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Is Derivative Litigation an Effective Corporate Governance Mechanism?

Abstract

The literature of shareholder litigation often assumes that derivative litigation is used to discipline managers and that empirical findings from securities class actions may be directly applied to derivative lawsuits. Using derivative lawsuits filed against public companies from 2005 to 2017, we fail to find empirical supports for these assumptions. Our findings suggest that weaker corporate governance is associated with a higher risk of securities class actions but not the risk of derivative suits. We find very little evidence that firms change corporate governance after the filing of derivative suits. Our study casts doubt on the efficacy of derivative litigation as a governance mechanism and the validity of the assumptions that the risk of shareholder litigation, regardless of the form, deters management entrenchment and unjust personal enrichment.

1. Introduction

As an important governance mechanism, shareholder litigation right has drawn a lot of academic attention. A fast growing literature leverages on the staggered adoption of Universal Demand (UD) laws to investigate the impact of shareholder litigation rights on an array of corporate behavior (Bourveau et al., 2018; Houston et al., 2018; Jung et al., 2018; Li et al., 2018; Nguyen et al., 2018; Ni and Yin, 2018; Appel, 2019; Bilokha et al., 2019; Boone et al., 2019; Le et al., 2019; Lin et al., 2019; Nguyen and Phan, 2019). By increasing the legal hurdle of filing derivative lawsuits, UD laws potentially provide a clean setting to test the impact of a change in shareholder litigation rights on corporate behaviors. Nevertheless, extant studies provide mixed results and mixed implications for the impact of shareholder litigation rights on corporate governance. For example, following the adoption of UD laws, there is an increase in voluntary disclosures (Bourveau et al., 2018) but a decrease in disclosure quality (Boone et al., 2019), firms increase financial leverage (Nguyen and Phan, 2019) despite an increase in cost of debt (Ni and Yin, 2018), and auditors reduce fees (Bilokha et al., 2019) while their clients are performing worse (Appel, 2019) and taking excessive risk (Li et al., 2018).

A potential explanation for the mixed results lies in the central assumptions in extant studies: first, it is assumed that derivative litigation risk is material enough to discipline managers and second, it is assumed that findings from securities class actions, such as the litigation impact on firm reputation, can be directly applied to derivative lawsuits. Empirical evidence supporting these assumptions is scant. Ferris et al. (2007) is among the few studies, if not the only one, that show a change in corporate governance following derivative lawsuits using a sample of suits filed before 1994. Moreover, there is a stream of studies questioning the materiality and the efficacy of derivative lawsuits. Bhagat et al. (1998) show that the stock

market responds negatively to the filing of various types of lawsuits except lawsuits involving corporate governance. Erickson (2010) shows that only 13% of derivative suits are resolved with financial settlements and notes that among the 26% suits settled with governance reforms, “there was often a striking disconnect between the alleged problems and the reforms in the settlement agreements.” Erickson (2011) further questions the deterrence effect of derivative lawsuits on fraud as defendants bear little reputational losses and financial penalties. Consistent with her criticism of derivative lawsuits, Choi et al. (2017) show that derivative lawsuits filed following securities class actions are low-value piggyback suits. These studies challenge the widely-held belief in accounting and finance literature that shareholder litigation, regardless of the form, is in general an important governance mechanism. Considering the mixed view of derivative litigation in extant studies, it is important to understand to what extent derivative litigation is an effective governance mechanism and to what extent empirical findings based on securities class actions can be applied to derivative suits.

In this paper, we seek to answer these questions by compiling a dataset of derivative lawsuits and providing evidence of the association between derivative lawsuits and corporate governance. We collect derivative lawsuit information from quarterly and annual reports filed by public firms in the United States. Public firms are required to disclose material legal proceedings in quarterly and annual reports pursuant to Regulation S-K Item 3 (17 CFR § 229.103). Our litigation sample includes derivative lawsuits filed between 2005 and 2017. The sample period is chosen to avoid the confounding effect of the Sarbanes Oxley Act of 2002 (SOX), whose main provisions took effect from 2002 to 2004, and the Universal Demand Law, whose adoption in most states is dated before 2005. We retain only the case filed earliest if there is a series of suits filed on the same cause in order not to double-count similar suits. Our sample selection

procedure yields 1,032 firm-year observations subject to derivative lawsuits, as opposed to 1,138 firm-year observations subject to securities class actions during the same period. The similar number of observations across the two forms of lawsuits supports Erickson (2010)'s argument that derivative litigation is not less important than securities class actions as a source of shareholder litigation risk.

We first examine how corporate governance (e.g., managerial entrenchment, board independence, and opportunistic insider trading) is associated with the probability of different forms of shareholder litigation. In our sample period, around 40% of derivative lawsuits are accompanied by securities class actions. As our interest is in the difference between these two litigation types, we contrast the determinants of the two types of lawsuits unaccompanied by each other. First, we find that the entrenchment index (Bebchuk et al., 2009) is negatively associated with the probability of derivative litigation and positively associated with that of securities class actions. Stated differently, managerial entrenchment is associated with more securities class actions but fewer derivative lawsuits. Further analyses suggest that the negative correlation between managerial entrenchment and derivative suits is likely because entrenched managers are less willing to settle, which typically involves corporate governance reforms. The lower likelihood of settlement implies a higher cost of litigation for plaintiff shareholders. Second, we find that the probability of derivative suits is negatively associated with board independence and positively associated with board busyness, but the results are not robust after including the entrenchment index. Third, we find that opportunistic insider selling is not significantly associated with the probability of derivative suits but is positively associated with the probability of securities class actions. We do not find that the results differ by whether or not a firm is incorporated in a state adopting UD laws. Our findings suggest that the determinants of

shareholder litigation differ across types of litigation and that more entrenched managers face a higher risk of securities class action but not derivative litigation.

While we do not find that investors are more likely to file derivative lawsuits for more entrenched firms, it is possible that the filing of derivative lawsuits itself plays an important role in curbing mismanagement. We first examine the change in corporate policies following derivative lawsuits. After matching each sued firm with a control firm that is not sued by size industry, and whether or not it is incorporated in the UD law states in the year of lawsuit filing, we do not find an incremental effect of the litigation on the number of entrenchment provisions, board independence, and the proportion of busy independent directors within two years after the lawsuits were filed. The findings are similar regardless of the form of shareholder litigation. These results do not support the notion that shareholder litigation deters managerial entrenchment.

Board characteristics and entrenchment constitute only one part of corporate governance. It is conceivable that the litigation effect manifests in other forms. We find support for this hypothesis for securities class actions: we find a post-litigation decrease in opportunistic insider selling, an increase in Chief Executive Officer (CEO) turnover, an increase in director turnover, and a very marginal increase in Chief Financial Officer (CFO) turnover for the firms sued in securities class actions relative to the matched control firms. We also find a decrease in the proportion of firms reporting internal control weaknesses for the firms sued in securities class actions relative to the control firms. For derivative lawsuits, however, we fail to find a significant change in any of these governance, agency problem, and financial reporting quality metrics except an increase in director turnover following the lawsuits. Further examining the type of directors departing the firms after the filing of lawsuits, we find an increase in the turnover of

executive directors for securities class actions but fail to find the same results for derivative suits. Only for the subsample of the most entrenched firms do we find some evidence of the disciplinary effect of derivative suits, such as increases in executive and director turnover and a decrease in internal control weaknesses after the filing of derivative suits. The contrasting results between securities class actions and derivative lawsuits again suggest a significant difference between the two forms of shareholder litigation: on average, only securities class actions exhibit a disciplinary effect on managers.

Our paper is closely related to Ferris et al. (2007) but differs from theirs in several ways. First, we examine more comprehensive and recent shareholder suits. Our dataset covers over 1,000 derivative suits involving all public firms after 2005 whereas Ferris et al. (2007) examine 215 derivative suits with media and Lexis-Nexis coverage before 1994. Second, we examine a broader set of measures of corporate governance. Third, we contrast derivative suits with securities class actions and show that the two forms of shareholder litigation have different reputational implications for officers and directors. Our findings show a much less effective role of derivative litigation in terms of disciplining managers than is suggested by Ferris et al. (2007). Ferris et al. find increases in CEO-Chair duality, board independence, and director turnover whereas we find only an increase in director turnover for our sample. The different results are likely due to the sample period difference: our sample covers the period after SOX and the major stock exchanges required an increase in board independence. The greater board independence requirements reduce the room for firms to add more independent directors after they are sued. Moreover, using a random sample with outcome data, we also find that litigation outcome of our sample is very different than Ferris et al.'s: around 43% of our sample cases were settled (c.f. 60% in Ferris et al.) which is closer to the 30% both in Erickson (2010) and

Thompson and Thomas (2004) for suits filed in 1999/2000 and 2005/2006. The higher proportion of settled cases in Ferris et al. indicates that their sample contains more serious cases that could have a greater impact on corporate governance. In sum, our paper extends Ferris et al. (2007) by using more comprehensive suits under the more recent regulatory regime to provide a more comprehensive analysis of derivative litigation.

If derivative suits on average do not have a disciplinary effect on management, how do we reconcile with studies finding a change in various corporate behaviors following the adoption of UD laws? A potential explanation is that the findings in prior studies reflect the joint impact of UD laws and other corporate legal reforms, such as takeover laws, that were adopted in conjunction with UD laws. Comparing the adoption time of takeover laws identified in Cain et al. (2017) and that of UD laws, we find that out of the 23 states that have adopted UD laws by the end of 2005, nine adopted at least one type of takeover laws either on the same day as or within 365 days before the adoption day of UD laws. These nine states cover more than 50% of the treatment sample in prior studies (e.g., Bourveau et al., 2018; Appel, 2019). Hence, the observed change in corporate behaviors after the adoption of UD laws may reflect the joint effect of several legal changes. Using Cain et al. (2017)'s hostile index as an approximate measure of the number of takeover laws adopted in a state, we find that the frequency of derivative suits is lower for UD law states than for non-UD law states only if the states have also adopted more takeover laws. The interactions between UD laws and takeover laws do not directly refute the impact of UD laws on firm behavior. Rather, they imply that the presence of other concurrent legal reforms may reinforce the impact of UD laws.

Our paper has several contributions to extant studies. We contribute to the fast growing literature of shareholder litigation rights. Due to the lack of data, most prior studies must rely on

assumptions about derivative litigation risk without much empirical support. Additionally, extant studies on derivative lawsuits are set in different regulatory regime. Our analysis of derivative litigation using the most recent and comprehensive data of derivative lawsuits set in more recent regulatory regime not examined previously is important for better understanding of the determinants and consequences derivative lawsuits specifically and more generally for future studies on shareholder litigation risk. Specifically, we show that both the determinants and consequences of derivative lawsuits are different from that of securities class actions, suggesting these two forms of shareholder lawsuits should not be considered as equivalent and their implications are not interchangeable. Future studies can benefit by incorporating such understanding in their hypothesis development and as necessary, interpret prior studies that relied on assumptions inconsistent with this evidence with care.

We also add to the literature of the role of shareholder litigation in corporate governance. The contrast between the two major forms of shareholder litigation furthers our understanding of the similarities and differences between the two major forms of shareholder litigation. While many believe that weak governance is associated with a higher shareholder litigation risk, we find support for such belief only for securities class actions. Moreover, although derivative lawsuits are intended to constrain mismanagement, we do not find that these lawsuits achieve their goals. Our findings are consistent with both Erickson (2010)'s finding that few settlements in derivative lawsuits include corporate governance reforms regarding entrenchment provisions and Choi et al. (2017)'s finding that corporate governance settlements in derivative suits are cosmetic and mainly used to justify attorney fees. Our results cast doubt on the disciplinary effect of derivative litigation in the post-SOX regulatory regime.

Last, we contribute to the literature of shareholder litigation risk in general. The adoption of UD laws in many states highlights firms' concern about derivative litigation, potentially because there are far more derivative lawsuits than securities class actions (Erickson, 2010), yet little has been documented in academic studies about the causes and consequences of such litigation. Although anecdotes suggest that some derivative suits have merit, our findings show that on average they do not. Our study complements prior studies of the disciplinary effect of securities class actions (Niehaus and Roth, 1999; Fich and Shivdasani, 2007; Humphery-Jenner, 2012; Brochet and Srinivasan, 2014). However, our findings support criticisms of derivative suits that such suits are on the net costly for firms in the post-SOX regulatory regime.

The rest of the paper are organized as follows. In section 2 we discuss the institutional background and develop our hypotheses. In section 3 we discuss the sample collection procedures and provide a description of the data. In sections 4 and 5 we present empirical results and then analyze the robustness of our results. In section 6 we conclude the paper.

2. Institutional Background and Hypotheses Development

2.1. Institutional background: the two forms of shareholder litigation

A key difference between securities class actions and derivative suits lies in the primary beneficiaries of the lawsuits. In a derivative lawsuit, shareholders bring the suit on behalf of the company against officers and/or directors to introduce governance reforms or to recover damages caused by mismanagement for the firm. Any recovery paid by defendants (i.e., officers and directors) goes to the company, which in turn benefits all shareholders. In contrast, in a securities class action, shareholders suffering losses from alleged fraud seek to recover damages for

themselves. As the firm is a defendant in a securities class action, recoveries are paid by the company and go to only the subset of shareholders who join the class.

