Litigation risk and CEO turnover: evidence from universal demand laws

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Abstract

This paper uses the staggered adoption of universal demand (UD) laws across 23 US states as a quasi-natural experiment to study the causal effect of directors' litigation risk on the sensitivity of CEO turnover to performance. UD laws raise significant procedural hurdles for shareholders to initiate a derivate lawsuit against corporate insiders and thus reduce litigation risk for directors. Consistent with litigation risk affecting directors' monitoring incentives, I document a weaker performance-turnover sensitivity in states that adopt UD laws. This effect is mitigated by the presence of sophisticated investors, as it is less pronounced for firms that have a higher level of institutional ownership. Overall, this study contributes to the literature by showing that shareholder litigation rights are an important governance tool that can incentivise boards to monitor in shareholders' interests.

JEL classifications: G34, G38, K22

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1. Introduction

It is the responsibility of the board of directors to hire a CEO who they believe will maximise shareholder value. In the event that the CEO fails to maximise value for shareholders, it is the board of director's responsibility to dismiss the incumbent CEO. However, whether directors adequately perform this duty depends on their incentives to monitor and act in shareholders' best interests. Directors who have inadequate incentives, or who have become captured by the CEO, may fail to fire an underperforming CEO (Fich & Shivdasani 2006; Hwang & Kim 2009; Coles *et al.* 2014; Guo & Masulis 2015; Chen *et al.* 2019b). I test this possibility in this paper by examining whether the susceptibility of directors to litigation affects their decision to fire an underperforming CEO.

Shareholder litigation rights are an important governance mechanism that can align managers' and directors' interests with shareholders' by providing the latter with a means to seek retribution in the event of wrong doing by corporate officers or directors (Shleifer & Vishny 1997; La Porta *et al.* 1998). Therefore, agency costs are likely to be exacerbated for firms that operate in a weak litigious environment since shareholders lack the ability to discipline behaviour that harms the firm, thus affording managers the opportunity to act in their own interests. Previous empirical studies are consistent with this notion: firms face a higher cost of capital when shareholders' ability to discipline managers through legal action is reduced (Houston *et al.* 2018; Ni & Yin 2018). I argue in this paper that directors have less incentives to exert effort and to act on shareholders' behalf when they are relatively insulated from the threat of litigation, and that this lack of director monitoring reduces the probability that they fire a CEO who has underperformed.

Empirical research has established a link between firm-level litigation risk and firms' financial policies. Arena and Julio (2011) find that firms that have high exposure to litigation risk have higher cash holdings, and that the marginal value of an extra dollar of cash is lower for these firms compared to low litigation risk firms. Similar findings are reported by Nguyen *et al.* (2018). Other research shows that firms use more financial leverage and are more likely to use debt for their marginal financing decisions (Downar & Keiling 2019; Nguyen *et al.* 2020) and that firms increase their investment expenditure when they face lower litigation risk (Bennett *et al.* 2018; Li *et al.* 2018). The latter finding, however, appears to be managerially motivated, as Li *et al.* (2018) find a decrease in investment efficiency when firms face lower litigation risk. Thus, overall, it appears that litigation risk (or the lack thereof) does indeed

influence firms' financial policies, consistent with La Porta *et al.* (1998) and Shleifer and Vishny (1997).

I test the prediction that litigation risk affects directors' monitoring incentives in the setting of derivative lawsuits, which allow shareholders to initiate litigation on behalf of the corporation against insiders who have breached their fiduciary duty. Derivative lawsuits are subject to universal demand (UD) laws, which require shareholders to make a demand on the firm's board prior to the lawsuit in order to seek approval for the legal action and to allow time for directors to address the alleged wrongdoing. UD laws have been implemented in 23 US states in response to a large number of frivolous cases making it to court. Legal commentators have argued that UD laws promote efficiency in the legal system by allowing firms to address issues without the need for court.[1] However, since the majority of derivative lawsuits allege wrongdoing by directors or officers, the board almost always rejects the demand (Swanson 1992). Therefore, UD laws raise significant procedural hurdles for shareholders seeking to initiate a derivate lawsuit against a director or officer who has breached their fiduciary duty, and thus, effectively reduce the risk of litigation for insiders.

