-0.12**	**0.09**	**-0.16**	**-0.11**	**0.38**	**0.50**	1.00								
[11] *NumInst_P*	**-0.44**	**-0.35**	**0.02**	**-0.28**	**0.11**	**0.97**	**0.27**	**-0.44**	**-0.74**	**-0.11**	1.00							
[12] *SUE_P*	**-0.07**	**0.05**	**0.08**	**-0.25**	**0.21**	**0.16**	**-0.15**	**-0.03**	**-0.08**	**-0.02**	**0.16**	1.00						
[13] *Accruals_P*	**-0.05**	**-0.26**	**-0.12**	**0.24**	**-0.09**	**0.12**	**0.14**	**-0.17**	**-0.32**	**-0.41**	**0.11**	**-0.07**	1.00					
[14] *Age_P*	**-0.46**	**-0.38**	**-0.14**	**-0.05**	**-0.03**	**0.64**	**0.14**	**-0.56**	**-0.76**	**-0.46**	**0.66**	**0.06**	**0.26**	1.00				
[15] *Loss_P*	**0.36**	**0.31**	**0.11**	**0.12**	**-0.11**	**-0.62**	**-0.08**	**0.46**	**0.67**	**0.30**	**-0.63**	**-0.18**	**-0.34**	**-0.60**	1.00			
[16] *CR*	**0.16**	**0.15**	**0.22**	0.00	**0.11**	**-0.21**	-0.00	**0.30**	**0.38**	**0.43**	**-0.20**	**-0.02**	**-0.18**	**-0.37**	**0.25**	1.00		
[17] *Transient*	**0.19**	**0.17**	**0.26**	0.00	**0.11**	**-0.24**	0.00	**0.33**	**0.42**	**0.42**	**-0.24**	-0.01	**-0.17**	**-0.42**	**0.28**	**0.70**	1.00	
[18] *Own*	**0.22**	**0.16**	**-0.05**	**0.16**	**-0.08**	**-0.48**	**-0.09**	**0.26**	**0.42**	**0.06**	**-0.53**	**-0.12**	**-0.05**	**-0.41**	**0.38**	**-0.02**	**-0.01**	1.00
[19] *Conc*	**0.19**	**0.15**	**-0.05**	**0.12**	**-0.08**	**-0.38**	**-0.04**	**0.22**	**0.35**	**0.04**	**-0.42**	**-0.12**	**-0.05**	**-0.33**	**0.34**	**-0.03**	**-0.04**	**0.83**

TABLE 4. Institutions' litigation experience and portfolio management

This table presents the results of H1, in which Equation (3) is estimated using OLS regression:

$$FRQ\_P_{i,t} = \beta_0 + \beta_1 Litigation_{i,t} + \beta_2 BM\_P_{i,t} + \beta_3 PastRet\_P_{i,t} + \beta_4 Size\_P_{i,t} + \beta_5 Beta\_P_{i,t} + \beta_6 IdioRisk\_P_{i,t} + \beta_7 Turnover\_P_{i,t} + \beta_8 NumInst\_P_{i,t} + \beta_9 SUE\_P_{i,t} + \beta_{10} Accrual\_P_{i,t} + \beta_{11} Age\_P_{i,t} + \beta_{12} Loss\_P_{i,t} + \beta_{13} Leverage\_P_{i,t} + \sum \gamma_t + \sum \delta_i + \varepsilon_{i,t} . \quad (3)$$

The dependent variable is the weighted average of the financial reporting quality of investee firms in an institution's portfolio. The financial reporting quality of each investee firm is measured using the standard deviation of the accrual estimation errors (Dechow and Dichev 2002) in columns (1) and (3), and using absolute discretionary accruals (Collins et al. 2017) in columns (2) and (4). The estimation results are based on the full sample in columns (1) and (2), and on the sample excluding dedicated investors in columns (3) and (4). The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation	-0.851***	-0.426***	-0.820***	-0.422***
	(-8.81)	(-6.64)	(-8.56)	(-6.68)
BM_P	-0.078***	-0.278***	-0.088***	-0.290***
	(-5.51)	(-24.88)	(-6.00)	(-26.90)
PastRet_P	-0.006	-0.006	-0.009	-0.010*
	(-0.86)	(-1.21)	(-1.30)	(-1.88)
MVE_P	0.013	-0.299***	0.025	-0.332***
	(0.31)	(-8.42)	(0.54)	(-9.83)
Leverage_P	-0.043***	-0.130***	-0.054***	-0.132***
	(-2.77)	(-12.48)	(-3.50)	(-12.54)
Beta_P	0.104***	0.002	0.111***	0.003
	(7.91)	(0.24)	(8.09)	(0.37)
IdioRisk_P	0.083***	0.081***	0.086***	0.086***
	(4.34)	(6.27)	(4.92)	(6.87)
Turnover_P	0.005	0.009	0.022	0.008
	(0.29)	(0.78)	(1.31)	(0.72)
NumInst_P	-0.208***	0.208***	-0.237***	0.238***
	(-3.22)	(3.91)	(-3.43)	(4.64)
SUE_P	-0.013**	-0.001	-0.015***	-0.000
	(-2.34)	(-0.23)	(-2.77)	(-0.07)
Accruals_P	0.048***	-0.024**	0.061***	-0.025***
	(3.66)	(-2.51)	(4.56)	(-2.71)
Age_P	-0.127***	-0.045***	-0.121***	-0.037***
	(-7.89)	(-4.10)	(-7.57)	(-3.47)
Loss_P	-0.061	-0.044	-0.001	-0.051

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
	(-0.65)	(-0.60)	(-0.01)	(-0.69)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	99,156	99,156
Adjusted R^2	0.642	0.650	0.642	0.646

TABLE 5. Moderating effect of investment horizon on portfolio management

This table presents the results of H2, in which Equation (4) is estimated using OLS regression:

$$FRQ\_P_{i,t} = \beta_0 + \beta_1 Litigation_{i,t} + \beta_2 Litigation_{i,t} \times TestVar_{i,t} + \beta_3 TestVar_{i,t} + \beta_4 BM\_P_{i,t} + \beta_5 PastRet\_P_{i,t} + \beta_6 Size\_P_{i,t} + \beta_7 Beta\_P_{i,t} + \beta_8 IdioRisk\_P_{i,t} + \beta_9 Turnover\_P_{i,t} + \beta_{10} NumInst\_P_{i,t} + \beta_{11} SUE\_P_{i,t} + \beta_{12} Accrual\_P_{i,t} + \beta_{13} Age\_P_{i,t} + \beta_{14} Loss\_P_{i,t} + \beta_{15} Leverage\_P_{i,t} + \sum \gamma_t + \sum \delta_i + \varepsilon_{i,t} . \quad (4)$$

The dependent variable is the weighted average of the financial reporting quality of investee firms in an institution's portfolio. The financial reporting quality of each investee firm is measured using the standard deviation of the accrual estimation errors (Dechow and Dichev 2002) in columns (1) and (3), and using absolute discretionary accruals (Collins et al. 2017) in columns (2) and (4). As candidates for *TestVar*, *CR_High* and *Transient* are used to capture institutions with a short-term investment horizon in Panels A and B, respectively. In both Panels, the estimation results are based on the full sample in columns (1) and (2), and on the sample excluding dedicated investors in columns (3) and (4). The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Institutions with a high versus low churn rate

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation	-1.588***	-0.739***	-1.578***	-0.765***
	(-13.00)	(-8.97)	(-12.97)	(-9.29)
Litigation×CR_High	1.272***	0.541***	1.290***	0.583***
	(10.55)	(6.54)	(10.82)	(7.25)
CR_High	-0.243***	-0.103***	-0.252***	-0.109***
	(-9.73)	(-5.90)	(-10.20)	(-6.31)
BM_P	-0.080***	-0.278***	-0.090***	-0.290***
	(-5.68)	(-25.07)	(-6.17)	(-27.13)
PastRet_P	-0.008	-0.007	-0.011*	-0.011**
	(-1.22)	(-1.41)	(-1.65)	(-2.09)
MVE_P	0.017	-0.297***	0.027	-0.331***
	(0.40)	(-8.37)	(0.59)	(-9.80)
Leverage_P	-0.042***	-0.130***	-0.053***	-0.132***
	(-2.77)	(-12.53)	(-3.50)	(-12.61)
Beta_P	0.102***	0.002	0.110***	0.003
	(7.88)	(0.18)	(8.10)	(0.33)
IdioRisk_P	0.078***	0.079***	0.079***	0.083***
	(4.11)	(6.13)	(4.60)	(6.67)
Turnover_P	0.013	0.012	0.031*	0.012
	(0.80)	(1.09)	(1.81)	(1.04)
NumInst_P	-0.225***	0.201***	-0.254***	0.231***
	(-3.50)	(3.79)	(-3.66)	(4.51)

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
SUE_P	-0.012**	-0.001	-0.014***	0.000
	(-2.15)	(-0.13)	(-2.61)	(0.02)
Accruals_P	0.050***	-0.023**	0.063***	-0.025***
	(3.79)	(-2.44)	(4.70)	(-2.63)
Age_P	-0.122***	-0.043***	-0.117***	-0.036***
	(-7.70)	(-3.96)	(-7.44)	(-3.33)
Loss_P	-0.076	-0.051	-0.016	-0.058
	(-0.83)	(-0.69)	(-0.17)	(-0.79)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	99,156	99,156
Adjusted R^2	0.646	0.651	0.646	0.648

Panel B. Transient institutions versus other types of institutions

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation	-1.513***	-0.682***	-1.500***	-0.684***
	(-13.15)	(-8.58)	(-12.87)	(-8.76)
Litigation×*Transient*	1.412***	0.545***	1.394***	0.535***
	(10.69)	(6.21)	(10.27)	(6.09)
Transient	-0.256***	-0.108***	-0.252***	-0.110***
	(-8.04)	(-5.12)	(-7.91)	(-5.18)
BM_P	-0.081***	-0.279***	-0.091***	-0.291***
	(-5.81)	(-25.03)	(-6.33)	(-27.10)
PastRet_P	-0.008	-0.007	-0.012*	-0.011**
	(-1.22)	(-1.38)	(-1.74)	(-2.08)
MVE_P	0.017	-0.297***	0.028	-0.331***
	(0.40)	(-8.37)	(0.62)	(-9.80)
Leverage_P	-0.043***	-0.130***	-0.053***	-0.131***
	(-2.79)	(-12.52)	(-3.50)	(-12.56)
Beta_P	0.101***	0.001	0.108***	0.003
	(7.78)	(0.13)	(7.99)	(0.29)
IdioRisk_P	0.077***	0.079***	0.078***	0.083***
	(4.02)	(6.11)	(4.54)	(6.70)
Turnover_P	0.013	0.012	0.031*	0.012
	(0.81)	(1.08)	(1.83)	(1.02)

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
NumInst_P	-0.225***	0.202***	-0.250***	0.233***
	(-3.49)	(3.80)	(-3.62)	(4.55)
SUE_P	-0.012**	-0.001	-0.014***	-0.000
	(-2.26)	(-0.19)	(-2.68)	(-0.03)
Accruals_P	0.048***	-0.024**	0.061***	-0.026***
	(3.66)	(-2.52)	(4.57)	(-2.72)
Age_P	-0.122***	-0.043***	-0.116***	-0.036***
	(-7.66)	(-3.97)	(-7.37)	(-3.34)
Loss_P	-0.076	-0.050	-0.016	-0.057
	(-0.83)	(-0.68)	(-0.18)	(-0.77)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	99,156	99,156
Adjusted R^2	0.646	0.651	0.646	0.647

TABLE 6. Moderating effect of monitoring incentive on portfolio management

This table presents the results of H3, in which Equation (4) is estimated using OLS regression:

$$FRQ\_P_{i,t} = \beta_0 + \beta_1 Litigation_{i,t} + \beta_2 Litigation_{i,t} \times TestVar_{i,t} + \beta_3 TestVar_{i,t} + \beta_4 BM\_P_{i,t} + \beta_5 PastRet\_P_{i,t} + \beta_6 Size\_P_{i,t} + \beta_7 Beta\_P_{i,t} + \beta_8 IdioRisk\_P_{i,t} + \beta_9 Turnover\_P_{i,t} + \beta_{10} NumInst\_P_{i,t} + \beta_{11} SUE\_P_{i,t} + \beta_{12} Accrual\_P_{i,t} + \beta_{13} Age\_P_{i,t} + \beta_{14} Loss\_P_{i,t} + \beta_{15} Leverage\_P_{i,t} + \sum \gamma_t + \sum \delta_i + \varepsilon_{i,t} . \quad (4)$$

The dependent variable is the weighted average of the financial reporting quality of investee firms in an institution's portfolio. The financial reporting quality of each investee firm is measured using the standard deviation of the accrual estimation errors (Dechow and Dichev 2002) in columns (1) and (3), and using absolute discretionary accruals (Collins et al. 2017) in columns (2) and (4). As candidates for *TestVar*, *Own_High* and *Conc_High* are used to measure institutions with sufficient incentive for direct monitoring of investee firms in Panels A and B, respectively. In both Panels, the estimation results are based on the full sample in columns (1) and (2), and on the sample excluding dedicated investors in columns (3) and (4). The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Institutions with a high versus low level of average ownership

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation	-1.342***	-0.593***	-1.317***	-0.591***
	(-12.97)	(-8.49)	(-12.77)	(-8.60)
Litigation×Own_High	0.986***	0.331***	1.043***	0.351***
	(7.33)	(3.57)	(7.94)	(3.86)
Own_High	-0.209***	-0.097***	-0.219***	-0.098***
	(-5.95)	(-4.21)	(-6.36)	(-4.33)
BM_P	-0.081***	-0.279***	-0.092***	-0.291***
	(-5.77)	(-24.89)	(-6.30)	(-26.93)
PastRet_P	-0.008	-0.007	-0.011	-0.010**
	(-1.13)	(-1.35)	(-1.58)	(-2.01)
MVE_P	0.010	-0.302***	0.020	-0.335***
	(0.23)	(-8.50)	(0.44)	(-9.90)
Leverage_P	-0.045***	-0.131***	-0.057***	-0.133***
	(-2.96)	(-12.57)	(-3.74)	(-12.64)
Beta_P	0.106***	0.003	0.113***	0.004
	(8.14)	(0.32)	(8.34)	(0.46)
IdioRisk_P	0.077***	0.080***	0.079***	0.084***
	(4.05)	(6.14)	(4.58)	(6.72)
Turnover_P	0.012	0.012	0.030*	0.011
	(0.70)	(1.02)	(1.76)	(0.99)
NumInst_P	-0.205***	0.207***	-0.232***	0.238***
	(-3.17)	(3.91)	(-3.36)	(4.64)

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
SUE_P	-0.012**	-0.001	-0.014***	-0.000
	(-2.19)	(-0.17)	(-2.66)	(-0.02)
Accruals_P	0.049***	-0.023**	0.063***	-0.025***
	(3.76)	(-2.46)	(4.71)	(-2.65)
Age_P	-0.123***	-0.044***	-0.117***	-0.037***
	(-7.68)	(-4.06)	(-7.36)	(-3.43)
Loss_P	-0.072	-0.049	-0.014	-0.057
	(-0.78)	(-0.67)	(-0.15)	(-0.77)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	99,156	99,156
Adjusted R^2	0.644	0.650	0.644	0.647

Panel B. Institutions with a high versus low level of concentrated holdings

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation	-1.331***	-0.616***	-1.299***	-0.612***
	(-13.00)	(-9.12)	(-12.71)	(-9.21)
Litigation×Conc_High	0.965***	0.381***	1.007***	0.399***
	(7.56)	(4.34)	(7.97)	(4.62)
Conc_High	-0.193***	-0.083***	-0.200***	-0.083***
	(-5.94)	(-3.79)	(-6.29)	(-3.84)
BM_P	-0.081***	-0.279***	-0.091***	-0.291***
	(-5.74)	(-24.92)	(-6.26)	(-26.99)
PastRet_P	-0.008	-0.007	-0.011	-0.010**
	(-1.16)	(-1.37)	(-1.61)	(-2.04)
MVE_P	0.013	-0.299***	0.024	-0.333***
	(0.30)	(-8.44)	(0.53)	(-9.82)
Leverage_P	-0.045***	-0.131***	-0.057***	-0.133***
	(-2.96)	(-12.62)	(-3.73)	(-12.70)
Beta_P	0.105***	0.003	0.112***	0.004
	(8.10)	(0.31)	(8.29)	(0.44)
IdioRisk_P	0.079***	0.080***	0.081***	0.084***
	(4.12)	(6.15)	(4.68)	(6.75)
Turnover_P	0.011	0.011	0.028*	0.011
	(0.63)	(0.99)	(1.68)	(0.94)

Sample =	Full sample		Dedicated investors excluded	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
NumInst_P	-0.204***	0.209***	-0.231***	0.240***
	(-3.16)	(3.94)	(-3.36)	(4.68)
SUE_P	-0.012**	-0.001	-0.014***	-0.000
	(-2.18)	(-0.15)	(-2.64)	(-0.00)
Accruals_P	0.049***	-0.023**	0.063***	-0.025***
	(3.74)	(-2.47)	(4.69)	(-2.66)
Age_P	-0.123***	-0.043***	-0.118***	-0.036***
	(-7.71)	(-3.99)	(-7.39)	(-3.36)
Loss_P	-0.076	-0.050	-0.018	-0.058
	(-0.82)	(-0.69)	(-0.20)	(-0.79)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	99,156	99,156
Adjusted R^2	0.644	0.650	0.644	0.647

TABLE 7. Newly purchased stocks versus existing stocks in an institution's portfolio

This table presents the results of Equation (3), taking into account when the investments are initiated, as described in Section 5.1. In columns (1) and (2), the dependent variable is FRQ_{NEW_P}, which is the weighted average of financial reporting quality across all investees in which investments are initiated in quarter *t*. In columns (3) and (4), the dependent variable is FRQ_{OLD_P}, which is the weighted average of financial reporting quality across all investees in which investments are initiated in quarter *t*. In columns (5) and (6), the dependent variable is $FRQ_{NEW\text{-}OLD\_P}$, which is the difference between FRQ_{NEW_P} and FRQ_{OLD_P}. The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

FRQ measurement=	Newly purchased stocks		Existing stocks		Newly purchased stocks versus existing stocks	
Dep. variable =	$FRQ1_{NEW\_P}$	$FRQ2_{NEW\_P}$	$FRQ1_{OLD\_P}$	$FRQ2_{OLD\_P}$	$FRQ1_{NEW\text{-}OLD\_P}$	$FRQ2_{NEW\text{-}OLD\_P}$
	(1)	(2)	(3)	(4)	(5)	(6)
Litigation	-0.966***	-0.304***	-0.818***	-0.271***	-0.156	-0.049
	(-9.44)	(-3.54)	(-7.41)	(-3.62)	(-1.12)	(-0.46)
BM_P	-0.105***	-0.189***	-0.082***	-0.282***	-0.023	0.101***
	(-6.44)	(-14.35)	(-5.03)	(-23.48)	(-1.07)	(5.68)
PastRet_P	0.009	-0.005	-0.014	-0.011*	0.026*	0.010
	(0.83)	(-0.51)	(-1.64)	(-1.67)	(1.89)	(0.90)
MVE_P	-0.234***	-0.140***	-0.043	-0.347***	-0.183***	0.205***
	(-4.36)	(-3.34)	(-0.85)	(-8.09)	(-2.66)	(3.57)
Leverage_P	-0.002	-0.054***	-0.052***	-0.141***	0.050**	0.092***
	(-0.15)	(-4.02)	(-3.08)	(-11.87)	(2.39)	(5.26)
Beta_P	0.068***	0.002	0.115***	0.012	-0.051**	-0.009
	(4.14)	(0.14)	(7.99)	(1.04)	(-2.44)	(-0.51)

FRQ measurement=	Newly purchased stocks		Existing stocks		Newly purchased stocks versus existing stocks	
Dep. variable =	$FRQ1_{NEW\_P}$	$FRQ2_{NEW\_P}$	$FRQ1_{OLD\_P}$	$FRQ2_{OLD\_P}$	$FRQ1_{NEW\text{-}OLD\_P}$	$FRQ2_{NEW\text{-}OLD\_P}$
	(1)	(2)	(3)	(4)	(5)	(6)
IdioRisk_P	0.032	0.069***	0.113***	0.085***	-0.083***	-0.022
	(1.58)	(4.22)	(5.70)	(5.82)	(-3.06)	(-1.03)
Turnover_P	-0.026	0.016	-0.014	-0.012	-0.010	0.034*
	(-1.36)	(1.08)	(-0.75)	(-0.91)	(-0.38)	(1.71)
NumInst_P	0.178**	0.026	-0.076	0.277***	0.238**	-0.256***
	(2.23)	(0.40)	(-1.00)	(4.33)	(2.30)	(-2.85)
SUE_P	-0.032***	-0.023***	-0.010	0.009	-0.022*	-0.031***
	(-3.07)	(-2.73)	(-1.49)	(1.63)	(-1.76)	(-3.01)
Accruals_P	0.047***	0.021	0.055***	-0.030***	-0.013	0.050***
	(2.91)	(1.48)	(3.71)	(-2.72)	(-0.62)	(2.84)
Age_P	-0.118***	-0.033**	-0.117***	-0.035***	0.002	0.005
	(-7.05)	(-2.50)	(-7.13)	(-2.78)	(0.08)	(0.30)
Loss_P	0.153	0.067	-0.137	-0.104	0.311**	0.166
	(1.22)	(0.66)	(-1.32)	(-1.21)	(2.08)	(1.28)
Institution FE	Yes	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	76,650	76,650	76,650	76,650	76,650	76,650
Adjusted R^2	0.116	0.149	0.608	0.613	0.113	0.086

TABLE 8. Residual approach: abnormal experience of shareholder litigation

This table presents the results with the residual experience of shareholder litigation, as described in Section 5.2. Panel A presents the descriptive statistics of the variables used to estimate the residual experience of shareholder litigation according to Equation (10). Panel B presents the results of estimating the residual experience, in which the dependent variable is the natural logarithm of the number of class action lawsuits brought against investee firms in an institution's portfolio during the previous three years. Panels A and B are based on the sample of 116,895 institution-quarter observations as described in Panel B of Table 1. Panels C, D, and E present the results of H1, H2, and H3, respectively, using the residual experience of shareholder litigation (*Litigation_resid*) as an alternative litigation variable. In all Panels, the numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Descriptive statistics (N = 116,895)

Variable	Mean	Std.	P10	P25	P50	P75	P90
Log(1+# of class action lawsuits)	2.72	1.26	1.10	1.95	2.77	3.53	4.34
Log(assets under mgmt.)	6.07	1.85	4.11	4.85	5.81	7.19	8.59
Log(1+# of investee firms)	4.36	1.39	2.65	3.55	4.33	5.15	6.21
Log(1+# of blockholdings)	0.44	0.82	0.00	0.00	0.00	0.61	1.64

Panel B. Estimation of the residual experience of shareholder litigation

Dep. variable =	*Log(1+# of class action lawsuits)*
Log(assets under mgmt.)	0.008*
	(1.71)
Log(1+# of investee firms)	0.808***
	(152.29)
Log(1+# of blockholdings)	-0.065***
	(-6.41)
Constant	-0.829***
	(-36.45)
Observations	116,895
Adjusted R^2	0.806

Panel C. Institutions' litigation experience and portfolio management (H1)

Dep. variable =	*FRQ1_P*	*FRQ2_P*
	(1)	(2)
Litigation_resid	-0.251***	-0.092***
	(-11.33)	(-6.44)
BM_P	-0.079***	-0.277***
	(-5.61)	(-24.78)

Dep. variable =	*FRQ1_P* (1)	*FRQ2_P* (2)
PastRet_P	-0.007	-0.006
	(-1.08)	(-1.23)
MVE_P	0.021	-0.297***
	(0.48)	(-8.38)
Leverage_P	-0.042***	-0.130***
	(-2.72)	(-12.39)
Beta_P	0.103***	0.003
	(7.90)	(0.29)
IdioRisk_P	0.084***	0.082***
	(4.38)	(6.31)
Turnover_P	0.009	0.008
	(0.52)	(0.72)
NumInst_P	-0.218***	0.207***
	(-3.38)	(3.89)
SUE_P	-0.012**	-0.001
	(-2.27)	(-0.22)
Accruals_P	0.048***	-0.024**
	(3.68)	(-2.53)
Age_P	-0.125***	-0.045***
	(-7.84)	(-4.09)
Loss_P	-0.052	-0.044
	(-0.56)	(-0.60)
Institution FE	Yes	Yes
Quarter FE	Yes	Yes
Observations	102,234	102,234
Adjusted R^2	0.644	0.650

Panel D. Moderating effect of investment horizon (H2)

TestVar =	*CR_High*		*Transient*	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation_resid	-0.381***	-0.143***	-0.362***	-0.129***
	(-14.92)	(-8.63)	(-14.58)	(-7.95)
Litigation_resid×TestVar	0.276***	0.107***	0.315***	0.103***
	(10.85)	(6.37)	(10.65)	(5.41)
TestVar	0.010	0.004	0.022	0.000
	(0.78)	(0.41)	(1.15)	(0.00)
BM_P	-0.080***	-0.278***	-0.081***	-0.278***

TestVar =	*CR_High*		*Transient*	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
	(-5.74)	(-24.90)	(-5.82)	(-24.86)
PastRet_P	-0.008	-0.007	-0.009	-0.007
	(-1.25)	(-1.31)	(-1.27)	(-1.30)
MVE_P	0.022	-0.297***	0.023	-0.296***
	(0.50)	(-8.37)	(0.53)	(-8.36)
Leverage_P	-0.041***	-0.129***	-0.040***	-0.129***
	(-2.66)	(-12.38)	(-2.62)	(-12.36)
Beta_P	0.104***	0.003	0.102***	0.003
	(8.11)	(0.36)	(7.96)	(0.28)
IdioRisk_P	0.081***	0.081***	0.080***	0.081***
	(4.26)	(6.25)	(4.21)	(6.24)
Turnover_P	0.014	0.010	0.014	0.010
	(0.82)	(0.88)	(0.82)	(0.87)
NumInst_P	-0.231***	0.202***	-0.230***	0.203***
	(-3.59)	(3.81)	(-3.57)	(3.82)
SUE_P	-0.011**	-0.001	-0.012**	-0.001
	(-2.09)	(-0.14)	(-2.23)	(-0.21)
Accruals_P	0.050***	-0.023**	0.049***	-0.024**
	(3.86)	(-2.44)	(3.72)	(-2.52)
Age_P	-0.121***	-0.043***	-0.121***	-0.043***
	(-7.62)	(-3.93)	(-7.62)	(-3.97)
Loss_P	-0.067	-0.050	-0.063	-0.048
	(-0.73)	(-0.68)	(-0.68)	(-0.65)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	102,234	102,234
Adjusted R^2	0.647	0.650	0.647	0.650

Panel E. Moderating effect of monitoring incentive (H3)

TestVar =	*Own_High*		*Conc_High*	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
Litigation_resid	-0.388***	-0.136***	-0.384***	-0.146***
	(-16.33)	(-8.73)	(-16.15)	(-9.53)
Litigation_resid×TestVar	0.279***	0.089***	0.269***	0.107***
	(9.21)	(4.28)	(9.36)	(5.48)
TestVar	-0.016	-0.031**	-0.002	-0.007

TestVar =	*Own_High*		*Conc_High*	
Dep. variable =	*FRQ1_P*	*FRQ2_P*	*FRQ1_P*	*FRQ2_P*
	(1)	(2)	(3)	(4)
	(-0.71)	(-2.00)	(-0.10)	(-0.54)
BM_P	-0.084***	-0.279***	-0.083***	-0.279***
	(-5.96)	(-24.81)	(-5.92)	(-24.85)
PastRet_P	-0.009	-0.007	-0.009	-0.007
	(-1.27)	(-1.32)	(-1.28)	(-1.33)
MVE_P	0.013	-0.301***	0.015	-0.300***
	(0.29)	(-8.50)	(0.35)	(-8.46)
Leverage_P	-0.045***	-0.130***	-0.045***	-0.131***
	(-2.93)	(-12.48)	(-2.94)	(-12.56)
Beta_P	0.109***	0.005	0.108***	0.005
	(8.44)	(0.50)	(8.35)	(0.49)
IdioRisk_P	0.077***	0.080***	0.079***	0.080***
	(4.04)	(6.17)	(4.15)	(6.19)
Turnover_P	0.014	0.010	0.013	0.010
	(0.86)	(0.91)	(0.81)	(0.89)
NumInst_P	-0.211***	0.207***	-0.208***	0.210***
	(-3.28)	(3.91)	(-3.24)	(3.96)
SUE_P	-0.011**	-0.001	-0.010*	-0.000
	(-2.01)	(-0.12)	(-1.95)	(-0.06)
Accruals_P	0.050***	-0.023**	0.050***	-0.023**
	(3.88)	(-2.45)	(3.86)	(-2.45)
Age_P	-0.121***	-0.044***	-0.121***	-0.043***
	(-7.58)	(-4.01)	(-7.59)	(-3.92)
Loss_P	-0.065	-0.050	-0.069	-0.051
	(-0.70)	(-0.68)	(-0.75)	(-0.70)
Institution FE	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Observations	102,234	102,234	102,234	102,234
Adjusted R^2	0.647	0.650	0.647	0.650