The two forms of shareholder litigation differ because they are private enforcement mechanisms of different regulations. Derivative lawsuits are filed to enforce state fiduciary duty laws whereas securities class actions are to enforce federal securities laws. Proving the damage to firm caused by directors' and officers' violations to their fiduciary duties does not require evidence of a reduction in firm value, as the violations may prevent the firm value from increasing. In contrast, proving a damage to shareholder wealth due to a firm's violations to securities regulations is often easier when there is a precipitous stock price drop than when there is no change or an increase in stock prices. Thus, a large stock price drop is a predicate for securities class actions but not derivative suits, and remedies sought in most derivative suits involve only corporate governance reforms (Erickson, 2010). For example, many option backdating cases do not induce a large stock price drop because option backdating has limited cash flow implications. Hence, many firms implicated in option backdating were subject to derivative suits but not securities class actions.

Despite the difference in applicable regulations, these two forms of shareholder lawsuits are not mutual exclusive. In fact, they are often filed together. Securities class actions are almost exclusively filed in federal court (Johnson, 2012) and there is a large overlap between securities class actions and derivative suits that are filed also in federal court.¹ Erickson (2011) show that 75% of derivative suits filed in federal court are accompanied by securities class actions. Choi et

¹ Regarding the venue, the majority of securities class actions are eventually litigated in the state in which the defendant firms are headquartered (Pritchard and Sale, 2005; Hopkins, 2018). The majority of derivative suits that are filed in federal court are also litigated in the defendant firms' headquarters states. Erickson (2011) shows that around half of the derivative suits filed in federal court were accompanied by derivative suits filed in state courts, and at least one of those parallel state court cases are filed in the same state as the federal case. Although her study does not focus on derivative suits filed in state court, she noted that state court cases are typically filed in the incorporation and headquarters states of the defendant firms.

al. (2017) show that 45% of securities class actions have a parallel suit. Among these parallel suits, over 90% are derivative suits and about two-third of the derivative suits are filed in federal court. Choi et al. suggest that the derivative suits accompanied with securities class actions are likely piggy-back lawsuits, which are filed by the same plaintiffs' attorneys, on the same causes, and in the same court. Appendix A summarizes the differences between derivative suits and securities class actions.

Securities class actions have been extensively studied. In terms of litigation causes, it has been well documented that the risk of being sued in securities class actions is higher for firms with more assets, higher sales growth, large stock price drops, recent equity and debt issuance, and overinvestment (McTier and Wald, 2011; Kim and Skinner, 2012). As for litigation consequences, extant studies find that securities class actions lead to reputational damages for directors and officers, which manifests in a higher CEO turnover, a loss of directorships in other firms, and a higher turnover for directors who are implicated in the lawsuits (Niehaus and Roth, 1999; Fich and Shivdasani, 2007; Humphery-Jenner, 2012; Brochet and Srinivasan, 2014). The litigation impact on firm reputation can be inferred from a reduction in firm value (Bhagat et al., 1998), a loss of access to external financing (Autore et al., 2014), and an increase in the cost of debt (Deng et al., 2014; Yuan and Zhang, 2015) following the lawsuit filing. In addition to the above evidence of the damage to reputation, the deterrence effect of lawsuits is also evidenced by an increase in misstatements following a decrease in the threat of securities class actions (Hopkins, 2018). These studies are commonly cited in studies using UD laws to investigate the impact of a change in derivative litigation risk. Although Bhagat et al. (1998) note that litigation effects differ across types of legal issues, this notion appears to have been largely overlooked in extant studies.

Studies on derivative lawsuits are relatively rare and often rely on a small or a specific sample of suits. Using 215 derivative suits filed between 1982 and 1994, Ferris et al. (2007) find that the market-to-book ratio and the amount of free cash flows are positively associated with the risk of derivative lawsuits although board characteristics are not. They interpret the results as suggesting that firms with higher agency problems are more likely to be sued. They also find an increase in board independence, an increase in director turnover, and a decrease in the proportion of firms whose CEOs also serve as the chair of the board following the filing of derivative suits. They interpret the results as suggesting an improvement in corporate governance.² Moreover, legal studies (Erickson, 2010, 2011; Choi et al., 2017) in general challenge the efficacy of derivative suits. Using 182 derivative suits filed in federal court (Erickson, 2010, 2011) or around 250 derivative suits in either federal or state court with parallel securities class actions (Choi et al., 2017), these studies find that not only is there a very small proportion of derivative suits settled but the majority of the settlement terms are window-dressing corporate governance reforms.

2.2. Hypotheses development and research methods

This paper aims at understanding the disciplinary effect of derivative suits and how such effect differs between derivative suits and securities class actions. The disciplinary effect of shareholder lawsuits could manifest in two aspects: one is whether mismanagement is associated with a higher litigation risk, and the other is whether the filing of lawsuits improves corporate

² It is noteworthy that Ferris et al.'s sample appears to be quite different than the typical sample of derivative suits examined in legal studies as more than 60% of their cases were settled. In contrast, the percentage of settled cases is only around 30% in both Thompson and Thomas (2004)'s sample of cases filed between 1999 and 2000 in the Delaware Court of Chancery and Erickson (2010)'s sample of cases filed in federal court from mid-2005 to mid-2006. This highlights the importance of the study in investigating derivative lawsuits using the most recent and comprehensive data of derivative lawsuits and regulatory regime to advance our understanding of the determinant and consequences of derivative lawsuits.

governance by strengthening board monitoring. As the disciplinary effect of securities class actions either has been documented in or can be inferred from prior studies, we focus on the disciplinary effect of derivative suits in our hypotheses and contrast the results of derivative suits with those of securities class actions in the empirical analyses.

2.2.1. Corporate governance and *ex ante* litigation risk

One way to examine the disciplinary effect of shareholder suits is to examine the association between signs of mismanagement and the probability of shareholder litigation. If mismanagement leads to severe consequences, stock price would drop, which would facilitate securities class actions in demonstrating damages suffered by shareholders due to the firm's misbehavior. However, as discussed previously, many cases of breach of fiduciary duties are not accompanied by large stock price declines, thus removing an incentive for shareholders to sue the firm. As such, it is unclear if shareholders are more or less likely to sue firms with weaker corporate governance, i.e., firms whose directors and/or officers are more likely to breach their fiduciary duties.

We argue that, the *ex ante* probability of derivative suits depends on shareholders' perceived costs and benefits of the lawsuits. The benefits can arise from the increase in firm value after the improvement in corporate governance. It is conceivable that the potential benefits of suing firms with weaker governance are higher since the goal of derivative suits is to provide minority shareholders with a means to effect governance reforms when the incumbent boards fail. However, such benefits accrue to all shareholders under derivative suits not just plaintiff shareholders. On the other hand, the perceived costs of derivative suits relate to both the actual costs of litigation and likelihood of settlement. As plaintiff shareholders bear the costs of litigation if suits are unsuccessful, derivative suits are costly monitoring mechanisms. Similarly,

officers and directors extracting rents from minority shareholders are likely to be more resistant to governance changes and hence more willing to actively defend than settle the lawsuits, which increases the duration and costs of the suit while decreases the likelihood of settlement. To the extent the perceived costs of derivative suits outweigh their benefits, minority shareholders are less likely to litigate firms with weaker governance.

In sum, we posit that the association between corporate governance and the probability of derivative suits is contingent on the relative perceived costs and benefits of derivative suits. If benefits exceed costs, we predict a negative association; otherwise a positive association. A positive association also implies derivative suits fail to achieve their *ex ante* disciplinary roles. As the relation is an empirical question, we express our first hypothesis in the null form:

H1 (null): Corporate governance is not associated with the probability of derivative suits.

2.2.2. Corporate governance changes following lawsuits

Another way to measure the disciplinary effect of shareholder suits is to examine the consequence of the lawsuits. If lawsuits do not have costly consequences for the defendants, the threat of litigation would not have much deterrence effect.

It is unclear a priori that derivative suits would have real consequences. Legal studies suggest that most derivative suits are frivolous and, even if they are settled, the governance reforms in the settlement terms are mostly cosmetic (e.g., Romano, 1991; Erickson, 2010; Choi et al., 2017). On the other hand, Ferris et al. (2007) show that the filing of derivative suits is followed by an increase in director turnover, which implies a reputational loss associated with the lawsuits. Nevertheless, Ferris et al. (2007) do not examine lawsuit consequences beyond the board composition. Nor do they account for the potential confounding effect of the

contemporaneous filing of securities class actions, which could affect director turnover as well (Brochet and Srinivasan, 2014).

Absent parallel securities class actions, on average derivative suits may not have real consequences. First, officers and directors rarely bear the litigation defense costs, as the costs are often reimbursed by the company or by their insurance. Second, few derivative suits settle with a financial component. Erickson (2011) find only one out of the 101 cases that she classifies as the “classic” type of derivative suits involves a cash payment to the company, and the payment is made by the insurer of the defendant officers and directors. Hence, even for cases that are settled, officers and directors may not pay the settlement out of their own pockets. Third, while lawsuits may cause reputational losses for those implicated in the suits, very few firms disclose the exact allegations and the identity of those who are named as defendants in the derivative suits. Unlike securities class actions, derivative suits do not often catch media attention.³ Therefore, firms’ disclosure of derivative suits is usually the only source of information for shareholders to learn the existence of the lawsuits. Unless shareholders are willing to dig into court filings to find out who are implicated in the suits, any reputational loss is likely shared by all officers and directors in the company. The ambiguity both of the cause of lawsuits and of the identity of the defendants could neutralize the adverse impact of the lawsuits on the reputation of officers and directors.

That said, derivative suits may have real consequences, as the existence of the lawsuits implies that managers likely engaged in self-dealing transactions and that the board of directors as a whole likely failed to monitor managers. Although many firms reimburse their officers and directors for litigation costs, shareholder lawsuits could still impose nonpecuniary costs such as

³ From January 1, 2015 to December 31, 2018, the Wall Street Journal published only 112 news articles mentioning derivative lawsuits. After removing duplicates and articles unrelated to news of derivative suits, only 34 articles were about the filing, settlement, or other litigation procedural updates of derivative lawsuits.

reputational losses for those implicated in the lawsuits. The suits therefore could damage reputation for all directors and top executives. If the damage is sufficiently material, it could motivate them to adopt corporate governance changes to restore reputation.

As whether derivative suits have real consequences in terms of corporate governance changes is an empirical question, we express our hypothesis in the null form as follows.

H2 (null): Corporate governance does not change after the filing of derivative suits.

3. Sample and Data

3.1. Identification of Derivative Lawsuit Filings

We start with a list of firms incorporated in the United States, listed on NYSE, NASDAQ, or Amex, with COMPUSTAT and CRSP data, and with non-missing CIK on COMPUSTAT after 1995. We exclude trading firms (i.e., firms with two-digit SIC of 67) from the list as many derivative suits are filed by fund investors rather than shareholders. Based on the list of firms, we search EDGAR for their 10-Qs and 10-Ks that contain (a) “derivative” within two words before any of the following litigation keywords: “action(s),” “lawsuit(s),” “litigation,” “suit(s),” “claim(s),” and “complaint(s),” (b) “derivative and” within three words before any of the above litigation keywords, and (c) “derivatively.” This search yields more than 32,000 financial statements, which include both disclosures of derivative suits and boilerplate languages regarding the risk of derivative suits. Then we search for lawsuit filing dates in the sentences surrounding the above keywords. For cases where the filing dates are not disclosed, we assume that the lawsuits were filed at the fiscal quarter end when the lawsuits were first disclosed. We manually check the resulting list of financial statements and the lawsuit filing dates to ensure that our data include only the actual occurrence of derivative lawsuits. As our goal is to examine

derivative lawsuits involving the nominal defendant firms' corporate governance, we exclude derivative lawsuits that were not filed by a firm's shareholders against the firm's officers and directors (e.g., those filed by shareholders of target firms against the acquirers). If there was a series of related actions on the same cause, we keep the one filed earliest so as to avoid double-counting similar lawsuits. The above selection criteria yield 1,468 derivative lawsuits ("initial sample").

We identify the fiscal year when a firm is sued by identifying the first financial statements filed after the lawsuit filing date. Our litigation sample includes firms that are subject to derivative lawsuits filed between 2005 and 2017. Our sample period is after the adoption of the Universal Demand Law in all states except for Washington D.C. (which adopted the law in July 2011). We also perform sanity checks on the identified derivatives lawsuits to ensure their quality and validity (for brevity, these checks are detailed in Internet Appendix I).