There are several challenges that make it difficult to empirically establish a link between ex-ante litigation risk and firm outcomes. For one, ex-ante litigation risk is unobservable and difficult to measure. Previous studies employ crude measures of litigation risk, such as industry membership or estimated litigation probabilities based on regressions of actual lawsuits on corporate behaviour (Francis *et al.* 1994; Arena & Julio 2011; Kim & Skinner 2012). These measures, however, are problematic as they are likely to be correlated with unobservable firm characteristics. Therefore, the use of these proxies is likely subject to omitted variables problems and thus suffers from endogeneity. To overcome these issues, my empirical strategy exploits the fact that the adoption of UD laws was staggered across 23 US states over the period 1989 to 2005. Specifically, I use a difference-in-differences model around the adoption of UD laws to test the effect of (reduced) litigation risk on the sensitivity of CEO turnover to underperformance. The passage of UD laws is a plausible exogenous shock to directors' litigation risk, and thus, endogeneity is less likely to be an issue in this setting.

I focus on CEO turnover after accounting underperformance. In particular, I examine how the sensitivity of CEO turnover to accounting performance is affected by the adoption of UD

[1] See Coffee (1992) and Appel (2019) for a concise discussion of the institutional background of and legal debate surrounding the adoption of UD laws.

laws. Consistent with expectations, I find that there is a negative relation between firms' return on assets (ROA) and the rate of forced CEO turnovers. I further find that, in a difference-in-differences regression model, the negative relation between accounting performance and CEO turnover is less pronounced for firms that are located in a state with UD laws. Since UD laws protect directors from litigation, this finding suggests that directors are less likely to dismiss a CEO after poor performance when directors face lower litigation risk. Economically, the probability of a forced CEO dismissal increases by 2.35 percentage points for a one standard deviation decrease in the firm's ROA for a firm in a state without UD laws. In contrast, for a firm in a state that adopts UD laws, the probability of a forced CEO dismissal increases only by 1.76 percentage points for a one standard deviation decrease in the firm's ROA.[2]

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 fixed effects to examine the effect of UD laws on CEO turnover. The same inference is drawn when I use either logistic regressions or a Cox proportional hazard model, as is common in previous papers that examine CEO turnover (Jenter & Kanaan 2015; Jenter & Lewellen 2019). Second, the main results hold in a propensity score matched sample, which alleviates concerns that the main results are driven by the possibility that the adoption of UD laws are driven by firm characteristics, or that firms choose to incorporate in states that adopt UD laws in order to benefit from a less shareholder-friendly environment. Third, the main inference persists when I limit my sample of treated firms to those incorporated in Pennsylvania, where UD laws were adopted by the state Supreme Court through a court ruling, rather than by legislators;[3] thus alleviating concerns that the main results are driven by firms that lobbied for UD laws.

Finally, shareholders may pursue a securities class action lawsuit instead of a derivative lawsuit.[4] Since shareholders have multiple avenues to pursue litigation, I test if the main results are unique to derivative lawsuits, or if they hold more generally for other types of litigation. Using the decision by the Ninth Circuit Court of Appeals in Silicon Graphics Inc. Securities

[2] These calculations are based on the regression model in column 4 of Table 4.

[3] UD laws were adopted in Pennsylvania through a ruling in Cuker v. Mikalauskas 692 A.2d 1042 (1997) in order to maintain consistency with precedents in Pennsylvania.

[4] Shareholders may initiate a securities class action lawsuit in response to a violation of securities law by directors or officers. Unlike derivative lawsuits, shareholders are the plaintiffs in a securities class action and are thus the recipients of any damages awarded. Further, Appel (2019) finds that securities class action lawsuits and derivative lawsuits are not likely to be perfect substitutes.