TABLE 9. Analyses with change specifications

This table presents the results of change analyses, as described in Section 5.3, using Equations (11) and (12):

$$\Delta FRQ\_P_{i,t} = \beta_0 + \beta_1 \Delta Litigation_{i,t} + \beta_2 \Delta BM\_P_{i,t} + \beta_3 \Delta PastRet\_P_{i,t} + \beta_4 \Delta Size\_P_{i,t} + \beta_5 \Delta Beta\_P_{i,t} + \beta_6 \Delta IdioRisk\_P_{i,t} + \beta_7 \Delta Turnover\_P_{i,t} + \beta_8 \Delta NumInst\_P_{i,t} + \beta_9 \Delta SUE\_P_{i,t} + \beta_{10} \Delta Accrual\_P_{i,t} + \beta_{11} \Delta Age\_P_{i,t} + \beta_{12} \Delta Loss\_P_{i,t} + \beta_{13} \Delta Leverage\_P_{i,t} + \sum \gamma_t + \varepsilon_{i,t} \quad (11)$$

$$\Delta FRQ\_P_{i,t} = \beta_0 + \beta_1 \Delta Litigation_{i,t} + \beta_2 \Delta Litigation_{i,t} \times TestVar_{i,t} + \beta_3 TestVar_{i,t} + \beta_4 \Delta BM\_P_{i,t} + \beta_5 \Delta PastRet\_P_{i,t} + \beta_6 \Delta Size\_P_{i,t} + \beta_7 \Delta Beta\_P_{i,t} + \beta_8 \Delta IdioRisk\_P_{i,t} + \beta_9 \Delta Turnover\_P_{i,t} + \beta_{10} \Delta NumInst\_P_{i,t} + \beta_{11} \Delta SUE\_P_{i,t} + \beta_{12} \Delta Accrual\_P_{i,t} + \beta_{13} \Delta Age\_P_{i,t} + \beta_{14} \Delta Loss\_P_{i,t} + \beta_{15} \Delta Leverage\_P_{i,t} + \sum \gamma_t + \varepsilon_{i,t} \,. \quad (12)$$

Panel A presents the results of testing H1 using Equation (11), and Panels B and C present the results of testing H2 and H3, respectively, using Equation (12). In all Panels, the estimation results are based on the sample of all types of institutions available. The dependent variable is a change, from quarter *t–1* to quarter *t*, in the weighted average of the financial reporting quality of investee firms in an institution's portfolio. The financial reporting quality of each investee firm is measured using the standard deviation of the accruals estimation errors (Dechow and Dichev 2002) in columns (1) and (3), and using absolute discretionary accruals (Collins et al. 2017) in columns (2) and (4). The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Institutions' litigation experience and portfolio management (H1)

Dep. variable =	$\Delta FRQ1\_P$ (1)	$\Delta FRQ2\_P$ (2)
$\Delta Litigation$	-0.207***	-0.231***
	(-3.29)	(-3.88)
ΔBM_P	-0.083***	-0.228***
	(-10.48)	(-31.64)
$\Delta PastRet\_P$	-0.002	-0.020***
	(-0.70)	(-6.17)
ΔMVE_P	-0.120***	-0.205***
	(-6.00)	(-11.59)
$\Delta Leverage\_P$	-0.059***	-0.111***
	(-7.09)	(-14.54)
$\Delta Beta\_P$	0.048***	0.016**
	(6.72)	(2.35)
$\Delta IdioRisk\_P$	0.080***	0.048***
	(8.72)	(5.55)
$\Delta Turnover\_P$	0.072***	0.090***
	(7.43)	(10.28)
$\Delta NumInst\_P$	-0.075**	-0.005
	(-2.54)	(-0.20)

Dep. variable =	ΔFRQ1_P (1)	ΔFRQ2_P (2)
ΔSUE_P	0.004*	0.007***
	(1.90)	(2.93)
ΔAccruals_P	0.040***	-0.025***
	(5.58)	(-3.98)
ΔAge_P	-0.068***	-0.041***
	(-7.93)	(-5.43)
ΔLoss_P	0.029	-0.066
	(0.50)	(-1.23)
Institution FE	No	No
Quarter FE	Yes	Yes
Observations	97,045	97,045
Adjusted R^2	0.083	0.133

Panel B. Moderating effect of investment horizon (H2)

TestVar =	CR_High		Transient	
Dep. variable =	ΔFRQ1_P	ΔFRQ2_P	ΔFRQ1_P	ΔFRQ2_P
	(1)	(2)	(3)	(4)
ΔLitigation	-0.328***	-0.479***	-0.287***	-0.498***
	(-4.84)	(-6.60)	(-4.64)	(-7.52)
ΔLitigation×TestVar	0.243**	0.436***	0.213*	0.500***
	(2.48)	(4.37)	(1.91)	(4.49)
TestVar	-0.015***	-0.001	-0.014***	0.001
	(-9.58)	(-1.08)	(-6.58)	(0.59)
ΔBM_P	-0.084***	-0.230***	-0.083***	-0.229***
	(-10.26)	(-31.46)	(-10.32)	(-31.43)
ΔPastRet_P	-0.002	-0.020***	-0.002	-0.020***
	(-0.54)	(-6.08)	(-0.67)	(-6.38)
ΔMVE_P	-0.114***	-0.198***	-0.120***	-0.203***
	(-5.49)	(-10.83)	(-6.00)	(-11.45)
ΔLeverage_P	-0.059***	-0.112***	-0.060***	-0.110***
	(-6.89)	(-14.54)	(-7.12)	(-14.27)
ΔBeta_P	0.048***	0.015**	0.048***	0.014**
	(6.56)	(2.22)	(6.61)	(2.03)
ΔIdioRisk_P	0.081***	0.052***	0.079***	0.049***
	(8.65)	(5.85)	(8.49)	(5.65)
ΔTurnover_P	0.072***	0.089***	0.072***	0.092***
	(7.21)	(9.88)	(7.27)	(10.40)
ΔNumInst_P	-0.078**	-0.011	-0.071**	-0.007

TestVar =	*CR_High*		*Transient*	
Dep. variable =	Δ*FRQ1_P*	Δ*FRQ2_P*	Δ*FRQ1_P*	Δ*FRQ2_P*
	(1)	(2)	(3)	(4)
	(-2.52)	(-0.38)	(-2.37)	(-0.27)
Δ*SUE_P*	0.004*	0.006***	0.005*	0.007***
	(1.88)	(2.58)	(1.94)	(2.94)
Δ*Accruals_P*	0.039***	-0.025***	0.039***	-0.025***
	(5.22)	(-3.82)	(5.38)	(-3.97)
Δ*Age_P*	-0.066***	-0.041***	-0.069***	-0.041***
	(-7.56)	(-5.29)	(-8.05)	(-5.36)
Δ*Loss_P*	0.020	-0.080	0.027	-0.067
	(0.33)	(-1.44)	(0.46)	(-1.24)
Institution FE	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes
Observations	91,703	91,703	95,128	95,128
Adjusted R^2	0.082	0.134	0.083	0.134

Panel C. Moderating effect of monitoring incentive (H3)

TestVar =	*Own_High*		*Con_High*	
Dep. variable =	Δ*FRQ1_P*	Δ*FRQ2_P*	Δ*FRQ1_P*	Δ*FRQ2_P*
	(1)	(2)	(3)	(4)
Δ*Litigation*	-0.224***	-0.465***	-0.284***	-0.431***
	(-3.08)	(-6.80)	(-3.84)	(-6.17)
Δ*Litigation*×*TestVar*	0.044	0.428***	0.161	0.378***
	(0.42)	(4.27)	(1.57)	(3.83)
TestVar	-0.017***	-0.002	-0.017***	-0.002
	(-11.78)	(-1.39)	(-11.40)	(-1.25)
Δ*BM_P*	-0.082***	-0.225***	-0.084***	-0.224***
	(-10.35)	(-31.17)	(-10.41)	(-31.03)
Δ*PastRet_P*	-0.003	-0.020***	-0.003	-0.019***
	(-0.89)	(-6.31)	(-1.00)	(-5.95)
Δ*MVE_P*	-0.123***	-0.208***	-0.126***	-0.214***
	(-6.14)	(-11.65)	(-6.22)	(-12.00)
Δ*Leverage_P*	-0.061***	-0.110***	-0.057***	-0.108***
	(-7.36)	(-14.37)	(-6.92)	(-14.16)
Δ*Beta_P*	0.047***	0.017**	0.048***	0.015**
	(6.44)	(2.53)	(6.70)	(2.21)
Δ*IdioRisk_P*	0.082***	0.048***	0.081***	0.047***
	(8.89)	(5.63)	(8.87)	(5.55)
Δ*Turnover_P*	0.071***	0.089***	0.069***	0.081***

TestVar =	*Own_High*		*Con_High*	
Dep. variable =	Δ*FRQ1_P*	Δ*FRQ2_P*	Δ*FRQ1_P*	Δ*FRQ2_P*
	(1)	(2)	(3)	(4)
	(7.30)	(10.16)	(7.14)	(9.28)
Δ*NumInst_P*	-0.072**	-0.007	-0.065**	-0.002
	(-2.43)	(-0.26)	(-2.18)	(-0.06)
Δ*SUE_P*	0.005*	0.007***	0.005**	0.007***
	(1.95)	(3.04)	(2.24)	(3.23)
Δ*Accruals_P*	0.038***	-0.024***	0.040***	-0.025***
	(5.34)	(-3.76)	(5.60)	(-4.04)
Δ*Age_P*	-0.068***	-0.041***	-0.069***	-0.043***
	(-7.95)	(-5.32)	(-7.91)	(-5.53)
Δ*Loss_P*	0.029	-0.054	0.027	-0.094*
	(0.50)	(-1.00)	(0.47)	(-1.72)
Institution FE	No	No	No	No
Quarter FE	Yes	Yes	Yes	Yes
Observations	95,443	95,443	93,950	93,950
Adjusted R^2	0.083	0.133	0.083	0.131

TABLE 10. Restatements as a proxy for financial reporting quality

This table presents the results of testing the main hypotheses using the incidence of restatements as an inverse proxy for the financial reporting quality of an investee firm, as described in Section 5.4. The dependent variable is the fraction of restating investee firms in an institution's portfolio, where a restating firm indicates a firm that has restated its financial statements at least once during the previous three years. H1 is tested in column (1); H2 is tested with *CR_High* and Transient as *TestVar* in columns (2) and (3), respectively; and H3 is tested with *Own_High* and *Conc_High* as *TestVar* in columns (4) and (5), respectively. The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	*Restate_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
Litigation	-0.044***	-0.063***	-0.057***	-0.066***	-0.063***
	(-5.02)	(-5.55)	(-5.27)	(-6.87)	(-6.60)
Litigation×*TestVar*		0.034***	0.029**	0.044***	0.039***
		(3.06)	(2.38)	(3.70)	(3.39)
TestVar		-0.007***	-0.004	-0.006**	-0.007**
		(-2.98)	(-1.31)	(-1.97)	(-2.23)
BM_P	0.001	0.001	0.001	0.001	0.001
	(1.09)	(1.05)	(1.03)	(0.99)	(1.00)
PastRet_P	-0.001	-0.001	-0.001	-0.001	-0.001
	(-1.32)	(-1.40)	(-1.39)	(-1.42)	(-1.43)
MVE_P	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***
	(-3.61)	(-3.59)	(-3.59)	(-3.61)	(-3.60)
Leverage_P	0.011***	0.011***	0.011***	0.011***	0.011***
	(7.82)	(7.84)	(7.82)	(7.73)	(7.74)
Beta_P	0.007***	0.007***	0.007***	0.007***	0.007***
	(5.19)	(5.17)	(5.15)	(5.27)	(5.25)
IdioRisk_P	0.001	0.001	0.001	0.001	0.001
	(0.54)	(0.47)	(0.46)	(0.38)	(0.44)
Turnover_P	0.003*	0.003**	0.003*	0.003**	0.003*
	(1.82)	(1.97)	(1.92)	(1.98)	(1.95)
NumInst_P	-0.007	-0.007	-0.007	-0.006	-0.006
	(-0.96)	(-1.02)	(-1.01)	(-0.91)	(-0.92)
SUE_P	-0.001*	-0.001	-0.001*	-0.001	-0.001
	(-1.67)	(-1.62)	(-1.66)	(-1.62)	(-1.62)
Accruals_P	0.004***	0.004***	0.004***	0.004***	0.004***
	(2.79)	(2.83)	(2.79)	(2.82)	(2.81)
Age_P	-0.002	-0.002	-0.002	-0.002	-0.002
	(-1.50)	(-1.43)	(-1.42)	(-1.34)	(-1.40)
Loss_P	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.06)	(-0.10)	(-0.09)	(-0.09)	(-0.11)

Dep. variable =	*Restate_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
Institution FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	102,234	102,234	102,234	102,234	102,234
Adjusted R^2	0.495	0.496	0.496	0.496	0.496

TABLE 11. Effectiveness of learning from litigation experience

This table presents the results of examining the effectiveness of learning from litigation experience, as described in Section 5.5, by estimating a modified version of Equation (3) where $Litigation_{i,t+12}$ measured at the end of quarter t+12 is used as the dependent variable. The baseline results are reported in column (1) and those with additional controls for institutional characteristics in column (2). The sample reduces to 60,830 institution-quarters with the holding data available for 12 quarters ahead. The numbers in parentheses are t-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	$Litigation_{i,t+12}$	
	(1)	(2)
$Litigation_{i,t}$	-0.166***	-0.169***
	(-12.09)	(-12.20)
BM_P	-0.008***	-0.007***
	(-3.86)	(-3.68)
PastRet_P	0.002*	0.002*
	(1.92)	(1.68)
MVE_P	-0.009	-0.011*
	(-1.37)	(-1.68)
Leverage_P	-0.006***	-0.006***
	(-2.93)	(-2.95)
Beta_P	0.004*	0.004*
	(1.87)	(1.75)
IdioRisk_P	0.006***	0.006***
	(2.87)	(2.77)
Turnover_P	-0.007***	-0.007***
	(-3.28)	(-3.15)
NumInst_P	0.022**	0.019**
	(2.47)	(2.13)
SUE_P	0.000	0.000
	(0.09)	(0.01)
Accruals_P	-0.001	-0.001
	(-0.54)	(-0.62)
Age_P	0.002	0.002
	(0.95)	(0.91)
Loss_P	-0.007	-0.006
	(-0.54)	(-0.47)
Log(assets under mgmt.)		0.003
		(0.99)
Log(1+# of investee firms)		-0.002
		(-0.41)
Log(1+# of blockholdings)		-0.015***
		(-5.27)

Dep. variable =	$Litigation_{i,t+12}$	
	(1)	(2)
Institution FE	Yes	Yes
Quarter FE	Yes	Yes
Observations	60,830	60,830
Adjusted R^2	0.731	0.733

TABLE 12. Experience of meritorious versus frivolous litigation

This table presents the results of testing whether the effect of institutions' litigation experience varies with the merits of litigation, as described in Section 5.7. The results are based on the estimation of a modified version of Equation (3) where *Litigation* is replaced with *Litigation_meritorious* and *Litigation_frivolous*. The dependent variable is the weighted average of the financial reporting quality of investee firms in an institution's portfolio. The financial reporting quality of each investee firm is measured using the standard deviation of the accrual estimation errors (Dechow and Dichev 2002) in columns (1), and using absolute discretionary accruals (Collins et al. 2017) in columns (2). The numbers in parentheses are *t*-statistics based on standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	*FRQ1_P* (1)	*FRQ2_P* (2)
Litigation_meritorious (= A)	-1.041***	-0.609***
	(-6.05)	(-5.11)
Litigation_frivolous (= B)	-0.678***	-0.244**
	(-4.42)	(-2.26)
BM_P	-0.078***	-0.278***
	(-5.50)	(-24.81)
PastRet_P	-0.006	-0.007
	(-0.91)	(-1.28)
MVE_P	0.014	-0.298***
	(0.32)	(-8.40)
Leverage_P	-0.043***	-0.130***
	(-2.77)	(-12.47)
Beta_P	0.103***	0.002
	(7.90)	(0.24)
IdioRisk_P	0.084***	0.082***
	(4.36)	(6.29)
Turnover_P	0.005	0.009
	(0.30)	(0.78)
NumInst_P	-0.207***	0.208***
	(-3.22)	(3.92)
SUE_P	-0.012**	-0.001
	(-2.31)	(-0.18)
Accruals_P	0.048***	-0.024**
	(3.64)	(-2.53)
Age_P	-0.127***	-0.045***
	(-7.90)	(-4.12)
Loss_P	-0.060	-0.045
	(-0.65)	(-0.61)
***F*-tests of the coefficient equality**		
Litigation_meritorious	-0.363	-0.365*

Dep. variable =	*FRQ1_P* (1)	*FRQ2_P* (2)
– *Litigation_frivolous* (= A – B)		
p-value	0.164	0.052
Institution FE	Yes	Yes
Quarter FE	Yes	Yes
Observations	102,234	102,234
Adjusted R^2	0.642	0.650

TABLE 13. Selling shares of investees with low financial reporting quality

This table presents the results of investigating changes in share ownership in firms with poor financial reporting quality at the institution-firm-quarter level, as described in Section 5.8. Panel A presents the descriptive statistics of 16,824,989 institution-investee-quarter observations used in this analysis. Panel B presents the results of estimating Equation (13) using OLS regression:

$$\begin{aligned} LargeDecrease_{i,f,t}\ (NegativeChange_{i,f,t}) &= \beta_0 + \beta_1 Litigation_{i,t-1} + \beta_2 LowFRQ_{f,t-1} + \beta_3 LowFRQ_{f,t-1} \times Litigation_{i,t-1} \\ &+ \beta_4 PercentOwn_{f,t-1} + \beta_5 PortfolioWeight_{f,t-1} + \beta_6 AUM_{f,t-1} + \beta_7 MVE_{f,t-5} \\ &+ \beta_8 BTM_{f,t-5} + \beta_9 Return_{f,t} + \beta_{10} Return_{f,t-1} + \beta_{11} Turnover_{f,t} + \beta_{12} Turnover_{f,t-1} \\ &+ \beta_{13} Turnover_{f,t-4} + \sum \gamma_i + \sum \delta_f + \sum \eta_{t,k} + \varepsilon_{i,f,t}\ . \end{aligned} \quad (13)$$

The dependent variable is *LargeDecrease* in columns (1) and (2), and *NegativeChange* in columns (3) and (4). Firms with poor financial reporting quality are identified based on *FRQ1* in columns (1) and (3), and on *FRQ2* in columns (2) and (4). The numbers in parentheses are *t*-statistics based upon standard errors clustered by institution. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Descriptive statistics (N = 16,824,989)

Variable	Mean	Std.	P10	P25	P50	P75	P90
$LargeDecrease_t$	0.200	0.400	0.000	0.000	0.000	0.000	1.000
$NegativeChange_t$	0.038	0.135	0.000	0.000	0.000	0.007	0.072
$Litigation_{t-1}$	0.140	0.072	0.077	0.092	0.118	0.168	0.236
$LowFRQ1_{t-1}$	0.200	0.400	0.000	0.000	0.000	0.000	1.000
$LowFRQ2_{t-1}$	0.200	0.400	0.000	0.000	0.000	0.000	1.000
$PercentOwn_{t-1}$	0.003	0.009	0.000	0.000	0.000	0.002	0.009
$PortfolioWeight_{t-1}$	0.004	0.009	0.000	0.000	0.000	0.003	0.012
AUM_{t-1}	15.180	2.291	12.070	13.310	15.210	16.960	18.150
MVE_{t-5}	8.343	1.959	5.778	6.947	8.292	9.765	10.990
BTM_{t-5}	0.423	0.311	0.115	0.215	0.355	0.565	0.820
$Return_t$	0.027	0.176	-0.186	-0.068	0.029	0.123	0.225
$Return_{t-1}$	0.032	0.177	-0.179	-0.065	0.032	0.127	0.232
$Turnover_t$	0.010	0.008	0.004	0.005	0.008	0.013	0.020
$Turnover_{t-1}$	0.010	0.008	0.004	0.005	0.008	0.013	0.020
$Turnover_{t-4}$	0.010	0.008	0.004	0.005	0.008	0.013	0.020

Panel B. Disposal of investments in investees with low financial reporting quality

Dep. variable =	$LargeDecrease_t$		$NegativeChange_t$	
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
$Litigation_{t-1}$	0.020	0.018	-0.012	-0.013
	(0.92)	(0.81)	(-1.43)	(-1.47)
$LowFRQ_{t-1} \times Litigation_{t-1}$	0.170***	0.172***	0.043***	0.041***
	(12.94)	(11.81)	(7.84)	(7.81)

Dep. variable =	$LargeDecrease_t$		$NegativeChange_t$	
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
$LowFRQ_{t-1}$	-0.025***	-0.024***	-0.006***	-0.005***
	(-12.43)	(-11.81)	(-7.20)	(-7.12)
$PercentOwn_{t-1}$	6.358***	6.358***	5.723***	5.723***
	(14.91)	(14.91)	(15.64)	(15.64)
$PortfolioWeight_{t-1}$	4.658***	4.659***	0.622***	0.622***
	(31.65)	(31.63)	(8.16)	(8.16)
AUM_{t-1}	0.044***	0.044***	0.010***	0.010***
	(11.43)	(11.43)	(5.90)	(5.89)
MVE_{t-5}	-0.012***	-0.012***	-0.003***	-0.003***
	(-6.05)	(-6.08)	(-4.87)	(-4.89)
BTM_{t-5}	-0.001	-0.000	-0.002**	-0.002**
	(-0.33)	(-0.21)	(-2.11)	(-2.06)
$Return_t$	-0.011**	-0.011**	-0.007***	-0.007***
	(-2.10)	(-2.09)	(-3.46)	(-3.44)
$Return_{t-1}$	-0.044***	-0.044***	-0.011***	-0.012***
	(-9.32)	(-9.35)	(-6.97)	(-6.98)
$Turnover_t$	3.072***	3.070***	1.609***	1.608***
	(14.76)	(14.79)	(16.15)	(16.15)
$Turnover_{t-1}$	0.226	0.222	-0.194**	-0.195**
	(1.24)	(1.22)	(-2.38)	(-2.40)
$Turnover_{t-4}$	-0.029	-0.033	-0.049	-0.049
	(-0.33)	(-0.37)	(-1.55)	(-1.60)
Firm FE	Yes	Yes	Yes	Yes
Institution FE	Yes	Yes	Yes	Yes
Quarter×Industry FE	Yes	Yes	Yes	Yes
Observations	16,824,989	16,824,989	16,824,989	16,824,989
Adjusted R^2	0.199	0.199	0.238	0.238

TABLE 14. Analysis of disclosure quantity

This table presents the results of examining disclosure quantity using voluntary disclosure via 8-K filings, as described in Section 5.9. Panel A presents the descriptive statistics of 178,575 firm-quarters used in this analysis. Panel B presents the results of estimating Equation (14) using OLS regression:

$$Vol8K_{f,t} = \beta_0 + \beta_1 Inst.\ ownership_{f,t-1} + \beta_2 Top\ 5\ inst.\ ownership_{f,t-1} + \beta_3 Size_{f,t-1} + \beta_4 Leverage_{f,t-1} + \beta_5 Loss_{f,t-1} + \beta_6 Book\text{-}to\text{-}market_{f,t-1} + \beta_7 Return_{f,t-1} + \beta_8 Return\ volatility_{f,t-1} + \beta_9 EPS\ increase_{f,t-1} + \beta_{10} Absolute\ \Delta EPS_{f,t-1} + \sum\gamma_t + \sum\delta_k + \varepsilon_{f,t}\ . \quad (14)$$

Panel C (Panel D) presents the results of testing main hypotheses using the weighted average of the raw (residual) disclosure frequency of investee firms in an institution's portfolio, *Vol8K_P* (*Vol8K_resid_P*), as the dependent variable. In Panels C and D, H1 is tested in column (1); H2 is tested with *CR_High* and *Transient* as *TestVar* in columns (2) and (3), respectively; and H3 is tested with *Own_High* and *Conc_High* as *TestVar* in columns (4) and (5), respectively. The numbers in parentheses are *t*-statistics based on standard errors clustered by firm in Panel B, and by institution in Panels C and D. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Descriptive statistics (*N* = 178,575)

Variable	Mean	Std.	P10	P25	P50	P75	P90
Vol8K	1.028	0.528	0.693	0.693	1.099	1.386	1.792
Vol8K (raw)	2.211	1.794	1.000	1.000	2.000	3.000	5.000
Inst. ownership	0.585	0.318	0.098	0.304	0.652	0.869	0.974
Top 5 inst. ownership	0.263	0.130	0.080	0.180	0.265	0.342	0.420
MVE	13.088	2.086	10.387	11.533	13.034	14.533	15.879
Leverage	0.206	0.215	0.000	0.020	0.147	0.318	0.500
Loss	0.324	0.468	0.000	0.000	0.000	1.000	1.000
Book-to-market	0.635	0.634	0.115	0.270	0.511	0.843	1.280
Return	0.020	0.245	-0.260	-0.109	0.012	0.131	0.286
Return Volatility	0.031	0.021	0.012	0.017	0.025	0.038	0.056
EPS Increase	0.521	0.500	0.000	0.000	1.000	1.000	1.000
Absolute ΔEPS	0.043	0.127	0.001	0.003	0.008	0.025	0.082

Panel B. Economic determinants of the frequency of voluntary 8-K filings

Dep. variable =	*Vol8K*	
Inst. ownership	0.085***	(2.60)
Top 5 inst. ownership	0.117**	(2.34)
MVE	0.040***	(8.99)
Leverage	0.137***	(5.96)
Loss	0.024***	(3.50)
Book-to-market	-0.015**	(-2.17)
Return	0.010	(1.52)
Return volatility	1.138***	(6.19)

Dep. variable =	*Vol8K*	
EPS increase	-0.011***	(-3.56)
Absolute ΔEPS	0.082***	(4.11)
Industry FE	Yes	
Quarter FE	Yes	
Observations	178,575	
Adjusted R^2	0.087	

Panel C. Results with the raw frequency of voluntary 8-K filings

Dep. variable =	*Vol8K_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
Litigation	0.340***	0.717***	0.587***	0.685***	0.676***
	(4.17)	(6.65)	(5.76)	(7.64)	(7.61)
Litigation×TestVar		-0.657***	-0.533***	-0.702***	-0.681***
		(-6.27)	(-4.78)	(-6.09)	(-6.28)
TestVar		0.100***	0.063**	0.106***	0.105***
		(4.55)	(2.26)	(3.59)	(3.74)
BM_P	0.036***	0.037***	0.037***	0.038***	0.038***
	(2.64)	(2.74)	(2.76)	(2.83)	(2.83)
PastRet_P	0.030***	0.032***	0.031***	0.031***	0.032***
	(5.06)	(5.24)	(5.20)	(5.21)	(5.27)
MVE_P	0.086**	0.083**	0.084**	0.086**	0.084**
	(2.13)	(2.05)	(2.08)	(2.11)	(2.06)
Leverage_P	0.154***	0.153***	0.154***	0.156***	0.156***
	(11.30)	(11.34)	(11.36)	(11.57)	(11.58)
Beta_P	-0.037***	-0.037***	-0.036***	-0.039***	-0.039***
	(-3.50)	(-3.45)	(-3.39)	(-3.67)	(-3.64)
IdioRisk_P	0.071***	0.073***	0.073***	0.075***	0.074***
	(4.63)	(4.81)	(4.79)	(4.95)	(4.86)
Turnover_P	0.031**	0.028**	0.028**	0.027*	0.028**
	(2.25)	(1.99)	(2.02)	(1.94)	(1.98)
NumInst_P	-0.063	-0.053	-0.056	-0.068	-0.069
	(-0.99)	(-0.83)	(-0.87)	(-1.07)	(-1.08)
SUE_P	0.010*	0.009*	0.009*	0.009*	0.009*
	(1.95)	(1.86)	(1.91)	(1.86)	(1.87)
Accruals_P	0.061***	0.060***	0.061***	0.060***	0.060***
	(5.73)	(5.64)	(5.73)	(5.68)	(5.69)
Age_P	0.098***	0.095***	0.095***	0.094***	0.095***

Dep. variable =	*Vol8K_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
	(7.19)	(7.03)	(7.01)	(6.95)	(7.01)
Loss_P	0.259***	0.267***	0.265***	0.265***	0.269***
	(2.94)	(3.03)	(3.00)	(3.00)	(3.05)
Institution FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	99,091	99,091	99,091	99,091	99,091
Adjusted R^2	0.580	0.582	0.581	0.582	0.582

