Shareholder Litigation Rights, CEO Turnover, and Board Monitoring*

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Abstract

We investigate how shareholder litigation rights impact CEO turnover decisions and board oversight. We exploit an unexpected court ruling that increased hurdles for shareholders of Ninth Circuit firms to initiate securities class action lawsuits. After the ruling, the sensitivity of forced CEO turnover to performance decreases for firms in the Ninth Circuit. Additionally, board independence declines and directors of Ninth Circuit firms attend fewer meetings and hold more external board positions after the decision. These effects are exacerbated in firms that lack monitoring from institutional shareholders. For firms dependent on shareholder litigation, the reduction in litigation rights was economically significant and led to a 9.72% decline in firm value.

Keywords: Shareholder litigation rights, securities class action lawsuit, CEO turnover, board monitoring

JEL Classifications: G 30, G 34, K 22, K 41

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1. Introduction

Shareholder litigation can play an important role in corporate governance by providing shareholders with a means to seek recourse after wrongdoing by corporate officers or directors (Shleifer and Vishny, 1997; Porta et al., 1998).[1] While many previous studies focus on the impact of actual lawsuits on governance or on the substitution of shareholder litigation rights for shareholder monitoring (Crane and Koch, 2018; Arena and Julio, 2023), little evidence on the direct effect of ex ante litigation rights on board oversight exists. Since shareholder litigation can impose significant reputational costs on directors and limit their career prospects (Fich and Shivdasani, 2007; Ferris et al., 2007; Liu et al., 2016), directors have heightened incentives to monitor when the firm operates in a strong litigious environment. In this paper, we test whether directors are sensitive to such monitoring incentives by studying the effect of shareholder litigation rights on CEO turnover decisions.

Selecting a CEO who will maximise shareholder value is one of the most important functions of the board of directors. In the event that the CEO fails to maximise value for shareholders, it is the board of directors' responsibility to dismiss the incumbent CEO. However, whether directors adequately perform this duty depends on their incentives to monitor and act in shareholders' interests. Directors who have inadequate incentives, who have become captured by the CEO, or who are distracted may fail to fire an under-performing CEO (Hwang and Kim, 2009; Coles et al., 2014; Guo and Masulis, 2015; Chen et al., 2019; Masulis and Zhang, 2019; Liu et al., 2020). We hypothesise that, through enhancing directors' monitoring incentives, shareholder litigation rights can increase the likelihood that the board dismisses an underperforming CEO.

Studying the effect of litigation risk on firm outcomes is complicated for several reasons. First, litigation risk is unobservable and therefore difficult to empirically measure. Second, any potential proxy for litigation risk is likely to be correlated with unobservable firm characteristics. For example, early studies employ measures of litigation risk such as industry membership or estimated litigation probabilities based on regressions of actual

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[1]Previous empirical studies show that firms face a higher cost of capital when shareholders' ability to discipline managers through legal action is reduced (Houston et al., 2018; Ni and Yin, 2018).

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lawsuits on corporate behavior (Francis et al., 1994; Arena and Julio, 2023; Arena and Julio, 2015; Kim and Skinner, 2012). However, these measures are likely correlated with unobserved firm characteristics and are therefore likely subject to endogeneity concerns.

To overcome potential endogeneity issues, our empirical strategy exploits a 1999 Ninth Circuit Court of Appeals ruling. The Private Securities Litigation Reform Act (PSLRA) requires proof of scienter for plaintiffs in securities class actions. Proof of scienter requires plaintiffs to demonstrate knowledge of wrongdoing. On July 2 1999, the Ninth Circuit Court of Appeals made a ruling that made it more difficult for plaintiffs in the circuit to satisfy this requirement (Re: Silicon Graphics Inc. Securities Litigation, 183 F.3d 970): to form a class, plaintiffs must show that the defendants acted with deliberate recklessness, which is a stricter requirement compared to other circuits. This decision by the Ninth Circuit Court of Appeals increased the difficulty for plaintiffs to initiate a securities class action lawsuit (Pritchard and Sale, 2005), thereby reducing litigation risk for firms in this circuit.

The Ninth Circuit court ruling is an ideal setting to test the effect of litigation risk on CEO turnover and board monitoring for several reasons. First, since the interpretation of the pleading standard in Silicon Graphics Inc. was made by a panel of 3 judges randomly selected from the pool of 23 judges within the circuit, it is unlikely to be related to corporate governance within the circuit. As Crane and Koch (2018) point out, the decision was split 2 to 1 and therefore may be attributed to a difference in opinion by the judges. Second, the Ninth Circuit was considered one of the most plaintiff-friendly circuits, with a high volume of securities class action litigation (Pritchard and Sale, 2005). Thus, the strict interpretation of the pleading standard came as a surprise. Finally, the Ninth Circuit Court ruling had a meaningful impact on Securities Class Action lawsuit filings. Crane and Koch (2018) document a 43 percent decline in lawsuit filings in the second half of 1999 in the Ninth Circuit compared to a 14 percent rise in other circuits.[2] Thus, the Ninth Circuit court ruling is a plausible exogenous shock to shareholders' litigation rights.

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[2]In our sample of firms, we find a 2.7 percentage point decline in the probability of a securities class action lawsuit being filed against a Ninth Circuit firm in the four-year period after the ruling relative to a non-Ninth Circuit firm.

We focus on the sensitivity of CEO turnover to stock returns before and after litigation rights were reduced by the Ninth Circuit court ruling.[3] We find a decline in the sensitivity of forced CEO turnover to stock returns for firms that are located in a Ninth Circuit state after the court ruling, suggesting that CEOs are less likely to be dismissed after poor performance when shareholder litigation rights are restricted. In addition to being statistically significant, our results are economically large. We estimate that the probability of a forced CEO dismissal increases by 1.04 percentage points for a one standard deviation decline in the firm's stock return for a firm outside of the Ninth Circuit. In contrast, for a firm in the Ninth Circuit, the probability of a forced CEO dismissal decreases by 0.13 percentage points for a one standard deviation decline in the firm's stock return.[4] Our results are similar in magnitude to Dah et al. (2014), who study the effect of board changes induced by the Sarbanes-Oxley Act on CEO turnover-performance sensitivity.[5]

The second key contribution of our paper to the corporate governance literature is to identify the channel through which the Ninth Circuit court ruling reduces CEO turnover-performance sensitivity. We hypothesise that this reduction should be more pronounced for firms that are ex-ante more reliant on shareholder litigation rights to induce effective board monitoring. We use ex-ante institutional ownership to proxy for firms' reliance on the threat of litigation. Institutional owners can influence firms through active monitoring or the threat of exit and are therefore less likely to rely on litigation to discipline managers (i.e. institutional monitoring can act as a substitute for litigation). Consistent with this notion, we find that our main results are concentrated among firms that have relatively low levels of pre-shock institutional ownership and firms that do not experience an increase in institutional ownership after the ruling (Crane and Koch, 2018).

Next, to further substantiate the argument that reduced litigation risk dampens director monitoring incentives, we examine other measures of director monitoring. Consistent

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[3] The main results of this paper use firms' raw stock returns (while controlling for industry performance) as a proxy for CEO performance. However, directors may not consider raw stock returns when evaluating CEO turnover decisions since raw stock returns may include systemic factors that are out of the CEO's control. Thus, raw stock returns may not be informative of the CEO's performance. Therefore, we repeat our main analysis using firms' industry-adjusted stock return and report results consistent with our main tests.

[4] These calculations are based on the coefficient estimates in column 5 of Table 2

[5] Dah et al. (2014)'s analysis uses a logistic regression with industry fixed effects to study the effect of a reduction in the number of independent directors on boards on CEO-turnover performance sensitivity. The coefficient on Treat*POST*Performance in column 2 of their table 8 is 1.796. This compares with 1.448 in column 2 of our Table 9.

with directors exerting less monitoring effort when they face lower litigation risk, we find that directors of Ninth Circuit firms attend fewer meetings after the court ruling. This finding is particularly pervasive among directors who are members of the audit committee, likely because these directors face the greatest reputational costs from securities class action lawsuits.[6]

We further examine the number of external board positions held by directors. If directors exert less monitoring effort when they face lower litigation risk, then this should free up capacity for them to take on additional board positions (Fich and Shivdasani, 2006). Consistent with this argument, we find an increase in the number of positions for directors who sit on at least one Ninth Circuit board following the court ruling.

Finally, we study whether the Ninth Circuit court ruling impacted the composition of corporate boards. Firms may alter the structure of their board when they face less backlash from shareholders in order to reduce the efficacy of monitoring. Consistent with this line of thought, we provide evidence of a decline in the fraction of independent directors that sit on Ninth Circuit firms' boards relative to other firms after the court decision. Broadly, our results on director busyness and board independence support the findings of Huang et al. (2020) and Islam and Rahman (2023) who find suggestive evidence of a decline in board monitoring after the Ninth Circuit court ruling. Moreover, the board independence results complement Dah et al. (2014) who find that the Sarbanes Oxley Act led to a decline in board independence for some firms and a subsequent reduction in CEO turnover-performance sensitivity.

Our results highlight the importance of shareholder litigation rights in inducing board monitoring. However, shareholder litigation has potential adverse consequences. Managers may act myopically and prioritize short-term goals at the expense of long-term performance in order to avoid frivolous litigation. Evidence of this channel is found by Hassan et al. (2021), who show an increase in innovation after the Ninth Circuit court ruling. Therefore, in our final tests, we attempt to measure the net effect of the Ninth Circuit court ruling on firm value.[7]

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[6] For example, Brochet and Srinivasan (2014) find that audit committee members are more likely to be named as defendants in securities class actions.

[7] As a starting point, we attempt to measure the expected reduction in litigation costs for Ninth Circuit firms post-

We explore the effect of the Ninth Circuit court ruling on Tobin's q to determine the decision's overall impact on firm value. For these tests, we isolate firms that rely on shareholder litigation to induce board monitoring prior to the court ruling. Specifically, we follow Crane and Koch (2018) and conduct the analysis separately for firms with high and low pre-court ruling dedicated institutional ownership. The reason for this partitioning is that firms with high levels of pre-court ruling institutional ownership may not experience an overall decline in monitoring since high institutional ownership can partially substitute for board monitoring (Liu et al., 2020). These tests reveal a reduction in Tobin's q after the court ruling for firms with low levels of institutional ownership.[8] The magnitude of this reduction is large, representing 9.72% of firm value. Overall, our results indicate that the court ruling destroyed value for firms that are dependent on shareholder litigation.

One interesting insight revealed from these tests is that firms with high institutional ownership experience an increase in firm value after the court ruling. We conjecture that reduced access to litigation benefits these firms by promoting managerial risk-taking and reducing managerial myopia. We find evidence in support of this notion by reporting that firms that are monitored by institutional shareholders experience an increase in risk taking after the court ruling. Overall, our results on firm value suggest that shareholder litigation rights are an important governance mechanism for firms that rely on the threat of litigation to incentivise directors to monitor in shareholders' interests.