Litigation, 183 F.3d 970 (1999) as a natural experiment,[5] I find that, consistent with the main tests in this paper, CEO dismissals are less sensitive to firm performance when the ability of shareholders to succeed with a securities class action lawsuit is reduced. However, the economic magnitude of these tests is lower compared to the main tests.[6]

Next, I examine cross-sectional heterogeneity in the effect of UD laws on the performance-turnover relation. First, I test whether the effect is less pronounced for firms that have stronger shareholders. Sophisticated shareholders are likely to rely less on litigation as a governance tool since they are likely to have better access to the firm's management. Consistent with this view, I find that the effect of UD laws on the sensitivity of forced CEO turnovers to performance is only present among the group of firms with relatively low levels of institutional ownership. Second, I examine whether the effect is stronger for firms that are ex-ante more susceptible to litigation since it is possible that UD laws matter most for these firms. Contrary to expectations, I find that the effect of UD laws on CEO turnover is present only amongst firms that face lower ex-ante litigation risk. Third, I explore whether the effect of UD laws on the turnover-performance relation is impacted by whether or not earnings measures are a good signal of CEO performance. I find that UD laws only affect the relation between CEO turnover and accounting performance for firms that have low current-year R&D expenditures, since accounting earnings are likely to be a better signal about the CEO's performance for these firms.

This paper contributes to the literature that studies how firms choose and monitor their CEO. Theoretical models usually assume that directors are unable to fully observe CEO skill at the time of hiring, and hence, that their knowledge of CEO skill updates over time as they observe firm performance and receive other signals (Hirshleifer & Thakor 1994, 1998; Eisfeldt & Kuhnen 2013; Jenter & Kanaan 2015). Once the board's estimate of the CEO's skill falls below some threshold (such as when the cost of keeping the incumbent CEO is greater than the cost of hiring a new CEO), the incumbent CEO is dismissed and a new CEO is hired. Empirical studies generally find support for the hypothesis that CEOs are dismissed when they

[5] On July 2 1999, the Ninth Circuit Court of Appeals made a ruling that made it much more difficult for plaintiffs in the ninth circuit to satisfy the proof of scienter that is required in securities class action lawsuits. Thus, it is more difficult for shareholders of firms in the ninth circuit to succeed with a securities class action after this decision.

[6] Based on the coefficients in column 2 of Table 8, the probability of a CEO dismissal increases by 2 percent for a one standard deviation decrease in the firm's ROA for firms in states outside of the Ninth Circuit. In contrast, for firms in the Ninth Circuit, the probability of a CEO dismissal increases by 1.6 percent for a one standard deviation decline in performance.

underperform relative to the market or to industry peers (e.g. Coughlan & Schmidt 1985; Warner *et al.* 1988; Weisbach 1988; Jenter & Kanaan 2015; Jenter & Lewellen 2019). However, whether the CEO is dismissed after underperformance depends on the board's monitoring incentives. Previous studies show that CEOs are relatively insulated from underperformance when there are fewer outside directors on the board (Weisbach 1988; Guo & Masulis 2015), when the board is busy (Fich & Shivdasani 2006), when directors have social ties to the CEO (Hwang & Kim 2009), and when directors are captured by the CEO (Coles *et al.* 2014; Chen *et al.* 2019b). This paper contributes to this literature by showing that directors' litigation risk also affects monitoring quality and hence the sensitivity of CEO turnover to performance.