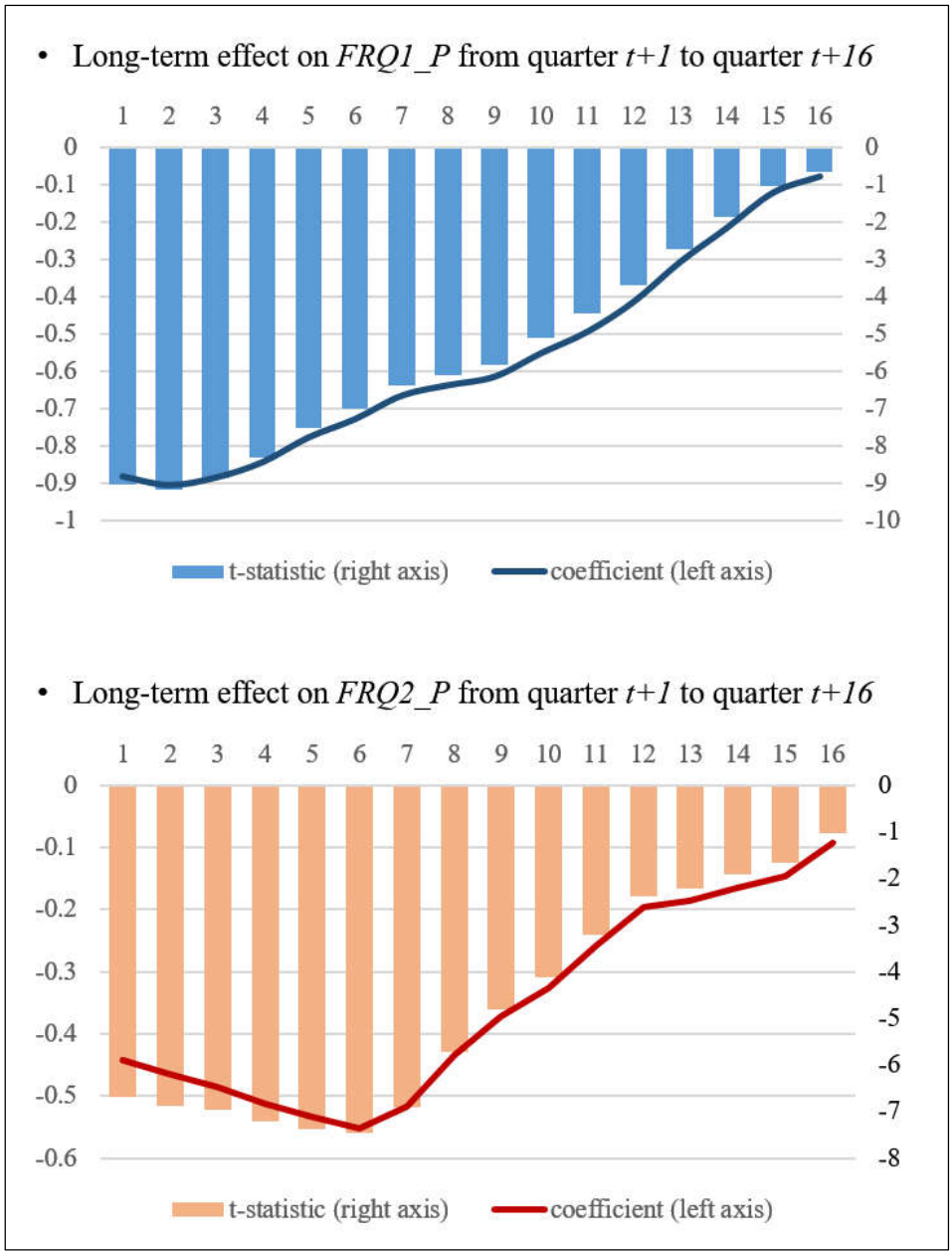
Panel D. Results with the residual frequency of voluntary 8-K filings

Dep. variable =	*Vol8K_resid_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
Litigation	0.336***	0.716***	0.585***	0.715***	0.704***
	(4.02)	(6.49)	(5.67)	(7.70)	(7.86)
Litigation×TestVar		-0.660***	-0.537***	-0.769***	-0.745***
		(-6.18)	(-4.69)	(-6.45)	(-6.78)
TestVar		0.102***	0.060**	0.121***	0.121***
		(4.54)	(2.06)	(4.00)	(4.29)
BM_P	0.034**	0.035***	0.036***	0.037***	0.037***
	(2.56)	(2.65)	(2.68)	(2.78)	(2.77)
PastRet_P	0.044***	0.045***	0.045***	0.045***	0.045***
	(7.00)	(7.17)	(7.16)	(7.16)	(7.23)
MVE_P	-0.114***	-0.117***	-0.116***	-0.114***	-0.116***
	(-2.75)	(-2.83)	(-2.80)	(-2.74)	(-2.79)
Leverage_P	0.096***	0.096***	0.096***	0.098***	0.098***
	(6.80)	(6.81)	(6.84)	(7.03)	(7.03)
Beta_P	-0.035***	-0.034***	-0.034***	-0.037***	-0.036***
	(-3.15)	(-3.10)	(-3.04)	(-3.34)	(-3.30)
IdioRisk_P	0.057***	0.060***	0.060***	0.062***	0.061***
	(3.50)	(3.66)	(3.65)	(3.83)	(3.73)
Turnover_P	0.054***	0.050***	0.051***	0.049***	0.050***
	(3.83)	(3.57)	(3.60)	(3.50)	(3.54)
NumInst_P	-0.054	-0.044	-0.046	-0.059	-0.059
	(-0.84)	(-0.68)	(-0.72)	(-0.93)	(-0.93)
SUE_P	0.011**	0.010**	0.011**	0.010**	0.010**

Dep. variable =	*Vol8K_resid_P*				
Hypothesis =	H1	H2		H3	
TestVar =		*CR_High*	*Transient*	*Own_High*	*Conc_High*
	(1)	(2)	(3)	(4)	(5)
	(2.09)	(2.00)	(2.05)	(2.00)	(2.00)
Accruals_P	0.068***	0.067***	0.068***	0.067***	0.068***
	(5.97)	(5.88)	(5.97)	(5.92)	(5.93)
Age_P	0.087***	0.084***	0.084***	0.083***	0.084***
	(6.09)	(5.93)	(5.89)	(5.85)	(5.91)
Loss_P	0.093	0.102	0.100	0.100	0.104
	(1.01)	(1.09)	(1.07)	(1.08)	(1.12)
Institution FE	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Observations	99,091	99,091	99,091	99,091	99,091
Adjusted R^2	0.524	0.526	0.526	0.526	0.526

FIGURE 1. Long-term effect of litigation experience

This figure illustrates the long-term effect of an institution's litigation experience on the financial reporting quality of investee firms in the institution's portfolio, as described in Section 5.6. It shows the trends in the magnitudes and *t*-statistics of the coefficient on *Litigation* from the estimation of Equation (3) from quarter *t*+1 to quarter *t*+16, as described in Section 5.6. The top figure is based on *FRQ1_P* as the dependent variable, and the bottom figure is based on *FRQ2_P* as the dependent variable.



Essay 2

One Leaves, Another Arrives: The Behavior of Hedge Funds around Shareholder Litigation

I. Introduction

Over recent decades, hedge funds have successfully influenced corporate actions, emerging as key players in shaping corporate governance (e.g., Bratton 2007; Briggs 2007; Brav, Jiang, Partnoy, and Thomas 2008; Klein and Zur 2009). However, their role in shareholder litigation remains ambiguous (Choi, Fisch, and Pritchard 2005). Although some studies show that institutional investors (hereafter "institutions") bring favorable outcomes to shareholders when serving as lead plaintiffs in litigation (Cheng, Huang, Li, and Lobo 2010; Perino 2012),[25] they mainly attribute the consequences to public pension funds. In addition, law scholars argue that hedge funds are rarely appointed as class representatives in lawsuits because their aggressive trading strategies create potential conflicts of interest among shareholders, making their role in court "murky" (Choi et al. 2005; Kahan and Rock 2007). Thus, prior evidence insinuates that litigation is not one of the channels through which hedge funds resolve agency conflicts in sued firms, discrediting the role of hedge funds in the litigation setting. To challenge this premise, this study explores the dynamic actions that hedge funds take, i.e., activism and trading, around shareholder litigation.

Unlike traditional institutions, hedge funds are a distinct group of investors specializing in shareholder activist campaigns and distinctive trading strategies

[25] Specifically, studies show that institutions play an important role in enhancing the effectiveness of securities class actions by monitoring the court process, reducing the agency costs of litigation (Erickson 2017). As a result, litigation with institutions as lead plaintiffs, compared with litigation with individuals as lead plaintiffs, results in a lower probability of dismissal, lower attorney fees, larger settlement costs, and improved governance in defendant firms.

(Choi et al. 2005; Brav et al. 2008). As activists, they undertake value-enhancing intervention in a firm's operations, resulting in real consequences for the target firm, including increased firm valuation, increased dividend payouts, and improved governance. (Brav, Jiang, and Kim 2015). As informed traders, they trade aggressively on private information and enjoy superior fund performance. As both channels are tactics viable for hedge funds in the litigation setting, I investigate both the intervention and trading decisions of hedge funds around shareholder litigation.

In this study, I expect that sued firms will be more likely to be targeted by hedge funds after they are sued in litigation. Litigation is an important event that reveals and resolves agency conflicts in a sued firm. However, compared to other types of institutions, hedge funds are less likely to benefit from the court process because they are rarely allowed by court to act as the lead plaintiff (Choi et al. 2005; Kahan and Rock 2007). Additionally, litigation may be a less attractive option for hedge funds as a tool to resolve agency conflicts due to its substantial costs (Cheng et al. 2010; Pukthuanthong, Turtle, Walker, and Wang 2017) and potential ineffectiveness (Cox and Thomas 2009; Erickson 2017). In this case, instead of relying on the litigation process to resolve agency conflicts, hedge funds would prefer to take tangible action and thus intervene in the management decisions of the sued firm. As the agency conflicts revealed in litigation provide a strong rationale for hedge fund intervention in corporate decisions, hedge funds can rally support from other institutions for the governance agenda raised during this intervention (Appel, Gormley, and Keim 2019), which ensures promising results as well. Moreover, hedge funds may benefit from their intervention in a (highly publicized)

sued firm in the form of a better reputation, creating a positive spillover effect on other firms in their portfolios (Gantchev, Gredil, and Jotikasthira 2019).

Next, I predict that compared to sued firms that are not targeted by hedge funds (hereafter "non-target firms"), sued firms targeted by hedge funds (hereafter "target firms") will be more likely to reform their corporate governance after litigation, thereby improving their performance. Specifically, hedge funds may attempt to increase board independence, as the independence of board members helps to restore investors' trust in and valuation of a sued firm following litigation (Farber 2005) and is viewed as an indicator of governance quality (Shleifer and Vishny 1997). In addition, hedge funds may replace the CEO of a sued firm to repair the reputation of the firm, because litigation leads to the negative perception of CEO integrity and ability (Aharony, Liu, and Yawson 2015). Moreover, hedge funds may induce a sued firm to reduce excessive CEO pay (Core, Holthausen, and Larcker 1999) to discipline the behavior of managers following litigation. Taken together, if the aforementioned governance reforms are effective, they will materialize in the form of improved performance in sued firms after litigation.

Regarding the trading behavior of hedge funds, I expect hedge funds to more proactively sell their shares of sued firms before litigation than do other types of institutions. Prior research suggests that active monitors are more likely than passive monitors to sell their stakes in sued firms before litigation due to their superior ability to foresee the occurrence of litigation (Barabanov, Ozocak, Turtle, and Walker 2008). Hedge funds are active monitors with concentrated holdings and strong incentives for value creation (e.g., Brav et al. 2008) and tend to have superior

access to private information (Gao and Huang 2016; Dai, Massoud, Nandy, and Saunders 2017). Hence, they should be more incentivized and better able to collect private information about a firm's negative aspects associated with litigation risk. Additionally, they are not required by law to maintain diversified holdings (Brav et al. 2008). Accordingly, they can eliminate risky investees from their investment portfolios in a more flexible and timelier manner than can other types of institutions.

Finally, I expect that hedge funds will be more likely to intervene in other (non-litigated) firms in their investment portfolios after experiencing more litigation. The sophistication of hedge funds (Choi et al. 2005), as a precondition for investor learning (Chen, Francis, and Jiang 2005), helps hedge funds to learn from litigation experience. Specifically, after re-evaluating agency costs in investees, hedge funds may adjust their optimal level of monitoring, as suggested by rational learning theory (e.g., Muth 1961; Harsanyi 1967). This learning process leads hedge funds to increase their monitoring efforts to mitigate agency costs ex ante. As a result, hedge funds could intervene more actively in investees, especially those with low financial reporting quality that are believed to be most vulnerable to agency conflicts (e.g., Armstrong, Guay, and Weber 2010).

For my empirical analyses, I obtain data on shareholder litigation from the Securities Class Action Clearinghouse (SCAC) at Stanford Law School. I collect data on hedge fund activism from Form Schedule 13Ds filings of hedge funds, which are extracted from the Electronic Data Gathering, Analysis, and Retrieval system (EDGAR) of the U.S. Securities and Exchange Commission (SEC). I obtain data on quarterly holdings of institutions (including hedge funds) from Form 13F

filings maintained by WhaleWisdom. I retrieve data on financial statements, stock market returns, and executive compensation from Compustat, CRSP, and Execucomp, respectively. My data on boards of directors are obtained from Form 10-K and Form DEF 14A filings on EDGAR. After merging the above databases, I secure a lawsuit sample of 636 sued firms and 636 matched firms. The sample of hedge fund activism includes 3,649 activist campaign events during the 2001−2019 period.

My empirical analyses reveal the following results. Using a difference-in-differences (DiD) research design with 3,816 firm-event period observations, I find that hedge funds are more likely to intervene in sued firms than in matched firms after litigation. Notably, this tendency is driven by hedge funds that initiate new investments after litigation (hereafter "new hedge funds"), rather than by hedge funds that already held stakes before litigation (hereafter "existing hedge funds"). I also find that target firms are more successful than non-target firms in improving their governance and performance after litigation. Specifically, during three years following litigation, target firms are more likely than non-target firms to increase their board independence, appoint a new CEO, and reduce their CEO incentive pay. Additionally, target firms are more likely than non-target firms to benefit from improvements in Tobin's Q, annual stock returns, return on assets, and asset turnover. In summary, my results suggest that hedge funds play an important role in rebuilding the governance of sued firms and restoring shareholder value in the firms following litigation.

Next, using a sample of 3,078,478 firm-institution-quarter observations

extracted from institutional holdings in sued and matched firms, I find that hedge funds are more likely than other types of institutions to dispose of their stakes in sued firms before a lawsuit is filed. This result suggests that existing hedge funds protect their wealth by undertaking an exit strategy in anticipation of litigation events rather than by undergoing costly litigation. This finding is in line with prior evidence that hedge funds are the least likely to be allowed by court to act as the lead plaintiff during the court process (Kahan and Rock 2007).

Finally, focusing on the behavior of hedge funds that exit from sued firms, I find that hedge funds with more litigation experience are more likely to intervene in other non-litigated firms in their investment portfolios. This result implies that hedge funds incorporate their litigation experience into their intervention decisions. I also find that hedge funds' increased tendency to intervene is more salient in investees with lower financial reporting quality. This result corroborates my argument that after observing the agency costs revealed via litigation, hedge funds reassess the agency costs that potentially result from the substandard financial reporting of other non-litigated investees in their portfolios.

My study contributes to the literature on securities class actions by highlighting the key role of hedge funds in promoting desirable changes in sued firms. Specifically, although rarely an important participant in the court process (Cheng et al. 2010; Perino 2012; Pukthuanthong et al. 2017), hedge funds intervene directly in a sued firm's operations. This study shows that new hedge funds enter the shareholder base after litigation and generate favorable changes in sued firms, complementing Cheng et al.'s (2010) study on the role of institutions in litigation.

This finding also enriches the literature on hedge fund activism (e.g., Brav et al. 2008; Klein and Zur 2009; Greenwood and Schor 2009), extending discussions on the impact of hedge fund activism to the litigation setting.

This study also complements the literature on the role and efficacy of litigation as an external governance mechanism (Macey and Miller 1991; Romano 1991; Johnson 1997; Gillan 2006; Cheng et al. 2010; Pukthuanthong et al. 2017). Specifically, this study shows that litigation triggers hedge fund intervention in litigated firms, resulting in improved governance of the firms. In addition, it provides evidence that hedge funds are able to learn from their litigation experience and become more active monitors of other non-litigated investees in their portfolios. This evidence highlights the externalities of shareholder litigation on the behavior of hedge funds, and enriches the literature on investor learning (Chen et al. 2005; Seru, Shumway, and Stoffman 2010; Choi, Kahraman, and Mukherjee 2016).

Finally, this study contributes to the literature on the trading behavior of hedge funds (e.g., Ben-David, Franzoni, and Moussawi 2012). I show that hedge funds implement an exit strategy to tackle the agency costs in their investees. This finding corroborates prior evidence of the proactive trading of institutions prior to litigation (Barabanov et al. 2008). It also deepens our understanding of the heterogeneity of institutions (Bushee and Noe 2000; Bushee and Goodman 2007; Yan and Zhang 2009; Kempf, Manconi, and Spalt 2017; Baik, Kim, Kim, and Patro 2019). Moreover, the evidence of hedge funds' reliance on both exit and activist strategies enriches the literature on exit and voice strategies undertaken by large shareholders (e.g., Edmans, Fang, and Zur 2013).

The rest of this article proceeds as follows. Section II discusses the related literature and develops the hypotheses. Section III describes the data sources and sample selection procedures. Sections IV to VII present the empirical methods and the results of each hypothesis. Section VIII concludes the study.

II. Literature Review and Hypothesis Development

2.1. Review of the Related Literature

2.1.1. Hedge funds' activism and trading

Many studies suggest that large shareholders exert governance via two mechanisms: voice and exit (e.g., Hirschman 1970; Admati and Pfleiderer 2009; Edmans 2009; Edmans and Manso 2011; Edmans 2014). Shareholders can either intervene directly in a firm's operations, which is called "voice," or dispose of a firm's shares if the firm underperforms, which is referred to as "exit." Both mechanisms are viable tactics available to large shareholders (Edmans et al. 2013), although their effectiveness in disciplining managers and enhancing firm value differs depending on the characteristics of investors.

Hedge funds, as a group of sophisticated investors, are different from traditional institutions in terms of expertise in management engagement and distinctive trading strategies (Choi et al. 2005; Brav et al. 2008). This uniqueness is mainly due to the fact that compared with traditional institutions, hedge funds have better incentive systems, are subject to fewer regulatory constraints, and face fewer conflicts of interest (Kahan and Rock 2007). Hedge funds take investment positions

large enough to minimize the free-rider problem and be active monitors, instead of diversifying their positions and only getting involved in limited cases (Bratton 2007). They also enjoy greater flexibility in executing trading strategies than do traditional institutions because of the light regulatory environment and limited restrictions on the capital withdrawals of fund investors (Agarwal, Mullally, and Naik 2015).[26] They have a strong incentive to realize value through voice and/or exit strategies because of their compensation structure.[27]

A growing body of research has examined the consequences of hedge fund behavior, focusing on activist campaigns launched by hedge funds (e.g., Brav et al. 2008; Klein and Zur 2009; Greenwood and Schor 2009). For example, Brav et al. (2008) report that the announcement of hedge fund activism generates abnormal positive returns, consistent with the market's perception of hedge funds' value-enhancing intervention. Klein and Zur (2009) find that the market responds more favorably to confrontational campaigns of hedge funds than to those of other entrepreneurial activists. Contrary to this positive view on activism, another line of research points out that hedge funds' proposed strategies are not always optimal (Greenwood and Schor 2008; Coffee and Palia 2014; George and Lorsch 2014). Additionally, when corporate managers disagree with the activism agenda or when their interest is invaded by activism, they counteract hedge funds' attempts or

[26] For example, hedge funds are not regulated by the Investment Company Act of 1940. In addition, hedge funds usually impose non-discretionary restrictions on capital withdrawals in the form of lockup, redemption, and notice periods.

[27] Typically, a hedge fund charges its investors a fixed fee of 2% of the assets under management on an annual basis and a performance-based fee of 20% of the fund's annual returns.

behave strategically in response to hedge fund activism (Khurana, Li, and Wang 2017). In summary, hedge fund activism has real consequences for firm value via voice, although the dynamics behind this value creation are subtle and a subject of ongoing debate.

In terms of trading behavior, prior research suggests that hedge funds often trade on private information, resulting in superior performance (e.g., Massoud, Nandy, Saunders, and Song 2011; Gao and Huang 2016; Dai et al. 2017; Hong, Zhuang, Kang, and Wang 2019). For example, Gao and Huang (2016) report that hedge funds outperform passive benchmarks by exploiting private information obtained through their connections with lobbyists. In a similar vein, Dai et al. (2017) show that hedge funds derive greater profits from informed trading around the public announcement of merger and acquisition deals. In addition, hedge funds do recognize the value of their private information, as evidenced by their attempt to seek confidentiality in their investment positions to protect proprietary information (Agarwal, Jiang, Tang, and Yang 2013; Aragon et al. 2013). As such, aware of the fundamental value of a firm, hedge funds can sell their stakes quickly in the event of negative news. This type of sale lowers the stock price and punishes the firm's management ex post, an impact that increases with the size of the stakes sold (Edmans 2009; Edmans and Manso 2011). As such, the threat of hedge funds' exit can encourage management to maximize firm value. In summary, hedge funds are capable of impounding value-relevant information into stock prices and exercising governance through an exit strategy.

2.1.2. Shareholder litigation, institutional investors, and hedge funds

Prior research suggests that institutions, as gatekeepers of shareholder litigation, play a key role in the court process (Erickson 2017). As class members cannot effectively monitor their self-interested counsel, litigation involves its own agency costs and often leads to unsatisfactory court outcomes (Cox and Thomas 2009; Erickson 2017). Concerned about agency costs, regulators and politicians encouraged institutions, especially public pension funds and mutual funds, to monitor the court process with the enactment of the Private Securities Litigation Reform Act (PSLRA) in 1995 (Weiss and Beckerman 1995; Choi et al. 2005). As intended by this legislation, litigation with institutional lead plaintiffs results in favorable court outcomes for class members and improved governance in the defendant firms (Cox and Thomas 2006; Cox, Thomas, and Bai 2008; Cheng et al. 2010; Perino 2012).

However, scholars question the role of hedge funds in the court process although hedge funds are known to be key players in corporate governance (e.g., Bratton 2007; Briggs 2007; Brav et al. 2008) and to be among the investors with the largest losses from investments in defendant firms (Kahan and Rock 2007). The underlying reason for this doubt is that hedge funds are viewed as inadequate class representatives due to potential conflicts of interest arising from their short-selling strategy (Kahan and Rock 2007).[28] Cheng et al.(2010) demonstrate that public

[28] A short-selling strategy is based on the assumption that the currently observed market prices are incorrect. Thus, the fact that hedge funds engage in short selling implies that they do not rely on the integrity of market prices in making their investment decisions. As class members attempt to seek recovery from a breach of such integrity in most class actions, their interest is likely to conflict with

pension funds are likely to be committed to monitoring the court process, but overlook the role of hedge funds in litigation.

The lack of evidence on the role of hedge funds in litigation is seemingly inconsistent with the view that hedge funds, as an external governance mechanism, have been successful in their attempts to influence corporate actions (e.g., Brav et al. 2008; Greenwood and Schor 2009; Klein and Zur 2009). As such, the literature provides us, at best, with a partial picture of hedge funds' behavior in the face of shareholder litigation.

2.2. Hypothesis development

2.2.1. Hedge fund activism targeting sued firms

To provide evidence of the role of hedge funds around litigation, I first focus on hedge fund activism as a means of governing sued firms. Shareholder litigation has been viewed as an external governance mechanism through which shareholders seek to recover the damage caused by managerial misconduct (e.g., Gillan 2006). As a result, a lawsuit reveals the agency conflict in a sued firm. I expect that after recognizing the deficiency in governance of the sued firm, hedge funds will monitor the sued firm more intensively after litigation by launching activist campaigns targeting that sued firm.

By launching activist campaigns, usually alongside block acquisitions, in sued firms, hedge funds can effectively mitigate the adverse wealth effect of

hedge funds' interest.

litigation while reaping the benefits of monitoring (Shleifer and Vishny 1986; Kahn and Winton 1998; Maug 1998). Shareholder litigation not only is costly to shareholders (e.g., Cheng et al. 2010; Pukthuanthong et al. 2017) but also involves its own agency costs (Weiss and Beckerman 1995). Since hedge funds are often regarded as ineligible for class representatives (Choi et al. 2005), they have limited influence over the court process and are therefore exposed to agency costs of litigation. As such, the recovery of their losses is uncertain. Moreover, a settlement reached in court, if any, is paid by the sued firm and, ultimately, by the hedge funds if they still hold shares of the sued firm after litigation (Cox and Thomas 2009). Thus, instead of relying solely on the court process, hedge funds may take tangible action to protect their wealth, i.e., intervention in management.

Meanwhile, a sued firm could be a potential target of hedge funds, regardless of whether or not the funds fall victim to management misconduct triggering litigation. Governance and valuation issues, which may be particularly relevant for a sued firm, are among the most frequently stated objectives of activist campaigns (Brav et al. 2008). Moreover, hedge funds may find it promising and attractive to intervene in a sued firm. After litigation, other institutions with stakes in the sued firm may reach consensus on the reform of governance in that sued firm, which enables hedge funds to rally support for their activism agendas and reduces the coordination costs of activism (Appel et al. 2019). Finally, hedge funds can build their reputation as influential activists by intervening in a highly publicized sued firm, which creates a potential spillover effect on other firms in their investment portfolios (Gantchev et al. 2019).

The above discussion leads to my prediction that sued firms will be more likely than other benchmark firms to be targeted by hedge funds following litigation. I state this prediction in my first hypothesis as follows:

> ***H1:*** *Hedge funds are more likely to intervene in sued firms than in control firms following shareholder litigation.*

2.2.2. Economic consequences of hedge fund activism

A subsequent question is whether hedge funds can successfully improve the governance and performance of sued firms after litigation. I investigate this issue to understand hedge funds' motivation for activist campaigns at sued firms. The activist campaigns may represent hedge funds' attempt to enhance shareholder value through governance reforms (Bratton 2007; Brav et al. 2008). Alternatively, it may simply reflect the superior ability of hedge funds to identify undervalued stocks without creating value (Cremers, Giambona, Sepe, and Wang 2021).

To determine the motivation of hedge funds for activism, I consider board independence, CEO turnover, and CEO compensation as the primary issues that activist hedge funds take into account when reforming the governance of sued firms (Brav et al. 2008).[29] Prior research suggests that most securities class actions are brought against management misconduct (Kim and Skinner 2012), which is

[29] Brav et al. (2008) report that governance-related issues account for about 36% of the stated objectives of activist campaigns in their sample, including board independence (15%), takeover defenses (5.7%), CEO replacement (5.6%), disclosure of more information (5.5%), and excessive executive compensation (4.7%).

typically attributable to ineffective governance in most cases. Hedge funds may attempt to restore the market's confidence in and valuation of sued firms after litigation by increasing the firms' board independence (Farber 2005),[30] which is an indicator of governance quality (Shleifer and Vishny 1997). Additionally, hedge funds may dismiss CEOs responsible for alleged fraudulent disclosures and the resulting poor performance, which helps repair the market's negative perception of CEO integrity and ability (Aharony et al. 2015). Finally, since excessive executive compensation, indicative of managerial rent extraction (Core et al. 1999), can induce managers to engage in excessive risk-taking and aggressive financial reporting (Cheng and Warfield 2005; Bergstresser and Philippon 2006; Cheng and Farber 2008), hedge funds may exert influence to curtail excessive CEO pay after litigation.

In addition to the effect on governance reform, I explore post-litigation changes in the performance of sued firms targeted by hedge funds. After suffering a significant drop in firm value when a lawsuit is filed against them, target firms may successfully recover their market value as the market appreciates the benefits of improved governance (Farber 2005). In addition, target firms may benefit from the improved operating performance as well if governance reform is effective.

Based on the above discussion, I expect the governance and performance of sued firms to improve after litigation to a greater extent when they are targeted by

[30] Consistent with this view, prior research suggests that institutional lead plaintiffs facilitate the rebuilding of governance by increasing board independence through the court process (Cheng et al. 2010).

hedge funds than when they are not. This prediction is stated as follows:

H2a: *Hedge funds' intervention improves the corporate governance of sued firms following shareholder litigation.*

H2b: *Hedge funds' intervention improves the performance of sued firms following shareholder litigation.*

2.2.3. Hedge funds' exit strategy

Next, I focus on the trading behavior of hedge funds. Prior research suggests that institutions, especially those with superior monitoring capability, are more proactive in selling their shares of sued firms long before litigation begins (Barabanov et al. 2008). This proactive trading is based on the idea that litigation events are partially foreseen by institutions that closely monitor a firm, which is also consistent with institutions' informed trading (e.g., Ali, Trombley, Durtschi, and Lev 2004; Ke and Petroni 2004; Ke and Ramalingegowda 2005; Yan and Zhang 2009).

Building on prior evidence, I expect hedge funds to be more likely than other types of institutions to sell their shares of sued firms before litigation begins, mainly for three reasons: hedge funds' superior monitoring capability, incentive structure, and access to private information. Prior research suggests that institutional monitoring is often hampered by regulatory and structural obstacles, including collective action problems that lead to free riding in monitoring (Black 1990), diversification requirements (Black 1990), and weak monitoring incentives

of fund managers (Romano 1993). However, unlike traditional institutions, hedge funds are relatively free from such obstacles. Since they are not required by law to maintain diversified portfolios, they can take larger positions in individual firms than can other types of institutions (Brav et al. 2008), enjoying greater benefits of monitoring activities (Chen, Harford, and Li 2007). Additionally, they can dispose of their positions more flexibly. Moreover, since hedge fund managers are sharply compensated on the performance of their funds (Brav et al. 2008), they have more incentives to acquire private information relevant to firm value. Finally, by leveraging their superior access to private information (e.g., Gao and Huang 2016; Dai et al. 2017), hedge funds engage in more timely and proactive trading.