The main results of this paper are robust to alternative econometric models and various other settings. First, the main tests use ordinary least squares with firm and year fixed effects to examine the effect of the Ninth Circuit court ruling on CEO turnover. The same inference is drawn when we use either logistic regressions or a Cox proportional hazard model, as is common in other papers that examine CEO turnover (Jenter and Kanaan, 2015; Jenter and Lewellen, 2021). Second, the results are robust to the exclusion of technology firms, which experienced the dotcom bubble burst in 2000, and are robust

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ruling. For S&P 1500 firms, we estimate a 2.9 percentage point decline in the annual probability of a securities class action lawsuit for Ninth Circuit firms after the court ruling (unreported). The securities class action lawsuit data is from the Stanford Securities Class Action Lawsuit Clearinghouse (SCAC). We are grateful to Emdad Islam for providing the Compustat-SCAC link. Given the average settlement amount of $34 million during our sample period, this equates to an expected reduction in litigation costs of approximately $1 million per year.

[8]These results are qualitatively similar if we partition the sample by firms that experience a positive change and firms the experience a decline or no change in institutional ownership.

to controlling for industry and state dynamics by including industry-year and state-year fixed effects respectively in place of year fixed effects. Third, the main results hold in an entropy balanced sample, which further alleviates concerns that the main results are driven by unobserved firm heterogeneity.

Finally, shareholders may pursue a derivative lawsuit instead of a securities class action lawsuit. Since shareholders have multiple avenues to pursue litigation, we test if the main results are unique to securities class action lawsuits, or if they hold more generally for other types of litigation. Specifically, we exploit the staggered adoption of universal demand (UD) laws across 23 US states, which significantly raise procedural hurdles for shareholders seeking to initiate a derivative lawsuit.[9] Consistent with the Ninth Circuit ruling, we find that CEO turnover-performance sensitivity is lower after the adoption of UD laws. Since the adoption of UD laws is staggered through time, these results address concerns that the documented effect is limited to one specific event or time-period.

We contribute to the literature on the role of shareholder litigation rights in corporate governance. Despite being the subject of a comprehensive literature, empirical evidence on whether litigation rights improves governance is mixed (Shleifer and Vishny, 1997; Porta et al., 1998; Alexander, 1990; Helland, 2006; Crane and Koch, 2018; Islam and Rahman, 2023; Freund et al., 2023). A number of these papers focus on the substitution of litigation rights for other governance mechanisms, or on the impact of actual lawsuits on governance. However, evidence on the direct effect of litigation rights on director monitoring is sparse. Our paper fills this gap by showing that shareholder litigation rights improve board monitoring and overall firm value in the absence of monitoring by sophisticated institutional owners. Our results complement the results of Crane and Koch (2018) by showing that litigation rights are especially important when adjustments in ownership are unable to substitute for litigation.

This paper also contributes to the literature that studies how firms choose and monitor their CEO. While studies generally find that CEO turnover is correlated with per-

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[9]Studies in this area have found that the adoption of UD laws are associated with worsening corporate governance, lower cash holdings, a higher cost of capital, increased insider trading, and increased CEO compensation (Houston et al., 2018; Nguyen et al., 2018; Appel, 2019).

formance[10] some studies suggest that this relation is modest.[11] Multiple studies suggest that the weak relation between CEO turnover and performance can be explained by poor corporate governance and entrenchment.[12] Our paper extends this literature by showing that the lack of external pressure from shareholders can reduce the correlation between CEO turnover and performance.

Finally, Liu et al. (2020) point out that little is known about how shareholder monitoring affects board oversight. We make a contribution to this literature by showing that board oversight is enhanced when shareholders possess tools such as litigation to discipline managers.

2. Background on the Ninth Circuit Court ruling

2.1. Background

A securities class action is a means by which a large group of investors can recover damages from firms after fraudulent statements by top managers. Since defending securities class actions can be very costly, defendants often opt to settle suits quickly. Thus, historically, many securities class action lawsuits have been frivolous and are simply a means for plaintiff law firms to extract a quick settlement. In response, the US Congress enacted the Private Securities Litigation Reform Act (PSLRA) in 1995, which requires plaintiffs to provide proof of scienter (the defendant acted with intent or knowledge of wrong-doing). However, the exact interpretation of the pleading standard is left to each circuit court.

On July 2, 1999, the Ninth Circuit Court of Appeals issued a ruling (Re: Silicon Graphics Inc. Securities Litigation, 183 F. 3d 970) that resulted in a stricter interpretation of the pleading standard compared to other circuits (Johnson et al., 1999). The Ninth Circuit court ruled that "plaintiffs proceeding under the PSLRA must plead, in great detail, facts that constitute strong circumstantial evidence of deliberately reck-

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[10]See Coughlan and Schmidt (1985), Warner et al. (1988), Weisbach (1988), Hirshleifer and Thakor (1994), Hirshleifer and Thakor (1998), Eisfeldt and Kuhnen (2013), Jenter and Kanaan (2015), Jenter and Lewellen (2021), and Colak et al. (2024).

[11]One potential explanation for a weak relation is CEO tenure. In particular, Dikolli et al. (2014) show that boards rely less on performance signals to evaluate CEO skill for long-tenured CEOs as their estimate of CEO skill becomes more precise over time.

[12]See Weisbach (1988), Guo and Masulis (2015), Fich and Shivdasani (2007), Hwang and Kim (2009), Coles et al. (2014), and Chen et al. (2019).

less or conscious misconduct." This requirement is stricter compared to other circuits, which merely require plaintiffs to provide facts showing simple recklessness or a motive to commit fraud and the opportunity to do so.

Empirical evidence suggests that this decision by the Ninth Circuit Court of Appeals reduced the number of securities class action lawsuits filed in the Ninth Circuit. Pritchard and Sale (2005) find evidence that the rate of lawsuit dismissal is higher in the Ninth Circuit compared to the Second Circuit after the Silicon Graphics decision, and Crane and Koch (2018) find a reduction in the number of lawsuits filed in the Ninth Circuit after the decision. Overall, it is likely that the Silicon Graphics decision represents an exogenous shock to litigation risk for Ninth Circuit firms. Especially since, prior to the decision, the Ninth Circuit was regarded as one of the least strict circuits for plaintiffs.

In empirical tests, we use firms' state of headquarters to determine where they are most likely to be sued. The Ninth Circuit includes the following states: Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington. Thus, our treated group comprises firms in these states. Overall, around 25% of S&P1500 firms are incorporate in ninth circuit states.

2.2. *Previous research and our contribution*

Indeed, prior research finds that the 1999 Ninth Circuit Court of Appeals decision impacted firm behaviour. Crane and Koch (2018) find evidence that corporate ownership becomes more concentrated and shifts from individuals to institutions after the court ruling, likely because litigation becomes too costly for individuals. Arena et al. (2021) and Huang et al. (2020) find an increase in corporate tax avoidance and real earnings management, respectively, after the Ninth Circuit court ruling. Both of these studies report evidence that their findings are likely managerial motivated. On the other hand, Hassan et al. (2021) find that strong shareholder litigation rights prior to the court ruling promote myopic behaviour, as firms increase R&D after the court ruling.

However, despite the vast literature on the role of shareholder litigation in corporate governance, there is little evidence on the direct effect of access to litigation on board

monitoring. Our study contributes to the literature by filling this important gap. Our results provide evidence that the threat of litigation has a direct impact on board monitoring quality.

Our results are most related to Crane and Koch (2018), who show that corporate ownership becomes more concentrated when access to litigation is restricted, likely because a large number of small owners are less effective at monitoring. Our study adds to these findings by showing that, when adjustment in ownership structure is too costly, board monitoring quality declines. Further tests indeed reveal an increase in firm value for firms that can substitute the loss of access to litigation with shareholder monitoring and a decline in firm value for firms in which adjustment is too costly.

2.3. Beyond Silicon Graphics Inc. Securities Litigation

As discussed, the decision by the Ninth Circuit Court of Appeals in Re: Silicon Graphics Inc. Securities Litigation, 183 F. 3d 970 came as a surprise. Especially since the Ninth Circuit was regarded as one of the more plaintiff-friendly circuits. This raised the question as to whether other circuits would follow the strict interpretation of the pleading standard set by the Ninth Circuit Court of Appeals. In 2007, the US Supreme Court made an interpretation of the proof of scienter required by the PSLRA that increased the hurdles to securities litigation for all circuits (Tellabs Inc v Makor Issues & Rights, Ltd.). Instead of being able to deduce scienter from the alleged facts of the case, shareholders must also demonstrate that fraud is at least as likely as other explanations. Since this decision was made by the US Supreme Court, it levels the playing field across all circuits by binding appellate courts.

In unreported tests, we find evidence that the Supreme Court's 2007 decision reduced the sensitivity of CEO turnover to performance for firms outside of the Ninth Circuit relative to Ninth Circuit firms. We further find a reduction in firm value for non-Ninth Circuit firms after this decision. Thus, while the focus of this study is on the general effect of litigation rights on board monitoring, and the 1999 court ruling is simply the setting, it appears that the documented effect is likely relevant today since the requirements to

succeed with securities litigation are consistent across all circuits.

3. Research design, variables, and data

3.1. Empirical model

Our empirical strategy exploits the 1999 Ninth Circuit Court of Appeals ruling in Re: Silicon Graphics Inc. Securities Litigation, 183 F.3d 970 in order to examine the impact of reduced shareholder litigation rights on the sensitivity of CEO turnover to performance. We estimate the following difference-in-differences (DiD) specification following Dasgupta et al. (2018) and Wu and Zhang (2019):[13]

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\begin{aligned}
\text{Turnover}_{it} =& \beta_1 \text{Ninth Circuit}_s + \beta_2 \text{Post}_t + \beta_3 \text{Ninth Circuit}_s * \text{Post}_t + \beta_4 \text{Performance}_{it} \\
& + \beta_5 \text{Ninth Circuit}_s * \text{Performance}_{it} + \beta_6 \text{Post}_t * \text{Performance}_{it} \\
& + \beta_7 \text{Ninth Circuit}_s * \text{Post}_t * \text{Performance}_{it} + \varepsilon_{ist}
\end{aligned}
\tag{1}
$$

Where i indexes firms, s indexes firms' state of incorporation, and t indexes years. Turnover is a dummy variable that is equal to one if the firm experiences a forced CEO turnover in the year t and 0 otherwise, performance is the firm's annual stock return, Ninth Circuit is a dummy variable equal to one if the firm's headquarters are in the Ninth Circuit (Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington), and Post is a dummy variable equal to one if the year is 2000-2003.