This paper also contributes to the literature that studies the effect of litigation risk on corporate decision making and outcomes. Many early studies examine how the threat of securities class action lawsuits affects firms' disclosure decisions and quality, firms' financial policies, as well as other outcomes (see Kim and Skinner (2012) for a discussion of this literature). Recently, a number of papers have begun to study how the threat of a derivative lawsuit affects firm behaviour. This research is a product of the staggered adoption of UD laws, which provides a relatively clean empirical setting to test how litigation risk affects firms' behaviour. 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; Ni & Yin 2018; Appel 2019; Humphery-Jenner *et al.* 2020; Jung *et al.* 2020). I contribute to this literature by testing whether UD laws affect directors' incentives to monitor and hence whether they affect the sensitivity of CEO turnover to underperformance.

Finally, this paper also has policy implications. Lawmakers contend that UD laws promote efficiency in the legal system by preventing frivolous cases from making it to court and by allowing firms to address issues without the need for court in the first place (Coffee 1992). However, empirical evidence on whether UD laws are beneficial to firms is mixed. Some studies suggest that UD laws are beneficial to firms as they allow managers to freely pursue acquisitions and investment in R&D without the fear of shareholder litigation; and to reduce precautionary cash holdings (Li *et al.* 2018; Nguyen *et al.* 2018; Chu & Zhao 2019). However, other studies suggest that UD laws increase managerial entrenchment and thus reduce corporate governance quality (Appel 2019). My study contributes to this debate by showing that, by reducing shareholder litigation rights, UD laws can reduce the effectiveness of boards as

monitors. Thus, policy makers need to weigh up the benefit of a more efficient legal system against the cost of lower corporate governance quality when implementing laws that restrict shareholders' litigation rights.

This paper proceeds as follows. Section 2 gives a background on UD laws, the relevant literature, and develops the main hypotheses; Section 3 describes the main methodology and data; Section 4 presents the main results and various robustness tests; Section 5 provides results of further tests; and Section 6 concludes.

2. Universal demand laws, literature, and hypotheses

2.1. Background

Directors and officers have a fiduciary duty to shareholders to refrain from self-serving actions and from negligent conduct. In the event of a breach of these fiduciary duties, a derivate lawsuit allows shareholders to act on behalf of the corporation and bring legal action against the breaching directors or officers. Common examples of derivative lawsuits include allegations of option backdating, insider trading, conflicts of interest between firms and insiders, financial misreporting, and issues relating to merger and acquisition transactions (Appel 2019).

Derivative lawsuits are filed by shareholders on behalf of the corporation and usually name a director or officer as the wrongdoer. However, derivative lawsuits are subject to the demand requirement, which requires shareholders to demand that the board of directors take action to correct the alleged wrongdoing before proceeding to court. This demand requirement is subject to a conflict of interest if the firm's directors are the alleged wrongdoers: shareholders accuse directors of wrongdoing and aim to take legal action against them, but it is the directors themselves who are able to decide if the legal action proceeds. Thus, directors almost always reject the allegation (Swanson 1992).

Due to this conflict of interest, the law provides shareholders a means to bypass the demand requirement, which is known as the futility exception. The futility exception allows shareholders to initiate litigation if they believe that the demand is a futile act, i.e. if they believe that directors cannot make an unbiased evaluation of the demand. However, legal commentators have often argued that demand futility is inefficient for two reasons (See, for example, Coffee 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, which requires shareholders to make a demand on the board of directors for all derivative lawsuits, even if the alleged wrongdoer is an insider. If the demand is refused, directors need to be able to prove that their decision to refuse the demand is a valid business judgment, which is a relatively low threshold to satisfy. Thus, by requiring shareholders to make a demand on the board of directors, UD laws impose significant hurdles on shareholders seeking to initiate a derivative lawsuit.