3.2. Main sample

We obtain accounting data from COMPUSTAT, stock trading data from CRSP, entrenchment provisions from ISS, board characteristics data from MSCI GMI Ratings, and securities class actions data from Stanford Securities Class Action Clearinghouse. Finally, we obtain announcement dates of restatements, mergers and acquisitions, and officer and director changes from Audit Analytics. As the director turnover data from Audit Analytics include the departure, reappointment, and new appointment of directors, we exclude director changes that are classified as follows: "re-elected," "deceased", "retired," "change misreported," "nominated," "re-elected", and "retracted resignation." We use the maximum sample size with available data in all analyses.

Table 1 shows the industry distribution of derivative suits in terms of percentage of firm-years within an industry subject to derivative suits. The drugs, soap, perfumes, and tobacco industry has the highest proportion of firm-years subject to derivative suits (3.38%), followed by the retail stores industry (2.58%) and then by the machinery and business equipment industry (2.50%). In contrast, the steel works industry has the lowest proportion of firm-years subject to derivative suits (0.8%). Nevertheless, the small variation across industries suggests that there is no strong evidence of a clustering of derivative suits by industry.

Table 2 shows the number of derivative suits by industry and year. Except for the other category, the machinery and business equipment industry has the largest number of lawsuits (151 cases), followed by financial institutions (146 cases) and the drugs, soap, perfumes, and tobacco sector (72 cases). These sectors have a consistently higher number of cases than other sectors over our sample period. Unlike the risk of securities class actions, the risk of derivative suits appear to be consistent overtime for each sector. The number of derivative suits is higher in 2006 and 2007 than in other years, which is likely due to the option-backdating scandal unveiled in 2006. The number of suits has stayed relatively constant since 2008. The time-series pattern of derivative suits is also different than that of securities class actions, which reached a minimum in 2006 and rebounded back afterward. Overall, our Tables 1 and 2 show that while there are differences in the industry and year distribution of number of derivative suits, there is no significant industry clustering of derivative suits relative to the number of firms within an industry.

As prior studies on derivative lawsuits generally focus on cases filed more than 10 years ago, we randomly select 200 derivative lawsuits in our sample to perform additional descriptive analysis in order to better understand characteristics of more recent derivative lawsuits. For

brevity, we summarize the key observations here while more detailed discussions are located in Internet Appendix II. Among these 200 cases, business scandals (such as option backdating, financial misstatements, regulatory compliance issues) are the most common stated reasons that trigger derivative lawsuits. The majority of derivative suits were filed in state court (~70%), with nearly half of these suits were also filed in federal court. There are more lawsuits filed only in state court (75 suits) than those filed only in federal court (59 suits) but we do not find that the choice of venue for derivative suits is associated with the stated reasons for the suits. Half of the lawsuits in this random sample were dismissed while more than 40% were settled. In the univariate analyses of the litigation outcome and firm characteristics, we find that settled cases involve firms with a lower E-index, a higher proportion of busy directors, and a smaller size. In terms of the stated reason for lawsuits and litigation outcome, we find that only lawsuits arising from option backdating are more likely to be settled than dismissed.

3.3. Sample descriptive statistics

Table 3 shows the descriptive statistics of our sample. All variables in this paper are defined in Appendix C. Panel A of Table 3 compares firms that have been sued in derivative suits (DL firms) and those that have never been subject to derivative suits (non-DL firms) in our sample period. For inherent firm characteristics, DL firms have more assets (LnAssets), higher sales growth (SGrowth), higher market-to-book ratios (MTB), and more free cash flows (FCF) relative to the non-DL firms. Moreover, DL firms are also more likely to be in industries with higher litigation risk (FPS) and less likely to be incorporated in states that have adopted UD laws (UDLaw). For shareholder lawsuit triggering events, DL firms have a higher frequency of restatements (Restat_t) and a higher frequency of mergers and acquisitions activities (M&A).

They also have more volatile and more left-skewed stock returns and a higher turnover, which imply that they have a higher frequency of material events that cause stock price changes, especially a downward change in stock prices. Consistent with the higher litigation exposure implied in the inherent firm characteristics and the litigation triggering events, the industry-wide risk of derivative litigation (LnIndLit_dl), the industry-wide risk of securities class actions (LnIndLit_cal), and the frequency of securities class actions are higher for DL firms than for non-DL firms.

Regarding the corporate governance characteristics, Panel A of Table 3 shows that DL firms have fewer entrenchment provisions (E-index), higher board independence (Bd_Indep), and more busy directors (Bd_Busy). These results do not unambiguously suggest that DL firms have more corporate governance mechanisms that are not favored by shareholders than do non-DL firms. Lastly, regarding insider trading characteristics, insiders in DL firms have fewer purchase transactions (Freq_OpBuy and Freq_RtBuy) and more sales transactions (Freq_OpSale and Freq_RtSale) relative to those in non-DL firms. The results suggest that officers and directors in DL firms are more likely to engage in informed insider trading than their peers in non-DL firms.

Panel B of Table 3 compares the fiscal years that are subject to derivative suits and those that are not subject to derivative suits for DL firms. Not surprisingly, there is a higher frequency of litigation triggering events in the litigation years than in the non-litigation years. There is a higher frequency of restatement announcements in the same year as the litigation year (Restat_t) or in the year before the litigation year (Restat_t-1) relative to the years without litigation. There is also a higher frequency of mergers and acquisition announcements in the litigation year than in the non-litigation year.

4. Result Analysis

4.1. Corporate governance and the incidence of shareholder lawsuits

We first test whether characteristics of corporate governance is associated with the incidence of shareholder lawsuits (H1) by estimating a logistic model of the probability of derivative suits as follows:⁴

$$Prob(DL = 1) = \beta_0 + \beta_1 CG + \beta_2 Innate + \beta_3 Trigger + \beta_3 CALRelated + \varepsilon \quad (1)$$

CG is the corporate governance variables of our interest. We extend Ferris et al. (2007)'s examination of the association between board characteristics and the probability of derivative suits by incorporating board independence and busy directors. As agency conflicts are associated with the composition of the board (Dey, 2008), more independent and fewer busy directors may help constrain managers' extraction of personal benefits and therefore reduce the risk of managers breaching their fiduciary duties.

We also measure the risk that officers and directors breach their fiduciary duties using another two proxy variables: one is the E-index developed by Bebchuk et al. (2009) and the other is opportunistic insider trading. The E-index measures the extent to which a firm's shareholder voting power is restricted and the firm's vulnerability to hostile takeovers. The more restricted shareholder voting power, the less likely minority shareholders can exercise their voting rights to discipline managers. Similarly, the less vulnerable a firm is to hostile takeovers, the less likely managers and directors are subject to the discipline by the market for corporate control. Hence, we use the E-index as a proxy for corporate governance. Last, opportunistic insider trading increases the likelihood of officers and directors breaching their fiduciary duties.

⁴ In Appendix B, we discuss how we establish the baseline model for probability of derivative lawsuits.

Innate is a series of firm innate characteristics: firm size (LnAssets), sales growth (SGrowth), market-to-book (MTB), and free cash flows (FCF); and environmental-wide characteristics: firms in litigious industries (FPS), firms whose industry peers are subject to derivative suits (LnIndLit_dl), and firms incorporated in states that have adopted UD laws (UDLaw). *Trigger* includes potential litigation triggering events such as recent restatement announcements (Restat_t and Restat_t-1) and merger activities (M&A). *CAL-related* include contemporaneous occurrence of securities class actions lawsuits (CAL) and a firm's inherent exposure to securities class actions (CAL_Firm). The peer litigation risk measure, LnIndLit_dl, has already absorbed the litigation risk at the industry-year level. As prior studies on litigation risk (e.g., Kim and Skinner, 2012) do not include industry and year dummies, we do not include those dummies in our main analyses either. Importantly, our model produces AUC greater than 0.830, which is significantly higher than the AUC in almost all of the predictive models for securities class actions in Kim and Skinner (2012). Nevertheless, our results are robust to including industry and year dummies.

Table 4 reports our empirical results. Column 1 of Table 4 shows that E-index is negatively associated with the risk of derivative suits (z -statistics = -6.013), suggesting that higher management entrenchment is associated with a lower risk of derivative suits. For DL firms, the predicted probability of derivative suits declines by 25% ($= 1 - 0.013/0.017$) when the E-index changes from the first quartile to the third quartile. Since the probability of filing derivative suits can be driven by joint probability of detection and success, these results are likely to be driven by firms with higher E-index are less likely to settle (see Internet Appendix II Table IA4). As the settlement of derivative suits often involves payments for plaintiffs' attorney fees by the firms

involved, the lower likelihood of settlement by more entrenched management implies a higher litigation cost for plaintiffs (or plaintiffs' attorneys if the fees are contingent on settlement).

Column 2 of Table 4 shows that board independence (Bd_Indep) is negatively associated with the risk of derivative suits (*z-statistics* = -2.488), but busy board (Bd_Busy) is not associated with the risk of derivative suits (*z-statistics* = 1.613). Economically, the predicted probability of derivative suits for DL firms declines by 22% ($= 1 - 0.014/0.018$) when Bd_Indep changes from the first quartile to the third quartile. The negative association between board independence and the risk of derivative litigation is likely relate to independent directors reduce the likelihood of breaching fiduciary duties. Turning to insider trading, column 3 of Table 4 shows that none of the insider trading characteristics is significantly associated with the risk of derivative suits (*z-statistics* ≤ 1.119), failing to support opportunistic insider trading increases the risk of derivative suits.⁵

Finally, column 4 of Table 4 shows the results after including all metrics for governance. The sample is smaller due to the additional data requirements and is composed of large firms with governance policy data. Most of the control variables are still statistically significant, but only one of our variables of interests, E-index, holds its statistical significance (*z-statistics* = -4.913). After controlling for E-index, Bd_Indep becomes insignificant, suggesting board characteristics do not have an incremental effect on derivative suits beyond the effect of corporate policies. Taken together, Table 4 does not show any consistent and robust evidence that derivative suits are filed for firms with weak governance or against directors and officers who breached their fiduciary duties.

⁵ Untabulated results show that the inferences do not change by replacing the insider trading metrics based on frequency with those based on volume. Similarly, we reach the same inferences after controlling for routine insider trades (see Table IA4 of Internet Appendix III).

As investors could choose between different forms of shareholder suits, the logistic model in Table 4 may not provide a complete picture of firms' overall litigation risk. Thus, we estimate a multinomial logistic model for the probability of firms being subject to only derivative suits (DL only), only securities class actions (CAL only), and both derivative and class action lawsuits (both DL and CAL). The results of the multinomial logistic model are presented in Table 5.

In Table 5, we present results by regressing the dependence variable on each of the entrenchment, board characteristics, and insider trading proxies (Panels A to C), and then by regression the dependent variable on all variables of interests (Panel D). In all panels of Table 5, we control for determinants of shareholder lawsuits per model (1) but on report their estimated coefficients for Panel D specification as they are very similar across panels and for brevity.

Table 5, Panel A reports the results for the relation between the risk of shareholder litigation and managerial entrenchment. We find E-index is associated with lower risk of firms being sued in only derivative suits (column 1; *z-statistics* = -4.153), but higher risk of firms being sued in only securities class actions (column 2; *z-statistics* = 2.913). For firms sued in both derivative suits and securities class actions, we find a negative coefficient on E-index (column 3; *z-statistics* = -1.695) but the point estimate (-0.094) is smaller than that in column 1 (-0.174). Economically, an interquartile change in E-index changes the predicted probability of litigation by -14% (DL only), +15% (CAL only), and -9% (both DL and CAL). The results suggest that the level of managerial entrenchment is negatively associated with the risk of derivative suits and positively associated with the risk of securities class actions.

Table 5, Panel B shows the results for board characteristics. Lower board independence and more busy directors are associated with a higher risk of firms being sued in only derivative suits (column 1; *z-statistics* = -2.174 and 1.770 respectively) but are not significantly associated

with the risk of securities class actions (columns 2-3; $|z\text{-statistics}| \leq 0.676$). A interquartile change in Bd_indep and Bd_Busy changes the probability of DL only suits by -14% and +17%, respectively. The results again suggest that the filing of derivative suits is associated with potentially weak board-related governance.

Table 5, Panel C shows the results for insider trading. Similar to the findings in Table 4, Panel A, we do not find significant correlations between the risk of derivative suits and opportunistic insider trading (column 1; $z\text{-statistics} \leq 0.658$). However, we find a positive association between opportunistic insider sale and the risk of securities class actions (columns 2-3; $z\text{-statistics} \geq 2.860$). An interquartile change in Freq_OpSale increases the probability of litigation by +9% (DL only) and +27% (both DL and CAL). The results suggest that, after controlling for litigation-triggering events, shareholders are still more likely to file securities class actions against firms whose insiders engaged in opportunistic sale transactions.