The main focus of this paper is whether turnover is less sensitive to performance in Ninth Circuit firms after the Ninth Circuit court ruling. The coefficient on performance (β_4) is performance-turnover sensitivity for non-Ninth Circuit firms before the 1999 court ruling. The coefficient on the interaction term (β_7) is the change in turnover-performance sensitivity for Ninth Circuit firms relative to non-Ninth Circuit firms after the 1999 court ruling. Thus, this interaction term is the main coefficient of interest. If turnover is

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[13] The main tests use OLS. Because the main dependent variable of interest is binary, we report results from nonlinear models as robustness tests.

sensitive to performance, then β_4 is expected to be negative. If turnover is less sensitive to performance after the court ruling, then β_7 is expected to be positive.

The main tests use a linear probability model (estimated using ordinary least squares). However, previous papers that study CEO turnover employ non-linear models such as logistic or Cox proportional hazard regressions (Jenter and Kanaan, 2015; Jenter and Lewellen, 2021). Therefore, we also estimate equation (1) using these alternative methodologies as robustness tests.

3.2. CEO turnover

We focus on forced CEO dismissals as the main dependent variable. We identify forced CEO turnovers from the CEO dismissal database (Gentry et al., 2021). The CEO dismissal database groups the reason for a CEO departure into 9 categories.[14] Of these 9 categories, we focus on category (3) (Involuntary – CEO dismissed for job performance), which is defined as 'the CEO stepped down for reasons related to job performance. This included situations where the CEO was immediately terminated as well as when the CEO was given some transition period, but the media coverage was negative. Often the media cited financial performance or some other failing of CEO job performance (e.g., leadership deficiencies, innovation weaknesses, etc.).'

3.3. Performance measures

The main measure of performance that we consider in this study is the firm's stock return. The main tests use the firm's raw annual stock return. However, raw stock return may not be informative of the CEO's individual performance, as it may include systemic factors that are out of the CEO's control. Hence, as a robustness test, we use the firm's excess return relative to their two-digit SIC industry peers and re-estimate equation (1) using excess stock returns as a proxy for CEO performance.

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[14]These categories include: (1) Involuntary - CEO death, (2) Involuntary - CEO illness, (3) Involuntary – CEO dismissed for job performance, (4) Involuntary - CEO dismissed for personal issues, (5) Voluntary - CEO retired, (6) Voluntary - new opportunity (new career driven succession), (7) Other, (8) Missing, (9) Execucomp error.

3.4. Data sources

Data on CEO turnover comes from the ExecuComp database by identifying instances where there is a change of CEO. Of these turnover events, we identify which are forced from the CEO dismissal database (Gentry et al., 2021).[15] We also obtain information about CEOs' equity holdings, compensation, age, and tenure from ExecuComp. We obtain data on firms' accounting performance and control variables from the Compustat database, data on firms' stock market performance from CRSP, and institutional ownership data from the Thomson Reuters 13f filing database. We further collect information on director meeting attendance and other board characteristics from Institutional Shareholder Services (ISS).

3.5. Sample and summary statistics

The main sample in this study consists of 7,535 firm-year observations, which covers 1,657 firms and spans the period 1995-2003, excluding 1999 (the year of the Ninth Circuit court ruling). We exclude utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms from the sample. We require firms to have non-missing data for the main and control variables, and to have at least one year of data in both the pre (1995-1998) and post (2000-2003) period. In total, of the 1,657 firms in the sample, 374 are incorporated in a state in the Ninth Circuit; and of the 7,535 firm-years, 1,664 are of firms in the Ninth Circuit. Table 1 presents summary statistics for the main variables considered in this study. It shows that a CEO turnover occurs in approximately 16% of all firm-years, and that a forced turnover occurs in approximately 2% of all firm-years.

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[15]The CEO dismissal database can be accessed here.

4. Results and discussion

4.1. Multivariate tests of the Ninth Circuit court ruling on CEO turnover-performance sensitivity

This section presents multivariate tests of the effect of the Ninth Circuit court ruling on the sensitivity of CEO turnover to performance from equation (1). Coefficient estimates are presented in Table 2. For each specification, we present results with and without control variables. Models (1) and (2) do not use fixed effects, models (3) and (4) include industry and year fixed effects, and models (5) and (6) include firm and year fixed effects. Standard errors are clustered at the state level.[16]

As expected, stock return is negative and significant in all but one model in Table 2, meaning that CEOs are more likely to be dismissed if the firm's stock market performance is poor. Moreover, the main variable of interest, Ninth Circuit*Post*Stock return, which is the difference in the change in CEO performance-sensitivity between Ninth Circuit and non-Ninth Circuit firms before and after the court ruling, is positive and significant in all specifications. t-statistics range from 2.90 to 4.65. A positive coefficient suggests that CEOs of Ninth Circuit firms are less likely to experience a forced dismissal after poor stock market performance after the court ruling. Economically, the probability of a forced CEO dismissal increases by 1.04 percentage points for a one standard deviation decrease in the firm's stock return for a firm outside of the Ninth Circuit. In contrast, for a firm in the Ninth Circuit, the probability of a forced CEO dismissal decreases by 0.13 percentage points for a one standard deviation decrease in the firm's stock return.[17]

Overall, our baseline results indicate that director monitoring quality declines after the Ninth Circuit court ruling, resulting in a lower sensitivity of CEO turnover to performance. Previous papers provide suggestive evidence that litigation risk and the Ninth Circuit court ruling in particular reduces director monitoring quality. For example, Huang et al. (2020) find that firms increase real earnings management after the Ninth Circuit court ruling, Islam and Rahman (2023) find that CEOs reduce risky investment after the

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[16]Results are robust to clustering standard errors at the firm and firm-year levels.
[17]These calculations are based on the coefficients on column (5).

Ninth Circuit Court ruling, and Chung et al. (2020) find that managers more frequently engage in empire building and value-destroying acquisitions after the court ruling. Our paper extends these studies by showing that, despite being more likely to engage in value-destroying activities, CEOs are not more likely to be fired for poor performance.

Further, many researchers argue that the observed rate of CEO turnovers is low and that the effect of performance on turnover is modest (Taylor, 2010; Jenter and Lewellen, 2021). Several explanations have been put forth to explain this somewhat puzzling observation. One such explanation is that directors' knowledge of CEO skill becomes more precise over time and therefore they rely less on performance to infer CEO skill, leading to a weak correlation between performance measures and CEO turnover. Consistent with this notion, Dikolli et al. (2014) report evidence that turnover-performance sensitivity declines over a CEO's tenure.

Another possible explanation for the weak relation between CEO turnover and performance is entrenchment and poor corporate governance (Weisbach, 1988; Hermalin and Weisbach, 1998; Taylor, 2010). Several papers find evidence for this hypothesis. Empirically, CEO turnover-performance sensitivity is lower when there are fewer outside directors on the board (Weisbach, 1988; Guo and Masulis, 2015), when the board is busy (Fich and Shivdasani, 2007; Masulis and Zhang, 2019), when directors have social ties to the CEO (Hwang and Kim, 2009), and when directors are captured by the CEO (Coles et al., 2014; Chen et al., 2019). Our paper extends this literature by examining whether the external environment in which the firm operates can influence the relation between CEO turnover and performance.

4.2. Tests of parallel trends assumption

In this section, we test the validity of the difference-in-differences setting by investigating the parallel trends assumption. This assumption requires that, in the absence of treatment, the difference in the outcome variable of interest between the treatment and control groups is constant through time. To test this assumption, we re-estimate equation (1) and include a series of dummy variables for each year relative to the Ninth Circuit

court ruling. Since we are interested in the effect of the court ruling on the sensitivity of turnover to performance, we interact each of these dummy variables with stock return and with the Ninth Circuit dummy:

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\begin{aligned}
\text{Turnover}_{it} = \sum_{t=1995}^{2003} \alpha_t \text{Ninth Circuit}_s * \text{I(t)} + \beta_1 \text{Performance}_{it} + \beta_2 \text{Ninth Circuit}_s * \text{Performance}_{it} \\
+ \sum_{t=1995}^{2003} \delta_t \text{I(t)} * \text{Performance}_{it} + \sum_{t=1995}^{2003} \theta_t \text{Ninth Circuit}_s * \text{I(t)} * \text{Performance}_{it} \\
+ \omega_i + \tau_t + \varepsilon_{ist} \qquad\qquad (2)
\end{aligned}
$$

Results from the parallel trends tests are presented in Table 3. Column (1) shows results without control variables and column (2) shows results with control variables. In both models, Ninth Circuit*I(1996), Ninth Circuit*I(1997), and Ninth Circuit*I(1998) are statistically insignificant.

Further, in both column (1) and column (2) of Table 3, we find that the interaction of the pre-treatment dummies with stock return are also statistically indistinguishable from 0. This finding suggests that there is no difference in the sensitivity of forced CEO dismissals to stock returns between treatment and control firms prior to the 1999 court ruling. However, we find that the interaction of Ninth Circuit, stock return, and the I(2002) and I(2003) dummies are positive and significant, indicating that turnover-performance sensitivity is closer to 0 in these years for firms that are in the Ninth Circuit. Figure (1) graphs the difference in turnover-return sensitivity through time with 95 percent confidence intervals. This graph shows no difference in turnover-performance sensitivity pre-court ruling, consistent with the regression results.

4.3. Entropy balanced sample

In this section, we construct an entropy balanced sample to address the concern that the main results are driven by systematic differences between Ninth Circuit and non-Ninth Circuit firms. We balance our control and treated firms on three moments (mean, me-

dian, and standard deviation) for our set of control variables (industry return, return on assets, log(total assets), market-to-book, leverage, R&D/total assets, capex/total assets, institutional ownership, CEO tenure, salary/total assets, bonus/total assets, and I(CEO equity>5%)). After entropy balancing there are no significant differences in covariates between the Ninth Circuit and controls firms. We then estimate equation (1) using weights from the entropy balancing procedure.

Table 4 presents results from estimating equation (1) using the entropy balance weights. We continue to find a decrease in the sensitivity of forced CEO dismissals to stock returns in the post-ruling period for firms in the Ninth Circuit. Thus, these tests somewhat alleviate concerns that the results are driven by differences in firm characteristics between Ninth Circuit and non-Ninth Circuit firms.

4.4. CEO-specific performance

The baseline results of this paper use raw stock returns as the main CEO performance measure. However, stock returns may include some component that is exogenous to the firm and therefore out of the CEO's control. Theory suggests that, when assessing the quality of the CEO, the board of directors should filter the component of performance that is out of the CEO's control (Jenter and Kanaan, 2015). Therefore, in this section, we test the robustness of our main results to alternative measures of performance that capture the CEO-specific component of performance.

We use firms' excess return relative to firms in the same two-digit SIC code industry as a measure of CEO-specific performance. In particular, every year, we calculate the equal-weighted mean return for every two-digit SIC code and subtract this value from the focal firm's stock return. We then re-estimate equation (1) and replace the firm's raw stock return with the firm's excess return. Results from these tests are presented in Table 5. The results from these tests are largely consistent with results in Table 2: there is a negative relation between CEO performance, and the interaction of Ninth Circuit and CEO performance is positive and significant.