Based on the above discussion, I expect that when hedge funds assess litigation risk as an imminent threat, they will be more proactive than other types of institutions in disposing of stakes in sued firms even before a lawsuit is filed.[31] This expectation leads to my third hypothesis as follows:

> ***H3:*** *Before shareholder litigation begins, hedge funds are more likely than other types of institutional investors to dispose of their stakes in sued firms.*

2.2.4. Hedge funds' learning from litigation experience

Finally, I explore whether hedge funds can learn from their litigation

[31] Combined with my previous discussion of hedge fund intervention in sued firms in H1, it is an empirical question whether hedge funds rely more on intervention or trading to tackle agency problems, and I do not provide a directional prediction regarding which of the two tactics is preferred to the other.

experience. Specifically, I examine whether this learning process affects how hedge funds behave toward other (non-litigated) investees in their investment portfolios (hereafter "portfolio firms"). I expect hedge funds to launch activist campaigns more actively in non-litigated portfolio firms after experiencing litigation.

In theoretical models of rational learning (e.g., Muth 1961; Harsanyi 1967; Townsend 1978), imperfectly informed economic agents form heterogeneous beliefs about the distribution of unknown parameters. Agents update their prior beliefs with new information, and their subjective beliefs eventually converge to an objective probability, regardless of the initial values of their prior beliefs. Based on these theoretical models, I infer that hedge funds may reassess the optimal level of monitoring after observing the revelation of agency conflicts in sued firms, and their perceived agency costs increase after litigation. In this case, hedge funds will take action to mitigate these costs ex ante by launching activist campaigns in other (non-litigated) portfolio firms while reaping sufficient benefits from their monitoring effort (Chen et al. 2007). Additionally, with limited resources for monitoring (Dharwadkar, Goranova, Brandes, and Khan 2008; Fich, Harford, and Tran 2015), they will focus more on portfolio firms with lower financial reporting quality as targets for activism, because these firms are more prone to agency conflicts (e.g., Armstrong et al. 2010).

Summarizing the above discussion, I expect that after experiencing litigation, hedge funds will intervene more frequently in other (non-litigated) portfolio firms, especially those with lower financial reporting quality. This expectation leads to the last set of hypotheses as follows:

H4a: *After experiencing litigation, hedge funds are more likely to intervene in other non-litigated firms in their investment portfolio.*

H4b: *After experiencing litigation, hedge funds are more likely to intervene in other non-litigated firms with low financial reporting quality than in those with decent financial reporting quality.*

III. Data Description and Sample Selection

3.1. Data sources

I obtain data on securities class action lawsuits from the SCAC at Stanford Law School. The SCAC provides a list of class actions with detailed information on the names of the defendants, case descriptions, lawsuit outcomes, the stock exchange where the defendants' stocks are traded, and class periods. By manually these data with information obtained from the CRSP database, Form 10-K/Q filings, and online news articles, I identify the permanent security identification number (PERMNO) assigned by CRSP for each defendant.

I collect data on hedge funds' activist campaigns since 2001 from Schedule 13D filings available on EDGAR. From Schedule 13D filings, I collect detailed information on the identity (Central Index Key [CIK] numbers) of activists and target firms, filing dates, share ownership, etc. To identify the type of 13D filers in the database, I follow the procedures described in prior research (Brunnermeier and Nagel 2004; Khurana et al. 2017; Baik et al. 2019). In my sample, to make the identification of hedge funds more manageable, I retain only activists that (i) filed

Form 13F filings at least once and (ii) launched activist campaigns more than once during the 2001–2019 period. As the first filtering procedure, I manually identify whether 13D filers are hedge funds by searching for the name of each 13D filer in various sources, including WhaleWisdom, Private Fund Data, Bloomberg, and Google Search.

Next, I apply the filtering method adopted by Brunnermeier and Nagel (2004) and Baik et al. (2019) to ensure that the main business of the candidate hedge funds is hedge fund management. Specifically, I first identify whether a candidate hedge fund is registered as an investment advisor with the SEC. I include candidate hedge funds that are not registered with the SEC in my sample of hedge funds because only non-hedge fund investment companies, such as mutual funds and pension plans, are required to register with the SEC according to the Investment Advisor Act of 1940. If a candidate hedge fund operates as a registered investment advisor, I inspect its Form ADV, which each registered investment advisor is required to complete.[32] Using the information disclosed in Form ADV, I include a candidate hedge fund registered with the SEC in my sample of hedge funds if two criteria are satisfied: (i) at least 50% of its clients include "other pooled investment vehicles" or "high net worth individuals," and (ii) it receives performance-based fees.[33]

[32] The SEC requires all professional investment advisors to file Form ADV, in which the investment style, assets under management, and major officers of the investment firm are specified.
[33] The typical examples of "other pooled investment vehicles" are hedge funds and private equity funds. The performance-based fees are generally determined as 20% of the profits generated by a hedge fund.

My data on institutional holdings come from WhaleWisdom, a commercial provider of detailed information on Form 13F filings since 2001. An institution is required to file a quarterly report, Form 13F, with the SEC of all equity holdings over 10,000 shares or US$ 200,000 in market value. This database has one notable advantage in that it identifies institutions with CIK numbers, allowing me to easily track down information on hedge funds' quarterly shareholdings. I collect data on financial statements and stock returns from Compustat and CRSP, respectively. Finally, I obtain data on executives and their compensation from Execucomp, and data on boards of directors from Form 10-K and Form DEF 14A filings on EDGAR.

3.2. Sample selection of securities class actions

My sample of securities class actions begins with 3,369 securities class actions brought pursuant to Rule 10(b)-5 of the Securities Exchange Act between 1999 and 2017. After removing all cases (i) filed against firms not listed on the NYSE, AMEX, or NASDAQ exchange or (ii) filed against firms whose PERMNO is not identified, I obtain 2,943 class actions in my initial sample.[34] To construct a test sample best suited to my study, I take further filtering steps. Specifically, I remove 431 cases filed against the same defendant firm within six years to avoid overlapping litigation event periods of different legal cases; 1,037 cases whose event periods do not fall within the sample period (2001−2019); and 811 cases against firms with missing data required for analyses during litigation event periods.

[34] This sample is used to measure a hedge fund's litigation experience that is the primary focus of H4a and H4b.

As a result, I obtain a sample of 664 lawsuit cases available for my analyses.

As a significant drop in stock prices generally triggers shareholder litigation, the economic performance of sued firms is rarely random. At the same time, firm performance is a primary determinant of hedge funds' intervention decisions. To mitigate the concern that the observed changes in hedge funds' behavior are driven by sued firms' performance per se, I identify a performance-matched control firm (hereafter "matched firm") for each sued firm and control for hedge funds' behavior toward matched control firms in my analyses. Following the procedure described in Rogers and Van Buskirk (2009), I identify candidate matched firms in the same industry and in the same market capitalization decile rank at the end of the fiscal quarter immediately before the beginning of the class period. By requiring that the difference in the fraction of shares held by institutions between matched and sued firms be less than or equal to 10 percentage points, I select a matched firm whose stock return over a given class period is closest to a sued firm's stock return. As a result, I obtain 636 pairs of sued and matched firms from 636 lawsuits in the final sample. The sample selection procedures described above are summarized in Panel A of Table 1.

In Panel B of Table 1, I compare firm characteristics between sued and matched firms in the final sample. I first note that the mean value of abnormal stock returns during the class periods is –0.10 for sued firms and –0.08 for matched firms, and it is not statistically different between the two groups. I also find no systematic differences in firm size, institutional ownership, and firm age between the two groups. These statistics provide preliminary support for the matching procedure

used in my study.

In Panels B and C, I present the distribution of lawsuit cases by filing year and by industry of the defendant firm, respectively. In Panel B, the filing year starts in 2002 and ends in 2017, as I only retain lawsuits whose regression periods fall within the sample period of 2001–2019. I note that lawsuits are distributed fairly evenly over the years, with the highest frequency in 2004 and 2005. In Panel D, I find that the defendants in the pharmaceutical industry account for about 12.1% of the sample, which is about 1.6 times the proportion of this industry in the Compustat/CRSP universe. I also find that the industries identified as highly litigious in my sample are consistent with those reported in prior studies (Francis, Philbrick, and Schipper 1994; Kim and Skinner 2012).

[Insert Table 1 about here]

3.3. Sample selection of hedge funds' activist campaigns

After identifying hedge funds as explained above, I construct a sample of hedge funds' initial Schedule 13D filings, which will be used in combination with other databases for the main analyses. If a hedge fund has multiple Schedule 13D filings for the same target firm, I retain only the earliest filing to identify an activism event. Following prior research (e.g., Brav et al. 2008; Khurana et al. 2017), I define the intervention period as spanning from the filing date of the initial Schedule 13D to the activist's exit date.[35] As a result, I obtain 3,649 activism events that occurred

[35] Multiple sources are employed to determine the exit date of a hedge fund's activist campaign.

between 2001 and 2019 in my sample.

In Panel A of Table 2, I present the descriptive statistics of activism events and their target firms. Notably, hedge funds' activist campaigns last on average 686 days, or about two years, and their average ownership during the intervention period is 11.9%. In Panels B and C, I present the distribution of activism events by event year and by industry of the target firm based on the Fama–French 48 industry classification. In Panel B, I find that the distribution of activism events is reasonably balanced over the years, with the highest frequency in 2007 and the lowest in 2019. In Panel C, I find that the distribution of the industries of the target firms closely follows that of the industries in the Compustat/CRSP universe, except for a few target industries such as business services and banking.

[Insert Table 2 about here]

IV. Hedge Fund Activism Targeting Sued Firms

4.1. Research design

4.1.1. Model specification

To examine whether sued firms are more likely than matched control firms to be targeted by hedge funds after litigation, I estimate the following DiD model

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The exit date refers to when a hedge fund significantly disposes of its investment stakes in the target firm. Using data on hedge funds' equity holdings reported in 13F filings, I identify the earliest quarter-end when the hedge fund's stake in the target firm drops below 1% or $1 million as the exit date. If such information is not available, I define the filing date of Schedule 13D/A indicating that the hedge fund's ownership below the 5% disclosure threshold. Lastly, I set the exit date as the date one year after the filing date of the initial Schedule 13D for the remaining activism events whose exit dates are still not available after all.

based on prior research (Rogers and Van Buskirk 2009) using ordinary least squares (OLS) regression:

$$
\begin{aligned}
Y_{i,t} = {} & \beta_0 + \beta_1 Sued_{i,t} \times Damage\ period_{i,t} + \beta_2 Sued_{i,t} \times Post\text{-}filing\ period_{i,t} \\
& + \beta_3 Matched_{i,t} \times Pre\text{-}damage\ period_{i,t} + \beta_4 Matched_{i,t} \times Damage\ period_{i,t} \\
& + \beta_5 Matched_{i,t} \times Post\text{-}filing\ period_{i,t} + \beta_6 Log(Market\ value\ of\ equity)_{i,t} \\
& + \beta_7 Tobins'\ Q_{i,t} + \beta_8 Sales\ growth_{i,t} + \beta_9 Return\ on\ assets_{i,t} + \beta_{10} Leverage_{i,t} \\
& + \beta_{11} Dividend_{i,t} + \beta_{12} R\&D_{i,t} + \beta_{13} Segment\ HHI_{i,t} + \beta_{14} Inst.\ ownership_{i,t} \\
& + \beta_{15} Big\ 4_{i,t} + \sum \delta_j + \sum \gamma_t + \varepsilon_{i,t}\ , \qquad (1)
\end{aligned}
$$

where for firm *i* and litigation event period *t*, *Sued* is an indicator equal to one if an observation represents a sued firm, and *Matched* is an indicator equal to one for a performance-matched firm. I define three litigation event periods relative to the filing date of a lawsuit for each sued firm. I then assign *pseudo*-litigation event periods to each performance-matched firm, corresponding to those of its matched sued firm. *Damage period* covers the class period during which sued firms allegedly disclosed misleading information to the capital market. *Pre-damage period* covers 18 months prior to the beginning date of the class period. *Post-filing period* covers 18 months following the filing date of a class action.[36] In Figure 1, I illustrate the timeline around litigation, where the litigation event periods used in my regression analysis are specified with median period lengths in days.

[Insert Figure 1 about here]

For each firm-event period pair, I measure the dependent variable capturing

[36] Alternatively, I confirm that my results are insensitive to using 12 or 24 months as the length of the *Pre-damage period* and *Post-filing period*.

hedge funds' intervention targeting a given firm using either *13D filing* or *# of 13D filings*. *13D filing* is an indicator equal to one if a hedge fund files a Schedule 13D during a given event period, and *# of 13D filings* is the normalized frequency of 13D filings, calculated as the number of Schedule 13D filings during a given event period multiplied by 365 over the number of days within the corresponding event period.[37]

To test H1, it is important to identify an appropriate benchmark period against which the intervention tendency of hedge funds following litigation is compared. For instance, the stock prices of sued firms are affected by managers' misrepresentation of material information and the subsequent revelation of such misrepresentation. The dramatic ups and downs in stock prices simultaneously affect hedge funds' intervention decisions. Therefore, I compare the post-filing period with the pre-damage period to estimate a change in hedge funds' intervention propensity after litigation. Specifically, the change in hedge funds' intervention propensity for sued firms is captured by β_2, and that for matched firms by β_5–β_3. Accordingly, the relevant test for my hypothesis, whether sued firms are more likely than matched firms to be targeted by hedge funds following litigation, is to compare β_2 and β_5–β_3.

Additionally, I control for various economic determinants of hedge funds' intervention decisions following prior research (Brav et al. 2008). I control for firm

[37] Since the *Damage Period* covering a given lawsuit's class period and the class period differs across lawsuits, the frequency of 13D filings in the *Damage Period* should be normalized for reasonable comparison.

size using *Log(Market value of equity)*. I also control for investment opportunities and sales growth using *Tobin's Q* and *Sales growth*, respectively. Moreover, I include profitability (*Return on assets*), book leverage (*Leverage*), dividend yield (*Dividend*), research and development (*R&D*), Herfindahl−Hirschman Index of sales in different business segments (*Segment HHI*), the fraction of shares held by institutions (*Inst. ownership*), and auditor size (*Big 4*) as control variables.[38] The control variables are measured at the end of the quarter or fiscal year immediately before a given event period (Rogers and Van Buskirk 2009). Finally, I include industry ($\sum\delta_j$) and quarter ($\sum\gamma_t$) fixed effects in the regression. I base my statistical inferences on standard errors clustered by firm. Detailed definitions of the variables can be found in Appendix I.

4.1.2. Sample construction and descriptive statistics

To test H1, I construct a sample of 3,816 firm-event period observations, covering the 636 pairs of sued and matched firms, as shown in Panel A of Table 1, over the three event periods (= 636×2×3). In Panel A of Table 3, I present the summary statistics of the sample. I find that the mean value of *13D filing* is 0.04, indicating that hedge funds target about 4% of the firms in the sample. In addition, I find no significant differences in firm size (*Log(market value of equity)*) and institutional ownership (*Inst. ownership*) between sued and matched firms (untabulated), which further supports the validity of the matching procedure.

[38] Specifically, I measure *Dividend*, *Segment HHI*, and *Big 4* using annual data obtained from Compustat, and the other control variables using quarterly data from Compustat.

In Panel B, I present the Pearson correlations among the variables used to test H1. I first note that my dependent variables (i.e., *13D filing* and *# of 13D filings*) are positively correlated with *Post-filing period*, pointing to an upward trend in activist campaigns over time in my sample. The dependent variables are correlated negatively with *Tobin's Q* and positively with *Leverage* and *Inst. ownership*. These correlations indicate that hedge funds tend to intervene in firms that are undervalued, heavily leveraged, or with greater institutional ownership. Finally, I find that the correlations of *Sued* or *Post-filing period* with other control variables are reasonably low, suggesting that multicollinearity is not a major issue in my analyses.

[Insert Table 3 about here]

4.2. Empirical results

4.2.1. Baseline regressions

In Table 4, I report the results of H1. The dependent variable is *13D filing* in columns (1) and (2) and *# of 13D filings* in columns (3) and (4). The regression coefficients are presented in Section A, and changes in hedge funds' intervention propensity across different event periods are estimated using *F*-tests in Section B. In column (1), I first estimate Equation (1) without control variables. In Section A, I find that the coefficient on *Sued*×*Post-filing period* is 0.069 and significant at the 1% level (*t*-statistic = 5.17), showing that the probability of hedge fund intervention targeting sued firms is higher in the post-filing period than in the pre-damage period. I also find that the coefficient on *Matched*×*Post-filing period* is 0.020 and

marginally significant (*t*-statistic = 1.87), meaning that the probability of intervention is slightly higher for matched firms in the post-filing period than for sued firms in the pre-damage period.[39]

In Section B, in the first *F*-test, the coefficient on *Sued*×*Post-filing period* translates into a 6.9% increase in the probability that hedge funds will target sued firms after litigation, compared with the pre-damage period. In addition, the second *F*-test shows that the coefficient difference between *Matched*×*Post-filing period* and *Matched*×*Pre-damage period* (0.013) is not significant, indicating no change in hedge funds' tendency to target matched firms following litigation. Finally, in the third *F*-test, I find that the DiD coefficient, i.e., [the coefficient on *Sued*×*Post-filing period*] minus [the coefficient difference between *Matched*×*Post-filing period* and *Matched*×*Pre-damage period*], is 0.056 and significant at the 1% level. This result suggests that the post-litigation change in hedge funds' intervention propensity is greater for sued firms than for matched firms. The results in column (1) are robust to using *# of 13D filings* as an alternative dependent variable, as shown in column (3), and to including all control variables in the regression model, as shown in columns (2) and (4). Taken together, I find robust evidence that sued firms are more likely than performance-matched firms to be targeted by hedge funds after litigation, consistent with H1.

[39] In the regression model, the baseline group consists of sued firms in the pre-damage period. Thus, the coefficient on *Matched*×*Post-filing period* captures the difference in hedge funds' intervention propensity between *matched firms* in the post-filing period and *sued firms* in the pre-damage period, resulting in a comparison between matched and sued firms in different event periods. Therefore, it is difficult to draw an economically meaningful inference using only the coefficient on this stand-alone variable. Please see Section B for economic interpretations of my results.

Regarding the control variables, I note that hedge funds' intervention propensity is associated positively with institutional ownership (*Inst. ownership*) and negatively with firm size (*Log(market value of equity)*) and market-to-book ratio (*Tobin's Q*), as shown in columns (2) and (4). These results are consistent with prior evidence (Brav et al. 2008). I also find that the results for most of the other control variables are consistent in terms of the sign of the coefficient across columns (2) and (4), although not statistically significant. I omit detailed explanations of the control variables for brevity.

[Insert Table 4 about here]

4.2.2. Existing versus new hedge funds

Based on the results in Table 4, I further delve into whether the post-litigation intervention is undertaken by hedge funds that held stakes in target firms before the start of litigation (i.e., existing hedge funds) or by those that newly invest in target firms after litigation (i.e., new hedge funds). By distinguishing between existing and new hedge funds in the analysis, I attempt to provide evidence on which type of hedge funds drives the results.

I begin with a preliminary analysis of changes in the composition of hedge funds in the shareholder base after litigation. Specifically, I examine hedge funds' ownership in sued firms and matched firms over the 16 quarters following event quarter t when a lawsuit is filed while focusing on when hedge funds become shareholders of these firms. I define new hedge funds as those with no stakes in a

given firm before event quarter *t*, and compute the fraction of ownership of new hedge funds in the total hedge fund ownership in a given firm at the end of each quarter following event quarter *t*. By definition, this ratio indicates the extent to which new hedge funds initially enter the shareholder base of a given firm after event quarter *t*. I then compare the mean value of this ratio between sued firms and matched firms over 16 quarters following litigation and illustrate the results in Figure 2. In Figure 2, I find that the fraction of new hedge funds' ownership is systematically higher in sued firms than in matched firms, after controlling for the absolute level of hedge fund ownership.

[Insert Figure 2 about here]

Next, I confirm the above results using multivariate analysis. First, I measure *13D filing* (*# of 13D filings*) separately for new and existing hedge funds. In this analysis, I classify hedge funds that held stakes in a firm during the year before the start of an event period as existing hedge funds, and the remaining hedge funds as new hedge funds.[40] Accordingly, the previously used dependent variable, *13D filing* is divided into *13D filing by existing HF* and *13D filing by new HF*, representing the intervention of existing and new hedge funds, respectively. Similarly, *# of 13D filings* is divided into *# of 13D filings by existing HF* and *# of*

[40] Alternatively, I find that my results are qualitatively similar when I define new hedge funds as those that have held stakes for less than six months before filing a Schedule 13D (i.e., those with a holding period of less than six months), and existing hedge funds as those not classified as new hedge funds. As an activist hedge fund is required to file a Schedule 13D within 10 days after acquiring more than 5% of a firm's shares, it may gradually increase that share ownership even before filing a Schedule 13D. I regard hedge funds that have held stakes for less than six months before filing a Schedule 13D as activist hedge funds initiating investments for the purpose of intervention in a firm and classify them as new hedge funds.

13D filings by new HF.

In Table 5, I present the results with all control variables included in the model. In Section A, I find that the coefficient on *Sued×Post-filing period* is significant only in columns (1) and (3) where new hedge fund activism is examined. In Section B of these two columns, I observe a significant increase in the probability of new hedge funds targeting sued firms after litigation, as shown in the first *F*-test. The second *F*-test shows no significant change in the probability of new hedge fund activism in matched firms after litigation. The results of the third *F*-test suggest that an incremental increase in new hedge funds' intervention propensity is significantly higher for sued firms than for matched firms. Unlike the above results, I do not find any significant results for existing hedge funds' activist campaigns in both sued firms and matched firms, as shown in columns (2) and (4).

[Insert Table 5 about here]

Collectively, my results emphasize that new hedge funds, but not existing hedge funds, intervene in the management of sued firms after litigation. I interpret these results as new evidence that post-litigation changes in sued firms may be driven by new activist shareholders with no stakes in the litigation. It should be noted that this evidence complements the findings of prior research that institutions whose wealth is damaged by the events that cause litigation play a governance role in a sued firm through the court process (e.g., Cheng et al. 2010).

4.3. Additional tests

4.3.1. Comparison with other types of activists

Based on the results of H1, one may wonder whether only hedge funds intervene in sued firms or whether this intervention strategy is common to all types of activists. Although hedge funds are a distinct group of activists in the capital market, I address this issue before moving on to my next analyses. To capture the activism of other types of activists, I introduce two variables, *13D filing by other activists* and *# of 13D filings by other activists*, both of which are measured using Schedule 13D filings of activists other than hedge funds. I then repeat the main analysis using each new variable as the dependent variable in the regression and report the results in Panel A of Table 6. In Section A, I find a non-significant coefficient on *Sued*×*Post-filing period* in all columns, indicating that other activists' intervention propensity in sued firms remains unchanged after litigation. In Section B, I also note that the DiD coefficient in the third *F*-test is not significant. Based on these results, I conclude that hedge funds, but not other types of activists, intervene in the management of sued firms after litigation.

4.3.2. Meritorious versus frivolous litigation

Next, I investigate whether my previous results depend on the merits of a lawsuit. To explore this issue, I divide my sample into two subsamples based on whether a lawsuit is meritorious or frivolous. Using the collected information on case status, I regard lawsuits as meritorious if they result in settlements, and as

frivolous if they are dismissed or ongoing.[41] Then, I estimate Equation (1) for each subsample and report the results in Panel B of Table 6. In Section A, the coefficient on *Sued*×*Post-filing period* is significant and positive in all columns, supporting my previous results. In Section B, however, the third *F*-test shows that the DiD coefficient is marginally (non-)significant in columns (1) and (3) with the subsample of frivolous lawsuits (*Merit* = 0), but significant in columns (2) and (4) using the subsample of meritorious lawsuits (*Merit* = 1). Overall, I find evidence that hedge funds' intervention is more salient for sued firms involved in meritorious lawsuits, with relatively weak results for those involved in frivolous lawsuits.

4.3.3. Moderating effect of liquidity

Finally, I examine whether my results for H1 vary with the liquidity of sued firms' stocks. Prior research suggests that liquidity facilitates governance via the exit strategy (Edmans et al. 2013). To the extent that sued firms suffer from reduced liquidity, my results may be driven by hedge funds that selectively target firms with low liquidity. To check this possibility, I repeat my main analysis using each of the two subsamples bisected by the median value of Amihud's (2002) liquidity measure. I report the results in Panel C of Table 6. In Section A, I find a positive and significant coefficient on *Sued*×*Post-filing period* in all columns, consistent with

[41] I acknowledge that this classification scheme may be incomplete, because ongoing lawsuits could be closed with significant amounts of settlements in the future. However, given the limitations of my data, I first rely on this classification for my analysis, and check whether the results change when I alternatively classify ongoing lawsuits as meritorious. I find that the results remain the same regardless of the classification of ongoing lawsuits.

my main results. In Section B, I also find that the DiD coefficient in the third *F*-test is significant and positive in all columns, suggesting that hedge fund activism is not necessarily limited to illiquid sued firms, but common to all types of sued firms.[42]

[Insert Table 6 about here]

V. Economic Consequences of Hedge Fund Activism

5.1. Research design

5.1.1. Model specification

To investigate the economic consequences of hedge fund activism, I focus on the three years following event year *t* when a lawsuit is filed. Specifically, using firm-year observations of sued firms from year *t*+1 to year *t*+3 relative to event year *t*, I estimate the following model using OLS regression:

$$Y_{i,t} = \beta_0 + \beta_1 Target_{i,t} + \beta_2 Log(market\ value\ of\ equity)_{i,t} + \beta_3 Tobin's\ Q_{i,t} + \beta_4 Sales\ growth_{i,t} + \beta_5 Return\ on\ assets_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 Inst.\ ownership_{i,t} + \sum\delta_j + \sum\gamma_t + \varepsilon_{i,t}\,, \quad (2)$$

where for firm *i* and year *t*, the dependent variable is an empirical proxy for corporate governance or firm performance. The empirical proxies for corporate governance include a change in board independence (*Chg. in board indep.*), an indicator for CEO turnover (*CEO turnover*), and a change in excessive CEO

[42] I also note that the statistical significance and magnitude of the DiD coefficient are smaller for liquid firms (*Liquid* = 1) than for illiquid firms (*Liquid* = 0). This result supports the view that liquidity may discourage governance via voice (Edmans et al. 2013), although the coefficient difference between liquid and illiquid firms is not statistically significant.

compensation (*Chg. in excess pay*).[43] The proxies for market-based performance include a change in Tobin's Q (C*hg. in Tobin's Q*) and market-adjusted annual returns (*Market-adjusted return*). The proxies for operating performance include a change in return on assets (*Chg. in return on assets*) and a change in asset turnover (*Chg. in asset turnover*). All of the variables capturing changes in corporate governance or performance are measured relative to year *t*–1, the year preceding the filing year *t* of a given lawsuit.[44]

The variable of interest is *Target*, which is an indicator equal to one for sued firms that are targeted by hedge funds during the post-filing period (*Post-filing period* = 1) (i.e., 18 months following the filing date of a given lawsuit).[45] Thus, this variable captures the effect of hedge fund activism on the governance or performance of a given firm in the post-litigation period. To keep my empirical model parsimonious, I use only control variables, among those specified in Equation (1), that are shown to be associated with governance or firm performance in prior research.[46] Finally, I include industry ($\sum\delta_j$) and year ($\sum\gamma_t$) fixed effects in

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[43] I estimate excessive CEO compensation using Equation (7) following Core, Guay, and Larcker (2008), as shown in Appendix II.

[44] All of the dependent variables except *Market-adjusted return* represent how the governance or performance of a firm changes in the post-litigation period relative to year *t*–1, where year *t* is the filing year of a given lawsuit. The market-adjusted annual return in the post-litigation period (*Market-adjusted return*) is a market-based proxy for the extent to which a firm's stock performance increases in the post-litigation period, without comparison to year *t*–1.

[45] I maintain this variable definition to be consistent with the model specification in H1. According to this definition, sued firms that are targeted after the end of fiscal year *t*+1 can be identified as target firms, and their observations in year *t*+1 are coded as *Target* = 1, although no intervention takes place in year *t*+1. Therefore, in my analysis, I remove these observations from the sample to truly identify the effect of hedge fund activism.

[46] The results remain qualitatively similar when all of the control variables specified in Equation (1) are included in the regression model.

the regression, and cluster standard errors at the firm level when assessing statistical significance. Detailed definitions of the variables are presented in Appendix I.

5.1.2. Sample construction and descriptive statistics

To construct the sample, I require a sued firm to have valid observations during the three years after event year *t*. This procedure yields a sample of 1,248 (912) firm-year observations covering 416 (304) unique lawsuit cases. The sample size varies across regression models depending on the coverage of executive data obtained from Execucomp.