Table 5, Panel D includes all variables.⁶ The sample size is reduced due to additional data requirements. E-index is still significantly negative for derivative suits (column 1; $z\text{-statistics} = -3.557$) and positive for securities class actions (column 2; $z\text{-statistics} = 2.102$). Opportunistic insider sale remains significant for firms sued in both forms of lawsuits (column 3; $z\text{-statistics} = 3.980$). However, column 1 shows that the Bd_Indep and Bd_Busy lose significance when E-Index is included ($|z\text{-statistics}| \leq 1.446$). These results are consistent with our findings in Table 4

⁶ The signs of the control variables are in general consistent with prior studies. Larger firms, firms with restatements, and those engaging in mergers acquisitions are more likely to be sued in shareholder lawsuits regardless of the type of litigation. Firms with higher sales growth and market-to-book ratios are more likely to be sued in securities class actions. Incorporating in a state that has adopted UD laws reduces the risk of derivative suits. Finally, the industry-wide litigation trend is a key determinant of shareholder litigation, and our results suggest that there is a substitution effect between the two forms of shareholder suits: a firm's exposure to a specific type of lawsuit is positively associated with its industry peers' exposure to the same type of litigation but negatively associated with their exposure to a different type of litigation.

that board characteristics do not have an effect on the risk of derivative suits over and above the effect of E-index.

Overall, our results in Tables 4 and 5 do not support the hypothesis that shareholders are more likely to file derivative suits on behalf of firms with weaker corporate governance or against directors and officers with a higher risk of breaching fiduciary duties. We next turn to whether the filing of derivative suits changes corporate policies and insider trading behavior.

4.2. Corporate governance change following the filing of shareholder lawsuits

As discussed in section 2, the disciplinary effect of litigation could manifest in a higher litigation risk for firms with weak corporate governance, a change in corporate governance policies following the lawsuits, or both. Although we do not find a higher litigation risk for firms with a higher level of entrenchment, a less independent board, a busier board, and more opportunistic insider trading, the lawsuits could still cause a reputational loss for officers and directors in the firms and thereby motivate corporate governance changes. Thus, we examine the change in corporate governance after the filing of derivative suits.⁷

We contrast the change in corporate governance for firms sued in shareholder lawsuits with that for firms not sued in a matched control design. For each sued firm, we find a set of control firms in the same size decile and industry (2-digit SIC) as the sued firm in the year before the filing of lawsuits. For firms sued in derivative suits, we also require the sued and control firms to have the same value of UDLaw. Then we select the control firm with the closest total asset as the sued firm and include only the years when both the sued and control firms have data for regression. Therefore, our final sample contains the same number of years for the sued and

⁷ Using the settled lawsuits in the randomly selected 200 derivative suits described in section 3, the inferences in this subsection remain the same and therefore we do not separately report the results by lawsuit outcome.

control firms, and the control firm can be used to control for the time trend in the dependent variable over the same period as the sued firm.⁸

Our H2 is also closely related to Ferris et al. (2007)'s examination of the change in board characteristics following the filing of derivative suits. In addition to the changes in the proportion of independent and busy directors, we examine those in E-index and opportunistic insider trading after the filing of derivative suits. A change in board characteristics suggests a change in the efficacy of board monitoring, a change in E-index suggests key corporate policy changes, and a change in opportunistic insider trading suggests a change in insiders' tendency to breach their fiduciary duties via their trading activities.

Moreover, we examine the turnover of directors and top executives, i.e., CEOs and CFOs, and the change in the frequency of internal control weaknesses. The turnover of directors and top executives suggests reputational losses associated with the lawsuits. The frequency of internal control weaknesses, on the other hand, reflects the strength of corporate governance that is associated with financial reporting process.

To examine H2 using our matched control difference-in-differences design, we estimate regressions with a general specification as follows:

$$\begin{aligned} \text{Consequence} = & \beta_0 + \beta_1 \text{Sued} + \beta_2 \text{Post} + \beta_3 \text{Post} \times \text{Sued} + \beta_k \text{Control} + \\ & \text{Firm or Industry FE} + \varepsilon \end{aligned} \quad (2)$$

The consequence variables include the corporate governance metrics as described above. For continuous consequence variables, we estimate an ordinary least squares (OLS) model with

⁸ As the majority of our determinants in model (1) are categorical variables, alternative matching methods such as propensity score matching or coarsened exact matching will substantially reduce our sample size. For robustness check, we match by industry, size decile, UDLaw, and the decile of abnormal stock returns as a proxy for negative news in the year of lawsuit filing. While this matching method reduced more than half of our sample, we continue to find qualitatively consistent conclusions as main test findings.

firm fixed effects but without *Sued*. For binary consequence variables, we estimate a logistic model with industry fixed effects. *Sued* is an indicator variable that equals one for firms sued and zero otherwise. *Post* is an indicator variable for fiscal years after the sued firms are sued. Our variable of interest is *Post*×*Sued*, which reflects the post-litigation change in the consequence variable for sued firms relative to control firms.

Table 6 shows the changes in board characteristics and entrenchment provisions after the filing of shareholder lawsuits. Panel A shows that, for firms sued only in derivative suits, the coefficient on *Post*×*Sued* is not statistically significant in any column ($|t\text{-statistics}| \leq 1.554$). These results do not support the notion that derivative suits improve corporate governance. Panels B and C of Table 6 show the changes in board characteristics and entrenchment provisions for firms that are sued only in securities class actions and for those sued in both forms of litigation, respectively. Again, the coefficient on *Post*×*Sued* is not significant in any column in Panels B and C of Table 6 ($|t\text{-statistics}| = 1.580$). In sum, Table 6 provides no evidence supporting the notion firms change their corporate governance policies after being sued by shareholders, irrespective of form of lawsuits.

Table 7 shows the change in insider trading after shareholder lawsuits. Panel A shows that, for firms sued only in derivative suits, the coefficient on *Post*×*Sued* is not statistically significant regardless of how insider trading is measured ($|t\text{-statistics}| = 1.128$). Panel B shows that, for firms sued only in securities class actions, both the frequency and the volume of opportunistic insider sale declined after the filing of the lawsuits ($t\text{-statistics} \leq -1.959$). Panel C also shows a decrease in opportunistic insider sale after firms are sued in both derivative suits and securities class actions ($t\text{-statistics} \leq -2.187$). The results in Table 7 suggest that the filing of derivative suits has limited effect on opportunistic insider trading, concentrating in insider sale transactions.

Table 8 shows the change in internal control weaknesses and key personnel turnover following shareholder lawsuits. As all of the dependent variables in Table 8 are binary variables, the regressions in Table 8 are estimated using logistic models. Panel A shows that, for firms sued only in derivative suits, the coefficient $Post \times Sued$ is significantly positive for director turnover (columns 5 and 6; t -statistics ≥ 2.136) but not significant for ICW, CEO turnover, CFO turnover, and CEO-chair duality (columns 1-4 respectively). The marginal effect of $Post \times Sued$ for director turnover suggests that derivative suits increases the probability of director turnover by 8.5 percentage points. The higher director turnover following the filing of derivative suits is mainly due to a higher frequency of director resignation or dismissal as shown in column 4 of Table 8, Panel A. While these results suggest that derivative suits have a disciplinary effect on directors by forcing directors to depart, combining with Table 6 results suggest that sued firms did not replace departing directors with more independent or less busy directors.⁹ Moreover, the insignificant result for CEO-chair duality in Table 8, Panel A is inconsistent with the notion that the sued firms reduced CEO power over the board after the filing of derivative suits. These results do not provide a strong support for the notion that derivative suits discipline incompetent directors and entrenched officers.

Table 8, Panel B shows that, for firms sued in securities class actions, there is a significant decrease in the frequency of internal control weaknesses and significant increases in CEO turnover and director turnover after they are sued (columns 1, 2 and 5, respectively; $|t$ -statistics| ≥ 2.207). The marginal effects of $Post \times Sued$ for director turnover for CAL only is 10.7 percentage points, which is greater than the 8.5 percentage points for DL only suits. The results suggest that securities class actions have a slightly greater effect on director turnover than

⁹ Untabulated results show a significant increase in the turnover of executive directors after the filing of securities class actions but not after the filing of derivative suits.

derivative suits do. Higher post-litigation director turnover but not ascribed to director resignation and dismissal (columns 5 and 6) suggests that firms sued in securities class actions avoided describing director departures in a negative way after the filing of securities class actions. Unlikely standalone derivative lawsuits evidence in Panel A, these results suggest securities class actions do achieve tangible disciplinary effects in the form of improved financial reporting quality and changes in CEOs and directors, consistent with prior literature (Fich and Shivdasani, 2007; Humphery-Jenner, 2012; Brochet and Srinivasan, 2014; Hopkins, 2018).

One potential explanation for the difference between Panels A and B of Table 8 is that the business scandals that trigger derivative suits are less severe than those that trigger securities class actions. Thus, we also examine the change in governance following the filing of derivative suits with parallel securities class actions and present the results in Table 8, Panel C. For firms sued in both forms of shareholder lawsuits, the only significant change following the lawsuits is an increase in director turnover, and most of the director departure was labeled as resignation or dismissal (columns 5 and 6; $t\text{-statistics} \geq 2.443$). These results are not consistent with the alternative hypothesis that the difference in the severity of business scandals determines both the type of litigation that shareholders choose to file and the post-litigation change in corporate governance. In sum, Tables 7 to 9 provide limited evidence on the *ex post* disciplinary effect of derivative suits.

5. Further Analyses and Robustness Checks

5.1. Robustness to UD laws

An alternative explanation for our main results of the determinants of derivative suits, H1, is that UD laws affect not only a firm's exposure to derivative suits but also the association

between corporate governance characteristics and the risk of derivative litigation. For example, while firms with weaker corporate governance may be subject to a higher litigation risk, UD laws reduce this association. If this is the case, controlling for an indicator variable for UD laws is not sufficient.

We examine the incremental effect of UD laws by augmenting the model in Table 4 with interaction terms of UDLaw and each of the independent variables other than UDLaw itself. Table 9 shows the results. The top of Table 9 shows the coefficients on each of the governance variables, and the bottom of the table shows the coefficients on the interaction terms of UDLaw and each of the governance variables. Column 1 Table 9 show that E-index is negatively correlated with the probability of derivative suits for firms not in UD law states (*z-statistics* = -5.367) and that UD laws do not have an incremental effect on this correlation (*z-statistics* = -1.265). Similarly, columns 2 (3) of Table 9 show that our main results are the same for firms not in UD law states and that UD laws do not have an incremental effect on the association between board characteristics (insider trading) and the probability of derivative suits ($|z\text{-statistics}| \leq 1.155$). After including all governance and insider trading measures, column 4 shows that E-index is negatively associated with the probability of derivative suits for firms not in the UD law states (*z-statistics* = -4.214) and that UD laws marginally amplify this negative association (*z-statistics* = -1.860). The results suggest that the negative association between E-index and the probability of derivative suits is not entirely explained by firms with lower litigation risk in UD law states.¹⁰

¹⁰ For brevity, we do not report the coefficient estimates on the control variables and their interaction terms with UDLaw. Nevertheless, we find that UD laws do not have incremental effects on the association between our control variables and the probability of derivative suits except that they change the association between FCF and the probability of derivative suits from negative to positive. To the extent FCF is interpreted as a proxy for agency problem as in Ferris et al. (2007), our results suggest that firms with a higher agency problem are more likely to be sued if they are incorporated in UD law states.

In sum, even after accounting for the effect of UD laws on the derivative litigation risk, we still fail to find strong evidence that weaker corporate governance is associated with a higher risk of derivative suits.

5.2. Further analyses of entrenchment

In our main results, we find that entrenchment is negatively related to the probability of derivative suits. The negative correlation could be due to two reasons: (a) the endogeneity problem that firms with lower ex ante litigation risk adopt more entrenchment provisions (endogeneity), or (b) the lower likelihood of settlement for firms with a higher E-index (high litigation cost). Our results in Table 9 do not distinguish between these two reasons, and therefore we conduct more analyses in this subsection.

If the negative association is due to the endogeneity problem, then a business scandal, such as a restatement announcement, will increase the litigation risk for entrenched managers to a greater extent than for those not entrenched. If the negative association is due to the high litigation cost, to the extent more entrenched managers are still less likely to settle than less entrenched managers even after the exposure of business scandals, a business scandal will increase the litigation risk to a lesser degree for more entrenched managers than for less entrenched ones. Therefore, we examine whether entrenchment increases or mitigates the effect of restatement announcements or mergers and acquisitions on the risk of derivative litigation. We include E-index, E-index×Restat_t, E-index×M&A, and all the control variables in model (1) and present the results in Table 10.

Table 10 shows a significantly positive coefficient on Restat_t (*z-statistics* = 5.618) and a significantly negative coefficient on E-index×Restat_t (*z-statistics* = -1.890), suggesting that

entrenchment mitigates the effect of restatements on the risk of derivative suits. The coefficient on $E\text{-index} \times M\&A$ is also negative but not significant. The results in Table 10 are more consistent with the high litigation cost reason. That is, shareholders hesitate to file derivative suits against entrenched management, potentially due to the lower likelihood of settlement by entrenched managers as discussed before.