5. Institutional monitoring

Next, we attempt to shed light on the channel through which litigation rights affect CEO turnover decisions. We begin by exploring whether the effect of the Ninth Circuit court ruling on CEO turnover-performance sensitivity varies by ex ante institutional ownership. Institutional owners are more sophisticated than other investors and can influence firms through active monitoring or the threat of exit. Hence, sophisticated institutional owners are less likely to rely on securities class action lawsuits (or other types of litigation) to discipline managers. In other words, institutional ownership can act as a substitute for litigation. It therefore follows that Ninth Circuit firms with substantial institutional ownership are impacted less by the court ruling compared to firms with relatively low levels of institutional ownership.

To test this hypothesis, we split our sample firms into high and low institutional ownership in 1998 based on the median level of institutional ownership in 1998. We then re-estimate equation (1) separately for each sub-sample. Results are presented in Panel A of Table 6. Both with and without control variables, we find that Ninth Circuit×Post×Stock return is only positive and significant in the low institutional ownership sub-sample. This result provides support for the hypothesis that sophisticated institutional owners can act as a substitute for shareholder litigation rights, consistent with Crane and Koch (2018).

Crane and Koch (2018) find that institutional ownership increases in Ninth Circuit firms after the 1999 court ruling. They further find that firms for which it is likely to be costly for institutions to invest in experience worse operating performance after the court ruling, consistent with institutional monitoring substituting for shareholder litigation rights. We further test the substitution hypothesis by examining CEO turnover-performance sensitivity after the 1999 court ruling separately for firms that experience an increase in institutional ownership after the Ninth Circuit ruling and firms that experience no change or a decline. These tests are presented in Panel B of Table 6. Similar to Panel A, Panel B shows that the decrease in the sensitivity of forced CEO dismissal to performance is concentrated amongst firms that do not experience an adjustment in the level of institutional ownership.

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6. Board monitoring quality after the Ninth Circuit court ruling

6.1. Board monitoring quality

Next, we explore board monitoring quality after the Ninth Circuit court ruling. We argue that litigation risk can impose reputational costs on directors if they serve on the board during a securities class action, and that such reputational penalties can reduce their opportunities in the market for directorships. Indeed, prior research documents that directors suffer reputational costs if they are named as the defendant in a securities class action lawsuit or a derivative lawsuit (Helland, 2006; Fich and Shivdasani, 2007; Ferris et al., 2007; Liu et al., 2016). Thus, the threat of litigation should provide directors with incentives to monitor and correct action that could lead to litigation in the future. However, if shareholders' litigation rights are suppressed, and directors face relatively low litigation risk, they may lack incentives to take preventative actions. Therefore, in the absence of shareholder litigation rights, directors may not need to exert as much effort in monitoring.

We perform several empirical tests to explore whether director monitoring quality declines after the Ninth Circuit court ruling. First, we examine director meeting attendance. Director meeting attendance data is from the Institutional Shareholder Services (ISS) database. These tests appear in Panel A of Table 7. The dependent variable in these models is the fraction of directors on the board who attend less than 75% of meetings. Panel A of Table 7 shows that the coefficient on Ninth Circuit is positive and statistically significant at the 10 percent level or better in all models. Thus, directors of firms in the Ninth Circuit attend fewer board meetings after the Ninth Circuit court ruling, consistent with directors exerting less monitoring effort when they face lower litigation risk.

Next, we explore the number of board positions held by directors. Directors have limited capacity to take on directorships, and this capacity is somewhat determined by the intensity of monitoring required by their current boards (Fich and Shivdasani, 2006). Therefore, if a director experiences a shock to the monitoring requirements of any of their current roles, it should free up capacity for the director to take on other positions.

We hypothesise that the Ninth Circuit court ruling increases the ability of directors to take on other positions since it reduces the amount of effort they must expend on Ninth Circuit firms.

These tests appear in Panel B of Table 7. The sample for these tests is all directors in the ISS database and data is at the director-year level. Column (1) is estimated via OLS and the dependent variable is the natural log of the number of board positions held. Cohn et al. (2022) point out problems with using the natural log of count variables as a dependent variable. Therefore, in column (2), we present results from a Poisson model where the dependent variable is the number of board positions held. In these tests, Ninth Circuit is equal to one if the director sits on the board of at least one firm that is located in the Ninth Circuit and the year is 2000-2003. The coefficient on Ninth Circuit is positive and statistically significant in both the OLS and Poisson models. Thus, it appears that directors of Ninth Circuit firms take on additional directorships after the Ninth Circuit court ruling. This finding is consistent with reduced litigation risk after the Ninth court ruling freeing up capacity for directors to take on other positions.

6.2. Board structure

In this subsection, we explore whether shareholder litigation rights can change the composition of corporate boards. Specifically, we test whether there is a decline in the fraction of independent directors who sit on Ninth Circuit boards after the court ruling. We conjecture that increased managerial entrenchment after the Ninth Circuit Court ruling leads firms to decrease the number of independent directors. We repeat our difference-in-differences analysis to test the effect of the Ninth Circuit Court ruling on board independence for Ninth Circuit firms relative to non-Ninth Circuit firms. These tests appear in Panel C of Table 7. The dependent variable is the fraction of independent directors on the firm's board.

The coefficient on Ninth Circuit*Post is negative and statistically significant at the 1 percent level with a t-stat of -2.80 with no controls and -3.02 with controls. The coefficient of -0.024 in column 2 implies a 2.4 percentage point decline in the proportion of

independent directors on Ninth Circuit boards relative to non-Ninth Circuit boards after the court ruling. Thus, it appears that CEOs face less pressure from independent directors when firms face lower litigation risk, consistent with an overall decline in board monitoring effectiveness. Overall, our results support the findings of Huang et al. (2020) and Islam and Rahman (2023) who find suggestive evidence of a decline in board monitoring after the Ninth Circuit court ruling. Moreover, the board independence results in Panel C of Table 7 complement Dah et al. (2014) who find that the Sarbanes Oxley Act led to a decline in board independence for some firms and a subsequent reduction in CEO turnover-performance sensitivity.

7. The effect of the Ninth Circuit court ruling on firm value and risk taking

So far, we document a decline in board monitoring quality after the Ninth circuit court ruling; suggesting that shareholder litigation rights play an important role in directors' incentives and therefore overall corporate governance. However, stronger shareholder litigation rights has potential adverse consequences. Managers may act myopically and prioritize short-term goals at the expense of long-term performance in order to avoid litigation. Suggestive evidence of this channel is found by Hassan et al. (2021), who show an increase in innovation after the Ninth Circuit court ruling. Moreover, legal commentators argue that many securities class action lawsuits are frivolous, and serve only plaintiff law firms (Alexander, 1990; Helland, 2006). Therefore, it is not clear whether the Ninth Circuit court ruling worsened or improved shareholder welfare overall, especially since many firms were able to compensate for the loss of litigation through ownership changes (Crane and Koch, 2018).

In this section, we attempt to analyse the overall impact of the court ruling on firm value. We use industry-adjusted Tobin's q to proxy for firm value. Tobin's q is the market value of the firm's assets divided by their replacement cost. We then adjust firm-level Tobin's q for industry q by calculating the industry mean of Tobin's q and subtracting the industry mean from the firm's Tobin's q. We then estimate the following DiD model via OLS:

$$\text{Industry-adjusted Tobin's } q_{it} = \beta_1 \text{Ninth Circuit}_s * \text{Post}_t + \omega_i + \tau_t + \varepsilon_{ist} \qquad (3)$$

Where i indexes firms, s indexes firms' state of incorporation, and t indexes years. ω_i is firm fixed effects and τ_t is year fixed effects.

We estimate Equation 3 separately for firms that are likely to rely on shareholder litigation rights to induce board monitoring. We use institutional ownership to proxy for shareholders' reliance on litigation, following Crane and Koch (2018). Specifically, we split our firms into low and high institutional ownership based on the median institutional ownership in 1998. Firms with high institutional ownership are less likely to be affected by the shock since monitoring from sophisticated institutional owners can substitute for board monitoring.

We present results of Equation 3 in Panel A of Table 8. Columns 1 and 2 show results with no control variables and columns 3 and 4 show results with control variables. Columns 1 and 3 show results for the low institutional ownership subsample and columns 2 and 4 show results for the high institutional subsample. Both with and without controls, we find a reduction in industry-adjusted Tobin's q for firms with low institutional ownership as the coefficient on Ninth Circuit*Post is negative and statistically significant (columns 1 and 3; t-statistics of -1.89 and -2.78, respectively). The coefficients are economically meaningful. The coefficient in column 3 of -0.169 implies a loss of 9.72% of firm value (relative to the sample mean q of 1.73) for firms that rely on shareholder litigation rights to induce board monitoring.

In contrast, we find that firms that are less reliant on litigation rights actually experience an increase in firm value after the court ruling as the coefficient on Ninth Circuit*Post is positive and statistically significant in columns 2 and 4 (t-statistics of 3.88 and 3.69, respectively). It is possible that a reduction in shareholder litigation rights is a positive event for firms with high institutional ownership since such firms do not experience a decline in director monitoring quality. Thus, for these firms, the reduction in litigation rights improves firm value by allowing managers to increase risk-taking and focus on

long-term performance.

We test this possibility in Panel B of Table 8 by testing the effect of the Ninth Circuit court ruling on stock return volatility. We find evidence of an increase in risk taking for firms with high institutional ownership (columns 2 and 4, the coefficient on Ninth Circuit*Post is positive and statistically significant). We find no effect of the court ruling on risk taking for firms with low institutional ownership.

Overall, our results on firm value suggest that shareholder litigation rights are an important governance mechanism for firms that rely on the threat of litigation to incentivise directors to monitor in shareholders' interests. These firms experience a decline in CEO turnover-performance sensitivity and an overall decline in value when litigation rights are restricted. Other firms, however, are able to replace litigation rights with more intense shareholder monitoring. These firms experience an increase in value when litigation rights are restricted as managers are more free to take on risky projects without the fear of litigation in the event of short-term failure.

8. Robustness tests

8.1. Alternative empirical models

The baseline results in Table 2 present results from linear probability models (estimated via OLS). However, prior research on CEO turnover frequently estimates logit or Cox proportional hazard models (Jenter and Kanaan, 2015; Jenter and Lewellen, 2021). Therefore, we repeat our main analysis using these alternative estimation methods. These results are presented in Panel A of Table 9. Columns (1) and (2) present results from logit models, and columns (3) and (4) presented results from Cox proportional Hazard models. These tests reveal that the main findings are robust to these alternative estimation methods: the relation between stock return and forced CEO turnover is negative and statistically significant, and the coefficient on the interaction term is positive and statistically significant.

8.2. Dotcom bubble

Huang et al. (2020) point out that Ninth Circuit firms are disproportionately represented by tech firms, which experienced the dotcom bubble burst in 2000. To address the possibility that the results of this study are driven by the dotcom bubble burst, we repeat our main analysis after excluding firms in technology industries. Specifically, we exclude firms with SIC codes beginning in 35 as well as firms with SIC codes 7370, 7371, 7372, 7373, and 7374. We also run tests where we exclude only firms with SIC codes 7370-7374 since firms in these industries are more likely to have been affected by the dotcom bubble.