In Table 7, I present the summary statistics of the variables used in this analysis. I find that the mean values of *Chg. in board indep.*, *CEO turnover*, and *Chg. in excess pay* are 0.03, 0.23, and –0.03, respectively. These statistics suggest that on average, sued firms exert effort to improve their corporate governance by increasing their board independence, appointing a new CEO, and reducing their excessive executive compensation. For post-litigation firm performance, I find that the mean value of *Chg. in Tobin's Q* is –0.79, suggesting that sued firms experience a sharp drop in their equity value when going through litigation. Additionally, the negative mean values of *Chg. in return on assets* (–0.05) and *Chg. in asset turnover* (–0.06) indicate that sued firms have poor operating performance after litigation.

[Insert Table 7 about here]

5.2. Empirical results

5.2.1. Effect on corporate governance

To provide preliminary evidence of how corporate governance changes in the three years following event year *t*, I illustrate the results of univariate analyses in Figure 3. In Panel A, I compare the mean value of *Chg. in board indep.* between target and non-target firms from year *t*+1 to year *t*+3. I find that board independence increases monotonically over time, and this increase is statistically greater for target firms than for non-target firms in the post-litigation period. The mean value of *Chg. in board indep.* for target firms in year *t*+3 (0.087) suggests that the level of board independence increases by 12% (= 0.087/0.732) over the three years.[47] In Panel B, I compare the mean value of *CEO turnover* between target and non-target firms. Consistent with my prediction, I find that the probability of CEO turnover increases gradually after litigation, and this increase is systematically greater for target firms than for non-target firms. Finally, in Panel C, I compare the mean value of *Chg. in excess pay* between target and non-target firms. I find that the decrease in *CEO excess pay* is more pronounced for target firms than for non-target firms, although it is not statistically significant. In addition, it should be noted that the decrease in *CEO excess pay* is more pronounced in the year immediately following event year *t*, and this trend becomes attenuated over time. This pattern makes sense, given that CEOs may be highly compensated when they succeed in restoring firm value following litigation, and that the reduction in *CEO excess pay* after litigation may

[47] The mean value of the level of board independence of sued firms in year *t*–1 is 0.732 (untabulated).

not last for a long time.

[Insert Figure 3 about here]

Next, I report the results of multivariate analyses in Table 8. In column (1), where the post-litigation change in board independence is examined, I find that the coefficient on *Target* is positive (0.045) and significant at the 1% level (*t*-statistic = 2.59). This result suggests that the post-litigation increase in board independence is more pronounced for target firms than for non-target firms. In columns (2) and (3), the sample size decreases to 912 due to the limited availability of data on executives. In column (2), I find that the coefficient on *Target* is positive (0.211) and statistically significant (*t*-statistic = 2.05), suggesting that CEOs of target firms are more likely than those of non-target firms to be replaced following litigation. Finally, in column (3), I find a non-significant coefficient on *Target* in the regression of *Chg. in excess pay*. This non-significant result may be due to the potentially superior performance of target firms canceling out the effect of hedge fund intervention on the reduction of CEO pay.[48] In summary, I find evidence consistent with H2a that target firms improve their corporate governance more significantly than do non-target firms following litigation.

[Insert Table 8 about here]

To corroborate my prior evidence on CEO compensation after litigation, I

[48] Excessive CEO compensation in the post-litigation period may be subject to mixed forces. Although excessive CEO compensation may be reduced to constrain CEOs' rent extraction after litigation, CEOs may also be highly compensated for the successful turnaround of sued firms. More importantly, combined with the result in column (2), newly appointed CEOs may require additional compensation for taking risk after litigation. These complex forces may lead to a non-significant result for the overall effect on the post-litigation change in excessive CEO compensation.

further examine the CEO pay structure for each of the three years following litigation. First, I separately estimate the excessive amounts of CEO's incentive pay and cash pay.[49] I define *Chg. in excess incentive pay* (*Chg. in excess cash pay*) as the change in excessive CEO incentive (cash) pay measured for year t+1, t+2, or t+3 following litigation, relative to the year preceding the filing year t of a given lawsuit. Similarly, I compute the change in the fraction of incentive pay in total pay (*Chg. in the fraction of incentive pay*). I then estimate Equation (2) with one of these three variables as the dependent variable, separately for each of the three years following litigation.

I present the results in Table 9. The results for changes in excessive incentive pay, excessive cash pay, and the fraction of incentive pay are reported in the first, second, and last three columns, respectively. Focusing on the results for year t+1, I find a significant and negative coefficient on *Target* in the regressions of *Chg. in excess incentive pay* and *Chg. in the fraction of incentive pay* in columns (1) and (7), respectively. In contrast, I fail to find a significant result for *Chg. in excess cash pay* in column (4). Taken together, the results suggest that target firms are more likely than non-target firms to reduce their excessive incentive pay and the fraction of incentive pay in total pay. My results suggest that hedge funds induce target firms to reduce the CEOs' incentives for excessive risk-taking after litigation.

[49] Following Hayes, Lemmon, and Qiu (2012), I divide the total compensation of CEOs into salary, bonus, long-term incentive awards, restricted stocks, and stock options. I classify salary and bonus as cash pay and the rest as incentive pay. I estimate excessive incentive (cash) pay as the residual term from the regression of Equation (7) with incentive (cash) pay as the dependent variable. The estimation results for excessive CEO compensation are presented in Appendix II.

The results are also in line with prior evidence that excessive equity-based pay can lead managers to engage in excessive risk-taking and aggressive financial reporting (Cheng and Warfield 2005; Bergstresser and Philippon 2006; Cheng and Farber 2008), which are major concerns for hedge funds.

[Insert Table 9 about here]

5.2.2. Effect on firm performance

Next, I focus on post-litigation changes in firm performance. To get a preliminary view of sued firms' market performance around litigation, I examine the cumulative stock returns of target firms and non-target firms separately and report the results in Figure 4. For this analysis, I use target firms (*Target* = 1) and non-target firms (*Target* = 0) with no missing data for daily stock returns from day *t*–200 to day *t*+1000 relative to day *t* when a given lawsuit is filed. This sample selection leaves 25 target firms and 278 non-target firms available for this analysis. I calculate cumulative abnormal returns of each firm relative to its stock price at the beginning of day *t*. I then compute the value-weighted cumulative stock returns of target and non-target firms at the end of each day. In Figure 4, I observe that target firms' stock prices decline sharply prior to the filing of a lawsuit, reach their lowest levels around day *t*+200, gradually increase after the post-filing period when firms are targeted by hedge funds, and rise well beyond the previous peak afterward. Contrary to this pattern, the stock prices of non-target firms seem broadly stable. In short, I find that in the long run, target firms have more dramatic turnarounds in their stock market performance than do non-target firms following litigation.

[Insert Figure 4 about here]

Next, I present the results of multivariate analyses in Table 10. The results for stock market performance are reported in columns (1) and (2), and those for operating performance in columns (3) and (4). In columns (1) and (2), I find that the coefficient on *Target* is positive and significant at the 1% level.[50] These results suggest that hedge fund intervention leads to increases in Tobin's Q and market-adjusted returns of target firms after litigation. Additionally, I continue to find a significant and positive coefficient on *Target* in both columns (3) and (4), indicating that the return on assets and asset turnover of target firms improve significantly after litigation. Overall, these results corroborate my results in columns (1) and (2) by showing that the superior market performance of target firms is supported by the target firms' improved profitability and efficiency in operating activities.

[Insert Table 10 about here]

VI. Hedge Funds' Exit Strategy

So far, my analyses have demonstrated that sued firms are more likely than matched firms to be targeted by new hedge funds, but not by existing hedge funds, and that target firms are more likely than non-target firms to be successful in improving their corporate governance and performance after litigation. Given these results, one may wonder how existing hedge funds behave around the occurrence of litigation, which is the main focus of my next analysis. Specifically, I investigate

[50] The results in column (2) are not sensitive to using size-adjusted returns as the dependent variable.

whether hedge funds that held stakes in sued firms prior to litigation are more likely than other types of institutions to sell their stocks preemptively before litigation begins.

6.1. Research design

6.1.1. Model specification

To examine the trading behavior of hedge funds, I estimate Equation (3) based on prior research (Chen et al. 2007) using OLS regression:

$$\begin{aligned} Exit_{i,k,t} = {} & \beta_0 + \beta_1 Sued_i + \beta_2 Sued_i \times Hedge_k + \beta_3 Hedge_k \\ & + \beta_4 Log(assets\ under\ mgmt.)_{k,t-1} + \beta_5 Portfolio\ weight_{i,k,t-1} \\ & + \beta_6 Shares\ ownership_{i,k,t-1} + \beta_7 Log(market\ value\ of\ equity)_{i,t-1} \\ & + \beta_8 Book\text{-}to\text{-}market_{i,t-1} + \beta_9 Return_{i,t} + \beta_{10} Return_{i,t-1} + \beta_{11} Trading\ volume_{i,t} \\ & + \beta_{12} Trading\ volume_{i,t-1} + \beta_{13} Trading\ volume_{i,t-4} + \sum \delta_j \times \gamma_t + \varepsilon_{i,k,t}, \end{aligned} \quad (3)$$

where for firm i, institution k, and quarter t, the dependent variable ($Exit_{i,k,t}$) is either *Negative chg. ownership*, *Large decrease*, or *Sell all*, each representing institution k's selling of firm i's stocks in quarter t. *Negative chg. ownership* is defined as the absolute change in the fraction of firm i's shares held by institution k if that change is negative, and zero otherwise. *Large decrease* is defined as one if a change in the fraction of firm i's shares held by institution k is in the bottom quintile in a given firm-quarter, and zero otherwise. Finally, *Sell all* is an indicator equal to one if institution k disposes of its entire stakes in firm i in quarter t, and zero otherwise. These three dependent variables take higher values when institution k significantly

reduces its ownership of firm *i* during quarter *t*.

The variable of interest is the interaction term between *Sued* and *Hedge*, i.e., *Sued*×*Hedge*, where *Sued* is an indicator for institutions' holdings in sued firms and *Hedge* is an indicator for hedge fund institutions. I introduce this interaction term to explore not only whether hedge funds are more likely than other types of institutions to deploy an exit strategy in general, but also whether that tendency, if any, is more pronounced for sued firms than for matched firms. I expect β_2 to be positive if hedge funds' preemptive exit behavior, compared to other institutions', is more pronounced for sued firms than for matched firms.

Following prior research (e.g., Chen et al. 2007; Kempf et al. 2017), I control for various characteristics of investors as well as of firms: lagged assets under management of institution *k* (*Log(assets under mgmt.)*$_{k,t-1}$), lagged weight of holdings in institution *k*'s portfolio (*Portfolio weight*$_{i,k,t-1}$), lagged fraction of shares held by institution *k* (*Shares ownership*$_{i,k,t-1}$), lagged firm size (*Log(market value of equity)*$_{i,t-1}$) and book-to-market ratio (*Book-to-market*$_{i,t-1}$), current and lagged stock returns (*Return*$_{i,t}$ and *Return*$_{i,t-1}$), and current, lagged, and four-quarter lagged share turnover (*Trading volume*$_{i,t}$, *Trading volume*$_{i,t-1}$, and *Trading volume*$_{i,t-4}$). Lastly, I include industry×quarter fixed effects ($\sum\delta_j \times \gamma_t$) in the regression and adjust standard errors using two-way clustering by institution and quarter. Detailed definitions of the variables are presented in Appendix I.

6.1.2. Sample construction and descriptive statistics

To construct the sample, I begin with all firm-quarters of sued and matched firms over the three years before the event quarter when a given lawsuit is filed, resulting in 83,368 firm-quarters. I then expand these firm-quarter observations by adding information on shareholdings of all institutions (including hedge funds) to each firm-quarter. I remove observations from the sample if an institution has less than ten investees in its portfolio or a firm's shares are held by less than ten institutions during a given quarter. Finally, I obtain a sample of 3,078,478 firm-institution-quarter observations during the 2001–2017 period.

In Table 11, I present the summary statistics of the variables used in this analysis. It is notable that the mean value of *Sell all* is 0.14, indicating that among the institutions holding stocks at the end of quarter t–1, about 14% of them sell all of their stocks during quarter t. I also find that the correlations among *Negative chg. ownership*, *Large decrease*, and *Sell all* are all positive, with their magnitudes all below 0.51 (untabulated). These correlations suggest that the dependent variables of interest represent the exit behavior of institutions in slightly different aspects. I also find that about 53% of the sample represents changes in institutions' holdings in sued firms (*Sued* = 1), and about 6% corresponds to hedge funds' holdings in sued or matched firms (*Hedge* = 1).

[Insert Table 11 about here]

6.2. Empirical results

In Table 12, I report the results of analyzing the exit behavior of hedge funds. Columns (1) to (3) show the results of estimating Equation (3) without the interaction term between *Sued* and *Hedge*. In these three columns, I find that the coefficient on *Hedge* is significant and positive. This result indicates that hedge funds are more likely than other types of institutions to sell their stakes in sued and matched firms, consistent with hedge funds utilizing an exit mechanism to play a governance role (Edmans et al. 2013). Next, in columns (4) to (6) where the interaction term is included in the regression model, I find a significant and positive coefficient on *Sued*×*Hedge*. This evidence suggests that the exit behavior of hedge funds is more pronounced for sued firms than for matched firms. Taken together, the above results imply that hedge funds, compared with other types of institutions, respond more proactively to the litigation risk of portfolio firms through the exit channel.

[Insert Table 12 about here]

VII.Hedge Funds' Learning from Litigation Experience

Finally, I explore whether hedge funds alter their behavior toward non-litigated portfolio firms after experiencing litigation. Although hedge funds successfully reduce their exposure to sued firms before the occurrence of litigation, as shown previously, it is not clear how they behave after leaving the sued firms. To address this issue, I examine whether hedge funds are more inclined to intervene

in non-litigated portfolio firms after experiencing litigation.

7.1. Research design

7.1.1. Model specification

My analysis aims to examine hedge funds' decision to intervene in non-litigated portfolio firms following litigation experience. Thus, focusing on hedge funds' holdings in non-litigated firms, I estimate the following Equation (4) using OLS regression:

$$\begin{aligned} Intervene_{i,k,t+1} = {} & \beta_0 + \beta_1 Litigation\ exp._{k,t} + \beta_2 Litigation\ exp._{k,t} \times Low\ FRQ_{i,t} \\ & + \beta_3 Low\ FRQ_{i,t} + \beta_4 Log(assets\ under\ mgmt.)_{k,t} \\ & + \beta_5 Portfolio\ weight_{i,k,t} + \beta_6 Share\ ownership_{i,k,t} \\ & + \beta_7 Log(market\ value\ of\ equity)_{i,t} + \beta_8 Tobin's\ Q_{i,t} + \beta_9 Sales\ growth_{i,t} \\ & + \beta_{10} Return\ on\ assets_{i,t} + \beta_{11} Leverage_{i,t} + \beta_{12} Dividend_{i,t} + \beta_{13} R\&D_{i,t} \\ & + \beta_{14} Segment\ HHI_{i,t} + \beta_{15} Inst.\ ownership_{i,t} + \beta_{16} Big4_{i,t} \\ & + \sum \eta_k + \sum \delta_j \times \gamma_t + \varepsilon_{i,t}, \end{aligned} \quad (4)$$

where for firm *i*, hedge fund *k*, and year *t*, the dependent variable is *Intervene*, which is defined as one if a hedge fund *k*, with stakes in firm *i* at the end of year *t*, files a Schedule 13D for firm *i* during year *t*+1, and zero otherwise. It is notable that this variable, by definition, is determined at the firm-year-hedge fund level. In this analysis, the variable of interest is *Litigation exp.* capturing a hedge fund's litigation experience, i.e., how frequently a hedge fund's investees have been sued in the past. Specifically, I define *Litigation exp.* as [the number of securities class actions

brought against a hedge fund's investees during the previous one year] divided by [the average number of investees in a hedge fund's portfolio during the corresponding period].[51] Thus, the coefficient on *Litigation exp.* (β_1) captures the unconditional effect of hedge funds' litigation experience on the hedge funds' intervention decisions.

In addition, I introduce *Low FRQ*, an indicator for firms with low financial reporting quality, and interact it with *Litigation exp.* to further explore whether the effect of hedge funds' litigation experience depends on the financial reporting quality of investees. *Low FRQ* takes *Low FRQ1* or *Low FRQ2* depending on the measure of financial reporting quality. Specifically, *Low FRQ1* [*Low FRQ2*] is defined as one if an investee's financial reporting quality measured with absolute discretionary accruals (Collins, Pungaliya, and Vijh 2017) [accruals estimation error (Dechow and Dichev 2002; McNichols 2002)] is in the bottom quintile of its sample distribution, and zero otherwise. Regarding H4a, I predict β_1 to be positive if hedge funds with more litigation experience are more likely to intervene in their investees. According to H4b, I also predict β_2 to be positive if the intervention of hedge funds following litigation experience is more salient for investees with lower financial reporting quality.

I include *Log(assets under mgmt.)* to control for portfolio size, and *Portfolio*

[51] When counting the number of securities class actions that a hedge fund experienced, I require a hedge fund to have had ownership in a sued firm at one point of time during the class period. This requirement enables me to accurately measure the extent to which a hedge fund who has presumably been damaged due to the cause of a given lawsuit, e.g., a manager's misrepresentation of material information in most cases of securities class actions.

weight and *Share ownership* to control for hedge funds' incentives for engagement and monitoring activities (Chen et al. 2007; Fich et al. 2015). I also control for several firm characteristics shown in prior research (Brav et al. 2008) to be associated with hedge fund activism, which is also consistent with Equation (1).[52] In addition, I include institution ($\sum\eta_k$) and industry×year ($\sum\delta_j \times \gamma_t$) fixed effects in the regression and base my statistical inferences on standard errors clustered by institution and year. Detailed variable definitions are presented in Appendix I.

7.1.2. Sample construction and descriptive statistics

The initial sample begins with firm-year observations whose shares are held by at least one hedge fund at the end of fiscal year during the 2004–2017 period.[53] I expand this sample by adding data on hedge funds who have operated for at least three years as of the end of fiscal year, so that I can reliably measure each hedge fund's litigation experience in the past. This procedure results in 306,022 firm-year-hedge fund observations with valid financial information. Additionally, I remove observations from the sample if a firm is sued at least once during the entire sample

[52] Specifically, the control variables chosen from equation (1) are firm size (*Log(market value of equity)*), Tobin's Q (*Tobin's Q*), sales growth (*Sales growth*), profitability (*Return on assets*), leverage (*Leverage*), dividend yield (*Dividend*), research and development expense (*R&D*), Herfindahl–Hirschman Index of sales in different business segments (*Segment HHI*), institutional ownership (*Inst. ownership*), and auditor size (*Big 4*).

[53] In this analysis, the sample begins in 2004, because the test variable (*Litgation exp.*) is measured using securities class actions filed during the previous one year, and only lawsuits filed since 2003 are considered suitable for the reliable measurement of the test variable. As explained previously, I require a hedge fund to have ownership during the class period of a given lawsuit when identifying the lawsuits involving the hedge fund. Therefore, data on institutional holdings should be available during these class periods. Since my data extracted from WhaleWisdom begin in 2001 and the class periods begin on average 298 days prior to the filing date (as exhibited in Figure 1) in my sample, it is reasonable to use only lawsuits that are filed in and after 2003 to measure *Litigation exp.* reliably.

period, if a hedge fund has less than ten investees in its portfolio, or if a firm's shares are held by less than ten institutions. As a result, I obtain a sample of 157,298 firm-year-hedge fund observations with valid data for my analysis, which are generated with 16,464 unique firm-years and 342 unique hedge funds.

In Table 13, I present the summary statistics of the variables used for my analysis. I note that the mean value of *Intervene* is 0.001, which indicates that about 0.1% of hedge funds file Schedule 13Ds for the investees in their portfolios during the next year. If my sample collapses to the firm-year level, about 1.3% of the firms in the sample turn out to be targeted by hedge funds (untabulated). Additionally, I find that the mean value of *Litigation exp.* is 0.05, indicating that on average 5% of a hedge fund's investees in the portfolio were sued during the previous year.

[Insert Table 13 about here]

7.2. Empirical results

7.2.1. Baseline regressions

In Table 14, I report the results of H4a and H4b. In Panel A, I present the results without the interaction term between *Low FRQ* and *Litigation exp.* in columns (1) and (2), and those with the interaction term in columns (3) and (4). In all columns, *Low FRQ* is based on a different measure of financial reporting quality, either *FRQ1* or *FRQ2*. In columns (1) and (2), I find that the coefficient on *Litigation exp.* is significant and positive. These results suggest that hedge funds are more likely to intervene in their portfolio firms after experiencing litigation,

which is consistent with their litigation experience affecting the assessed benefits of monitoring through activism. In addition, in terms of economic significance, the magnitude of the coefficient (0.015) in column (1) indicates a one standard deviation increase in *Litigation exp.* increases hedge funds' intervention probability by 0.06% (= 0.015×0.04), equivalent to approximately 60% of the unconditional probability of intervention (i.e., 0.1%) in my sample.

In columns (3) and (4), I find that the coefficient on *Low FRQ×Litigation exp.* is significant and positive, indicating that hedge funds' intervention in their portfolio firms after litigation is more pronounced for those with lower reporting quality. This evidence implies that while reassessing the adverse consequences of substandard financial reporting causing litigation, hedge funds selectively intervene in portfolio firms that are potentially subject to agency costs.

Regarding the control variables, I note that the probability of intervention is positively associated with *Portfolio weight* and *Share ownership*. These results are consistent with prior evidence that institutions' monitoring incentives increase with the weight of their investment stakes in their portfolios and share ownership (Chen et al. 2007; Fich et al. 2015). In summary, combined with the results of H3, my evidence suggests that hedge funds not only reduce their investment exposure to potentially risky firms in a preemptive manner, but also become more active monitors of their portfolio firms after the revelation of agency conflicts in litigation.

7.2.2. Litigation experience measured in alternative periods

To extend my previous analysis, I explore whether the effect of hedge funds' litigation experience diminishes over time. This analysis aims to assess the duration of the documented effect of litigation experience. I expect the previously documented effect to disappear as hedge funds' litigation experience becomes outdated, to the extent that my previous results for H4a and H4b reflect hedge funds' learning from litigation. To test this prediction, I introduce one- and two-year lagged versions of *Litigation exp.*, i.e., *Litigation exp. lagged 1Y* and *Litigation exp. lagged 2Y*, respectively, in the regression model. I then compare the coefficients for *Litigation exp.* and its two variants measured for different periods.

In Panel B of Table 14, I present the results of this analysis. In columns (1) and (2), where the unconditional effect of hedge funds' litigation experience is examined, I find that the coefficient on *Litigation exp.* is significant and positive. In contrast, I find that the coefficients for the litigation experience variables lagged by one and two years (i.e., *Litigation exp. lagged 1Y* and *Litigation exp. lagged 2Y*) are not statistically significant. Similarly, in columns (3) and (4), the coefficient on *Low FRQ×Litigation exp.* is significant and positive, but the coefficients on the other interactions with the lagged litigation variables are not statistically significant. Taken together, consistent with my prediction, the results indicate that hedge funds place more weight on the more recent experience of litigation against their portfolio firms.

[Insert Table 14 about here]

VIII. Concluding Remarks

In this study, I explore the dynamic behavior of hedge funds around shareholder litigation. I provide evidence that hedge funds initiate investments and intervene in sued firms after litigation in an attempt to exert influence to reform governance and improve the performance of their target firms. I also find that hedge funds that were shareholders of sued firms before litigation take preemptive measures to dispose of their stakes in these sued firms well before litigation begins. My findings collectively point to the multifaceted behavior of hedge funds around shareholder litigation. Furthermore, I show that by learning from litigation experience, hedge funds become more active monitors of non-litigated investees in their portfolios, consistent with the externalities of litigation on the behavior of hedge funds. In summary, my study attempts to reconcile the lack of evidence on the role of hedge funds around litigation with a widely accepted view that hedge funds are critical players in corporate governance.

In addition to its contributions to the literature, this study opens up avenues for future research. Indeed, this study does not examine whether and how hedge funds interact with other types of institutions when executing their activism and trading strategies due to the unavailability of data on interactions among investors. Further evidence of these interactions and their effects would be a meaningful extension of this study. In addition, since this study focuses only on disclosure-related securities class actions following prior studies, the behavior of hedge funds in the face of other types of lawsuits remains unclear. The various roles played by hedge funds in different types of lawsuits would be of interest to academia. I hope

that future studies will further explore these issues and deepen the understanding of hedge funds' governance role around shareholder litigation.

References

Admati, A. R., and P. Pfleiderer. 2009. The "Wall Street Walk" and shareholder activism: Exit as a form of voice. *The Review of Financial Studies* 22 (7): 2645–2685.

Agarwal, V., W. Jiang, Y. Tang, and B. Yang. 2013. Uncovering hedge fund skill from the portfolio holdings they hide. *The Journal of Finance* 68 (2): 739–783.

Agarwal, V., K. A. Mullally, and N. Y. Naik. 2015. The economics and finance of hedge funds: A review of the academic literature. *Foundations and Trends in Finance* 10 (1): 1–107.

Aharony, J., C. Liu, and A. Yawson. 2015. Corporate litigation and executive turnover. *Journal of Corporate Finance* 34: 268–292.

Ali, A., M. Trombley, C. Durtschi, and B. Lev. 2004. Changes in institutional ownership and subsequent earnings announcement abnormal returns. *Journal of Accounting, Auditing & Finance* 19 (3): 221–248.

Amihud, Y. 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets* 5 (1): 31–56.

Appel, I. R., T. A. Gormley, and D. B. Keim. 2019. Standing on the shoulders of giants: The effect of passive investors on activism. *The Review of Financial Studies* 32 (7): 2720–2774.

Aragon, G. O., M. Hertzel, Z. Shi, G. O. Aragon, M. Hertzel, and Z. Shi. 2013. Why do hedge funds avoid disclosure ? Evidence from confidential 13F filings. *Journal of Financial and Quantitative Analysis* 48 (5): 1499–1518.

Armstrong, C. S., W. R. Guay, and J. P. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics* 50 (2–3): 179–234.

Baik, B., J. M. Kim, K. Kim, and S. Patro. 2019. Hedge fund ownership and voluntary disclosure. *Review of Quantitative Finance and Accounting* 54 (3): 877–910.

Barabanov, S. S., O. Ozocak, H. J. Turtle, and T. J. Walker. 2008. Institutional investors and shareholder litigation. *Financial Management* 37 (2): 227–250.

Ben-David, I., F. Franzoni, and R. Moussawi. 2012. Hedge fund stock trading in the financial crisis of 2007−2009. *The Review of Financial Studies* 25 (1): 1–54.

Bergstresser, D., and T. Philippon. 2006. CEO incentives and earnings management. *Journal of Financial Economics* 80 (3): 511–529.

Black, B. S. 1990. Shareholder passivity reexamined. *Michigan Law Review* 89 (3): 520–608.

Bratton, W. W. 2007. Hedge funds and governance targets. *Georgetown Law Journal* 95: 1375–1433.

Brav, A., W. Jiang, and H. Kim. 2015. Recent advances in research on hedge fund activism: Value creation and identification. *Annual Review of Financial Economics* 7 (1): 579–595.

Brav, A., W. Jiang, F. Partnoy, and R. Thomas. 2008. Hedge fund activism, corporate governance, and firm performance. *The Journal of Finance* 63 (4): 1729–1775.

Briggs, T. W. 2007. Corporate governance and the new hedge fund activism: An empirical analysis. *Journal of Corporation Law* 32 (4): 681–738.

Brunnermeier, M. K., and S. Nagel. 2004. Hedge funds and the technology bubble. *The Journal of Finance* 59 (5): 2013–2040.

Bushee, B. J., and T. H. Goodman. 2007. Which institutional investors trade based on private information about earnings and returns? *Journal of Accounting Research* 45 (2): 289–321.

Bushee, B. J., and C. F. Noe. 2000. Corporate disclosure practices, institutional investors, and stock return volatility. *Journal of Accounting Research* 38 (Supplement): 171–202.

Chen, Q., J. Francis, and W. Jiang. 2005. Investor learning about analyst predictive ability. *Journal of Accounting and Economics* 39 (1): 3–24.

Chen, X., J. Harford, and K. Li. 2007. Monitoring: Which institutions matter? *Journal of Financial Economics* 86 (2): 279–305.

Cheng, C. S. A., H. H. Huang, Y. Li, and G. Lobo. 2010. Institutional monitoring through shareholder litigation. *Journal of Financial Economics* 95 (3): 356–383.

Cheng, Q., and D. B. Farber. 2008. Earnings restatements, changes in CEO compensation, and firm performance. *The Accounting Review* 83 (5): 1217–1250.

Cheng, Q., and T. D. Warfield. 2005. Equity incentives and earnings management. *The Accounting Review* 80 (2): 441–476.

Choi, D., B. Kahraman, and A. Mukherjee. 2016. Learning about Mutual Fund Managers. *The Journal of Finance* 71 (6): 2809–2860.

Choi, S. J., J. E. Fisch, and A. C. Pritchard. 2005. Do institutions matter? The impact of the lead plaintiff provision of the Private Securities Litigation Reform Act. *Washington University Law Quarterly* 83 (4): 869–906.