If the cost of suing entrenched managers is higher, shareholders will file such derivative lawsuits only when they expect the lawsuits to change corporate governance. Thus, we also analyze the litigation consequences by the level of entrenchment at the time when the lawsuit was filed. We partition the sample by *Entrench*, which is a dummy variable that equals one for sued firms with an E-index no less than 4 (the median value of E-index for DL firms in Table 1) when the lawsuit was filed and zero otherwise. Table 11, Panel A shows a significant positive coefficient on $Entrench \times Post \times Sued$ for *Bd_Indep* ($t\text{-statistics} = 1.888$), which suggests that board independence increases to a greater extent after the filing of lawsuits for firms with more entrenchment provisions. Table 11, Panel B shows that the coefficient on $Entrench \times Post \times Sued$ is significantly negative in column 1 and negative in columns 2 and 6 ($t\text{-statistics} = -1.954, 2.855$ and 1.690 respectively), suggesting that firms with more entrenchment provisions remediated internal control weaknesses and increased CEO turnover and director turnover after the filing of lawsuits. The change in insider trading is again insignificant and hence not reported. Although our main results suggest that derivative suits on average have very limited effects on corporate governance, the results in Table 11 suggest that some subsets of derivative suits could still bring a change to the corporate governance.

5.3. Reconciling with studies of UD laws

Our results show a much weaker effect of derivative suits on corporate governance than is suggested by most studies of UD laws. The differences in results could be due to other state business laws that were adopted around the same time as the adoption of UD laws. To explore this possibility, we examine state anti-takeover laws. Although anti-takeover laws do not directly affect the risk of derivative suits, they may affect the key measures in prior studies, such as corporate governance policies, corporate disclosures, and corporate risk-taking activities. We estimate the baseline model in column 2 of Table A1 in Appendix B separately for firms that are more protected from takeovers and those less protected, using the median value of the takeover index developed by Cain et al. (2017) as a proxy for the takeover protection level in each state. The results are shown in Table 12.

Column 1 of Table 12 shows that, for firms with a lower takeover index (i.e., more protected from takeovers by state laws), the impact of UD laws on the probability of derivative suits is negative and significant (z -statistics = -3.600). In contrast, column 2 of Table 12 shows that, for firms with a higher takeover index, the coefficient on UDLaw is negative but not significant (z -statistics = -1.629). The difference in the coefficient on UDLaw between column 1 and 2 is statistically significant at the 10% level. Stated differently, we find that firms incorporated in states that have adopted UD laws are less likely to be sued if their states have also adopted more anti-takeover laws. As UD laws and anti-takeover laws both suggest a regulatory regime that favors incumbent management team, our results suggest that the findings in prior studies could be due to a change in the overall regulatory regime.

6. Conclusion

In this paper, we try to reconcile the conflicting views in the accounting, finance, and legal literature about the association between derivative suits and corporate governance. Our results provide a stronger support for the view in legal studies: firms with weaker corporate governance are not more likely to be sued in derivative suits, and derivative lawsuits do not lead to a significant, meaningful change in corporate governance policies. We also examine the extent to which the determinants and consequences of derivative lawsuits are similar to those of securities class actions. Our findings support the claim that securities class actions are meritorious but fail to support a similar claim for derivative suits. As such, it is imperative for future studies to incorporate these differences between derivative lawsuits and securities class actions and assess the validity of prior studies that assume the determinants and consequences of these two forms of shareholder lawsuits to be equivalent.

Appendix A

Comparison of derivative lawsuits and securities class actions

	Derivative Lawsuits	Securities Class Actions
Defendant	Directors and officers	Directors, officers, and the company
Beneficiary	The company	Shareholders
Applicable regulations	State fiduciary duty laws	Federal securities rules
Evidence of damage to shareholders	Not necessary	Necessary
Remedies	Corporate governance reforms; payments by the defendants to the company	Payments by the defendants to the class of shareholders who were allegedly damaged
Venue	Federal and state courts; the incorporation and/or the headquarters states	Almost all in Federal court; majority in headquarters states

Appendix B

Establishing baseline determinants (triggering events) of derivative lawsuits

In this appendix, we briefly discuss how we establish the baseline model for the probability of derivative suits for testing H1. Column 1 of Table A1 below shows the results of the logistic model of the probability of derivative suits on firm innate characteristics and potential triggering events of lawsuits. Consistent with the univariate comparison, firms with more assets (LnAssets) and higher sales growth (SGrowth) are more likely to be sued. Controlling for firm size, the probability of derivative suits still has a positive association with market-to-book (MTB), but its association with free cash flows (FCF) becomes negative. Our results differ from Ferries et al. (2007), who find that free cash flows are positively associated with the probability of derivative suits. As for the environment-wide characteristics, firms in litigious industries (FPS), those whose industry peers are subject to derivative suits (LnIndLit_dl), and those not incorporated in states that have adopted UD laws (UDLaw) have a higher probability of being sued in derivative suits. These results are again consistent with the univariate results. Lastly, we find that recent restatement announcements (Restat_t and Restat_t-1) and merger activities (M&A) are positively associated with the probability of derivative suits, suggesting that these events trigger derivative lawsuits.

Our random sample analysis in Internal Appendix II shows that derivative suits are often triggered by the same business scandals that also trigger securities class actions. Thus, we further use securities class actions to control for business scandals that attract shareholder lawsuits. Column 2 of Table A1 shows that, controlling for the contemporaneous occurrence of securities class actions (CAL) and a firm's inherent exposure to securities class actions (CAL_firm) substantially increases the explanatory power of the model. The area under curve (AUC) increases from 0.746 in column 1 of Table A1 to 0.848 in column 2 of Table A1. CAL reflects all litigation-triggering events other than restatements and mergers and acquisitions, and CAL_Firm reflect a firm's residual exposure to shareholder class actions that is not captured by other determinants in the model. After controlling for the exposure to class actions, only MTB and FCF lose significance. The results suggest that firm size, sales growth, litigation-triggering events, and peer litigation risk have incremental effects on derivative suits beyond their effects on class actions. The results also suggest that the risk factors of securities class actions may not be completely the same as those of derivative suits. We use the specifications in column 2 of Table A1 as the baseline model for all our main analysis for H1.

Appendix B (cont'd)

Table A1

	Trigger Events	Trigger Events Including CAL
	(1)	(2)
LnAssets	0.313*** (14.309)	0.222*** (9.696)
SGrowth	0.909*** (7.609)	0.504*** (3.932)
MTB	0.024*** (3.200)	0.004 (0.467)
FCF	-0.968*** (-4.253)	-0.379 (-1.625)
Restat_t	2.165*** (19.912)	1.686*** (11.936)
Restat_t-1	0.868*** (5.492)	0.804*** (4.686)
M&A	0.190** (2.168)	0.180* (1.810)
FPS	0.546*** (6.596)	0.281*** (3.226)
UDLaw	-0.882*** (-6.223)	-0.751*** (-5.176)
LnIndLit_dl	0.047*** (10.073)	0.049*** (9.715)
CAL		2.890*** (28.479)
CAL_Firm		0.904*** (9.453)
constant	-7.041*** (-36.412)	-6.989*** (-35.337)
N	41,787	41,787
Pseudo R ²	0.099	0.260
AUC	0.746	0.848

This table presents the logistic model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Appendix C

Variable definitions

Variables	Definition
AbRet	Market-adjusted daily abnormal returns accumulated over year t
Bd_Indep	The ratio of the number of outside directors to the number of directors in a board
Bd_Busy	The ratio of directors with more than three directorships to the number of directors in a board
Bd_Size	The natural logarithm of the number of directors in a board
CAL	An indicator variable that equals one if the firm is sued in a securities class action in the year and zero otherwise.
CAL_Firm	An indicator variable that equals one if the firm is ever sued in securities class actions over our sample period and zero otherwise.
CEO Turnover	An indicator variable that equals one if there is a change in the CEO in the year and zero otherwise.
CFO Turnover	An indicator variable that equals one if there is a change in the CFO in the year and zero otherwise.
CEO-Chair Duality	An indicator variable that equals one if the CEO is also the chairperson of the board and zero otherwise.
Director Turnover	An indicator variable that equals one if there is a change in directors in the year and zero otherwise; changes due to retirements, death, and re-election are excluded.
E-index	Entrenchment index, measured following Bebchuk et al. (2008)
Entrench	An indicator variable that equals one if the sued firm's E-index before the filing of lawsuits is greater than 4 and zero otherwise.
FCF	Operating cash flows minus capital expenditures, scaled by average total assets
FPS	An indicator variable that equals one for firms in litigious industries and zero otherwise; litigious industries are those with SIC falls within the following ranges: 2833-2836; 3570-3577; 3600-3674; 5200-5961; 7370-7374; 8731-8734
Freq_OpBuy	The number of opportunistic insider purchase transactions in a year
Freq_OpSale	The number of opportunistic insider sale transactions in a year
Freq_RtBuy	The number of routine insider purchase transactions in a year
Freq_RtSale	The number of routine insider sale transactions in a year
ICW	An indicator variable that equals one if the firm discloses internal control weaknesses in the year and zero otherwise
LnAssets	Natural logarithm of total assets

Variables	Definition
LnIndLit_cal	Natural logarithm of total market value of peer firms with the same two-digit SIC that are subject to securities class actions in year t; equals zero if no firm in the same industry is sued in year t
LnIndLit_dl	Natural logarithm of total market value of peer firms with the same two-digit SIC that are subject to derivative suits in year t; equals zero if no firm in the same industry is sued in year t
M&A	An indicator variable that equals one for firms announcing mergers and acquisitions in year t and zero otherwise
MTB	Market value of equity to book value of equity
Restat_t (Restat_t-1)	An indicator variable that equals one for firms announcing restatements in year t (t-1) and zero otherwise.
SGrowth	Current year sales minus last year sales, scaled by beginning total assets
UDLaw	An indicator variable that equals one for firms incorporated in states that have adopted UD laws and zero otherwise; states that have adopted UD laws are as follows: AZ, CT, FL, GA, HI, IA, ID, MA, ME, MI, MS, MT, NH, NC, NE, PA, RI, SD, TX, UT, VA, WI, WY
RetSKEW	Skewness of daily returns in year t
RetSTD	Standard deviation of daily returns in year t
Turnover	Turnover of stock in year t
Vol_OpBuy	The natural logarithm of one plus the total number of shares in opportunistic insider purchase transactions in a year
Vol_OpSale	The natural logarithm of one plus the total number of shares in opportunistic insider sale transactions in a year
Vol_RtBuy	The natural logarithm of one plus the total number of shares in routine insider purchase transactions in a year
Vol_RtSale	The natural logarithm of one plus the total number of shares in routine insider sale transactions in a year

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Table 1 Industry Distribution of Derivative Suits

Fama-French industry code (17 industries)	%Firm-Years within Industry Sued in DL
Food	2.08%
Mining and Minerals	1.75%
Oil and Petroleum Products	1.96%
Textiles, Apparel & Footware	1.75%
Consumer Durables	2.45%
Chemicals	0.90%
Drugs, Soap, Perfumes, Tobacco	3.38%
Construction and Construction Materials	1.48%
Steel Works Etc	0.80%
Fabricated Products	1.21%
Machinery and Business Equipment	2.50%
Automobiles	1.82%
Transportation	1.10%
Utilities	1.71%
Retail Stores	2.58%
Banks, Insurance Companies, and Other Financial	1.51%
Other	2.17%
FPS	%Firm-Years within Industry Sued in DL
Non-FPS	1.60%
FPS	2.83%

Table 2 Industry and Year Distribution of the Number of Derivative Suits

Fama-French industry code (17 industries)	Year									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Food	3	5	2	1	3	3	1	2	2	0
Mining and Minerals	1	1	1	0	1	1	0	1	2	1
Oil and Petroleum Products	2	3	0	5	6	5	3	6	3	1
Textiles, Apparel & Footware	0	0	3	0	1	2	0	2	2	1
Consumer Durables	2	3	2	2	0	1	0	2	1	2
Chemicals	1	0	0	0	0	0	1	2	1	1
Drugs, Soap, Perfumes, Tobacco	7	5	7	3	4	11	4	9	4	4
Construction and Construction Materials	1	3	2	2	3	0	2	1	2	2
Steel Works Etc	0	0	0	0	0	1	3	0	0	0
Fabricated Products	1	0	0	1	0	1	1	0	0	0
Machinery and Business Equipment	16	38	20	11	8	6	12	5	8	6
Automobiles	3	3	1	1	0	0	1	0	0	1
Transportation	2	0	0	3	2	2	2	0	2	1
Utilities	1	2	0	2	1	3	2	1	1	2
Retail Stores	6	8	6	4	4	7	4	6	4	3
Banks, Insurance Companies, and Other Financial	14	8	16	23	12	10	11	10	4	12
Other	30	50	46	26	18	24	29	27	25	27
Total	90	129	106	84	63	77	76	74	61	64