Results from these tests are presented in Panel B of Table 9. In all four models, the coefficient on stock return is negative and statistically significant, and the coefficient on the interaction of stock return and Ninth Circuit is positive and significant. Thus, it does not appear that the main results of this paper are driven by technology firms and the dotcom bubble burst.

8.3. Industry and state dynamics

Next, we test if the main results are driven by time-varying industry or state characteristics. We do this by repeating the analysis in Table 2 after including firm, industry×year, and state×year fixed effects in place of firm and year fixed effects. Results from these tests are reported in Panel C of Table 9. Models (1) and (2) include industry×year fixed effects, models (3) and (4) include state×year, and models (5) and (6) include both industry×year and state×year fixed effects. The dampening effect of the Ninth Circuit court ruling on CEO turnover-performance sensitivity continues to hold, ruling out the possibility that the main results are driven by industry or state dynamics.

8.4. State-level heterogeneity

Since treatment is assigned at the state-level, we design several tests to ensure the main results are not driven by state-level heterogeneity. First, we consider a subset of treated

and control firms in bordering states, where local economic conditions are likely to be similar. Specifically, we only include Ninth Circuit firms with headquarters in Nevada, Idaho, Arizona, and Montana in the treatment group; and we only include firms with headquarters in Utah, New Mexico, Wyoming, Colorado, North Dakota, and South Dakota in the control group. These results are presented in Panel D of Table 9. As shown in the table, these filters reduce the sample size significantly, with only 163 observations. However, The Ninth Circuit*Post*Stock return interaction remains positive and statistically significant at the 10 percent level.

Next, we perform placebo tests in which we replace the treatment group with firms from other circuits, and re-estimate equation (1). These tests are performed separately for each circuit. Results are presented in Table 10. The coefficient on The Treated*Post*Stock return interaction term is negative and statistically significant for two circuits (sixth and eighth), and statistically insignificant for all other circuits. These results provide support for the notion that the Ninth Circuit court decision altered firm behaviour.

8.5. Universal demand laws

Shareholders have multiple avenues to pursue litigation. For example, shareholders may pursue a derivative lawsuit in the event that directors or managers breach their fiduciary duty to refrain from self-serving actions and from negligent conduct. Further, while there are some instances where shareholders may initiate both a derivative lawsuit and a class action lawsuit concurrently, the two are not perfect substitutes. In fact, Appel (2019) finds no evidence that class action lawsuits are more common after the adoption of UD laws, which make derivative lawsuits more difficult for shareholders to pursue. Therefore, in this section, we test if the results of this paper are unique to securities class actions, or if they hold more generally for other types of litigation. These tests also serve to address concerns that the main results are limited to one specific event or time-period.

The empirical setting for these tests is the staggered adoption of universal demand (UD) laws across 23 US states from 1989 to 2005. Derivative lawsuits require shareholders

to make a demand on the board of directors to correct any wrongdoing before going to court. However, the futility exception allows shareholders to bypass this requirement if directors are named in the derivative lawsuit since directors rarely allow a lawsuit to proceed if they are named as the defendants. As a result of much debate, many states have passed UD laws, which always require shareholders to make a demand, even if directors are named as the defendants.[18] Thus, this requirement imposes significant procedural hurdles on shareholders seeking to initiate a derivative lawsuit.

Appel (2019) finds that governance quality declines after the adoption of UD laws. Other studies find that UD laws are associated with lower cash holdings, a higher cost of capital, increased insider trading, increased CEO compensation, and increased accounting conservatism (Houston et al., 2018; Nguyen et al., 2018; Manchiraju et al., 2021). However, despite their recent prevalence in the literature, Donelson et al. (2022) fail to find any evidence of a decline in derivative litigation after the adoption of UD laws and hence cast doubt on the validity of the staggered adoption of UD laws as an exogenous shock to shareholder litigation rights. Thus, we interpret these results with caution.

The sample period for these tests is 1992 to 2010. We begin in 1992 since this is the earliest year for which we have CEO turnover data. We exclude firms that are headquartered in states that adopt UD laws before 1992.[19] Each year that a UD law is adopted, we define a sample of control and treated firms spanning 5 years before and 5 years after the law adoption. Control firms include all firms that are headquartered in a state that has not adopted UD laws at that point in time. Treated firms are those headquartered in the state that adopts UD laws. We do this separately for each UD law adoption year. We then stack all cohorts to form our final sample. Thus, firms can appear in the sample multiple times, and can be control firms for some UD law adoptions and treated firms for others. Therefore, we use firm×cohort and year×cohort fixed effects in all regressions. This approach follows Baker et al. (2022), who highlight issues with

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[18]Legal commentators have often argued that demand futility is inefficient for two reasons (See, for example, Coffee Jr (1992)). First, the demand requirement allows directors to address and potentially correct any wrongdoing, thus preventing the need for litigation. Further, companies often have special litigation committees to address allegations impartially. Second, the demand requirement potentially acts as a safeguard against frivolous allegations, thus saving legal system resources. As a result, over the period 1989 to 2005, many states in the US adopted universal demand (UD) laws.

[19]UD laws have been adopted in Georgia and Michigan (1989); Florida (1990); Wisconsin (1991); Montana, Virginia, and Utah (1992); New Hampshire and Mississippi (1993); North Carolina (1995); Arizona and Nebraska (1996); Connecticut, Maine, Pennsylvania, Texas, and Wyoming (1997); Idaho (1998); Hawaii (2001); Iowa (2003); Massachusetts (2004); and Rhode Island and South Dakota (2005).

traditional staggered difference-in-differences models.

Results from these tests appear in Table 11. Consistent with the Ninth Circuit court ruling, we find that CEOs of firms in states that adopt UD laws are less likely to be dismissed after poor stock market performance after the adoption of UD laws (the coefficient on stock return is negative and significant at the one percent level, and the coefficient on the interaction of UD law and stock return is positive and significant at the five percent level). However, the economic magnitude is lower compared to the Ninth Circuit tests. Overall, this section provides support for the notion that restricted shareholder litigation rights protect CEOs from poor performance.

8.6. Alternative proxy for litigation risk

In this subsection, we test the robustness of our main results to an alternative empirical strategy. In particular, we follow Arena and Julio (2015), Arena (2018), and Arena and Julio (2023) and use future litigation as a proxy for litigation risk. We collect all lawsuits that were filed from 1992 to 2021 from the Federal Judicial Center (FJC) where the defendant is a US firm that can be linked to Compustat via the WRDS Compustat-FJC linking table. Following Arena and Julio (2023), we define a dummy variable equal to one in the year before a firm is sued as a proxy for litigation risk. We then estimate the following linear probability model using OLS:

$$\text{Turnover}_{it} = \beta_1 \text{I(Lawsuit)}_{it} + \beta_2 \text{Performance}_{it} + \beta_3 \text{I(Lawsuit)}_{it} * \text{Performance}_{it}$$
$$+ \ \omega_i + \tau_t + \varepsilon_{it} \tag{4}$$

Results from equation (4) are presented in Table 12. We show results with and without control variables. Standard errors are clustered at the firm and year levels. Table 12 shows that the lawsuit dummy is positive and statistically significant at the five percent level in column (1), suggesting that firms are more likely to dismiss their CEO in the year before a lawsuit. The coefficient on the lawsuit dummy and stock return interaction

is negative and statistically significant at the one percent level both with and without controls. This finding suggests that CEO dismissal is more sensitive to stock returns when firms face a heightened risk of litigation, consistent with the Ninth Circuit results.

9. Conclusion

We study the effect of litigation risk on the sensitivity of CEO turnover to stock market performance. We take advantage of a 1999 court decision that reduced litigation risk for firms in the Ninth Circuit. We find that CEO turnover responds less to stock returns for Ninth Circuit firms after the court ruling relative to non-Ninth Circuit firms. The documented effect is robust to alternative model specifications, entropy balancing, and to controlling for state and industry dynamics. This decrease in performance-turnover sensitivity is concentrated among firms with low levels of pre-court ruling institutional ownership and firms that experience no change or a decline in the level of institutional ownership after the court ruling. We further show that Ninth Circuit directors attend fewer meetings and take on more board positions after the court ruling, suggesting a decline in monitoring quality when access to securities class action lawsuits is restricted.

We contribute to the literature by highlighting the governance role of securities class action lawsuits. There is debate as to whether class action lawsuits play a role in corporate governance. Some legal commentators contend that many securities class action lawsuits are frivolous and mostly serve plaintiff law firms. Our study shows that access to securities class action lawsuits is an effective governance mechanism as they contribute to the alignment of CEO job security and shareholder wealth maximisation.

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Figure 1. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: parallel trends

This figure plots point estimates from a firm-panel regression of forced CEO dismissals on *stock return, Ninth circuit, I(t)*, and the respective interactions. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington, and *I(t)* are dummy variables equal to one if the year is *t*. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms.
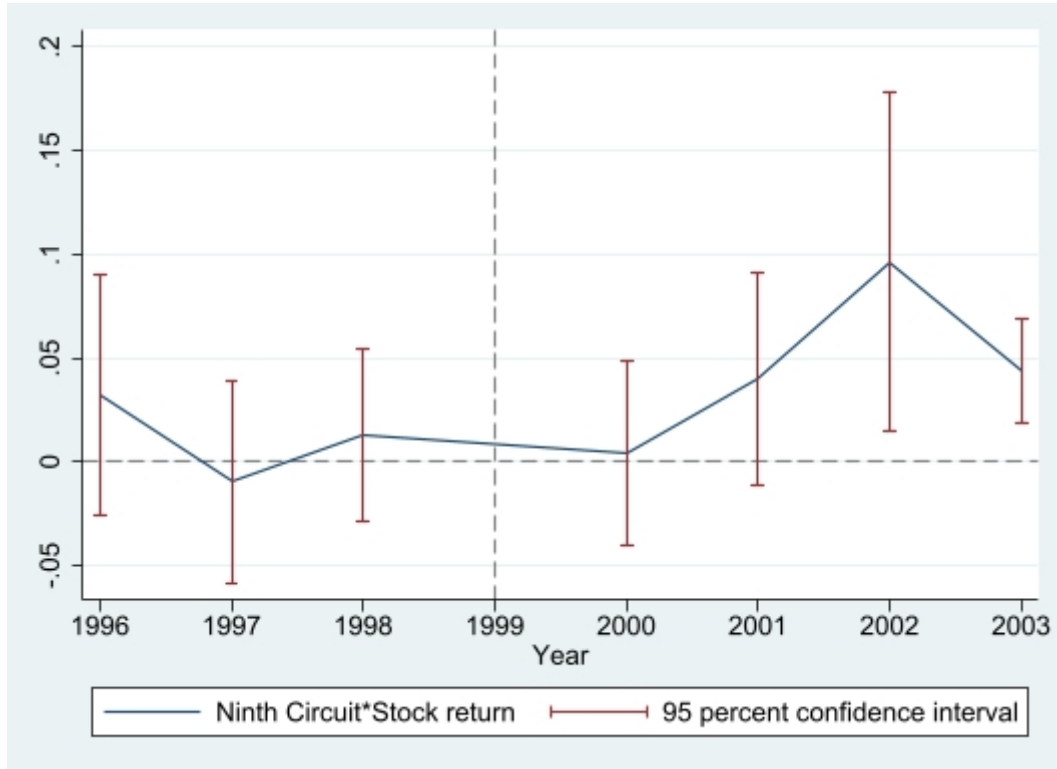
Table 1. Descriptive statistics

This table presents descriptive statistics for the variables used in this study. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. Variable definitions appear in Table A1.