Coffee, J. C., and D. Palia. 2014. The impact of hedge fund activism: Evidence and implications. Working paper, European Corporate Governance Institute, Columbia Law School. Available at SSRN: https://ssrn.com/abstract=2496518 (last accessed February 2, 2021).

Collins, D. W., R. S. Pungaliya, and A. M. Vijh. 2017. The effects of firm growth and model specification choices on tests of earnings management in quarterly settings. *The Accounting Review* 92 (2): 69–100.

Core, J. E., W. Guay, and D. F. Larcker. 2008. The power of the pen and executive compensation. *Journal of Financial Economics* 88 (1): 1–25.

Core, J. E., R. W. Holthausen, and D. F. Larcker. 1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51 (3): 371–406.

Cox, J. D., and R. S. Thomas. 2006. Does the plaintiff matter? An empirical analysis of lead plaintiffs in securities class actions. *Columbia Law Review* 106 (7): 1587–1640.

———. 2009. Mapping the American shareholder litigation experience: A survey of empirical studies of the enforcement of the U.S. securities law. *European Company and Financial Law Review* 6 (2–3): 164–203.

Cox, J. D., R. S. Thomas, and L. Bai. 2008. There are plaintiffs and ... there are plaintiffs: An empirical analysis of securities class action settlements. *Vanderbilt Law Review* 61 (2): 355–386.

Cremers, K. J. M., E. Giambona, S. M. Sepe, and Y. Wang. 2021. Hedge fund activists: Value creators or good stock pickers. Working paper, University of Notre Dame, Syracuse University, University of Arizona, and University of International Business and Economics. Available at SSRN: https://ssrn.com/abstract=3614029 (last accessed Februray 2, 2021).

Dai, R., N. Massoud, D. K. Nandy, and A. Saunders. 2017. Hedge funds in M&A deals: Is there exploitation of insider information? *Journal of Corporate Finance* 47: 23–45.

Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accruals estimation errors. *The Accounting Review* 77 (Supplement):

35–59.

Dharwadkar, R., M. Goranova, P. Brandes, and R. Khan. 2008. Institutional ownership and monitoring effectiveness: It's not just how much but what else you own. *Organization Science* 19 (3): 419–440.

Edmans, A. 2009. Blockholder trading, market efficiency, and managerial myopia. *The Journal of Finance* 64 (6): 2481–2513.

———. 2014. Blockholders and corporate governance. *Annual Review of Financial Economics* 6: 23–50.

Edmans, A., V. W. Fang, and E. Zur. 2013. The effect of liquidity on governance. *The Review of Financial Studies* 26 (6): 1443–1482.

Edmans, A., and G. Manso. 2011. Governance through trading and intervention: A theory of multiple blockholders. *The Review of Financial Studies* 24 (7): 2395–2428.

Erickson, J. 2017. The gatekeepers of shareholder litigation. *Oklahoma Law Review* 70 (1): 237–279.

Farber, D. B. 2005. Restoring trust after fraud: Does corporate governance matter? *The Accounting Review* 80 (2): 539–561.

Fich, E. M., J. Harford, and A. L. Tran. 2015. Motivated monitors: The importance of institutional investors' portfolio weights. *Journal of Financial Economics* 118 (1): 21–48.

Francis, J., D. Philbrick, and K. Schipper. 1994. Shareholder litigation and corporate disclosures. *Journal of Accounting Research* 32 (2): 137–164.

Gantchev, N., O. R. Gredil, and C. Jotikasthira. 2019. Governance under the gun: Spillover effects of hedge fund activism. *Review of Finance* 23 (6): 1031–1068.

Gao, M., and J. Huang. 2016. Capitalizing on Capitol Hill: Informed trading by hedge fund managers. *Journal of Financial Economics* 121 (3): 521–545.

George, B., and J. W. Lorsch. 2014. How to outsmart activist investors. *Harvard Business Review* 92 (5): 88–95.

Gillan, S. L. 2006. Recent developments in corporate governance: An overview. *Journal of Corporate Finance* 12 (3): 381–402.

Greenwood, R., and M. Schor. 2008. When (not) to listen to activist investors. *Harvard Business Review* 86 (1): 23–24.

———. 2009. Investor activism and takeovers. *Journal of Financial Economics*

92 (3): 362–375.

Harsanyi, J. C. 1967. Games with incomplete information played by "Bayesian" players. Part I. *Management Science* 14: 159–182.

Hayes, R. M., M. Lemmon, and M. Qiu. 2012. Stock options and managerial incentives for risk taking: Evidence from FAS 123R. *Journal of Financial Economics* 105 (1): 174–190.

Hirschman, A. O. 1970. *Exit, voice, and loyalty: Responses to decline in firms, organizations, and states* (Vol. 25). Harvard University Press.

Hong, X., Z. Zhuang, D. Kang, and Z. Wang. 2019. Do corporate site visits impact hedge fund performance? *Pacific Basin Finance Journal* 56 (February): 113–128.

Johnson, K. L. 1997. Deterrence of corporate fraud through securities litigation: The role of institutional investors. *Law and Contemporary Problems* 60 (4): 155–166.

Kahan, M., and E. B. Rock. 2007. Hedge funds in corporate governance and corporate control. *University of Pennsylvania Law Review* 155 (5): 1021–1093.

Kahn, C., and A. Winton. 1998. Ownership structure, speculation, and shareholder intervention. *The Journal of Finance* 53 (1): 99–129.

Ke, B., and K. Petroni. 2004. How informed are actively trading institutional investors? Evidence from their trading behavior before a break in a string of consecutive earnings increases. *Journal of Accounting Research* 42 (5): 895–927.

Ke, B., and S. Ramalingegowda. 2005. Do institutional investors exploit the post-earnings announcement drift? *Journal of Accounting and Economics* 39 (1): 25–53.

Kempf, E., A. Manconi, and O. Spalt. 2017. Distracted shareholders and corporate actions. *The Review of Financial Studies* 30 (5): 1660–1695.

Khurana, I. K., Y. Li, and W. Wang. 2017. The effects of hedge fund interventions on strategic firm behavior. *Management Science* 64 (9): 4094–4117.

Kim, I., and D. J. Skinner. 2012. Measuring securities litigation risk. *Journal of Accounting and Economics* 53 (1–2): 290–310.

Klein, A., and E. Zur. 2009. Entrepreneurial shareholder activism: Hedge funds and other private investors. *The Journal of Finance* 64 (1): 187–229.

Macey, J. R., and G. P. Miller. 1991. The plaintiffs' attorney's role in class action and derivative Litigation: Economic analysis and recommendations for reform. *The University of Chicago Law Review* 58 (1): 1–118.

Massoud, N., D. Nandy, A. Saunders, and K. Song. 2011. Do hedge funds trade on private information? Evidence from syndicated lending and short-selling. *Journal of Financial Economics* 99 (3): 477–499.

Maug, E. 1998. Large shareholders as monitors: Is there a trade-off between liquidity and control? *The Journal of Finance* 53 (1): 65–98.

McNichols, M. F. 2002. Discussion of the quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 61–69.

Muth, J. F. 1961. Rational expectations and the theory of price movements. *Econometrica* 29 (3): 315–335.

Perino, M. 2012. Institutional activism through litigation: An empirical analysis of public pension fund participation in securities class actions. *Journal of Empirical Legal Studies* 9 (2): 368–392.

Pukthuanthong, K., H. Turtle, T. Walker, and J. Wang. 2017. Litigation risk and institutional monitoring. *Journal of Corporate Finance* 45: 342–359.

Rogers, J. L., and A. Van Buskirk. 2009. Shareholder litigation and changes in disclosure behavior. *Journal of Accounting and Economics* 47 (1–2): 136–156.

Romano, R. 1991. The shareholder suit: Litigation without foundation? *The Journal of Law, Economics, and Organization* 7 (1): 55–88.

———. 1993. Public pension fund activism in corporate governance reconsidered. *Columbia Law Review* 93 (4): 795–853.

Seru, A., T. Shumway, and N. Stoffman. 2010. Learning by trading. *The Review of Financial Studies* 23 (2): 705–739.

Shleifer, A., and R. W. Vishny. 1986. Large shareholders and corporate control. *Journal of Political Economy* 94 (3): 461–488.

Shleifer, A., and R. W. Vishny. 1997. A survey of corporate governance. *The Journal of Finance* 52 (2): 737–783.

Townsend, R. M. 1978. Market anticipations, rational expectations, and Bayesian analysis. *International Economic Review* 19 (2): 481–494.

Weiss, E. J., and J. S. Beckerman. 1995. Let the money do the monitoring: How

institutional investors can reduce agency costs in securities class actions. *The Yale Law Journal* 104 (8): 2053–2127.

Yan, X., and Z. Zhang. 2009. Institutional investors and equity returns: Are short-term institutions better informed? *The Review of Financial Studies* 22 (2): 893–924.

Appendix I. Variable Definitions

This table presents detailed definitions of the variables sued for the empirical analyses. The variables are sorted in the order of the hypotheses for which they are used. If a variable is used for more than one hypothesis, its definition is presented only once in the category of the first hypothesis.

Variable	Definition
Variables used for H1	
13D filing	= indicator variable that equals one if a hedge fund files an initial Schedule 13D for a given firm during the litigation event period, and zero otherwise.
# of 13D filings	= annualized number of initial Schedule 13D filings filed by hedge funds during the litigation event period, which is calculated as [the raw number of initial Schedule 13D filings] is multiplied by [365/number of days in the corresponding litigation event period].
Sued	= indicator variable that equals one if a firm is sued in a securities class action, and zero otherwise.
Matched	= indicator variable that equals one if a non-litigated firm is matched to a sued firm, and zero otherwise.
Pre-damage period	= indicator variable that equals one if an observation corresponds to the (pseudo) pre-damage period for a given lawsuit, which covers 18 months prior to the class period, and zero otherwise.
Damage period	= indicator variable that equals one if an observation corresponds to the (pseudo) damage-period for a given lawsuit, which covers the class period.
Post-filing period	= indicator variable that equals one if an observation corresponds to the (pseudo) post-filing period for a given lawsuit, which covers 18 months following the filing date of the lawsuit, and zero otherwise.
Log(market value of equity)	= natural logarithm of the market value of equity.
Tobin's Q	= Tobin's Q, defined as [the sum of the market value of equity and the book value of total debts] scaled by total assets.
Sales growth	= change in sales scaled by lagged sales.
Return on assets	= net income scaled by total assets.
Leverage	= sum of short-term and long-term debts scaled by total assets.
Dividend	= dividend yield, defined as the sum of the dividends of common and preferred stocks scaled by the sum of the market value of common stocks and the book value of preferred stocks.
R&D	= R&D expenses scaled by total revenue.

Variable	Definition
Segment HHI	= Herfindahl−Hirschman Index calculated based on the fraction of sales generated by different business segments in a firm.
Inst. ownership	= fraction of shares held by institutions.
Big 4	= indicator variable that equals one if a firm is audited by one of the Big 4 auditors, and zero otherwise.
Variables used for H2a and H2b	
Chg. in board indep.	= change in the fraction of independent directors on the board between year *t*–1 and a given year, where year *t* is the filing year of a given lawsuit.
CEO turnover	= indicator variable that equals one if a CEO is appointed after the filing year of a given lawsuit, and zero otherwise.
Chg. in excess pay	= change in excessive CEO excess compensation between year *t*–1 and a given year, where year *t* is the filing year of a given lawsuit. Excessive CEO compensation is defined as the residual term estimated from the regression of Equation (7) as shown in Appendix II.
Chg. in Tobin's Q	= change in *Tobin's Q* between year *t*–1 and a given year, where year *t* is the filing year of a given lawsuit.
Market-adjusted return	= cumulative stock returns in excess of the CRSP value-weighted market returns during fiscal year *t*.
Chg. in return on assets	= change in return on assets, defined as net income scaled by total assets, between year *t*–1 and a given year, where year *t* is the filing year of a given lawsuit.
Chg. in asset turnover	= change in asset turnover, defined as total revenue scaled by average total assets at the beginning and end of the current year, between year *t*–1 and a given year, where year *t* is the filing year of a given lawsuit.
Variables for the analysis of H3	
Negative chg. ownership	= absolute percentage change in the fraction of a firm's shares held by a given institution if the change is negative, and zero otherwise.
Large decrease	= indicator variable that equals one if the percentage change in the fraction of a firm's shares held by a given institution is in the bottom quartile of the sample distribution in a given firm-quarter, and zero otherwise.
Sell all	= indicator variable that equals one if a given institution sells all of its shares in a firm, and zero otherwise.
Sued	= indicator variable that equals one for sued firms, and zero for matched firms.
Hedge	= indicator variable that equals one for institutions

Variable	Definition
	classified as hedge funds, and zero otherwise.
Log(assets under mgmt.)	= natural logarithm of the total market value of investments under management for a given institution's portfolio.
Portfolio weight	= fraction of the market value of investments in a given firm in the total market value of assets under management for a given institution's portfolio.
Share ownership	= fraction of a firm's shares held by a given institution.
Book-to-market	= book-to-market ratio, defined as the book value of equity scaled by the market value of equity.
Returns	= buy-and-hold returns in quarter *t*.
Trading volume	= average daily trading volume scaled by the number of shares outstanding in quarter *t*.
Variables used H4a and H4b	
Intervene	= indicator variable that equals one if a hedge fund files an initial Schedule 13D targeting a given firm, and zero otherwise.
Litigation exp.	= prior experience of securities class actions filed against investee firms in a given institution's portfolio, calculated as [the number of securities class actions filed against investee firms in an institution's portfolio during the previous year] scaled by [the average number of investees in the portfolio during the corresponding year].
FRQ1	= absolute value of discretionary accruals for a given year, where discretionary accruals are defined as the residual term estimated from the following model suggested by Collins et al. (2017) as shown in Equation (5):

$$ACC_{i,t} = b_0 + b_1(\Delta REV - \Delta REC)_{i,t} + b_2 PPE_{i,t} + \sum b_{3,k} ROAD_{k,i,t} + \sum b_{4,k} SGD_{k,i,t} + \sum b_{5,k} MBD_{k,i,t} + e_{i,t}, \quad (5)$$

where *ACC* is accruals scaled by lagged total assets; *ΔREV* is the annual change in revenue scaled by lagged total assets; *ΔREC* is the annual change in accounts receivable scaled by lagged total assets; *ΔPPE* is property, plant, and equipment scaled by lagged total assets; and $ROAD_k$, SGD_k, and MBD_k are indicators for firms that belong to the *k*-th quintile group based on their return on assets, sales growth, and market-to-book ratio, respectively. The regression is estimated for each year and industry with at least 20 observations with no missing data.

Variable	Definition
FRQ2	= accrual estimation error, calculated as the standard deviation of the residual term over the last five years for each firm. The residual term is estimated from Equation (6) suggested by Dechow and Dichev (2002) and augmented by McNichols (2002): $\Delta WCA_{i,t} = b_0 + b_1 OCF_{i,t-1} + b_2 OCF_{i,t} + b_3 OCF_{i,t+1} + b_4 \Delta REV_{i,t} + b_5 PPE_{i,t} + e_{i,t}$, (6) where ΔWCA is the annual change in working capital scaled by average total assets; *OCF* is operating cash flows scaled by average total assets; ΔREV is the annual change in revenue scaled by average total assets; and *PPE* is gross property, plant, and equipment scaled by average total assets. The regression is estimated for each year and industry with at least ten observations with no missing data.
Low FRQ1	= indicator variable that equals one if *FRQ1* is in the top quartile of the sample distribution in a given year, and zero otherwise.
Low FRQ2	= indicator variable that equals one if *FRQ2* is in the top quartile of the sample distribution in a given year, and zero otherwise.

Appendix II. Estimation of Excessive CEO Compensation

This table presents the results of estimating excessive CEO compensation, which is defined as the residual term estimated from the following Equation (7) based on the model of Core, Guay, and Larcker (2008):

$$Y_{i,t} = \beta_0 + \beta_1 Log(CEO\ tenure)_{i,t} + \beta_2 Log(Assets)_{i,t-1} + \beta_3 Log(Sales)_{i,t-1} + \beta_4 SP500_{i,t} + \beta_5 Book\text{-}to\text{-}market_{i,t-1} + \beta_6 Return_{i,t} + \beta_7 Return_{i,t-1} + \beta_8 Return\ on\ assets_{i,t} + \beta_9 Return\ on\ assets_{i,t-1} + \sum\delta_j + \sum\gamma_t + \varepsilon_{i,t}\ , \quad (7)$$

where for firm i and year t, the dependent variable is the natural logarithm of total CEO compensation, *Log(Total CEO pay)*, in column (1); the natural logarithm of CEO incentive pay, *Log(CEO incentive pay*), in column (2); and the natural logarithm of CEO cash pay, *Log(CEO cash pay)*, in column (3). The sample used for this estimation includes all firm-years with valid data in the Compustat/Execucomp universe during the 2000–2019 period.

Dep. variable =	*Log(Total CEO pay)* (1)	*Log(CEO incentive pay)* (2)	*Log(CEO cash pay)* (3)
Log(CEO tenure)	0.011	-0.197***	0.112***
	(0.64)	(-4.17)	(6.01)
Log(Assets)	0.267***	0.503***	0.093***
	(11.89)	(8.39)	(3.46)
Log(Sales)	0.164***	0.219***	0.218***
	(7.80)	(3.89)	(8.20)
SP500	0.158***	0.235***	-0.030
	(4.72)	(2.60)	(-0.82)
Book-to-market	-0.346***	-0.748***	-0.118***
	(-12.93)	(-9.17)	(-3.92)
$Return_{i,t}$	0.399***	0.646***	0.138***
	(24.48)	(13.76)	(9.25)
$Return_{i,t-1}$	0.138***	0.186***	0.080***
	(10.48)	(4.56)	(6.11)
$Return\ on\ assets_{i,t}$	-0.076	-0.428*	0.166**
	(-0.95)	(-1.73)	(2.07)
$Return\ on\ assets_{i,t-1}$	0.108	0.502**	-0.079
	(1.45)	(2.12)	(-1.05)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adjusted R^2	0.450	0.183	0.253
Observations	35,756	35,756	35,756

TABLES

TABLE 1. Sample of securities class action lawsuits

This table describes the sample of securities class actions used in the empirical analyses. Panel A shows the detailed procedures for the selection of securities class actions. Panel B shows summary statistics of the defendant firms (N = 636) sued in securities class actions in the sample, and those of control firms (N = 636) matched to the defendant firms based on market capitalization and institutional ownership measured prior to the damage period, stock returns during the damage period, and industry. Panel C presents the distribution of lawsuit cases by filing year. Panel D presents the distribution of lawsuit cases by industry of the defendant firm based on the Fama–French 48 industry classification.

Panel A. Sample selection

Sample selection procedures	# of lawsuits
Lawsuits that are brought pursuant to Rule 10(b)-5 of the Securities Exchange Act between 1999 and 2017	3,369
(-) Lawsuits against firms not listed on the NYSE, AMEX, or NASDAQ stock exchange	(298)
(-) Lawsuits against firms without PERMNO	(128)
Initial sample of lawsuits	2,943
(-) Lawsuits that are filed against the same defendant firm within the 6-year period	(431)
(-) Lawsuits whose pre-damage period starts before 2001 or post-litigation period ends after 2019	(1,037)
(-) Lawsuits against firms whose financial information is not fully available for the event periods	(811)
Lawsuits available for matching	664
# of lawsuit events against defendant firms	636
# of *pseudo* lawsuit events against performance-matched firms	636

Panel B. Summary statistics of defendant firms and matched firms.

Variable	Defendant firms		Matched firms		Mean diff.	
	Mean (=A)	Std.	Mean (=B)	Std.	A-B	*p*-value
Abnormal returns during the class period	-0.10	0.42	-0.08	0.30	-0.02	0.275
Log(Market value of equity)	7.27	1.83	7.15	1.68	0.12	0.233
Log(Total assets)	7.08	2.14	7.06	1.88	0.02	0.844
Institutional ownership	0.71	0.26	0.71	0.25	0.00	0.908
Age at filing year	20.12	16.45	21.36	15.46	-1.24	0.168

Panel C. Distribution of lawsuit events by filing year

Filing year	# of lawsuits	Percentage (%)
2002	4	0.6
2003	18	2.8
2004	59	9.3
2005	59	9.3
2006	30	4.7
2007	47	7.4
2008	51	8.0
2009	38	6.0
2010	32	5.0
2011	40	6.3
2012	33	5.2
2013	45	7.1
2014	46	7.2
2015	44	6.9
2016	36	5.7
2017	54	8.5
Total	636	100.0

Panel D. Distribution of lawsuit events by industry

Industry description	Lawsuit sample		Compustat/CRSP universe
	# of lawsuits	Percentage (%)	Percentage (%)
Pharmaceutical Products	77	12.1	7.7
Business Services	64	10.1	11.5
Retail	47	7.4	3.5
Banking	41	6.4	11.4
Electronic Equipment	39	6.1	5.4
Computers	38	6.0	3.0
Medical Equipment	33	5.2	3.0
Insurance	30	4.7	2.7
Healthcare	21	3.3	1.3
Personal Services	19	3.0	0.9
Wholesale	16	2.5	2.7
Trading	16	2.5	5.8
Construction	14	2.2	0.9
Communication	14	2.2	3.2
Miscellaneous	13	2.0	2.8
Other industries with less than 2%	154	24.2	34.1
Total	636	100.0	100.0

TABLE 2. Sample of initial Schedule 13D filings of hedge funds

This table describes the sample of hedge funds' initial Schedule 13D filings used in the empirical analyses. Panel A presents the summary statistics of the 3,649 target firms for which hedge funds have initial Schedule 13D filings during the 2001–2019 period. Panel B shows the distribution of initial Schedule 13D filings by filing year. Panel C shows the distribution of initial Schedule 13D filings by industry of the target firm based on the Fama–French 48 industry classification.

Panel A. Summary statistics of target firms (N = 3,649)

Variable	Mean	Std.	10P	25P	50P	75P	90P
Log(Total assets)	6.07	1.75	3.85	4.87	5.99	7.28	8.40
Log(Market value of equity)	5.56	1.77	3.37	4.36	5.56	6.75	7.88
Age at event year	17.02	14.88	3.00	6.00	13.00	23.00	37.00
Duration (in days)	686.80	746.08	181.00	399.00	414.00	648.00	1521.00
Hedge ownership	0.12	0.12	0.04	0.06	0.09	0.14	0.24

Panel B. Distribution of initial Schedule 13D filings by filing year

13D filing year	# of events	Percent (%)
2001	139	3.8
2002	159	4.4
2003	169	4.6
2004	181	5.0
2005	248	6.8
2006	282	7.7
2007	343	9.4
2008	255	7.0
2009	131	3.6
2010	212	5.8
2011	182	5.0
2012	158	4.3
2013	181	5.0
2014	196	5.4
2015	190	5.2
2016	176	4.8
2017	170	4.7
2018	166	4.5
2019	111	3.0
Total	3,649	100.0

Panel C. Distribution of initial Schedule 13D filings by target industry

Industry description	Test sample		Compustat/CRSP universe
	# of events	Percentage (%)	Percentage (%)
Business Services	572	15.7	11.7
Pharmaceutical Products	262	7.2	8.0
Retail	198	5.4	3.5
Banking	198	5.4	11.4
Electronic Equipment	183	5.0	5.3
Trading	157	4.3	5.8
Communication	146	4.0	3.2
Computers	146	4.0	3.0
Petroleum and Natural Gas	140	3.8	4.2
Medical Equipment	134	3.7	3.1
Wholesale	125	3.4	2.7
Transportation	100	2.7	2.6
Machinery	98	2.7	2.5
Restaurants, Hotels, Motels	95	2.6	1.4
Insurance	88	2.4	2.6
Healthcare	87	2.4	1.3
Personal Services	75	2.1	1.0
Other industries with less than 2 %	845	23.2	26.9
Total	3,649	100.0	100.0

TABLE 3. Descriptive statistics of the sample for H1

This table presents the descriptive statistics of the sample used to test H1. Panel A presents the descriptive statistics of the 3,816 firm-event period observations. Panel B reports the Pearson correlations among the variables used to test H1, where the figures in bold indicate statistical significance at the 5% level. See Appendix I for detailed definitions of the variables.

Panel A. Summary statistics

Variable	Mean	Std.	P10	P25	P50	P75	P90
13D filing	0.04	0.19	0.00	0.00	0.00	0.00	0.00
# of 13D filings	0.03	0.18	0.00	0.00	0.00	0.00	0.00
Sued	0.50	0.50	0.00	0.00	0.50	1.00	1.00
Pre-damage period	0.33	0.47	0.00	0.00	0.00	1.00	1.00
Damage period	0.33	0.47	0.00	0.00	0.00	1.00	1.00
Post-filing period	0.33	0.47	0.00	0.00	0.00	1.00	1.00
Log(market value of equity)	7.12	1.79	4.78	5.88	7.09	8.33	9.53
Tobin's Q	1.99	1.82	0.51	0.89	1.40	2.39	4.23
Sales growth	0.06	0.30	-0.16	-0.05	0.02	0.10	0.23
Return on assets	0.00	0.06	-0.06	0.00	0.01	0.02	0.04
Leverage	0.21	0.21	0.00	0.02	0.17	0.34	0.49
Dividend	0.01	0.02	0.00	0.00	0.00	0.01	0.03
R&D	0.50	2.58	0.00	0.00	0.00	0.09	0.31
Segment HHI	0.84	0.24	0.44	0.67	1.00	1.00	1.00
Inst. ownership	0.69	0.27	0.27	0.54	0.76	0.90	0.99
Big 4	0.86	0.35	0.00	1.00	1.00	1.00	1.00

Panel B. Correlations

Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
[1] *13D filing*	1.00														
[2] *# of 13D filings*	**0.80**	1.00													
[3] *Sued*	**0.04**	**0.03**	1.00												
[4] *Pre-damage period*	**-0.05**	**-0.05**	0.00	1.00											
[5] *Damage period*	**-0.05**	-0.02	0.00	**-0.50**	1.00										
[6] *Post-filing period*	**0.10**	**0.07**	0.00	**-0.50**	**-0.50**	1.00									
[7] *Log(market value of equity)*	-0.03	-0.03	0.02	**-0.06**	**0.03**	0.02	1.00								
[8] *Tobin's Q*	**-0.04**	**-0.03**	**0.08**	-0.00	**0.04**	**-0.04**	**0.05**	1.00							
[9] *Sales growth*	-0.02	-0.02	**0.06**	0.01	**0.04**	**-0.05**	**-0.05**	**0.15**	1.00						
[10] *Return on assets*	-0.03	-0.03	**-0.05**	0.01	**0.05**	**-0.06**	**0.32**	**-0.15**	**-0.04**	1.00					
[11] *Leverage*	**0.06**	**0.04**	**0.05**	-0.03	-0.00	**0.03**	**0.13**	**-0.14**	**-0.04**	**-0.07**	1.00				
[12] *Dividend*	-0.02	-0.01	**-0.06**	-0.03	-0.01	**0.04**	**0.11**	**-0.18**	**-0.04**	**0.08**	**0.08**	1.00			
[13] *R&S*	-0.02	-0.01	**0.03**	0.01	0.00	-0.01	**-0.14**	**0.21**	**0.10**	**-0.41**	**-0.08**	**-0.09**	1.00		
[14] *Segment HHI*	-0.02	-0.01	-0.00	0.00	0.00	-0.00	**-0.17**	**0.17**	**0.06**	**-0.10**	**-0.06**	**-0.05**	**0.11**	1.00	
[15] *Inst. ownership*	**0.04**	**0.04**	-0.01	**-0.12**	**0.04**	**0.08**	**0.53**	-0.02	**-0.06**	**0.30**	**0.13**	**-0.08**	**-0.15**	**-0.06**	1.00
[16] *Big 4*	-0.01	-0.01	**-0.04**	0.01	0.00	-0.01	**0.40**	**-0.05**	**-0.04**	**0.11**	**0.12**	-0.02	-0.03	**-0.07**	**0.35**

TABLE 4. Hedge funds' intervention in sued firms

This table presents the results of testing H1, where Equation (1) is estimated using OLS regression:

$$Y_{i,t} = \beta_0 + \beta_1 Sued_{i,t} \times Damage\ period_{i,t} + \beta_2 Sued_{i,t} \times Post\text{-}filing\ period_{i,t} + \beta_3 Matched_{i,t} \times Pre\text{-}damage\ period_{i,t} + \beta_4 Matched_{i,t} \times Damage\ period_{i,t} + \beta_5 Matched_{i,t} \times Post\text{-}filing\ period_{i,t} + \beta_6 Log(Market\ value\ of\ equity)_{i,t} + \beta_7 Tobins'\ Q_{i,t} + \beta_8 Sales\ growth_{i,t} + \beta_9 Return\ on\ assets_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Dividend_{i,t} + \beta_{12} R\&D_{i,t} + \beta_{13} Segment\ HHI_{i,t} + \beta_{14} Inst.\ ownership_{i,t} + \beta_{15} Big\ 4_{i,t} + \sum \delta_j + \sum \gamma_t + \varepsilon_{i,t} . \quad (1)$$