Table 3 Descriptive Statistics of Derivative Lawsuit Firms and Years

Panel A: Comparison of DL and non-DL firms

Variable	Non-DL firms						DL firms			
	N	Mean	SD	Q1	Q2	Q3	N	Mean	SD	Q1
LnAssets	39,384	6.275	2.091	4.858	6.345	7.661	9,214	7.086	2.344	5.466
SGrowth	37,601	0.094	0.271	-0.004	0.029	0.145	9,002	0.102	0.287	-0.007
MTB	33,664	2.872	3.775	1.115	1.766	3.081	8,301	3.293	3.982	1.245
FCF	37,651	-0.016	0.208	-0.019	0.020	0.075	9,006	-0.010	0.208	-0.027
FPS	42,370	0.278	0.448	0.000	0.000	1.000	9,573	0.401	0.490	0.000
UDLaw	42,370	0.154	0.361	0.000	0.000	0.000	9,573	0.082	0.275	0.000
Restat_t	42,370	0.018	0.134	0.000	0.000	0.000	9,573	0.035	0.185	0.000
M&A	42,370	0.129	0.335	0.000	0.000	0.000	9,573	0.151	0.358	0.000
AbRet	36,941	0.019	0.450	-0.240	-0.033	0.192	8,936	0.016	0.485	-0.273
RetSTD	36,935	0.030	0.017	0.018	0.025	0.037	8,935	0.030	0.017	0.018
RetSKEW	36,929	0.389	1.328	-0.148	0.258	0.753	8,933	0.266	1.430	-0.306
Turnover	36,941	1,842.270	1,897.035	581.695	1,327.876	2,407.426	8,936	2,952.972	2,494.909	1,307.091
LnIndLit_dl	42,370	9.095	8.623	0.000	14.247	17.641	9,573	10.506	8.331	0.000
CAL	42,370	0.011	0.105	0.000	0.000	0.000	9,573	0.070	0.255	0.000
LnIndLit_cal	42,370	9.141	8.527	0.000	14.536	17.320	9,573	10.272	8.256	0.000
E-index	13,767	3.733	1.252	3.000	4.000	5.000	4,831	3.548	1.217	3.000
Bd_Indep	21,901	0.711	0.162	0.615	0.750	0.846	6,853	0.726	0.156	0.625
Bd_Busy	19,920	0.227	0.252	0.000	0.167	0.375	6,174	0.272	0.261	0.000
Freq_OpBuy	19,427	0.636	1.540	0.000	0.000	1.000	5,295	0.434	1.220	0.000
Freq_OpSale	19,427	3.275	4.690	0.000	1.000	4.000	5,295	3.710	4.860	0.000
Freq_RtBuy	19,427	0.877	2.967	0.000	0.000	0.000	5,295	0.416	1.990	0.000
Freq_RtSale	19,427	5.492	11.198	0.000	1.000	6.000	5,295	6.673	12.307	0.000
Inst_own	40,570	0.424	0.346	0.036	0.413	0.757	8,883	0.544	0.339	0.218

Table 3 (cont'd)

Panel B: Comparison of litigation and non-litigation years for DL firms

Variable	DL firms, non-litigation year						DL firms, litigation year			
	N	Mean	SD	Q1	Q2	Q3	N	Mean	SD	Q1
Restat_t	8,552	0.023	0.150	0.000	0.000	0.000	1,021	0.139	0.346	0.000
Restat_t-1	8,552	0.054	0.227	0.000	0.000	0.000	1,021	0.187	0.390	0.000
M&A	8,552	0.145	0.353	0.000	0.000	0.000	1,021	0.198	0.399	0.000
AbRet	7,933	0.037	0.482	-0.248	-0.025	0.213	1,003	-0.151	0.470	-0.444
RetSTD	7,933	0.030	0.017	0.018	0.026	0.037	1,002	0.034	0.019	0.020
RetSKEW	7,931	0.311	1.382	-0.261	0.219	0.758	1,002	-0.091	1.723	-0.849
Turnover	7,933	2,847.094	2,409.066	1,264.635	2,188.253	3,631.950	1,003	3,790.386	2,961.853	1,723.108
LnIndLit_dl	8,552	10.171	8.418	0.000	15.191	17.642	1,021	13.312	6.951	13.228
CAL	8,552	0.030	0.172	0.000	0.000	0.000	1,021	0.400	0.490	0.000
LnIndLit_cal	8,552	10.077	8.304	0.000	15.016	17.320	1,021	11.911	7.652	0.000
E-index	4,263	3.585	1.194	3.000	4.000	4.000	568	3.273	1.347	2.000
Bd_Indep	6,045	0.728	0.155	0.636	0.750	0.857	808	0.714	0.159	0.608
Bd_Busy	5,455	0.269	0.259	0.000	0.222	0.429	719	0.298	0.274	0.000
Freq_OpBuy	4,653	0.428	1.204	0.000	0.000	0.000	642	0.474	1.329	0.000
Freq_OpSale	4,653	3.622	4.811	0.000	2.000	5.000	642	4.346	5.164	1.000
Freq_RtBuy	4,653	0.420	1.997	0.000	0.000	0.000	642	0.393	1.933	0.000
Freq_RtSale	4,653	6.614	12.262	0.000	2.000	7.000	642	7.104	12.630	0.000

All variables are as defined in Appendix C.

Table 4 Governance and Derivative Litigation Exposure

	Entrenchment	Board Characteristics	Insider Trading	All Variables
	(1)	(2)	(3)	(4)
E-index	-0.215*** (-6.013)			-0.218*** (-4.913)
Bd_Indep		-1.100** (-2.488)		-0.464 (-0.874)
Bd_Busy		0.723 (1.613)		0.729 (1.365)
Freq_OpBuy			0.007 (0.192)	-0.028 (-0.489)
Freq_OpSale			0.011 (1.199)	0.013 (1.113)
LnAssets	0.186*** (5.812)	0.218*** (6.211)	0.214*** (7.278)	0.191*** (4.615)
SGrowth	0.516** (2.283)	0.526** (2.212)	0.768*** (3.988)	0.615** (2.131)
MTB	0.002 (0.150)	-0.007 (-0.425)	0.009 (0.821)	0.005 (0.303)
FCF	-0.504 (-1.020)	0.358 (0.452)	-0.606 (-1.640)	-0.508 (-0.574)
Restat_t	1.767*** (9.387)	1.844*** (8.734)	1.892*** (10.810)	1.906*** (8.002)
Restat_t-1	0.605** (2.531)	0.726*** (2.836)	0.798*** (3.548)	0.680** (2.331)
M&A	0.109 (0.867)	0.152 (1.181)	0.146 (1.204)	0.207 (1.427)
FPS	0.223** (2.000)	0.170 (1.404)	0.329*** (2.939)	0.107 (0.743)
UDLaw	-0.802*** (-4.451)	-0.781*** (-4.259)	-0.889*** (-5.035)	-0.796*** (-3.745)
LnIndLit_dl	0.063*** (9.802)	0.060*** (9.146)	0.051*** (8.350)	0.061*** (8.129)
CAL	2.742*** (20.353)	2.741*** (19.388)	2.896*** (23.213)	2.864*** (17.567)
CAL_Firm	0.803*** (6.564)	0.752*** (5.852)	0.981*** (7.970)	0.689*** (4.643)
constant	-5.889*** (-18.866)	-6.094*** (-14.995)	-7.062*** (-26.498)	-5.633*** (-11.595)
N	18,146	16,737	24,144	12,699
Pseudo R ²	0.245	0.231	0.281	0.250
AUC	0.838	0.832	0.861	0.841

This table presents the logit model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 5 Multinomial Logit Analysis of Governance and Exposure to Different Forms of Shareholder Lawsuits

	DL Only	CAL Only	Both DL and CAL
	(1)	(2)	(3)
Panel A: Entrenchment			
E-index	-0.174*** (-4.153)	0.154*** (2.913)	-0.094* (-1.695)
Controls	Y	Y	Y
N		18,146	
Pseudo R ²		0.090	
Panel B: Board characteristics			
Bd_Indep	-1.092** (-2.174)	-0.055 (-0.106)	-0.455 (-0.676)
Bd_Busy	0.883* (1.770)	-0.023 (-0.045)	0.106 (0.174)
Controls	Y	Y	Y
N		16,737	
Pseudo R ²		0.084	
Panel C: Insider trading			
Freq_OpBuy	0.015 (0.344)	-0.013 (-0.288)	0.000 (0.009)
Freq_OpSale	0.007 (0.658)	0.027*** (2.860)	0.048*** (4.614)
Controls	Y	Y	Y
N		24,144	
Pseudo R ²		0.096	
Panel D: All variables			
E-index	-0.181*** (-3.557)	0.140** (2.102)	-0.095 (-1.383)
Bd_Indep	-0.518 (-0.833)	-0.502 (-0.745)	-0.364 (-0.482)
Bd_Busy	0.871 (1.446)	0.132 (0.217)	0.165 (0.252)
Freq_OpBuy	0.016 (0.252)	0.051 (0.766)	-0.014 (-0.198)
Freq_OpSale	0.001 (0.046)	0.018 (1.377)	0.057*** (3.980)

	DL Only	CAL Only	Both DL and CAL
	(1)	(2)	(3)
<i>Controls:</i>			
LnAssets	0.252*** (4.906)	0.146*** (2.950)	0.336*** (6.169)
SGrowth	0.458 (1.153)	1.113*** (3.619)	1.490*** (4.662)
MTB	0.006 (0.244)	0.052*** (3.673)	0.051** (2.455)
FCF	0.140 (0.122)	-0.279 (-0.263)	-1.173 (-0.812)
Restat_t	2.272*** (9.656)	1.489*** (4.465)	2.362*** (8.069)
Restat_t-1	0.778** (2.411)	1.033*** (2.710)	1.086** (2.502)
M&A	0.550*** (3.644)	0.537*** (3.581)	-0.198 (-0.879)
FPS	0.348** (2.071)	0.069 (0.397)	0.267 (1.213)
UDLaw	-0.760*** (-3.092)	0.007 (0.034)	-0.965*** (-2.692)
LnIndLit_dl	0.099*** (9.498)	-0.052*** (-5.549)	0.036*** (2.578)
LnIndLit_cal	-0.061*** (-6.033)	0.095*** (9.156)	0.043*** (3.019)
constant	-6.000*** (-10.545)	-6.453*** (-9.804)	-8.228*** (-12.214)
N		12,699	
Pseudo R ²		0.093	

This table presents the multinomial logit model of estimating the probability of being sued in derivative lawsuits only, in the securities class actions only, and in both forms of shareholder lawsuits. Control variables include LnAssets, SGrowth, MTB, FCF, Restat_t, Restat_t-2, M&A, LnIndLit_dl, LnIndLit_cal, FPS, and UDLaw. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 6 Difference-in-Differences Analysis of Changes in Board Composition and Governance Policies Following Lawsuits

	Bd_Indep	Bd_Size	Bd_Busy	E-index
	(1)	(2)	(3)	(4)
Panel A: DL only				
Post	0.057*** (4.253)	0.004 (0.247)	-0.003 (-0.249)	0.716*** (5.937)
Post × Sued	-0.010 (-0.608)	0.005 (0.235)	-0.027 (-1.544)	-0.048 (-0.275)
constant	0.752*** (179.582)	2.266*** (405.242)	0.119*** (25.542)	3.045*** (65.139)
Firm FE	Y	Y	Y	Y
N	1,056	1,056	1,052	1,062
Adjusted R ²	0.653	0.844	0.642	0.633
Panel B: CAL only				
Post	0.023*** (3.442)	-0.011 (-0.826)	-0.009 (-0.848)	0.368*** (3.137)
Post × Sued	0.001 (0.056)	0.027 (1.336)	0.001 (0.073)	-0.001 (-0.007)
constant	0.779*** (318.739)	2.281*** (497.312)	0.103*** (29.581)	3.621*** (85.037)
Firm FE	Y	Y	Y	Y
N	1,222	1,222	1,222	1,282
Adjusted R ²	0.777	0.822	0.579	0.719
Panel C: DL and CAL				
Post	0.017* (1.833)	0.007 (0.474)	-0.013 (-1.217)	0.253* (1.856)
Post × Sued	0.015 (1.015)	-0.004 (-0.130)	0.004 (0.188)	0.289 (1.580)
constant	0.781*** (207.726)	2.244*** (285.963)	0.119*** (22.219)	3.414*** (67.888)
Firm FE	Y	Y	Y	Y
N	620	620	620	652
Adjusted R ²	0.747	0.823	0.641	0.674

This table presents the ordinary least squares (OLS) model of board characteristics and e-index using two years before and two years after the lawsuit filing year. Post is an indicator variable that equals one for years after the lawsuit filing and zero otherwise. Sued is an indicator variable that equals one for firms sued, and zero for control firms. The sample does not include years when either the sued or the control firms have missing data. All regressions include firm dummies. t-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 7 Difference-in-Differences Analysis of Changes in Insider Trading Following Lawsuits