	Mean	SD	p10	Median	p90
Forced CEO turnover	0.0219	0.1464	0.0000	0.0000	0.0000
CEO turnover	0.1591	0.3658	0.0000	0.0000	1.0000
Stock return	0.0826	0.5170	-0.4852	0.0251	0.6538
Industry return	0.2706	0.3329	-0.1416	0.2269	0.6808
Return on assets	0.0247	0.1317	-0.0812	0.0479	0.1279
log(Total Assets)	6.9771	1.4943	5.1535	6.7867	9.1484
Market-to-book	2.0491	1.4120	0.9702	1.5746	3.7217
Leverage	0.2227	0.1725	0.0000	0.2168	0.4507
R&D/Total assets	0.0389	0.0684	0.0000	0.0026	0.1278
Capex/Total assets	0.0758	0.0703	0.0160	0.0548	0.1599
Institution ownership	0.6054	0.2004	0.3316	0.6301	0.8416
CEO tenure	7.3392	7.9998	1.0000	5.0000	18.0000
Salary/Total compensation	0.3423	0.2520	0.0781	0.2733	0.7339
Bonus/Total compensation	0.1746	0.1653	0.0000	0.1455	0.3996
I(CEO equity>5%)	0.0032	0.0564	0.0000	0.0000	0.0000

Table 2. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity

This table presents the effect of the Ninth Circuit Court of Appeals ruling on forced CEO dismissals. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. All other variable definitions appear in Table A1. t-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

| | Forced CEO turnover | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth Circuit	0.014***	0.011*	0.013**	0.011*		
	(2.96)	(1.79)	(2.45)	(1.74)		
Post	0.012***	0.010**				
	(3.24)	(2.68)				
Ninth Circuit*Post	-0.013**	-0.012*	-0.013**	-0.013*	-0.002	-0.000
	(-2.21)	(-1.76)	(-2.13)	(-1.78)	(-0.18)	(-0.04)
Stock return	-0.013***	-0.008**	-0.014***	-0.009**	-0.011**	-0.009
	(-3.42)	(-2.38)	(-3.74)	(-2.53)	(-2.02)	(-1.66)
Ninth Circuit*Stock return	-0.013**	-0.009*	-0.011**	-0.007	-0.010	-0.008
	(-2.29)	(-1.80)	(-2.07)	(-1.48)	(-1.41)	(-1.13)
Post*Stock return	-0.008	-0.010*	-0.006	-0.008	-0.005	-0.006
	(-1.33)	(-1.69)	(-0.94)	(-1.25)	(-0.63)	(-0.70)
Ninth Circuit*Post*Stock return	0.032***	0.029***	0.030***	0.028***	0.028***	0.028***
	(4.52)	(4.65)	(4.32)	(4.31)	(2.99)	(2.90)
Industry return		0.012**		0.014**		0.014**
		(2.62)		(2.15)		(2.02)
Return on assets		-0.137***		-0.140***		-0.113***
		(-7.53)		(-7.13)		(-3.70)
log(Total Assets)		0.005***		0.007***		-0.000
		(3.46)		(4.03)		(-0.02)
Market-to-book		-0.001		-0.000		-0.000
		(-0.61)		(-0.30)		(-0.10)
Leverage		-0.015		-0.013		-0.002
		(-1.68)		(-1.28)		(-0.09)
R&D/Total assets		-0.070*		-0.082**		-0.096
		(-1.97)		(-2.09)		(-0.85)
Capex/Total assets		-0.001		0.002		-0.049
		(-0.05)		(0.09)		(-1.05)
Institution ownership		-0.029***		-0.031***		-0.068***
		(-2.96)		(-2.82)		(-2.76)
CEO tenure		-0.000***		-0.000***		0.002***
		(-3.47)		(-3.61)		(3.84)
Salary/Total compensation		0.012		0.014*		0.022**
		(1.57)		(1.87)		(2.46)
Bonus/Total compensation		-0.045***		-0.045***		-0.047*
		(-3.00)		(-2.83)		(-2.00)
I(CEO equity>5%)		-0.008		-0.007		-0.005
		(-1.10)		(-0.74)		(-0.22)
Industry FE	No	No	Yes	Yes	No	No
Firm FE	No	No	No	No	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes
Obs	7,535	7,535	7,535	7,535	7,535	7,535
Adj. R^2	0.01	0.03	0.01	0.04	0.05	0.08

Table 3. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: parallel trends

This table presents tests of the parallel trends assumption for the effect of the Ninth Circuit court ruling on forced CEO dismissals. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington, and *I(t)* are dummy variables equal to one if the year is t. All other variable definitions appear in Table A1. All models are estimated via OLS. *t*-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Forced CEO turnover	
	(1)	(2)
Stock return	-0.015***	-0.013***
	(-4.40)	(-3.52)
Ninth Circuit*I(1996)*Stock return	0.041	0.032
	(1.36)	(1.08)
Ninth Circuit*I(1997)*Stock return	-0.005	-0.010
	(-0.19)	(-0.36)
Ninth Circuit*I(1998)*Stock return	0.019	0.013
	(0.90)	(0.60)
Ninth Circuit*I(2000)*Stock return	0.005	0.004
	(0.17)	(0.15)
Ninth Circuit*I(2001)*Stock return	0.041	0.040
	(1.58)	(1.52)
Ninth Circuit*I(2002)*Stock return	0.107***	0.096***
	(2.86)	(2.70)
Ninth Circuit*I(2003)*Stock return	0.048**	0.044**
	(2.16)	(1.97)
Ninth Circuit*I(t)	Yes	Yes
I(t)*Stock return	Yes	Yes
Control variables	No	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Obs	7,373	7,373
Adj. R^2	0.04	0.06

Table 4. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: entropy balanced

This table presents tests of the effect of the Ninth Circuit court ruling on forced CEO dismissals using an entropy balance approach. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. Control and treated samples are balanced on *Ninth circuit* on *industry return*, *return on assets*, *log(total assets)*, *market-to-book*, *leverage*, *R&D/total assets*, *capex/total assets*, *institutional ownership*, *CEO tenure*, *salary/total assets*, *bonus/total assets*, and *I(CEO equity>5%)*. Observations are then weighted according to the balancing procedure. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. All other variable definitions appear in Table A1. *t*-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

| | Forced CEO turnover | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth Circuit	0.011*	0.011	0.012	0.013		
	(1.78)	(1.55)	(1.67)	(1.60)		
Post	0.014	0.009				
	(1.47)	(1.04)				
Ninth Circuit*Post	-0.015	-0.011	-0.015	-0.012	-0.006	-0.002
	(-1.43)	(-0.95)	(-1.40)	(-1.01)	(-0.51)	(-0.17)
Stock return	-0.013**	-0.008	-0.014**	-0.009	-0.011	-0.010
	(-2.36)	(-1.62)	(-2.23)	(-1.65)	(-1.20)	(-1.10)
Ninth Circuit*Stock return	-0.013*	-0.010	-0.013*	-0.011	-0.011	-0.010
	(-1.81)	(-1.60)	(-1.80)	(-1.60)	(-1.10)	(-0.93)
Post*Stock return	-0.013	-0.013	-0.010	-0.010	-0.009	-0.007
	(-1.01)	(-1.10)	(-0.78)	(-0.78)	(-0.60)	(-0.49)
Ninth Circuit*Post*Stock return	0.037***	0.031**	0.037***	0.034**	0.033**	0.031*
	(2.82)	(2.50)	(2.87)	(2.63)	(2.18)	(1.98)
Control variables	No	Yes	No	Yes	No	Yes
Industry FE	No	No	Yes	Yes	No	No
Firm FE	No	No	No	No	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes
Obs	7,535	7,535	7,535	7,535	7,535	7,535
Adj. R^2	0.01	0.03	0.02	0.05	0.12	0.14

Table 5. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: CEO specific performance

This table presents the effect of the Ninth Circuit Court of Appeals ruling on the sensitivity of forced CEO dismissals to CEO performance. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. Excess return is the firm's stock return minus the average stock return of firms in the same two-digit SIC industry, excluding the focal firm. All other variable definitions appear in Table A1. t-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Forced CEO turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth Circuit	0.009	0.008	0.009	0.008		
	(1.42)	(1.18)	(1.43)	(1.31)		
Post	0.010***	0.007**				
	(3.00)	(2.13)				
Ninth Circuit*Post	-0.004	-0.004	-0.004	-0.006	0.006	0.007
	(-0.44)	(-0.52)	(-0.52)	(-0.65)	(0.54)	(0.59)
Excess return	-0.013***	-0.007*	-0.013***	-0.007*	-0.009*	-0.005
	(-3.55)	(-1.90)	(-3.35)	(-1.80)	(-1.80)	(-1.04)
Ninth Circuit*Excess return	-0.014	-0.012	-0.014	-0.011	-0.016	-0.015
	(-1.50)	(-1.24)	(-1.40)	(-1.12)	(-1.42)	(-1.37)
Post*Excess return	-0.007	-0.009	-0.008	-0.009	-0.010	-0.010
	(-1.09)	(-1.45)	(-1.28)	(-1.50)	(-1.40)	(-1.43)
Ninth Circuit*Post*Excess return	0.026*	0.025*	0.025*	0.025*	0.029*	0.029*
	(1.72)	(1.70)	(1.68)	(1.68)	(1.78)	(1.83)
Return on assets		-0.136***		-0.139***		-0.111***
		(-4.92)		(-4.86)		(-2.88)
log(Total Assets)		0.005***		0.007***		-0.000
		(3.06)		(3.75)		(-0.04)
Market-to-book		-0.001		-0.000		0.000
		(-0.45)		(-0.23)		(0.00)
Leverage		-0.015		-0.012		-0.001
		(-1.29)		(-1.03)		(-0.05)
R&D/Total assets		-0.071**		-0.084**		-0.097
		(-2.07)		(-2.16)		(-0.99)
Capex/Total assets		-0.002		0.002		-0.049
		(-0.07)		(0.05)		(-0.90)
Institution ownership		-0.030***		-0.031***		-0.069***
		(-2.98)		(-3.05)		(-3.07)
CEO tenure		-0.000***		-0.000***		0.002***
		(-2.63)		(-2.83)		(4.17)
Salary/Total compensation		0.012		0.014		0.021
		(1.25)		(1.49)		(1.53)
Bonus/Total compensation		-0.045***		-0.045***		-0.047***
		(-4.39)		(-4.04)		(-2.93)
I(CEO equity>5%)		-0.009		-0.008		-0.006
		(-1.60)		(-0.87)		(-0.26)
Industry FE	No	No	Yes	Yes	No	No
Firm FE	No	No	No	No	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes
Obs	7,535	7,535	7,535	7,535	7,535	7,535
Adj. R^2	0.01	0.03	0.01	0.03	0.05	0.07