The dependent variable is *13D filing* in columns (1) and (2) and *# of 13D filings* in columns (3) and (4). The estimation results in columns (1) and (3) are based on the model without control variables, and those in columns (2) and (4) are based on the model with all control variables included. The estimation results are based on 3,816 firm-event period observations around the filing of securities class actions. In Section A, the numbers in parentheses are *t*-statistics based on standard errors clustered by firm. In Section B, incremental changes in intervention propensity are estimated using *F*-tests. In both Sections, *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable (*Y*) =	*13D filing*		*# of 13D filings*	
	(1)	(2)	(3)	(4)
Section A: Coefficients				
Sued×Damage period	0.005	0.006	0.015	0.016
	(0.56)	(0.62)	(1.03)	(1.08)
Sued×Post-filing period	0.069***	0.065***	0.053***	0.049***
	(5.17)	(4.88)	(5.27)	(4.96)
Matched×Pre-damage period	0.007	0.006	0.005	0.004
	(0.71)	(0.69)	(0.73)	(0.66)
Matched×Damage period	0.005	0.004	0.010	0.009
	(0.49)	(0.41)	(1.11)	(1.02)
Matched×Post-filing period	0.020*	0.017	0.016**	0.013*
	(1.87)	(1.59)	(2.04)	(1.70)
Log(market value of equity)		-0.008***		-0.009***
		(-2.69)		(-2.86)
Tobin's Q		-0.004**		-0.003**
		(-2.49)		(-2.36)
Sales growth		-0.006		-0.009
		(-0.58)		(-1.18)
Return on assets		-0.082		-0.079
		(-1.20)		(-1.35)
Leverage		0.028		0.018
		(1.55)		(1.30)
Dividend		-0.009		0.051
		(-0.04)		(0.27)
R&D		-0.001		-0.001
		(-0.83)		(-0.87)

Dep. variable (*Y*) =	*13D filing*		*# of 13D filings*	
	(1)	(2)	(3)	(4)
Segment HHI		-0.024		-0.015
		(-1.60)		(-1.06)
Inst. ownership		0.046***		0.047***
		(3.00)		(2.95)
Big 4		-0.004		-0.004
		(-0.39)		(-0.42)
Quarter FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,816	3,816	3,816	3,816
Adjusted R^2	0.018	0.024	0.007	0.012
Section B: Change in intervention propensity (*F*-tests)				
Sued firms: *Sued*×*Post-filing period* (= a)				
estimated diff.	0.069***	0.065***	0.053***	0.049***
p-value	0.000	0.000	0.000	0.000
Matched firms: *Matched*×*Post-filing period* – *Matched*×*Pre-damage period* (= b)				
estimated diff.	0.013	0.011	0.011	0.009
p-value	0.253	0.363	0.169	0.278
Incremental change for sued firms relative to matched firms (= a – b)				
estimated diff.-in-diff.	0.056***	0.054***	0.042***	0.040***
p-value	0.001	0.002	0.001	0.001

TABLE 5. Intervention by new versus existing hedge funds

This table presents the results of testing H1 separately for intervention undertaken by new and existing hedge funds, where Equation (1) is estimated using OLS regression:

$$Y_{i,t} = \beta_0 + \beta_1 Sued_{i,t} \times Damage\ period_{i,t} + \beta_2 Sued_{i,t} \times Post\text{-}filing\ period_{i,t} + \beta_3 Matched_{i,t} \times Pre\text{-}damage\ period_{i,t} + \beta_4 Matched_{i,t} \times Damage\ period_{i,t} + \beta_5 Matched_{i,t} \times Post\text{-}filing\ period_{i,t} + \beta_6 Log(Market\ value\ of\ equity)_{i,t} + \beta_7 Tobins'\ Q_{i,t} + \beta_8 Sales\ growth_{i,t} + \beta_9 Return\ on\ assets_{i,t} + \beta_{10} Leverage_{i,t} + \beta_{11} Dividend_{i,t} + \beta_{12} R\&D_{i,t} + \beta_{13} Segment\ HHI_{i,t} + \beta_{14} Inst.\ ownership_{i,t} + \beta_{15} Big\ 4_{i,t} + \sum \delta_j + \sum \gamma_t + \varepsilon_{i,t} . \quad (1)$$

The dependent variable is measured for each group of new and existing hedge funds. *13D filing by new HF* and *# of 13D filings by new HF* are based on Schedule 13D filings of new hedge funds, and *13D filing by existing HF* and *# of 13D filings by existing HF* are based on those of existing hedge funds. Existing hedge funds are defined as those that held stakes in target firms during the one-year period prior to a given event period and initially filed a Schedule 13D during the event period. New hedge funds are defined as those that are not classified as existing hedge funds. Columns (1) and (3) report the estimation results for Schedule 13D filings by new hedge funds, and columns (2) and (4) report those for Schedule 13D filings by existing hedge funds. The sample includes 3,816 firm-event period observations around the filing of securities class actions. In Section A, the numbers in parentheses are *t*-statistics based on standard errors clustered by firm. In Section B, incremental changes in intervention propensity for sued firms relative to matched firms are estimated using *F*-tests. In both Sections, *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable (*Y*) =	*13D filing by new HF*	*13D filing by existing HF*	*# of 13D filings by new HF*	*# of 13D filings by existing HF*
	(1)	(2)	(3)	(4)
Section A: Coefficients				
Sued×Damage Period	0.008	-0.006	0.016	-0.003
	(0.96)	(-1.03)	(1.11)	(-0.82)
Sued×Post-filing period	0.048***	0.007	0.032***	0.005
	(3.93)	(0.85)	(3.76)	(0.90)
Matched×Pre-damage period	0.005	-0.001	0.003	-0.001
	(0.64)	(-0.14)	(0.50)	(-0.15)
Matched×Damage period	0.000	0.001	0.005	0.002
	(0.02)	(0.11)	(0.71)	(0.44)
Matched×Post-filing period	0.012	0.004	0.007	0.003
	(1.38)	(0.54)	(1.09)	(0.56)
Log(market value of equity)	-0.007***	-0.002	-0.007**	-0.001
	(-2.69)	(-0.98)	(-2.57)	(-0.97)
Tobin's Q	-0.002	-0.001	-0.002*	-0.001
	(-1.50)	(-1.12)	(-1.70)	(-1.25)
Sales growth	-0.011	0.002	-0.009	0.001
	(-1.11)	(0.32)	(-1.59)	(0.17)
Return on assets	-0.057	-0.023	-0.029	-0.009

Dep. variable (*Y*) =	*13D filing by new HF* (1)	*13D filing by existing HF* (2)	*# of 13D filings by new HF* (3)	*# of 13D filings by existing HF* (4)
	(-0.93)	(-0.55)	(-0.77)	(-0.32)
Leverage	0.017	0.033**	0.013	0.023**
	(1.25)	(2.27)	(1.33)	(2.29)
Dividend	-0.117	-0.069	-0.017	-0.051
	(-0.67)	(-0.45)	(-0.12)	(-0.43)
R&D	-0.001**	0.001	-0.001**	0.000
	(-2.31)	(0.64)	(-2.21)	(0.62)
Segment HHI	-0.005	0.000	-0.001	-0.002
	(-0.41)	(0.03)	(-0.10)	(-0.30)
Inst. ownership	0.042***	0.002	0.047***	-0.001
	(2.80)	(0.25)	(2.68)	(-0.11)
Big 4	0.001	-0.010	0.000	-0.006
	(0.14)	(-1.30)	(0.04)	(-1.15)
Quarter FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,036	3,036	3,036	3,036
Adjusted R^2	0.015	0.002	0.005	0.001
Section B: Change in intervention propensity (*F*-tests)				
Sued firms: *Sued*×*Post-filing period* (= a)				
estimated diff.	0.048***	0.007	0.032***	0.005
p-value	0.000	0.763	0.000	0.722
Matched firms: *Matched*×*Post-filing period – Matched*×*Pre-damage period* (= b)				
estimated diff.	0.007	0.005	0.004	0.004
p-value	0.290	0.992	0.221	0.977
Incremental change for sued firms relative to matched firms (= a – b)				
estimated diff.-in-diff.	0.041***	0.002	0.028***	0.001
p-value	0.010	0.823	0.009	0.810

TABLE 6. Additional analyses of hedge funds' intervention in sued firms

This table presents the results of additional analyses for H1 based on Equation (1). Panel A reports the results with *13D filing by other activists* or *# of 13D filings by other activists* as an alternative dependent variable, measured with activism events launched by other types of activists. Panel B reports the results with the subsample of frivolous (*Merit* = 0) or meritorious (*Merit* = 1) lawsuits. Panel C reports the results with the subsample of firms with illiquid stocks (*Liquid* = 0) or those with liquid stocks (*Liquid* = 1), where *Liquid* is defined as one for firms with Amihud's (2002) liquidity measure above the sample median. Across all Panels, in Section A, the numbers in parentheses are *t*-statistics based on standard errors clustered by firm. In Section B, incremental changes in intervention propensity are estimated using *F*-tests. In both Sections, *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Intervention by other types of activists

Dep. variable (*Y*) =	*13D filing by other activists*		*# of 13D filings by other activists*	
	(1)	(2)	(3)	(4)
Section A: Coefficients				
Sued×Damage period	-0.002	-0.002	-0.002	-0.002
	(-0.72)	(-0.67)	(-0.87)	(-0.84)
Sued×Post-filing period	0.008	0.008	0.006	0.006
	(1.52)	(1.50)	(1.52)	(1.51)
Matched×Pre-damage period	0.001	0.001	0.001	0.001
	(0.27)	(0.32)	(0.29)	(0.33)
Matched×Damage period	0.003	0.003	0.003	0.003
	(0.64)	(0.67)	(0.81)	(0.83)
Matched×Post-filing period	0.003	0.003	0.002	0.002
	(0.64)	(0.62)	(0.68)	(0.65)
Log(market value of equity)		-0.001		-0.000
		(-0.37)		(-0.22)
Tobin's Q		-0.002***		-0.001***
		(-3.04)		(-2.93)
Sales growth		-0.000		0.001
		(-0.03)		(0.29)
Return on assets		0.026		0.018
		(1.18)		(1.15)
Leverage		0.015**		0.010**
		(2.26)		(2.24)
Dividend		0.032		0.018
		(0.29)		(0.25)
R&D		-0.000		0.000
		(-0.07)		(0.00)
Segment HHI		0.001		0.000
		(0.20)		(0.01)
Inst. ownership		-0.005		-0.003

Dep. variable (*Y*) =	*13D filing by other activists*		*# of 13D filings by other activists*	
	(1)	(2)	(3)	(4)
		(-0.51)		(-0.43)
Big 4		-0.002		-0.001
		(-0.45)		(-0.31)
Quarter FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	3,816	3,816	3,816	3,816
Adjusted R^2	0.000	0.001	0.002	0.002
Section B: Change in intervention propensity (*F*-tests)				
Sued firms: *Sued*×*Post-filing period* (= a)				
estimated diff.	0.008	0.008	0.006	0.006
p-value	0.128	0.133	0.128	0.132
Matched firms: *Matched*×*Post-filing period* – *Matched*×*Pre-damage period* (= b)				
estimated diff.	0.002	0.002	0.001	0.001
p-value	0.716	0.764	0.705	0.754
Incremental change for sued firms relative to matched firms (= a – b)				
estimated diff.-in-diff.	0.006	0.006	0.005	0.005
p-value	0.324	0.299	0.330	0.302

Panel B. Meritorious versus frivolous litigation

Dep. variable (*Y*) =	*13D filing*		*# of 13D filings*	
Subsample =	*Merit* = 0	*Merit* = 1	*Merit* = 0	*Merit* = 1
	(1)	(2)	(3)	(4)
Section A: Coefficients				
Sued×*Damage period*	0.004	0.002	0.004	0.022
	(0.31)	(0.17)	(0.44)	(0.81)
Sued×*Post-filing period*	0.058***	0.071***	0.043***	0.054***
	(3.31)	(3.59)	(3.38)	(3.50)
Matched×*Pre-damage period*	0.012	0.002	0.007	0.001
	(0.84)	(0.17)	(0.70)	(0.14)
Matched×*Damage period*	0.001	0.004	0.002	0.009
	(0.05)	(0.25)	(0.24)	(0.65)
Matched×*Post-filing period*	0.031**	0.001	0.020**	0.003
	(2.11)	(0.06)	(2.01)	(0.23)
Log(market value of equity)	-0.006	-0.010**	-0.005*	-0.011**
	(-1.60)	(-2.05)	(-1.66)	(-2.41)
Tobin's Q	-0.005**	-0.003	-0.003*	-0.002

Dep. variable (Y) =	*13D filing*		*# of 13D filings*	
Subsample =	*Merit* = 0	*Merit* = 1	*Merit* = 0	*Merit* = 1
	(1)	(2)	(3)	(4)
	(-2.01)	(-1.14)	(-1.95)	(-0.96)
Sales growth	-0.024*	0.004	-0.018*	-0.005
	(-1.89)	(0.22)	(-1.85)	(-0.40)
Return on assets	-0.055	-0.131	-0.083	-0.098
	(-0.55)	(-1.26)	(-0.80)	(-1.34)
Leverage	0.023	0.033	0.009	0.026
	(0.98)	(1.14)	(0.53)	(1.13)
Dividend	-0.334	0.292	-0.217	0.294
	(-1.24)	(0.82)	(-1.04)	(0.88)
R&D	-0.002	-0.001	-0.002	-0.000
	(-1.49)	(-0.41)	(-1.63)	(-0.14)
Segment HHI	-0.013	-0.032	-0.016	-0.010
	(-0.60)	(-1.33)	(-0.78)	(-0.42)
Inst. ownership	0.032	0.066***	0.022	0.071***
	(1.49)	(2.66)	(1.47)	(2.59)
Big 4	-0.021	0.013	-0.013	0.004
	(-1.38)	(0.82)	(-1.18)	(0.28)
Quarter FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	1,944	1,872	1,944	1,872
Adjusted R^2	0.024	0.027	0.026	0.002
Section B: Change in intervention propensity (*F*-tests)				
Sued firms: *Sued*×*Post-filing period* (= a)				
estimated diff.	0.058***	0.071***	0.043***	0.054***
p-value	0.001	0.000	0.001	0.001
Matched firms: *Matched*×*Post-filing period* – *Matched*×*Pre-damage period* (= b)				
estimated diff.	0.019	-0.001	0.013	0.002
p-value	0.255	0.939	0.230	0.898
Incremental change for sued firms relative to matched firms (= a – b)				
estimated diff.-in-diff.	0.039	0.072***	0.030*	0.052***
p-value	0.106	0.004	0.078	0.007

Panel C. Moderating effect of liquidity

Dep. variable (Y) =	*13D filing*		*# of 13D filings*	
Subsample =	*Liquid* = 0	*Liquid* = 1	*Liquid* = 0	*Liquid* = 1
	(1)	(2)	(3)	(4)
Section A: Coefficients				
Sued×Damage period	0.004	0.004	0.027	0.000
	(0.31)	(0.34)	(1.03)	(0.04)
Sued×Post-filing period	0.064***	0.065***	0.048**	0.042***
	(3.14)	(3.61)	(2.42)	(3.52)
Matched×Pre-damage period	0.009	0.003	0.005	0.001
	(0.77)	(0.17)	(0.66)	(0.05)
Matched×Damage period	0.007	0.001	0.008	0.005
	(0.57)	(0.07)	(0.72)	(0.37)
Matched×Post-filing period	0.013	0.027	0.006	0.014
	(0.96)	(1.45)	(0.51)	(1.11)
Log(market value of equity)	-0.011**	-0.010**	-0.010**	-0.008**
	(-2.17)	(-2.22)	(-2.21)	(-2.27)
Tobin's Q	-0.004*	-0.007**	-0.003*	-0.004**
	(-1.70)	(-2.28)	(-1.70)	(-2.10)
Sales growth	-0.009	-0.001	-0.011	-0.006
	(-0.97)	(-0.04)	(-1.45)	(-0.42)
Return on assets	-0.072	-0.130	-0.085	-0.068
	(-0.83)	(-0.93)	(-1.02)	(-0.81)
Leverage	0.039	0.016	0.023	0.013
	(1.49)	(0.63)	(1.05)	(0.68)
Dividend	0.184	-0.451	0.233	-0.381
	(0.57)	(-1.35)	(0.72)	(-1.57)
R&D	-0.001	-0.002	-0.001	-0.001
	(-1.30)	(-0.71)	(-1.05)	(-0.51)
Segment HHI	-0.020	-0.029	-0.010	-0.026
	(-0.84)	(-1.31)	(-0.51)	(-1.30)
Inst. ownership	0.057**	0.005	0.056***	0.003
	(2.55)	(0.15)	(2.74)	(0.14)
Big 4	-0.012	0.037	-0.007	0.024
	(-0.95)	(1.53)	(-0.55)	(1.27)
Quarter FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	1,907	1,907	1,907	1,907
Adjusted R^2	0.029	0.019	0.005	0.026
Section B: Change in intervention propensity (*F*-tests)				
Sued firms: *Sued×Post-filing period* (= a)				
estimated diff.	0.064***	0.065***	0.048**	0.042***

Dep. variable (Y) =	*13D filing*		*# of 13D filings*	
Subsample =	*Liquid* = 0	*Liquid* = 1	*Liquid* = 0	*Liquid* = 1
	(1)	(2)	(3)	(4)
p-value	0.002	0.000	0.016	0.000
Matched firms: *Matched*×*Post-filing period* – *Matched*×*Pre-damage period* (= b)				
estimated diff.	0.004	0.024	0.001	0.013
p-value	0.783	0.221	0.933	0.311
Incremental change for sued firms relative to matched firms (= a – b)				
estimated diff.-in-diff.	0.060**	0.041*	0.047**	0.029*
p-value	0.013	0.098	0.019	0.084

TABLE 7. Descriptive statistics of the sample for H2a and H2b

This table presents the descriptive statistics of the sample used to test H2a and H2b. The sample includes 1,248 defendant firm-year observations during the three-year period following the filing year of securities class actions. The sample reduces to 912 observations for the two variables, *CEO turnover* and *Chg. in excess pay*, obtained from Execucomp. See Appendix I for detailed definitions of the variables.

Variable	Mean	Std.	P10	P25	P50	P75	P90
Chg. in board indep.	0.03	0.09	-0.07	-0.01	0.01	0.08	0.15
CEO turnover	0.23	0.42	0.00	0.00	0.00	0.00	1.00
Chg. in excess pay	-0.03	0.99	-1.19	-0.54	-0.02	0.47	1.08
Chg. in Tobin's Q	-0.79	2.64	-3.33	-1.38	-0.32	0.17	1.09
Market-adjusted return	-0.01	0.47	-0.50	-0.30	-0.06	0.18	0.48
Chg. in return on assets	-0.05	0.21	-0.28	-0.10	-0.01	0.02	0.10
Chg. in asset turnover	-0.06	0.35	-0.44	-0.17	-0.02	0.08	0.26
Target	0.06	0.23	0.00	0.00	0.00	0.00	0.00
Log(market value of equity)	7.17	2.01	4.58	5.81	7.10	8.45	9.85
Tobin's Q	2.61	2.65	0.92	1.13	1.65	2.90	5.25
Sales growth	0.08	0.49	-0.22	-0.07	0.03	0.13	0.29
Return on assets	-0.04	0.24	-0.29	-0.05	0.02	0.07	0.12
Leverage	0.24	0.25	0.00	0.03	0.19	0.35	0.56
R&D	0.06	0.11	0.00	0.00	0.00	0.08	0.17
Inst. ownership	0.61	0.36	0.00	0.29	0.74	0.90	1.00

TABLE 8. Changes in corporate governance after litigation

This table presents the results of examining post-litigation changes in corporate governance to test H2a, where Equation (2) is estimated using OLS regression:

$$Y_{i,t} = \beta_0 + \beta_1 Target_{i,t} + \beta_2 Log(market\ value\ of\ equity)_{i,t} + \beta_3 Tobin's\ Q_{i,t} + \beta_4 Sales\ growth_{i,t} + \beta_5 Return\ on\ assets_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 Inst.\ ownership_{i,t} + \sum\delta_j + \sum\gamma_t + \varepsilon_{i,t}\ . \quad (2)$$

The dependent variable is *Chg. in board indep* in column (1), *CEO turnover* in column (2), and *Chg. in excess pay* in column (3). The sample includes 1,248 [912] firm-year observations during the three-year period following litigation in columns (1) [(2) and (3)]. The numbers in parentheses are *t*-statistics based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	*Chg. in board indep.* (1)	*CEO turnover* (2)	*Chg. in excess pay* (3)
Target	0.045***	0.211**	-0.062
	(2.59)	(2.05)	(-0.32)
Log(market value of equity)	0.002	-0.014	0.062
	(0.56)	(-0.81)	(1.45)
Tobin's Q	-0.002	0.013	-0.013
	(-1.59)	(1.44)	(-0.69)
Sales growth	-0.002	0.006	0.192
	(-0.23)	(0.12)	(1.37)
Return on assets	-0.021	-0.276*	-0.748***
	(-0.91)	(-1.94)	(-2.68)
Leverage	0.018	-0.077	-0.162
	(1.13)	(-0.87)	(-0.79)
R&D	-0.070	0.022	0.552
	(-1.26)	(0.06)	(0.80)
Inst. ownership	0.000	0.039	0.183
	(0.01)	(0.59)	(1.15)
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Observations	1,248	912	912
Adjusted R^2	0.098	0.072	0.081

TABLE 9. Changes in CEO pay structure after litigation

This table presents the results of estimating Equation (2) with alternative dependent variables that capture the structure of CEO compensation for each of the three years following the filing year of securities class actions. The dependent variable is the change in excessive CEO incentive compensation (*Chg. in excess incentive pay*) in columns (1) to (3), the change in excessive CEO cash compensation (*Chg. in excess cash pay*) in columns (4) to (6), and the change in the fraction of CEO incentive compensation in total compensation (*Chg. in the fraction of incentive pay*) in columns (7) to (9). The numbers in parentheses are *t*-statistics based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	*Chg. in excess incentive pay*			*Chg. in excess cash pay*			*Chg. in the fraction of incentive pay*		
Year =	*t*+1	*t*+2	*t*+3	*t*+1	*t*+2	*t*+3	*t*+1	*t*+2	*t*+3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target	-2.311**	-1.653	-1.155	0.009	0.386*	0.244	-0.192*	-0.193	-0.113
	(-2.11)	(-1.36)	(-0.90)	(0.05)	(1.86)	(1.24)	(-1.77)	(-1.54)	(-0.86)
Log(market value of equity)	0.091	-0.133	0.314	-0.045	-0.051	0.013	0.044**	0.027	0.044**
	(0.43)	(-0.69)	(1.56)	(-1.27)	(-1.44)	(0.34)	(2.26)	(1.52)	(2.28)
Tobin's Q	0.027	0.002	-0.119	0.009	-0.019	-0.007	0.003	-0.001	-0.011
	(0.25)	(0.02)	(-0.88)	(0.53)	(-1.11)	(-0.30)	(0.26)	(-0.15)	(-0.86)
Sales growth	1.986***	-0.690	0.505	0.406***	0.013	0.067	0.124**	-0.051	0.137
	(2.82)	(-1.31)	(0.44)	(4.13)	(0.14)	(0.31)	(2.58)	(-1.25)	(1.27)
Return on assets	-3.039	-2.197	-0.181	-0.377*	-0.232	-0.397	-0.190	-0.127	0.050
	(-1.63)	(-1.14)	(-0.09)	(-1.76)	(-0.79)	(-0.91)	(-0.93)	(-0.67)	(0.24)
Leverage	-0.320	-0.823	-1.055	0.162	-0.033	-0.155	-0.079	-0.050	-0.015
	(-0.30)	(-0.73)	(-1.22)	(1.11)	(-0.17)	(-0.80)	(-0.69)	(-0.46)	(-0.17)
R&D	0.606	-3.060	4.499	0.001	0.347	0.012	0.289	-0.155	0.570
	(0.19)	(-0.87)	(1.35)	(0.00)	(0.57)	(0.02)	(0.90)	(-0.43)	(1.58)
Inst. ownership	0.498	0.033	0.822	0.272**	0.175	0.045	0.035	0.010	0.066

Dep. variable =	*Chg. in excess incentive pay*			*Chg. in excess cash pay*			*Chg. in the fraction of incentive pay*		
Year =	*t*+1	*t*+2	*t*+3	*t*+1	*t*+2	*t*+3	*t*+1	*t*+2	*t*+3
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	(0.70)	(0.04)	(1.04)	(1.99)	(1.30)	(0.34)	(0.49)	(0.13)	(0.86)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	304	304	304	304	304	304	304	304	304
Adjusted R^2	-0.020	0.045	-0.034	0.088	0.039	-0.004	-0.007	0.056	0.027

TABLE 10. Changes in firm performance after litigation

This table presents the results of examining post-litigation changes in firm performance to test H2b, where Equation (2) is estimated using OLS regression:

$$Y_{i,t} = \beta_0 + \beta_1 Target_{i,t} + \beta_2 Log(market\ value\ of\ equity)_{i,t} + \beta_3 Tobin's\ Q_{i,t} + \beta_4 Sales\ growth_{i,t} + \beta_5 Return\ on\ assets_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 R\&D_{i,t} + \beta_8 Inst.\ ownership_{i,t} + \sum\delta_j + \sum\gamma_t + \varepsilon_{i,t}. \quad (2)$$

The dependent variable is *Chg. in Tobin's Q* in column (1), *Market-adjusted return* in column (2), *Chg. in return on assets* in column (3), and *Chg. in asset turnover* in column (4), all of which represent the performance of sued firms during the post-litigation period. The estimation results are based on 1,248 firm-year observations of sued firms during the three years following the filing year of securities class actions. The numbers in parentheses are *t*-statistics based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable =	*Chg. in Tobin's Q* (1)	*Market-adjusted return* (2)	*Chg. in return on assets* (3)	*Chg. in asset turnover* (4)
Target	1.008***	0.203***	0.067*	0.152*
	(2.89)	(3.33)	(1.85)	(1.71)
Log(market value of equity)	0.399***	0.068***	-0.002	-0.010
	(3.57)	(5.06)	(-0.40)	(-0.74)
Tobin's Q	0.175	0.041***	-0.006	0.012*
	(1.52)	(3.58)	(-1.60)	(1.73)
Sales growth	0.152	0.002	0.039***	0.104***
	(0.58)	(0.05)	(2.76)	(4.05)
Return on assets	-1.439*	0.475***	0.720***	-0.045
	(-1.82)	(5.25)	(12.72)	(-0.59)
Leverage	0.659	-0.014	0.071*	-0.000
	(1.09)	(-0.20)	(1.92)	(-0.00)
R&D	1.037	0.695**	0.408**	0.238
	(0.55)	(2.55)	(2.45)	(1.29)
Inst. ownership	0.765**	0.092**	-0.017	-0.003
	(2.12)	(2.34)	(-0.73)	(-0.07)
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Observations	1,248	1,248	1,248	1,248
Adjusted R^2	0.154	0.158	0.480	0.120

TABLE 11. Descriptive statistics of the sample for H3

This table presents the descriptive statistics of 3,078,478 firm-institution-quarter observations during the three-year period prior to event quarter *t* in which a lawsuit is filed, which is used to test H3. The sample is based on the quarterly holdings of all institutions (including hedge funds) with stakes in sued firms and matched firms during the 2001–2017 period.