	Opportunistic Insider Trading			
	Frequency		Volume	
	Buy (1)	Sale (2)	Buy (3)	Sale (4)
Panel A: DL only				
Post	-0.070 (-0.425)	0.187 (0.363)	0.123 (0.265)	0.350 (0.588)
Post × Sued	-0.157 (-0.781)	-0.082 (-0.098)	-0.756 (-1.128)	-0.965 (-1.118)
constant	0.452*** (8.802)	3.495*** (16.425)	1.729*** (10.104)	7.885*** (35.762)
Firm FE	Y	Y	Y	Y
N	1,050	1,050	1,050	1,050
Adjusted R ²	0.262	0.313	0.365	0.366
Panel B: CAL only				
Post	0.078 (0.782)	0.285 (0.522)	0.150 (0.529)	0.700 (1.270)
Post × Sued	-0.063 (-0.415)	-1.797* (-1.959)	-0.087 (-0.190)	-1.694** (-2.033)
constant	0.366*** (10.436)	4.283*** (20.257)	1.450*** (13.744)	7.995*** (41.645)
Firm FE	Y	Y	Y	Y
N	1,358	1,358	1,358	1,358
Adjusted R ²	0.432	0.321	0.483	0.413
Panel C: DL and CAL				
Post	-0.149 (-1.029)	0.059 (0.086)	0.013 (0.024)	0.298 (0.412)
Post × Sued	0.086 (0.348)	-2.964** (-2.187)	0.308 (0.358)	-1.523 (-1.303)
constant	0.553*** (8.759)	4.299*** (12.361)	1.764*** (7.997)	7.937*** (26.453)
Firm FE	Y	Y	Y	Y
N	752	752	752	752
Adjusted R ²	0.566	0.308	0.451	0.463

This table presents OLS model of insider trading using two years before and two years after the lawsuit filing year. Post is an indicator variable that equals one for years after the lawsuit filing and zero otherwise. Sued is an indicator variable that equals one for firms sued, and zero for control firms. All regressions include firm dummies. The sample does not include years when either the sued or the control firms have missing data. t-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 8 Difference-in-Differences Analysis of Internal Controls Weaknesses and Key Personnel Turnover

	ICW	CEO Turnover	CFO Turnover	CEO-Chair Duality	All re
	(1)	(2)	(3)	(4)	(5)
Panel A: DL only					
Post	-0.280	0.135	-0.065	-0.214	-0.065
	(-0.607)	(0.583)	(-0.350)	(-1.254)	(-1.254)
Sued	1.421***	0.109	0.306*	-0.086	0.306*
	(3.950)	(0.484)	(1.832)	(-0.350)	(1.832)
Post × Sued	-0.318	-0.070	0.158	0.012	0.158
	(-0.608)	(-0.222)	(0.679)	(0.053)	(2.000)
constant	-3.644***	-2.607***	-2.036***	0.593***	-0.065
	(-11.493)	(-16.411)	(-15.830)	(3.212)	(-2.000)
Industry FE	Y	Y	Y	Y	Y
N	1,974	2,780	2,780	1,056	2,780
Pseudo R ²	0.050	0.001	0.006	0.002	0.000
Panel B: CAL only					
Post	0.851**	-0.186	0.179	0.141	0.179
	(2.248)	(-0.868)	(1.105)	(0.923)	(1.105)
Sued	1.783***	-0.182	0.143	-0.085	-0.085
	(4.688)	(-0.889)	(0.916)	(-0.384)	(-0.384)
Post × Sued	-0.905**	0.684**	0.303	-0.103	0.303
	(-2.027)	(2.386)	(1.416)	(-0.483)	(3.000)
constant	-4.096***	-2.683***	-2.275***	0.176	-0.065
	(-11.795)	(-18.265)	(-20.195)	(1.058)	(-4.000)
Industry FE	Y	Y	Y	Y	Y
N	2,342	4,124	4,124	1,222	4,124
Pseudo R ²	0.047	0.005	0.008	0.001	0.000

	ICW	CEO Turnover	CFO Turnover	CEO-Chair Duality	All re
	(1)	(2)	(3)	(4)	(5)
Panel C: DL and CAL					
Post	-0.981** (-2.320)	0.655** (2.217)	0.292 (1.338)	-0.449** (-2.113)	0. (0.
Sued	0.722** (2.204)	0.479 (1.543)	0.495** (2.179)	0.147 (0.475)	-0. (-0.
Post × Sued	0.660 (1.322)	0.004 (0.011)	-0.049 (-0.174)	-0.098 (-0.311)	0. (2.
constant	-2.864*** (-10.599)	-3.280*** (-13.095)	-2.415*** (-13.453)	0.486** (2.197)	-0. (-3.
Industry FE	Y	Y	Y	Y	Y
N	1,468	2,114	2,114	620	2,1
Pseudo R ²	0.037	0.020	0.010	0.011	0.0

This table presents the logit model of ICW and key personnel turnover using two years before and two years after the lawsuit filing variable that equals one for years after the lawsuit filing and zero otherwise. Sued is an indicator variable that equals one for firms sued and zero otherwise. The sample does not include years when either the sued or the control firms have missing data. z-statistics are reported in parentheses and clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are defined in Appendix C.

Table 9 UD Laws and Litigation Determinants

	Entrenchment	Board Characteristics	Insider Trading	All Variables
	(1)	(2)	(3)	(4)
E-index	-0.200*** (-5.367)			-0.191*** (-4.214)
Bd_Indep		-1.230*** (-2.651)		-0.714 (-1.277)
Bd_Busy		0.820* (1.761)		0.853 (1.539)
Freq_OpBuy			0.009 (0.222)	-0.031 (-0.505)
Freq_OpSale			0.007 (0.680)	0.009 (0.721)
UDLaw	-2.377* (-1.855)	-3.931** (-2.065)	-2.230* (-1.672)	-3.777* (-1.912)
<i><u>Interaction terms:</u></i>				
UDLaw ×				
E-index	-0.160 (-1.265)			-0.299* (-1.860)
Bd_Indep		1.636 (0.962)		3.040 (1.604)
Bd_Busy		-2.032 (-1.155)		-2.435 (-1.111)
Freq_OpBuy			-0.006 (-0.065)	0.032 (0.187)
Freq_OpSale			0.031 (1.216)	0.008 (0.240)
Control Vars	Y	Y	Y	Y
UDLaw × Control Vars	Y	Y	Y	Y
Constant	-5.883*** (-17.937)	-5.932*** (-14.224)	-7.069*** (-25.688)	-5.512*** (-10.837)
N	18,146	16,737	24,144	12,699
Pseudo R ²	0.247	0.233	0.285	0.254
AUC	0.838	0.832	0.863	0.844

This table presents the logit model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 10 Impact of Entrenchment on Litigation Exposure Following Triggering Events

	P(DL)
E-index	-0.166*** (-3.940)
E-index × Restat_t	-0.186* (-1.890)
E-index × M&A	-0.121 (-0.905)
LnAssets	0.181*** (5.633)
SGrowth	0.509** (2.245)
MTB	0.002 (0.126)
FCF	-0.452 (-0.913)
Restat_t	2.084*** (5.618)
Restat_t-1	0.621*** (2.581)
M&A	0.741** (2.101)
FPS	0.209* (1.861)
UDLaw	-0.797*** (-4.444)
LnIndLit_dl	0.063*** (9.781)
CAL	2.756*** (20.368)
CAL_Firm	0.801*** (6.508)
constant	-6.002*** (-18.447)
N	18,146
Pseudo R ²	0.246
AUC	0.838

This table presents the logit model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Table 11 Difference-in-Differences Analysis of Entrenchment and Lawsuit Consequences**Panel A: Board characteristics**

	Bd_Indep	Bd_Size	Bd_Busy	E-index
	(1)	(2)	(3)	(4)
Post	0.082*** (4.162)	0.023 (1.248)	-0.009 (-0.449)	1.006*** (5.772)
Post × Sued	-0.037 (-1.584)	0.002 (0.053)	-0.021 (-0.754)	0.058 (0.236)
Entrench	0.041* (1.814)	-0.003 (-0.107)	-0.008 (-0.329)	0.853*** (2.724)
Entrench × Post	-0.054** (-2.391)	-0.042 (-1.357)	0.016 (0.633)	-0.569*** (-2.613)
Entrench × Post × Sued	0.054* (1.888)	0.011 (0.253)	-0.017 (-0.470)	-0.363 (-1.155)
constant	0.736*** (62.072)	2.265*** (137.044)	0.120*** (9.232)	2.652*** (16.866)
Firm FE	Y	Y	Y	Y
N	962	962	958	960
Adjusted R ²	0.653	0.848	0.621	0.659

Table 11 (cont'd)
Panel B: ICW and key personnel turnover

	ICW	CEO Turnover	CFO Turnover	CEO-Chair Duality	All real
	(1)	(2)	(3)	(4)	(5)
Post	-0.856 (-1.244)	0.682 (1.499)	-0.064 (-0.185)	-0.238 (-0.873)	-0.14 (-0.75)
Sued	0.960* (1.856)	0.761* (1.826)	0.623** (2.071)	-0.477 (-1.310)	0.29 (1.22)
Post × Sued	0.267 (0.349)	-1.187** (-2.000)	-0.106 (-0.243)	-0.117 (-0.345)	-0.05 (-0.17)
Entrench	-2.078* (-1.893)	0.121 (0.250)	0.097 (0.293)	-0.425 (-1.132)	0.07 (0.3)
Entrench × Post	2.130* (1.652)	-1.218* (-1.733)	0.141 (0.300)	-0.161 (-0.467)	0.23 (0.8)
Entrench × Sued	1.023 (0.844)	-1.413** (-2.133)	-0.623 (-1.426)	0.830 (1.609)	-0.29 (-0.9)
Entrench × Post × Sued	-3.363* (-1.954)	2.652*** (2.855)	-0.253 (-0.401)	0.476 (1.005)	0.53 (1.23)
constant	-3.010*** (-6.898)	-2.726*** (-8.171)	-2.073*** (-8.789)	0.860*** (3.109)	-0.16 (-0.93)
N	1,292	1,510	1,510	962	1,510
Pseudo R ²	0.079	0.022	0.010	0.017	0.00

This table presents the change in corporate policies and key personnel turnover using two years before and two years after the filing of parallel securities class actions. Panel A shows the OLS regression results of corporate policies change, and Panel B shows the logit regression results of key personnel turnover. Post is an indicator variable that equals one for years after the lawsuit filing and zero otherwise. Sued is an indicator variable that equals one for firms sued, and zero for control firms. Entrench is an indicator variable that equals one if the sued firm's E-index is no less than the control firm's E-index, and zero otherwise. The sample does not include years when either the sued or the control firms have missing data. z-statistics are reported in parentheses. All tests are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All tests are clustered at the firm level. See Appendix C.

Table 12 Confounding Effect of Anti-Takeover Laws on Litigation Exposure

	Anti-Takeover Law Protection	
	High	Low
	(1)	(2)
LnAssets	0.348*** (6.389)	0.230*** (7.341)
SGrowth	0.330 (1.582)	0.298 (1.188)
MTB	0.013 (0.800)	-0.011 (-0.626)
FCF	-0.038 (-0.091)	-0.575 (-1.201)
Restat_t	2.003*** (8.308)	1.791*** (7.576)
Restat_t-1	0.915*** (3.265)	0.841*** (2.899)
M&A	0.053 (0.264)	0.386** (2.279)
FPS	0.064 (0.431)	0.293** (2.126)
UDLaw	-1.021*** (-3.600)	-0.403 (-1.629)
LnIndLit_dl	0.048*** (4.918)	0.065*** (7.246)
CAL	3.380*** (16.567)	3.218*** (16.936)
CAL_Firm	0.760*** (4.185)	0.605*** (3.912)
constant	-7.602*** (-18.751)	-6.850*** (-23.853)
N	11,880	11,914
Pseudo R ²	0.323	0.263
AUC	0.875	0.849

H1: UDLaw in col(1) < UDLaw in col(2)

χ -squared	2.30
<i>p-value</i>	0.06

This table presents the logit model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

INTERNET APPENDIX

(Not part of the paper)

Internet Appendix I

Quality Assurance of Identified Derivative Lawsuits

To evaluate the quality of the derivative lawsuits identified for our sample, we compare it with the litigation dataset in Audit Analytics, which covers various types of lawsuits filed in federal courts against public companies. Out of the 821 cases filed between 2005 and 2017 and identified as derivative suits against US public firms in Audit Analytics, 63 cases were not in our initial sample. Among the 63 cases, 42 are derivative suits and the rest 21 cases are either not related to corporate governance (e.g., filed by fund investors, against underwriters of the firm's initial public offerings, etc.; 14 cases) or are not even derivative suits (7 cases). The 42 derivative suits are not covered in our initial sample for the following reasons: (a) the suits were filed after the last available 10-K or 10-Q (8 cases), (b) the firm disclosed the existence of several related derivative lawsuits, but does not provide the filing date of the particular lawsuit (21 suits), (c) the firm disclosed the suit without giving any information about its derivative nature (1 case), (d) the firm only provided a general description of its litigation exposure, such as "we are subject to legal proceedings, claims and litigation arising in the ordinary course of business," (8 suits), and (e) the firm did not make any disclosure about pending shareholder litigation (4 cases). Reasons (a) and (b) are less worrying because we either would not have data to analyze those cases (reason (a)) or have already recorded at least one case filed on the same cause (reason (b)). Reasons (c) to (e) are more serious, as they suggest that we missed around 1.6% ($= (1+8+4)/(821-21)$) of federal derivative suits due to incomplete disclosures (or intentional omissions) of derivative suits. To assess whether the incomplete disclosure introduces any bias in our sample, we compare the 34 missing cases (i.e., the total 42 missing cases minus the 8 cases filed after the last available financial reports) with those in our initial sample and find that they are not statistically different in terms of entrenchment index, board independence, and firm size in the year of lawsuit filing (results are not tabulated). Although these results and the small number of missing cases help mitigate the concern about the selection bias in our sample, we acknowledge that our main results are subject to the caveat that we may miss cases due to incomplete disclosures. In our main analyses, we augment our initial sample with the 34 cases covered by Audit Analytics but not in our initial sample.