Table 6. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: substitution of institutional monitoring

This table presents tests of cross-sectional variation in the effect of the Ninth Circuit Court of Appeals ruling on forced CEO dismissals. Panel A presents results by levels institutional ownership and Panel B presents results by changes in institutional ownership around the Ninth Circuit Court Ruling. The high (low) inst. own sample is firms with above (below) sample median institutional ownership. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. All other variable definitions appear in Table A1. t-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Panel A: Institutional ownership

	Forced CEO turnover			
	Low IO	High IO	Low IO	High IO
	(1)	(2)	(3)	(4)
Ninth circuit*Post	0.006	-0.011	0.008	-0.010
	(0.51)	(-0.57)	(0.64)	(-0.54)
Stock return	-0.012	-0.009	-0.009	-0.007
	(-1.41)	(-1.55)	(-1.14)	(-1.01)
Ninth circuit*Stock return	-0.015	-0.004	-0.016	-0.004
	(-1.23)	(-0.65)	(-1.32)	(-0.68)
Post*Stock return	-0.008	0.000	-0.010	0.000
	(-0.66)	(0.01)	(-0.79)	(0.04)
Ninth circuit*Post*Stock return	0.046***	0.008	0.048***	0.012
	(3.42)	(0.96)	(3.42)	(1.54)
Controls	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	3,471	3,564	3,471	3,564
Adj. R^2	0.05	0.00	0.06	0.00

Panel B: Changes in ownership structure

	Forced CEO turnover			
	ΔIO ≤ 0	ΔIO > 0	ΔIO ≤ 0	ΔIO > 0
	(1)	(2)	(3)	(4)
Ninth Circuit*Post	-0.007	0.033*	-0.006	0.022
	(-0.54)	(1.83)	(-0.51)	(1.43)
Stock return	-0.010**	-0.018	-0.011**	-0.009
	(-2.26)	(-1.34)	(-2.04)	(-0.72)
Ninth Circuit*Stock return	-0.021***	0.019	-0.019***	0.020
	(-2.95)	(1.38)	(-2.72)	(1.50)
Post*Stock return	-0.001	-0.040**	-0.001	-0.036*
	(-0.16)	(-2.09)	(-0.11)	(-1.87)
Ninth Circuit*Post*Stock return	0.037***	0.022	0.038***	0.024
	(4.14)	(1.16)	(4.00)	(1.24)
Control variables	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	1,687	5,686	1,687	5,686
Adj. R^2	0.02	0.06	0.03	0.08

Table 7. Ninth Circuit Court of Appeals Ruling and director monitoring quality

This table presents the effect of the Ninth Circuit Court of Appeals ruling on director meeting attendance (Panel A) and the number of board positions held by directors (Panel B). The sample is all firms that are in both the CRSP-Compustat merged database and the ISS Governance database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. Tests in Panel A and C are at the firm-year level. The dependent variable in all models in Panel A is the fraction of directors on the board who attend less than 75% of meetings. Tests in Panel B are at the director-year level. The dependent variable in Panel B is the natural log of the number of board positions held (column 1) and the number of board positions held (column 2). The dependent variable in all models in Panel C is the fraction of independent directors on the board. *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. All other variable definitions appear in Table A1. *t*-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Panel A: Director meeting attendance

	Fraction Attend<75%		Fraction Attend<75% (Audit)	
	(1)	(2)	(3)	(4)
Ninth circuit*Post	0.018***	0.016***	0.024***	0.024***
	(3.74)	(2.95)	(4.30)	(4.10)
log(Total Assets)		0.002		0.001
		(0.53)		(0.27)
Market-to-book		-0.000		-0.002
		(-0.28)		(-1.02)
Leverage		-0.002		-0.021
		(-0.12)		(-1.22)
R&D/Total assets		-0.031		-0.028
		(-1.05)		(-0.46)
Capex/Total assets		-0.040*		-0.059
		(-1.72)		(-1.45)
Institution ownership		0.006		-0.026
		(0.62)		(-1.46)
CEO tenure		0.000		0.000
		(1.28)		(1.38)
Log(Board size)		0.029***		0.028**
		(3.86)		(2.08)
Board independence		0.013		0.008
		(1.06)		(0.51)
I(CEO chair)		0.004		-0.001
		(1.41)		(-0.26)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	4,175	4,175	4,175	4,175
Adj. R^2	0.22	0.23	0.13	0.13

Panel B: Number of board positions held

	Log(N boards)	N boards
	(1)	(2)
Ninth circuit*Post	0.375***	0.383***
	(5.58)	(10.28)
Model	OLS	Poisson
Director FE	Yes	Yes
Year FE	Yes	Yes
Obs	22,928	22,928
Adj. R^2	0.73	

Table 7. Ninth Circuit Court of Appeals Ruling and director monitoring quality (continued)

Panel C: Board independence

	Board independence	
	(1)	(2)
Ninth circuit*Post	-0.020***	-0.024***
	(-2.80)	(-3.02)
log(Total Assets)		0.006
		(0.73)
Market-to-book		-0.001
		(-0.20)
Leverage		0.002
		(0.08)
R&D/Total assets		-0.117**
		(-2.24)
Capex/Total assets		-0.074
		(-1.19)
Institution ownership		0.082***
		(3.41)
CEO tenure		-0.000
		(-0.75)
Log(Board size)		-0.034
		(-1.53)
I(CEO chair)		0.014*
		(1.78)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Obs	4,175	4,175
Adj. R^2	0.76	0.76

Table 8. Ninth Circuit Court of Appeals Ruling, firm value, and risk taking

This table presents the effect of the Ninth Circuit Court of Appeals ruling on firm value (Panel A) and risk-taking (Panel B). The sample is all firms that are in the CRSP-Compustat merged database and Execucomp over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models in Panel A is industry-adjusted Tobin's q and the dependent variable in all models in Panel B is 12-month stock return volatility. *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and *Post* is a dummy variable equal to one if the year is 2000-2003. All other variable definitions appear in Table A1. *t*-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Panel A: Firm value after the court ruling

	Industry-adjusted Tobin's q			
	Low IO	High IO	Low IO	High IO
	(1)	(2)	(3)	(4)
Ninth Circuit*Post	-0.205*	0.224***	-0.169***	0.345***
	(-1.89)	(3.88)	(-2.78)	(3.69)
Industry return			-0.059	-0.043
			(-0.98)	(-0.62)
Return on assets			1.591***	2.074***
			(2.72)	(6.70)
log(Total Assets)			-0.718***	-0.423***
			(-4.68)	(-4.92)
Leverage			-0.484**	-0.333
			(-2.16)	(-1.63)
R&D/Total assets			8.237***	4.542***
			(4.98)	(3.35)
Capex/Total assets			1.189***	0.829
			(3.97)	(1.36)
Institution ownership			0.999***	1.555***
			(4.05)	(5.58)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	3,281	3,054	3,281	3,054
Adj. R^2	0.46	0.53	0.52	0.58

Table 8. Ninth Circuit Court of Appeals Ruling, firm value, and risk taking (continued)

Panel B: Risk-taking after the court ruling

| | 12-month stock return volatility | | | |
| | Low IO | High IO | Low IO | High IO |
	(1)	(2)	(3)	(4)
Ninth Circuit*Post	0.047	0.154**	0.035	0.166***
	(0.94)	(2.51)	(0.73)	(2.87)
Industry return			0.082**	0.160***
			(2.33)	(4.61)
Return on assets			0.298*	0.134
			(1.81)	(1.09)
log(Total Assets)			0.016	-0.055
			(0.32)	(-1.26)
Leverage			0.134	-0.026
			(0.99)	(-0.21)
Market-to-book			0.085***	0.068***
			(6.99)	(3.39)
R&D/Total assets			0.065	1.075
			(0.11)	(1.36)
Capex/Total assets			0.319*	-0.376
			(1.79)	(-0.95)
Institution ownership			0.110	-0.238
			(0.83)	(-1.53)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	3,281	3,054	3,281	3,054
Adj. R^2	0.46	0.44	0.48	0.47

Table 9. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: robustness tests

This table presents robustness tests of the effect of the Ninth Circuit Court of Appeals ruling on forced CEO dismissals. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and the year is 2000-2003. All other variable definitions appear in Table A1. t-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

Panel A: Nonlinear models

	Forced CEO turnover			
	(1)	(2)	(3)	(4)
Ninth Circuit	0.357	0.383	0.353	0.316
	(1.16)	(0.97)	(1.20)	(0.90)
Ninth Circuit*Post	-0.182	-0.165	-0.103	-0.004
	(-0.57)	(-0.46)	(-0.33)	(-0.01)
Stock return	-1.436***	-0.765*	-1.437***	-0.794*
	(-2.70)	(-1.68)	(-2.81)	(-1.91)
Ninth Circuit*Stock return	-0.795	-0.677	-0.784	-0.573
	(-1.15)	(-1.01)	(-1.22)	(-0.90)
Post*Stock return	0.170	0.129	0.184	0.209
	(0.26)	(0.25)	(0.29)	(0.44)
Ninth Circuit*Post*Stock return	2.005**	1.448**	1.943**	1.274*
	(2.43)	(1.97)	(2.45)	(1.81)
Control variables	No	Yes	No	Yes
Model	Logit	Logit	Cox Hazard	Cox Hazard
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	6,441	6,419	7,500	7,500
Pseudo R^2	0.07	0.15	n/a	n/a

Panel B: Excluding technology firms

	Forced CEO turnover			
	All tech firms		High-tech firms	
	(1)	(2)	(3)	(4)
Ninth Circuit*Post	-0.006	-0.003	-0.003	-0.001
	(-0.46)	(-0.20)	(-0.23)	(-0.09)
Stock return	-0.014**	-0.012*	-0.010*	-0.009
	(-2.20)	(-1.95)	(-1.70)	(-1.62)
Ninth Circuit*Stock return	-0.011	-0.009	-0.012	-0.010
	(-1.44)	(-1.21)	(-1.56)	(-1.27)
Post*Stock return	-0.000	-0.001	-0.005	-0.005
	(-0.01)	(-0.08)	(-0.54)	(-0.61)
Ninth Circuit*Post*Stock return	0.029***	0.029***	0.033***	0.032***
	(3.06)	(3.07)	(3.68)	(3.49)
Control variables	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Obs	6,373	6,373	6,931	6,931
Adj. R^2	0.04	0.05	0.05	0.06