Variable	Mean	Std.	P10	P25	P50	P75	P90
Negative chg. ownership	0.04	0.14	0.00	0.00	0.00	0.01	0.08
Large decrease	0.20	0.40	0.00	0.00	0.00	0.00	1.00
Sell all	0.14	0.34	0.00	0.00	0.00	0.00	1.00
Sued	0.53	0.50	0.00	0.00	1.00	1.00	1.00
Hedge	0.06	0.24	0.00	0.00	0.00	0.00	0.00
Log(assets under mgmt.)	7.91	2.29	4.88	6.01	7.88	9.69	10.96
Portfolio weight	0.01	0.01	0.00	0.00	0.00	0.00	0.01
Share ownership	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Log(market value of equity)	8.63	1.78	6.25	7.28	8.65	9.84	10.99
Book-to-market	0.43	0.32	0.11	0.22	0.34	0.57	0.81
Returns	0.02	0.19	-0.20	-0.08	0.02	0.12	0.23
Returns lagged 1Q	0.03	0.19	-0.18	-0.07	0.03	0.13	0.24
Trading volume	0.01	0.01	0.00	0.01	0.01	0.01	0.02
Trading volume lagged 1Q	0.01	0.01	0.00	0.01	0.01	0.01	0.02
Trading volume lagged 1Y	0.01	0.01	0.00	0.01	0.01	0.01	0.02

TABLE 12. Exit channel: hedge funds' disposal of shares prior to litigation

This table presents the results of testing H3, where Equation (3) is estimated using OLS regression:

$$Exit_{i,k,t} = \beta_0 + \beta_1 Sued_i + \beta_2 Sued_i \times Hedge_k + \beta_3 Hedge_k + \beta_4 Log(assets\ under\ mgmt.)_{k,t-1} + \beta_5 Portfolio\ weight_{i,k,t-1} + \beta_6 Shares\ ownership_{i,k,t-1} + \beta_7 Log(market\ value\ of\ equity)_{i,t-1} + \beta_8 Book\text{-}to\text{-}market_{i,t-1} + \beta_9 Return_{i,t} + \beta_{10} Return_{i,t-1} + \beta_{11} Trading\ volume_{i,t} + \beta_{12} Trading\ volume_{i,t-1} + \beta_{13} Trading\ volume_{i,t-4} + \sum \delta_j \times \gamma_t + \varepsilon_{i,k,t}\ . \quad (3)$$

The dependent variable is *Negative chg. ownership* in columns (1) and (4), *Large decrease* in columns (2) and (5), and *Sell all* in columns (3) and (6), all of which represent a hedge fund's substantial disposal of investment stakes in a given firm in quarter *t*. Columns (1) to (3) present the results without the interaction term between *Sued* and *Hedge*, and columns (4) to (6) present the results with the interaction. The sample includes 3,078,478 firm-institution-quarter observations of sued and matched firms during the three-year period prior to litigation. The numbers in parentheses are *t*-statistics based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Dep. variable (*Exit*) =	*Negative chg. ownership* (1)	*Large decrease* (2)	*Sell all* (3)	*Negative chg. ownership* (4)	*Large decrease* (5)	*Sell all* (6)
Sued	0.002***	-0.007***	0.003*	0.002***	-0.007***	0.003
	(2.98)	(-3.67)	(1.88)	(3.31)	(-4.24)	(1.63)
Sued×Hedge				0.005***	0.011**	0.008**
				(2.92)	(2.55)	(2.26)
Hedge	0.024***	0.095***	0.079***	0.021***	0.089***	0.074***
	(5.02)	(6.04)	(4.80)	(4.29)	(5.34)	(4.50)
Log(assets under mgmt.)	0.000	0.032***	-0.031***	0.000	0.032***	-0.031***
	(0.10)	(16.96)	(-23.06)	(0.15)	(17.10)	(-23.21)
Portfolio weight	0.893***	6.858***	-1.649***	0.890***	7.031***	-1.669***
	(8.28)	(19.30)	(-12.12)	(8.16)	(21.51)	(-12.36)

Share ownership	7.786***	7.781***	-1.587***	7.768***	7.782***	-1.582***
	(13.07)	(8.34)	(-5.68)	(13.06)	(8.33)	(-5.63)
Log(market value of equity)	-0.008***	0.013***	-0.027***	-0.008***	0.013***	-0.026***
	(-11.70)	(6.91)	(-24.47)	(-11.81)	(7.13)	(-23.94)
Book-to-market	-0.003*	0.000	-0.006**	-0.003**	-0.001	-0.005**
	(-1.92)	(0.07)	(-2.47)	(-2.07)	(-0.32)	(-1.99)
$Return_{i,t}$	-0.008***	0.002	-0.091***	-0.009***	0.004	-0.088***
	(-4.09)	(0.66)	(-19.39)	(-4.49)	(1.04)	(-17.66)
$Return_{i,t-1}$	0.002	-0.013***	-0.035***	0.001	-0.011***	-0.036***
	(1.15)	(-3.87)	(-10.56)	(0.59)	(-3.01)	(-9.91)
$Trading\ volume_{i,t}$	1.696***	0.183	3.261***	1.809***	0.161	3.288***
	(16.99)	(1.43)	(17.92)	(17.71)	(1.22)	(18.76)
$Trading\ volume_{i,t-1}$	-0.148**	0.202*	-0.441***	-0.172**	0.138	-0.367***
	(-2.08)	(1.81)	(-3.40)	(-2.29)	(1.14)	(-2.90)
$Trading\ volume_{i,t-4}$	-0.264***	0.199**	-0.224**	-0.304***	0.138	-0.309***
	(-4.44)	(2.16)	(-2.14)	(-4.92)	(1.57)	(-2.92)
Industry×Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,078,478	3,078,478	3,078,478	3,078,478	3,078,478	3,078,478
Adjusted R^2	0.223	0.089	0.059	0.225	0.089	0.060

TABLE 13. Descriptive statistics of the sample for H4a and H4b

This table presents the descriptive statistics of 157,298 firm-year-hedge fund observations during the 2004–2017 period, which is used to test H4a and H4b. The sample includes all firm-years whose shares are held by hedge funds as of the end of fiscal year.

Variable	Mean	Std.	P10	P25	P50	P75	P90
Intervene	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Litigation exp.	0.05	0.03	0.03	0.03	0.04	0.06	0.09
FRQ1	0.06	0.07	0.01	0.02	0.04	0.07	0.13
FRQ2	0.04	0.03	0.01	0.02	0.03	0.05	0.07
Low FRQ1	0.25	0.43	0.00	0.00	0.00	1.00	1.00
Low FRQ2	0.25	0.43	0.00	0.00	0.00	1.00	1.00
Log(assets under mgmt.)	9.30	2.07	6.42	7.67	9.51	11.25	11.92
Portfolio weight	0.00	0.01	0.00	0.00	0.00	0.00	0.01
Share ownership	0.01	0.02	0.00	0.00	0.00	0.01	0.02
Log(market value of equity)	7.58	1.72	5.32	6.36	7.62	8.78	9.87
Tobin's Q	2.57	2.03	1.06	1.36	1.91	2.97	4.71
Sales growth	0.12	0.29	-0.12	-0.01	0.08	0.19	0.37
Return on assets	0.03	0.13	-0.08	0.01	0.05	0.09	0.13
Leverage	0.22	0.18	0.00	0.06	0.21	0.34	0.47
Dividend	0.01	0.02	0.00	0.00	0.00	0.02	0.03
R&D	0.04	0.09	0.00	0.00	0.00	0.04	0.13
Segment HHI	0.78	0.26	0.37	0.53	1.00	1.00	1.00
Inst. ownership	0.77	0.21	0.45	0.67	0.82	0.93	1.00
Big 4	0.88	0.32	0.00	1.00	1.00	1.00	1.00

TABLE 14. Hedge funds' intervention in non-litigated firms after litigation

This table presents the results of testing H4a and H4b, where Equation (4) is estimated using OLS regression:

$$Intervene_{i,k,t+1} = \beta_0 + \beta_1 Litigation\ exp._{k,t} + \beta_2 Litigation\ exp._{k,t} \times Low\ FRQ_{i,t} + \beta_3 Low\ FRQ_{i,t} + \beta_4 Log(assets\ under\ mgmt.)_{k,t} + \beta_5 Portfolio\ weight_{i,k,t} + \beta_6 Share\ ownership_{i,k,t} + \beta_7 Log(market\ value\ of\ equity)_{i,t} + \beta_8 Tobin's\ Q_{i,t} + \beta_9 Sales\ growth_{i,t} + \beta_{10} Return\ on\ assets_{i,t} + \beta_{11} Leverage_{i,t} + \beta_{12} Dividend_{i,t} + \beta_{13} R\&D_{i,t} + \beta_{14} Segment\ HHI_{i,t} + \beta_{15} Inst.\ ownership_{i,t} + \beta_{16} Big4_{i,t} + \sum \eta_k + \sum \delta_j \times \gamma_t + \varepsilon_{i,t}\ . \quad (4)$$

In Panels A and B, the dependent variable is *Intervene* in all columns, which captures a hedge fund's Schedule 13D filing for a given firm in year *t+1*. Panel A shows the results of baseline regressions where a hedge fund's litigation experience (*Litigation exp.*) is measured for the one-year period prior to the end of year *t*. Panel B shows the results using three litigation experience variables measured for alternative windows. The sample includes 157,298 (137,151) firm-year-hedge fund observations of non-litigated firms during the period of 2004 (2006)–2017 in Panel A (Panel B). In both Panels, the numbers in parentheses are *t*-statistics based on standard errors clustered by firm. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. See Appendix I for detailed definitions of the variables.

Panel A. Baseline regressions

Dep. variable =	*Intervene*			
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
Litigation exp.	0.015**	0.015**	0.006	0.006
	(2.31)	(2.31)	(0.82)	(0.91)
Low FRQ×Litigation exp.			0.031***	0.035***
			(3.50)	(3.18)
Low FRQ	0.000	0.000	-0.001**	-0.002***
	(1.39)	(0.04)	(-2.85)	(-3.03)
Log(assets under mgmt.)	-0.000	-0.000	-0.000	-0.000
	(-0.14)	(-0.14)	(-0.14)	(-0.14)
Portfolio weight	0.061*	0.061*	0.061*	0.063*
	(2.02)	(2.03)	(2.03)	(2.08)
Share ownership	0.145***	0.145***	0.144***	0.144***
	(4.98)	(4.98)	(4.97)	(4.95)
Log(market value of equity)	-0.000**	-0.000**	-0.000**	-0.000**
	(-2.50)	(-2.43)	(-2.50)	(-2.44)
Tobin's Q	-0.000	-0.000	-0.000	-0.000
	(-1.49)	(-1.42)	(-1.50)	(-1.43)
Sales growth	-0.000	-0.000	-0.000	-0.000
	(-0.36)	(-0.31)	(-0.39)	(-0.35)
Return on assets	-0.002	-0.002	-0.002	-0.002
	(-1.14)	(-1.19)	(-1.12)	(-1.17)
Leverage	-0.000	-0.000	-0.000	0.000

Dep. variable =	*Intervene*			
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
	(-0.03)	(-0.03)	(-0.03)	(0.02)
Dividend	0.004	0.004	0.004	0.004
	(0.59)	(0.58)	(0.55)	(0.54)
R&D	0.001	0.001	0.000	0.001
	(0.21)	(0.23)	(0.19)	(0.19)
Segment HHI	-0.000	-0.000	-0.000	-0.000
	(-0.80)	(-0.79)	(-0.74)	(-0.82)
Inst. ownership	-0.001	-0.001	-0.001	-0.001
	(-1.25)	(-1.24)	(-1.28)	(-1.31)
Big 4	-0.001	-0.001	-0.001	-0.001
	(-1.20)	(-1.20)	(-1.21)	(-1.26)
Institution FE	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes
Observations	157,298	157,298	157,298	157,298
Adjusted R^2	0.032	0.032	0.032	0.032

Panel B. Results with litigation experience measured for alternative windows

Dep. variable =	*Intervene*			
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
Litigation exp.	0.012*	0.012*	0.002	0.001
	(1.85)	(1.84)	(0.22)	(0.15)
Litigation exp. lagged 1Y	0.003	0.003	0.004	0.003
	(0.46)	(0.46)	(0.55)	(0.50)
Litigation exp. lagged 2Y	-0.004	-0.004	-0.004	-0.000
	(-0.63)	(-0.63)	(-0.60)	(-0.03)
Low FRQ×Litigation exp.			0.038***	0.045**
			(3.07)	(2.73)
Low FRQ×Litigation exp. lagged 1Y			-0.004	-0.002
			(-0.27)	(-0.19)
Low FRQ×Litigation exp. lagged 2Y			0.001	-0.015
			(0.07)	(-1.34)
Low FRQ	0.000*	0.000	-0.001*	-0.001**
	(1.90)	(0.20)	(-1.94)	(-2.23)
Log(assets under mgmt.)	-0.000	-0.000	-0.000	-0.000
	(-0.65)	(-0.65)	(-0.65)	(-0.66)
Portfolio weight	0.048	0.048	0.048	0.050

Dep. variable =	*Intervene*			
FRQ =	*FRQ1*	*FRQ2*	*FRQ1*	*FRQ2*
	(1)	(2)	(3)	(4)
	(1.62)	(1.64)	(1.61)	(1.69)
Share ownership	0.151***	0.151***	0.151***	0.150***
	(4.75)	(4.75)	(4.74)	(4.73)
Log(market value of equity)	-0.001**	-0.001**	-0.001**	-0.001**
	(-2.60)	(-2.54)	(-2.56)	(-2.54)
Tobin's Q	-0.000	-0.000	-0.000	-0.000
	(-0.82)	(-0.74)	(-0.81)	(-0.71)
Sales growth	-0.000	-0.000	-0.000	-0.000
	(-0.25)	(-0.19)	(-0.27)	(-0.21)
Return on assets	-0.003	-0.003	-0.003	-0.003
	(-1.54)	(-1.62)	(-1.53)	(-1.60)
Leverage	-0.000	-0.000	-0.000	-0.000
	(-0.51)	(-0.49)	(-0.52)	(-0.42)
Dividend	0.007	0.007	0.007	0.007
	(0.93)	(0.92)	(0.88)	(0.89)
R&D	-0.001	-0.001	-0.001	-0.001
	(-0.34)	(-0.31)	(-0.38)	(-0.36)
Segment HHI	-0.000	-0.000	-0.000	-0.000
	(-0.79)	(-0.78)	(-0.68)	(-0.79)
Inst. ownership	-0.001	-0.001	-0.001	-0.001
	(-0.99)	(-0.99)	(-0.99)	(-1.07)
Big 4	-0.000	-0.000	-0.000	-0.000
	(-0.74)	(-0.75)	(-0.73)	(-0.73)
Institution FE	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes
Observations	137,151	137,151	137,151	137,151
Adjusted R^2	0.031	0.031	0.031	0.031

FIGURES

FIGURE 1. Litigation timeline and regression periods

This figure illustrates the breakdown of each lawsuit into three litigation event periods discussed in the study. *Pre-damage period* is defined as the 18-month period prior to the beginning of the class period. *Damage period* is defined as the class period. *Post-filing period* is defined as the 18-month period following the suit date of a lawsuit. Hedge funds' Schedule 13D filings are measured for the pre-damage period, damage period, and post-filing period in the empirical analyses. The "Median period length (days)" represents the median value of the corresponding period's length in days for all lawsuits in the sample.

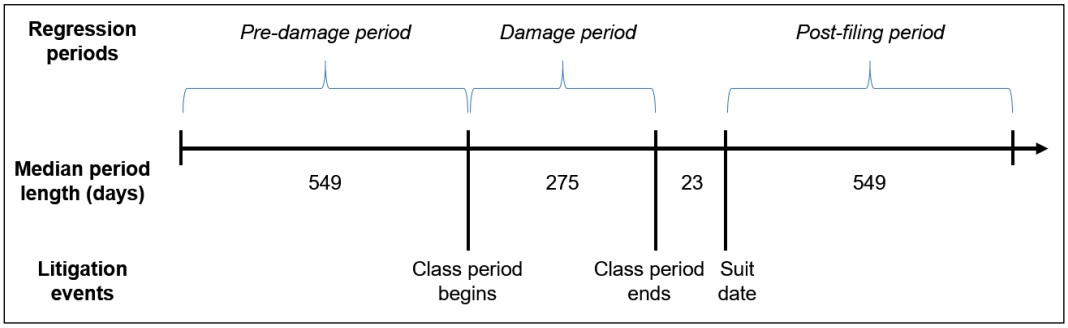


FIGURE 2. New hedge funds' share ownership after litigation

This figure compares the relative fraction of new hedge funds' ownership over 16 quarters following the filing quarter of a lawsuit between sued and matched firms. In this analysis, new hedge funds are defined as those with no stakes in a given firm prior to event quarter *t*. The relative fraction of new hedge funds' share ownership is calculated as new hedge funds' share ownership scaled by all hedge funds' share ownership at the end of quarter *t*+m.

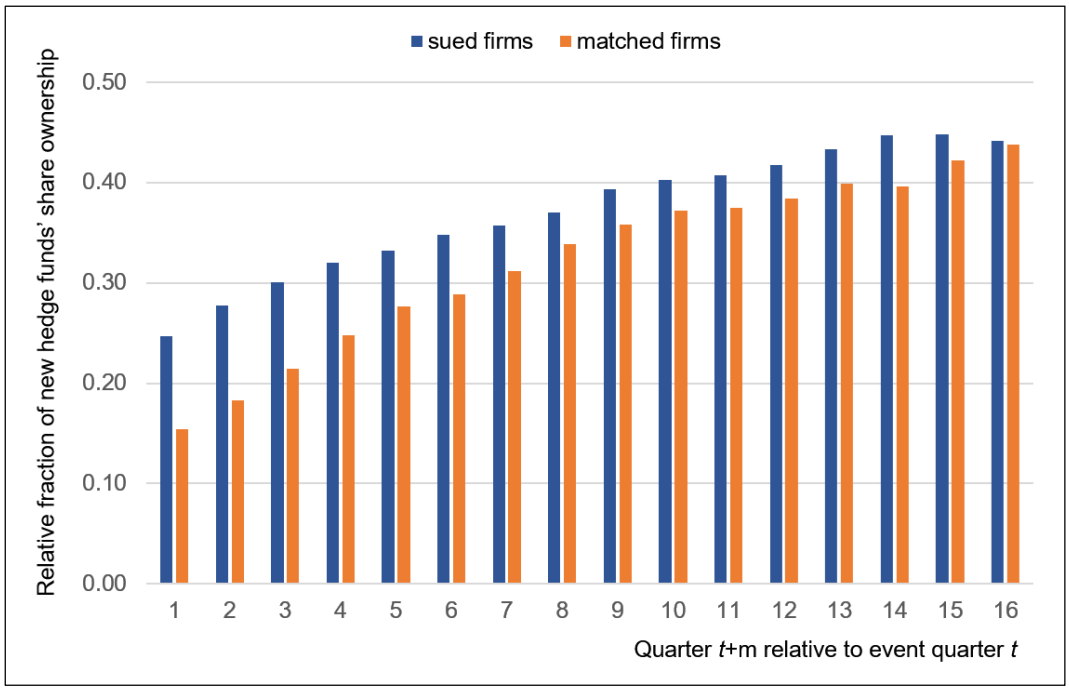
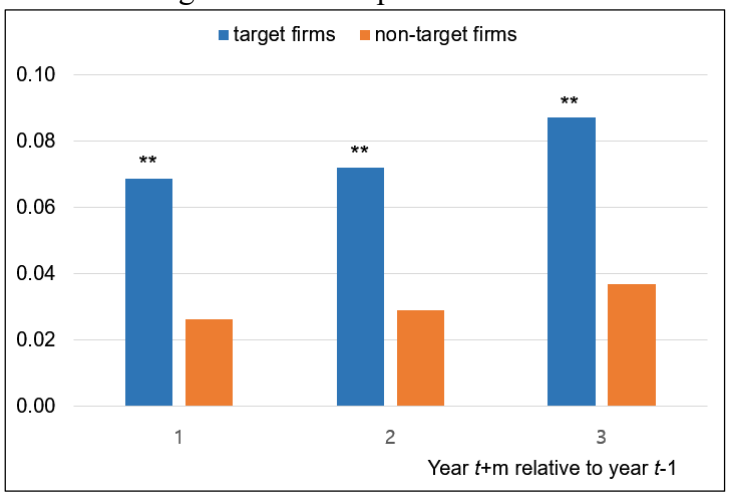


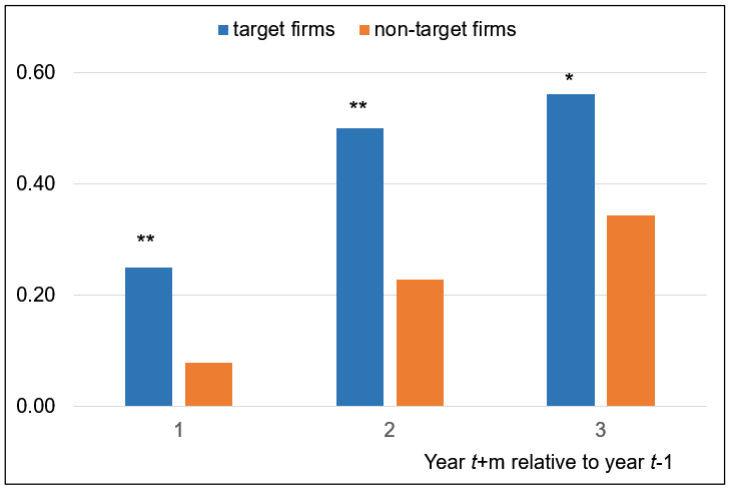
FIGURE 3. Effect on corporate governance in the post-litigation period

This figure illustrates changes in corporate governance of sued firms that are targeted by hedge funds during the post-filing period ("target firms") and those that are not targeted ("non-target firms") during the three years following the filing year of a lawsuit. Panel A shows the mean changes in board independence separately for target firms and non-target firms. Panel B shows the mean values of CEO turnover, equal to one for CEOs hired after a lawsuit is filed, separately for target firms and non-target firms. Panel C shows the mean values of changes in excessive CEO pay separately for target firms and non-target firms. The sample contains 23 (16) target firms and 393 (288) non-target firms in Panel A (Panels B and C). Event year *t* is defined as the year in which a lawsuit is filed, and changes in board independence and excessive CEO pay are measured relative to the corresponding levels in year *t*–1. * and ** above bar graphs indicate statistical significance at the 10% and 5% levels, respectively, for two-tailed tests of the mean difference between target and non-target firms.

Panel A. Change in board independence



Panel B. CEO turnover



Panel C. Change in excessive CEO pay

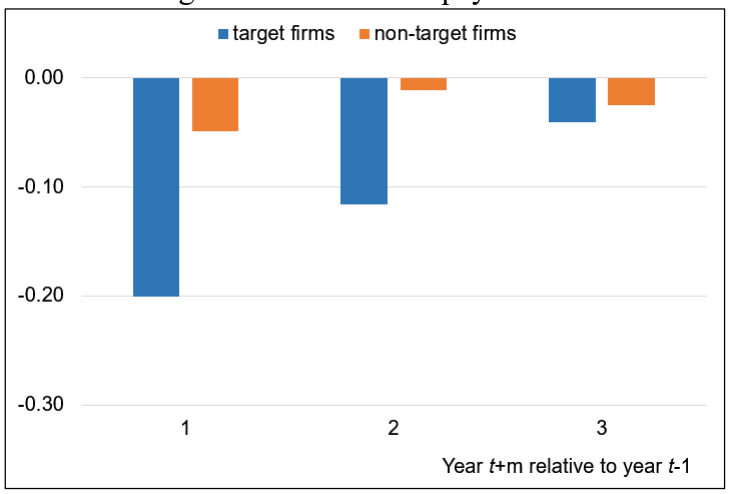
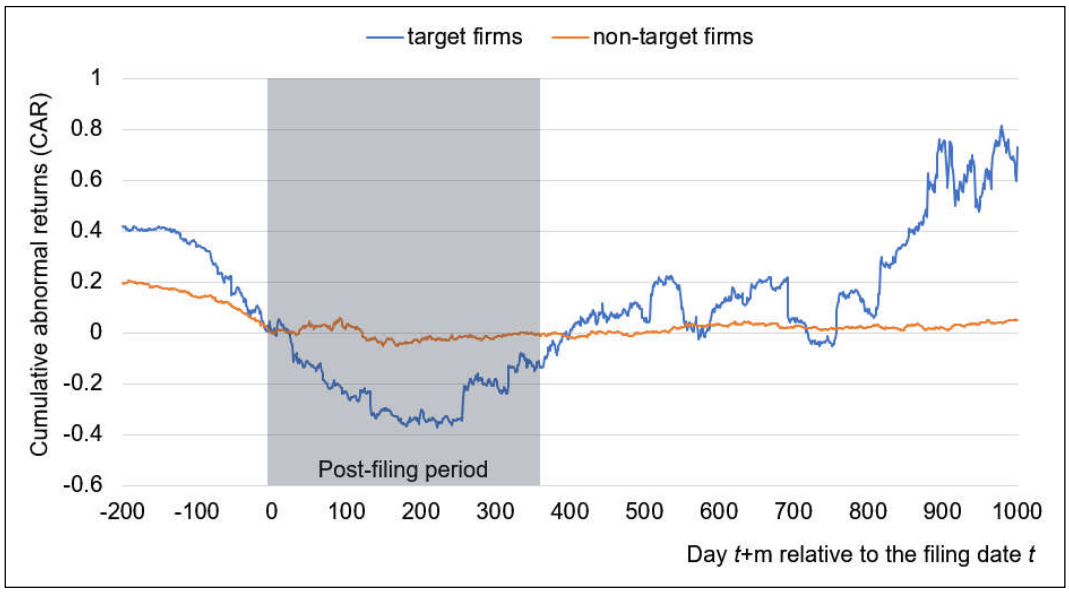


FIGURE 4. Cumulative abnormal returns around the filing of litigation

This figure illustrates the cumulative abnormal returns of sued firms that are targeted by hedge funds during the post-filing period ("target firms") and those that are not targeted by hedge funds ("non-target firms") from day *t*–200 to day *t*+1000, where day *t* is defined as the filing date of lawsuits. During the analysis window, all cumulative abnormal returns are calculated relative to the stock price at the beginning of day *t*. For example, for all days before day *t* (i.e., m between –200 and –1), daily stock returns in excess of the CRSP value-weighted market returns are compounded between day *t*–m and day *t*–1 and the compounded returns are multiplied by (–1). For days after day *t* (i.e., m between 0 and 1000), daily stock returns in excess of the CRSP value-weighted market returns are compounded between day *t* and day *t*+m. The sample contains 25 target firms and 278 non-target firms whose daily stock returns are non-missing over the entire window.



국문초록

기관투자자와 주주집단소송에 관한 연구

본 학위논문은 기관투자자와 주주집단소송에 대한 두 개의 독립적인 논문으로 구성되어 있다. 첫 번째 논문은 기관투자자가 주주집단소송을 경험한 이후에 투자포트폴리오 내에서 소송에 연루되지 않은 다른 피투자회사들에 대한 투자를 어떻게 조정하는지 연구하였다. 선행연구에 따르면 기관투자자들은 소송 과정을 감시함으로써 소송의 효과성을 높이고 원고에게 유리한 판결을 이끌어내며 소송 이후 피고회사의 기업지배구조를 개선시키는 등 소송에서 중요한 역할을 수행한다. 본 연구는 기관투자자들이 주주집단소송을 경험한 후에 투자 전략을 어떻게 조정하는지 조사함으로써 주주집단소송 환경에서의 기관투자자들의 역할에 대한 선행연구를 확장하고자 한다. 2006년부터 2017년까지 미국 내 주주집단소송과 기관투자자들의 주식보유내역에 대한 자료를 분석한 결과, 기관투자자들은 소송을 경험한 이후 재무보고품질이 높은 기업들에 대한 투자 비중을 높이는 것으로 나타났다. 이는 기관투자자들이 투자포트폴리오 수준에서 소송 위험을 사전적으로 줄이는 전략으로 해석된다. 한편 기관투자자들이 단기 투자를 통하여 이익을 극대화하는 전략을 추구하거나 피투자회사를 직접 감시할 유인이 충분한 경우에는 소송 이후 투자포트폴리오를 조정하는 경향이 약화되었다. 이는 기관투자자들이 단기 투자 과정에서 사적 정보에 주로 의존하거나 피투자회사에 대한 감시 활동으로부터

얻는 효용이 큰 경우에는 재무보고품질에 기반한 투자포트폴리오 재편 전략의 중요성이 감소한다는 것을 보여준다. 본 논문은 투자자의 포트폴리오 수준에서 주주집단소송의 외부효과가 존재한다는 증거를 제시함으로써 주주집단소송의 경제적 효과에 대한 이해를 증진하는 데 기여한다.

두 번째 논문은 주주집단소송의 발생 전후에 나타나는 헷지펀드의 행동을 주주행동주의 및 주식거래 전략에 초점을 맞추어 분석하였다. 헷지펀드는 기업지배구조에서 중대한 역할을 수행하지만 주주집단소송 환경에서는 제한적인 역할을 하는 것으로 알려져 있다. 본 연구는 이러한 모순된 현상을 설명하기 위해서 주주집단소송에 직면한 헷지펀드의 경제적 의사결정을 탐구하였다. 2001년부터 2019년까지 미국 내 주주집단소송, 헷지펀드의 행동주의 사건 및 주식보유내역에 대한 자료를 분석한 결과는 다음과 같다. 첫째, 헷지펀드는 주주집단소송이 제기된 이후 피고기업들에 대해 행동주의에 의한 경영 참여를 더욱 빈번하게 시도한다. 헷지펀드가 경영에 참여한 피고기업들은 그렇지 않은 피고기업들에 비해 소송 이후 기업지배구조 및 경영성과가 유의미하게 향상된다. 이는 헷지펀드가 피투자회사의 경영에 적극적으로 개입함으로써 거버넌스 역할을 수행한다는 증거로 해석된다. 한편, 이러한 헷지펀드의 행동주의는 소송 이후 피고기업에 신규로 투자한 헷지펀드들이 주도하였으며, 소송 이전부터 피고기업에 투자하고 있던 헷지펀드들에서는 관찰되지 않았다. 소송 이전부터 피고기업의 지분을 보유한 헷지펀드는 다른 기관투자자에 비해 소송 발생 전에 해당 지분을 미리 처분하는 경향을 보였는데, 이는 헷지펀드가 사적 정보를 이용한 탈출 전략을 통해서도 거버넌스 역할을

수행함을 시사한다. 마지막으로, 헷지펀드는 피투자회사의 소송을 경험한 이후에 투자포트폴리오에 편입된 다른 피투자회사들, 특히 재무보고품질이 낮아 잠재적 소송 위험이 높은 피투자회사들에 대해 더욱 적극적으로 행동주의에 의한 경영 참여를 시도한다. 본 연구는 주주집단소송의 전후에 헷지펀드가 취하는 행동주의 및 탈출 전략을 종합적으로 분석함으로써 주주집단소송 환경에서의 헷지펀드의 역할을 재조명하였다는 데 그 의의가 있다.

주요어: 기관투자자; 주주집단소송; 대리인 문제; 재무보고품질; 투자포트폴리오의 조정; 헷지펀드; 행동주의 투자자; 주주행동주의; 영향력 행사 전략; 탈출 전략; 기업지배구조; 투자자 학습
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