Internet Appendix II

Deeper Dive into the Random Sample of Identified Derivative Lawsuits

As most studies on actual derivative lawsuits rely on old cases, we randomly select a sample of derivative lawsuits from our identified derivative suits to shed lights on these more recent cases. Specifically, we randomly select 200 derivative lawsuits against 200 different firms from our main sample of identified derivative suits to analyze the litigation causes as stated in the complaints

We find that the reasons for derivative suits can be broadly classified into the following categories: executive compensation, financial misstatements, bad business decisions, and mergers and acquisitions. Although these categories are not mutually exclusive, we classify the reasons following the order as follows: mergers and acquisitions, executive compensation, bad business decisions, and financial misstatements. First, lawsuits alleging any inappropriate decisions on mergers and acquisitions are classified as related to mergers and acquisitions. We further identify whether the firm involved in the lawsuit is the acquirer, target, or a firm that either rejects an acquisition proposal or terminated the merger. Second, lawsuits alleging any inappropriate disclosures or decisions of executive compensation are classified as related to executive compensation. Option backdating is a significant subcategory as the backdating practice is often not properly disclosed. Some lawsuits also allege that the board approved excessive executive compensation. Third, lawsuits alleging any bad business decisions with which the plaintiff shareholders did not agree or any corporate activities that violate regulations other than securities and fiduciary duty laws are classified as related to bad business decisions. The compliance issues may be related to the Foreign Corrupt Practices Act, various state and federal regulations, or accidents such as the Deepwater Horizon oil spill. Finally, many derivative lawsuits involve allegations of financial misstatements. Erickson (2010) also note that the vast majority of her sample of derivative suits include claims that the defendants made false and misleading financial statements. Lawsuits that involve such allegations but that are not classified as related to merger, bad business decisions, or executive compensation are classified as related to financial misstatements.

Table IA1 shows that the most common causes are option backdating (24%), financial misstatements (26%), and regulation compliance problems (24%). Except for option backdating, executive compensation is a relatively less frequent reason for derivative litigation (10%). Lawsuits related to mergers constitute around 7.5% of this random sample of lawsuits, and around 6% of the firms did not disclose the specific reasons for the lawsuits. These statistics suggest that business scandals, such as illegal actions and financial misstatements, are the most common triggering events of derivative lawsuits.

Ferris et al. (2007) also provides a summary of the litigation causes. In their sample, the most common cause of litigation is breach of the duty of care (41%), followed by breach of the duty of loyalty (27%), mishandling of information (18%), and merger (7%). We do not have the detailed information to accurately distinguish between lawsuits alleging breach of the duty of care and those alleging breach of the duty of loyalty. Nevertheless, lawsuits involving executive compensation is most closely associated with the duty of loyalty as they often allege that the defendant officers and directors unjustly enrich themselves or executives by awarding too much compensation. Moreover, lawsuits involving bad business decisions are most closely related to the duty of care as they often allege that the defendants fail to make decisions in the best interest of the firm. Thus, compared to Ferris et al. (2007)'s sample, our sample has a much higher

proportion of lawsuits involving financial misstatements (18% in Ferris et al.'s sample vis-à-vis 26% in our sample) and a much lower proportion of lawsuits involving breach of care (41% vis-à-vis 34%). Ferris et al. mentioned a 1985 court ruling that encouraged the duty of care suits, which could partially explain why their sample has a higher proportion of suits alleging breach of the duty of care. New securities regulations that were adopted in early 2000s, such as the Sarbanes-Oxley Act, that increased the legal burdens of directors and officers in terms of financial statements could also explain why we have a higher proportion of lawsuits involving financial misstatements.

The right half of Table IA1 shows the outcome of the lawsuits. Half of the lawsuits in this random sample were dismissed, and more than 40% were settled. These descriptive statistics are very similar to those of securities class actions: Cornerstone Research's 2017 review of securities class action filings show that 50% of the lawsuits filed between 1997 and 2016 were settled and 43% were dismissed. We find that only lawsuits arising from option backdating are more likely to be settled than dismissed. The percentage of settled lawsuits in our sample, 42.5%, is slightly higher than the 30% in Erickson (2010) but much lower than the 63% in Ferris et al. (2007). One potential reason for why Ferris et al. (2007) find such a large proportion of settled derivative suits could be that the derivative suits in their sample were material enough to attract media attention or have important court rulings in Lexis-Nexis.

In addition to the causes and outcome of derivative suits, we also collect the court in which these lawsuits were filed. Although we keep only the lawsuit the was filed first if there are several lawsuits filed for the same reason, we record the venue of all related lawsuits. Hence, one case may be recorded as being filed in both state and federal courts if some of its related suits were filed in state courts and others in federal courts. Table IA2 shows the venue of these derivative lawsuits. The majority of derivative suits were filed in state court (140 out of 200 cases, or 70%), and almost half of these suits were also filed in federal court. There are more lawsuits filed only in state court (75 suits) than those filed only in federal court (59 suits). Unlike securities class actions, which are filed almost exclusively in federal court, derivative suits are more evenly distributed between federal and state courts. We do not find that the stated reasons are associated with the choice of venue for derivative suits (results are untabulated).

Although the size of this random sample is not large, we still do a simple analysis of the determinants of litigation outcome. We compare several firm characteristics in the lawsuit filing year and the causes of the lawsuits for dismissed and settled lawsuits. Table IA3 shows that, compared to dismissed lawsuits, settled lawsuits involve firms with a lower E-index, a higher proportion of busy directors, and smaller total assets. These results could explain why firms with lower E-index and more busy directors are more likely to be sued, as the higher likelihood of settlement represents a higher likelihood that plaintiffs' attorney fees are paid by the firms involved in the lawsuits. Regarding litigation causes, Table IA3 shows that lawsuits involving option backdating allegations are more likely to be settled and those challenging business decisions are less likely to be settled. In contrast, Ferris et al. (2007)'s sample shows that the number of settled cases is always higher than that of dismissed cases regardless of the litigation cause. The difference is again likely because Ferris et al.'s sample is composed of material cases.

Internet Appendix II (cont'd)

Table IA1: Stated reasons of the lawsuits

Outcome				Dismissed		Settled	
Reason	N	%	Cumulative %	N	%	N	%
Executive compensation							
Option backdating	47	23.5%		15	14.7%	30	35.3%
Other	20	10.0%		11	10.8%	9	10.6%
Compensation – Total	67	33.5%	33.5%	26	25.5%	39	45.9%
Financial misstatements							
Accounting	28	14.0%		17	16.7%	10	11.8%
Forecasts and other non-GAAP disclosures	23	11.5%		16	15.7%	6	7.1%
Financial misstatements – Total	51	25.5%	59.0%	33	32.4%	16	18.8%
Bad business decisions							
Compliance failure	48	24.0%		29	28.4%	15	17.6%
Disputable decisions	7	3.5%		3	2.9%	3	3.5%
Bad decisions – Total	55	27.5%	86.5%	32	31.4%	18	21.2%
Merger							
Acquirer	11	5.5%		3	2.9%	6	7.1%
Target	1	0.5%		0	0.0%	0	0.0%
Merger terminated or proposal rejected	3	1.5%		2	2.0%	0	0.0%
Merger – Total	15	7.5%	94.0%	5	4.9%	6	7.1%
Not disclosed	12	6.0%	100.0%	6	5.9%	6	7.1%
Total	200	100.0%		102	100.0%	85	100.0%
Distribution of outcome		100.0%			51.0%		42.5%

* “N/A”: Not available because firm was deregistered (n=10) or firm stopped disclosure (n=1)

Internet Appendix II (cont'd)

Table IA2: Litigation location

	Not in Fed	In Fed	Total
Not in state	1 (n.a.)	59	60
In state	75	65	140
Total	76	124	200

Table IA3: Determinants of litigation outcome

	Dismissed		Settled		Mean Diff. (Settled – Dismissed)
	Mean	N	Mean	N	
E-index	3.120	108	2.759	87	-0.362*
UDLaw	0.108	111	0.057	87	-0.051
Bd_Busy	0.112	106	0.155	74	0.042*
Bd_Indep	0.780	106	0.759	74	-0.022
LnAssets	8.978	111	8.134	87	-0.844***
Financial misstatements	0.315	111	0.218	87	-0.097
Option backdating	0.144	111	0.322	87	0.178***
Compensation – other	0.108	111	0.103	87	-0.005
Merger	0.045	111	0.080	87	0.035
Bad business decisions	0.324	111	0.207	87	-0.117*
Parallel class actions	0.405	111	0.368	87	-0.038

Internet Appendix III

Sensitivity Analysis – Inclusions of Routine Insider Trades

Table IA4: Sensitivity analysis of including Routine Insider Trades in Table 4 Specifications

	Insider Trading	All Variables
	(1)	(2)
E-index		-0.213*** (-4.778)
Bd_Indep		-0.541 (-1.017)
Bd_Busy		0.720 (1.351)
Freq_OpBuy	0.009 (0.263)	-0.034 (-0.581)
Freq_OpSale	0.011 (1.209)	0.014 (1.178)
Freq_RtBuy	-0.034 (-1.293)	0.005 (0.135)
Freq_RtSale	-0.005 (-1.326)	-0.006 (-1.364)
Control Variables	Y	Y
constant	-6.812*** (-30.100)	-5.303*** (-12.651)
N	24,144	12,699
Pseudo R ²	0.282	0.250
AUC	0.862	0.841

This table presents the logit model of estimating the probability of being sued in derivative lawsuits. The dependent variable is DL, an indicator variable that equals one if there is a derivative suit filed against the firm in the year, and zero otherwise. z-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.

Internet Appendix III (cont'd)

Table IA5: Routine Insider Trades per Table 7 Specifications

	Routine Insider Trading			
	Frequency		Volume	
	Buy	Sale	Buy	Sale
	(1)	(2)	(3)	(4)
Panel A: DL only				
Post	0.127	-0.946	0.181	0.102
	(0.866)	(-0.549)	(0.627)	(0.154)
Post × Sued	-0.847	3.338	-0.240	-0.251
	(-1.040)	(1.006)	(-0.514)	(-0.275)
constant	0.657***	6.872***	0.939***	7.023***
	(3.160)	(8.114)	(7.889)	(30.097)
Firm FE	Y	Y	Y	Y
N	1,050	1,050	1,050	1,050
Adjusted R ²	0.572	0.599	0.510	0.612
Panel B: CAL only				
Post	-0.344	0.251	-0.261	0.073
	(-1.519)	(0.172)	(-0.807)	(0.167)
Post × Sued	-0.062	-2.439	-0.122	-0.907
	(-0.139)	(-1.058)	(-0.246)	(-1.155)
constant	0.635***	9.211***	1.122***	6.967***
	(6.221)	(17.340)	(9.849)	(38.499)
Firm FE	Y	Y	Y	Y
N	1,358	1,358	1,358	1,358
Adjusted R ²	0.544	0.735	0.422	0.652
Panel C: DL and CAL				
Post	-0.224*	-1.530	-0.692	-0.370
	(-1.750)	(-0.658)	(-1.470)	(-0.499)
Post × Sued	0.021	-1.483	0.136	-0.725
	(0.057)	(-0.568)	(0.210)	(-0.637)
constant	0.459***	8.707***	1.244***	7.166***
	(4.915)	(13.008)	(7.483)	(24.520)
Firm FE	Y	Y	Y	Y
N	752	752	752	752
Adjusted R ²	0.401	0.637	0.455	0.567

This table presents the ordinary least squares (OLS) model of insider trading using two years before and two years after the lawsuit filing year. Post is an indicator variable that equals one for years after the lawsuit filing and zero otherwise. Sued is an indicator variable that equals one for firms sued, and zero for control firms. Each sued firm is matched with a control firm in the same size decile and industry in the year before lawsuit filing. All regressions include firm dummies. The sample does not include years when either the sued or the control firms have missing data. t-statistics are reported in parentheses. Standard errors are clustered at the firm level. ***, ** and * denote statistical significance at the 1%, 5% and 10% (two-tail) levels, respectively. All variables are as defined in Appendix C.