Table 9. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: robustness tests (continued)

Panel C: Industry and state dynamics

	Forced CEO turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
Ninth Circuit*Post	0.004	0.006				
	(0.46)	(0.60)				
Stock return	-0.011*	-0.007	-0.009*	-0.007	-0.009	-0.005
	(-1.86)	(-1.22)	(-1.71)	(-1.23)	(-1.49)	(-0.77)
Ninth Circuit*Stock return	-0.012	-0.009	-0.013**	-0.012*	-0.014*	-0.012*
	(-1.59)	(-1.24)	(-2.15)	(-1.95)	(-2.01)	(-1.73)
Post*Stock return	-0.009	-0.008	-0.009	-0.010	-0.013	-0.013
	(-0.87)	(-0.85)	(-1.00)	(-1.15)	(-1.21)	(-1.28)
Ninth Circuit*Post*Stock return	0.034***	0.032***	0.038***	0.039***	0.042***	0.041***
	(3.22)	(3.11)	(3.99)	(4.05)	(3.75)	(3.77)
Control variables	No	Yes	No	Yes	No	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry×year FE	Yes	Yes	No	No	Yes	Yes
State×year FE	No	No	Yes	Yes	Yes	Yes
Obs	7,535	7,535	7,535	7,535	7,535	7,535
Adj. R^2	0.05	0.07	0.03	0.05	0.03	0.05

Panel D: Bordering states

	Forced CEO turnover	
	(1)	(2)
Ninth Circuit*Post	-0.050	-0.019
	(-0.91)	(-0.32)
Stock return	0.004	-0.003
	(0.14)	(-0.08)
Ninth Circuit*Stock return	-0.140	-0.140
	(-1.72)	(-1.58)
Post*Stock return	-0.040	-0.063
	(-1.47)	(-1.29)
Ninth Circuit*Post*Stock return	0.188*	0.201*
	(2.45)	(2.38)
Control variables	No	Yes
Firm FE	Yes	Yes
Year FE	Yes	Yes
Obs	163	163
Adj. R^2	-0.02	0.02

Table 10. Ninth Circuit Court of Appeals Ruling and CEO turnover-performance sensitivity: placebo tests

This table presents the effect of the Ninth Circuit Court of Appeals ruling on forced CEO dismissals. The sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1996-2003, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). *Ninth circuit* is a dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington and the year is 2000-2003. All other variable definitions appear in Table A1. t-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

| | Treated circuit | | | | | | | | | |
| | 1st | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th | 10th | 11th |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treated*Post	-0.015***	-0.008	0.002	-0.010	-0.003	0.010	0.023	0.009	-0.007	-0.006
	(-3.13)	(-0.70)	(0.12)	(-0.73)	(-0.50)	(1.57)	(1.35)	(1.23)	(-0.43)	(-0.40)
Stock return	-0.008*	-0.011*	-0.012**	-0.011**	-0.012**	-0.012**	-0.012**	-0.011**	-0.011**	-0.012**
	(-1.89)	(-2.01)	(-2.38)	(-2.28)	(-2.59)	(-2.43)	(-2.67)	(-2.30)	(-2.41)	(-2.59)
Treated*Stock return	-0.032***	-0.006	0.006	-0.002	0.010**	0.009	0.023***	0.004	0.015	0.017
	(-4.23)	(-0.90)	(0.72)	(-0.17)	(2.58)	(0.69)	(5.71)	(0.38)	(1.55)	(1.36)
Post*Stock return	-0.001	0.002	0.005	0.001	0.002	0.005	0.002	0.004	0.002	0.004
	(-0.10)	(0.20)	(0.61)	(0.17)	(0.19)	(0.65)	(0.29)	(0.58)	(0.26)	(0.58)
Treated*Post*Stock return	0.034***	0.004	-0.029*	0.014	0.002	-0.039***	-0.008	-0.053**	0.002	-0.036
	(3.80)	(0.35)	(-1.68)	(0.81)	(0.33)	(-4.52)	(-0.63)	(-2.58)	(0.08)	(-1.12)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	7,535	7,535	7,535	7,535	7,535	7,535	7,535	7,535	7,535	7,535
Adj. R²	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07

Table 11. Universal demand laws and CEO turnover-performance sensitivity

This table presents the effect of the adoption of universal demand laws on forced CEO dismissals. The initial sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1992-2010, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. For each year that a UD law is adopted, a cohort of control and treated firms is created spanning 4 years before and after the law adoption. Each cohort is then stacked into one data-set. *UD law* is a dummy variable equal to one if the state of the firm's headquarters has adopts a UD law, *Post* is a dummy variable equal to one in the years after a UD law adoption. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year *t*. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). All other variable definitions appear in Table A1. All models are estimated by OLS. *t*-statistics (clustered at the state level) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Forced CEO turnover	
	(1)	(2)
UD law	-0.005	0.003
	(-0.23)	(0.12)
UD law*Post	-0.004	-0.003
	(-0.89)	(-0.62)
Stock return	-0.027***	-0.020***
	(-7.68)	(-5.97)
UD law*Stock return	-0.007	-0.005
	(-0.61)	(-0.47)
Post*Stock return	-0.000	0.002
	(-0.02)	(1.07)
UD law*Post*Stock return	0.017*	0.015*
	(1.96)	(1.77)
Industry return		0.002
		(0.63)
Return on assets		-0.124***
		(-6.34)
log(Total Assets)		-0.011**
		(-2.48)
Market-to-book		-0.004**
		(-2.57)
Leverage		0.009
		(0.58)
R&D/Total assets		-0.029
		(-0.97)
Capex/Total assets		0.029
		(0.54)
Institution ownership		-0.045***
		(-3.33)
CEO tenure		0.002***
		(5.67)
Salary/Total compensation		0.018*
		(1.99)
Bonus/Total compensation		-0.034**
		(-2.12)
I(CEO equity>5%)		-0.014
		(-0.87)
Firm×cohort FE	Yes	Yes
Year×cohort FE	Yes	Yes
Obs	61,403	61,403
Adj. R^2	0.06	0.08

Table 12. Litigation risk and CEO turnover-performance sensitivity

This table presents the effect of litigation risk forced CEO dismissals. The initial sample is all firms that are in both the CRSP-Compustat merged database and the Execucomp database over the period 1993-2020, excluding utility (SIC codes 4900-4999) and financial (SIC codes 6000-6999) firms. The dependent variable in all models is a dummy variable equal to one if the firm experiences a forced CEO turnover in the year t. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021). I(lawsuit$_{t+1}$) is a dummy variable equal to one if there is a lawsuit filed against the firm in the year $t+1$ and 0 otherwise. Lawsuit data is collected from the Federal Judicial Center. All other variable definitions appear in Table A1. All models are estimated by OLS. t-statistics (clustered by firm and year) are reported in parentheses below coefficients. *, **, and *** denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

	Forced CEO turnover	
	(1)	(2)
I(lawsuit$_{t+1}$)	0.006**	0.033
	(2.16)	(1.42)
Stock return	-0.013***	-0.007***
	(-5.53)	(-3.28)
I(lawsuit$_{t+1}$)*Stock return	-0.010***	-0.012***
	(-3.27)	(-3.75)
Industry return		0.002
		(0.57)
Return on assets		-0.130***
		(-5.90)
log(Total assets)		-0.002
		(-0.94)
Market-to-book		-0.005***
		(-4.14)
Leverage		0.014
		(1.26)
R&D/Total assets		-0.029
		(-0.71)
Capex/Total assets		0.028
		(1.23)
Institutional Ownership		-0.019**
		(-2.76)
CEO tenure		0.001***
		(4.59)
Salary/Total compensation		-0.000
		(-0.05)
Bonus/Total compensation		-0.030***
		(-3.62)
I(CEO equity>5%)		-0.019***
		(-5.74)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Obs	31,984	31,984
Adj. R^2	0.04	0.06

Table A1. Description of Variables used in this Study

Variable	Definition and source
Ninth circuit	A dummy variable equal to one if the firm's headquarters are in Arkansas, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, or Washington.
Post	A dummy variable equal to one if the year is 2000-2003.
Forced CEO turnover	A dummy variable equal to one if the firm experiences a forced CEO dismissal and 0 otherwise. Forced CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021)
CEO turnover	A dummy variable equal to one if the firm experiences a CEO turnover for any reason and 0 otherwise. CEO dismissals are collected from the CEO dismissal database (Gentry et al., 2021)
Stock return	The firm's annual stock return (from Compustat: [prcc_f_t/prcc_f_{t-1}]-1).
Industry return	The mean annual stock return of all firm's in the same 2-digit SIC industry excluding the focal firm (from Compustat).
Excess return	The firm's stock return minus the mean stock return of firms in the same two-digit SIC code industry excluding the focal firm.
Return on assets	The firm's EBIT divided by total assets (from Compustat: ni/at).
Total assets	The total book value of the firm's assets in millions (from Compustat: at).
Market-to-book	The ratio of the market value of the firm's equity to the book value of the firm's equity (from Compustat: ((prcc_f*chso)+lt-txditc)/at).
Leverage	The total book value of the firm's debt divided by the book value of the firm's assets (From Compustat: (dltt+dlc)/at).
R&D/Total assets	The firm's annual research and development expenditure divided by the firm's total assets. Firms with missing R&D are set to 0 (from Compustat: xrd/at).
Capex/Total assets	The firm's capital expenditures divided by the firm's total assets from (Compustat: capx/at).
Tobin's q	The market value of the firm's assets divided by their replacement value (from Compustat: (prcc_f*csho + dltt + dlc)/at)
Industry-adjusted Tobin's q	Tobin's q minus industry Tobin's q. Industry Tobin's q is the annual mean of Tobin's q for all firms in the same three-digit SIC code industry.
Institutional ownership	The percentage of the firm's ordinary shares that are owned by institutional investors (from Thomson Reuters 13f filings database).
CEO tenure	The number of years the current CEO has been CEO (from Execucomp).
Salary/Total compensation	The CEO's annual salary divided by the CEO's total salary (from Execucomp: salary/tdc1).
Bonus/Total compensation	The CEO's annual bonus divided by the CEO's total salary (from Execucomp: bonus/tdc1).
I(CEO equity>5%)	A dummy variable equal to one if the market value of the CEO's equity holding is 5% or more of the market value of the firm's equity (from Execucomp).
12-month stock return volatility	The standard deviation of monthly stock returns over the prior 12 month period (from CRSP).
Board size	The number of directors who sit on the firm's board (from ISS).
Board independence	The fraction of independent directors who sit on the firm's board (from ISS).
Fraction Attend<75%	The fraction of directors who attend less than 75% of meetings (from ISS).
Fraction Attend<75% (Audit)	The fraction of directors on the Audit Committee who attend less than 75% of meetings (from ISS).
N Boards	The number of boards sat on (director level).
Log(N Boards)	The natural log of N Boards.
UD law	A dummy variable equal to one if the state of the firm's headquarter adopts a universal demand (UD) law.