2.2. Literature Review

Many recent papers have begun to examine the effect of the passage of UD laws on corporate behaviour. These papers exploit the fact that the adoption of UD laws was staggered across 23 states in the US over the period 1989 to 2005, and thus provides a relatively clean empirical setting. Among the first is Appel (2019), who examines the effect of UD laws on firms' corporate governance. He finds that firms are more likely to adopt governance provisions that are commonly opposed by shareholders after the adoption of UD laws, such as a classified board, poison pills, and supermajority voting requirements. He further finds that UD laws are associated with an increase in the number of shareholder proposals and weaker operating performance. Overall, Appel's (2019) evidence suggests that shareholder litigation rights are complementary to other mechanisms in firms' corporate governance. Foroughi *et al.* (2018) finds that the adoption of such governance proposals after the passage of UD laws propagates to other firms through interlocked boards, even if other firms are incorporated in a state that does not adopt UD laws. Humphery-Jenner *et al.* (2020) find that firms respond to the reduction in shareholder litigation rights by increasing managers' risk-taking incentives.

Other recent studies examine how the passage of UD laws affects firms' financial and investment policies. Nguyen *et al.* (2018) finds that UD laws lead to a lower level and a higher value of cash holdings; they interpret their findings as firms pursuing excessively conservative liquidity policies to mitigate the risk of shareholder litigation. Downar and Keiling (2019) and Nguyen *et al.* (2020) study the effect of UD laws on capital structure decisions. Each of these papers finds that firms have higher financial leverage after the adoption of UD laws, and that firms are more likely to use debt compared to equity for their marginal financing decisions. These findings are potentially explained by a decrease in the firm's stock liquidity, which may

reflect increased agency conflicts when shareholders have weakened litigation rights. Houston *et al.* (2018) show that the increase in agency conflicts as a result of UD laws increases firms' implied cost of capital. In a similar vein, Ni and Yin (2018) find that firms face a higher cost of debt when shareholders' litigation rights are restricted by UD laws, suggesting that shareholder litigation rights are an important governance mechanism even for creditors. They argue that creditors benefit from shareholders litigation rights through improved governance.

Bennett *et al.* (2018) study the effect of litigation risk on corporate investment. While their focus is not specifically on shareholder litigation through derivative lawsuits, they do use the passage of UD laws as a robustness test. Their analysis indicates that firms increase their investment after the passing of UD laws when shareholders' litigation rights are more restricted. Li *et al.*'s (2018) findings indicate that this increase in investment is likely to be managerially motivated, as they find that investment efficiency declines after UD laws, suggesting that shareholder litigation rights can curb empire building. However, the evidence presented by Chu and Zhao (2019) contradicts these findings. Chu and Zhao (2019) find that firms pursue more efficient acquisitions after the passage of UD laws. Specifically, they find that acquirers in states that adopt UD laws experience higher announcement returns and superior post-merger operating performance. They argue that, pre-UD laws, firms make suboptimal merger decisions to manage litigation risk. The findings of Lin *et al.* (2018) also highlight the potential advantages of UD laws; they find that firms invest more in R&D and produce more patents after UD laws. They further find that patents of firms in states that adopt UD laws get more citations and have a higher value.

The accounting literature has studied how the adoption of UD laws affects firms' disclosure decisions. In particular, Bourveau *et al.* (2018) find that firms issue more earnings forecasts, file more 8-K filings, and increase the length of their disclosure after the adoption of UD laws. However, while firms seem to increase the quantity of disclosure when shareholders' rights are reduced, the evidence reported by Boone *et al.* (2019) suggests that the overall quality of disclosure decreases. Specifically, they find that the quality of management earnings forecasts falls, and that firms produce less aggregated financial reports after UD laws. They further find that UD laws lead to higher analyst forecast dispersion and error, more profitable insider trades[7], lower trading volume, and higher bid-ask spreads, suggesting an overall deterioration

[7] Adhikari *et al.* (2019) and Jung *et al.* (2020) also show that UD laws increase insider trading, especially opportunistic trades.

in the information environment. Finally, Chen *et al.* (2019a) find a decrease in accounting conservatism after the adoption of UD laws.

2.3. Hypotheses

Theory models show that the board of directors should dismiss the incumbent CEO when the cost of replacing the CEO is lower than the cost of keeping the CEO. These models usually assume that CEO skill cannot be observed by directors at the time of hiring, and thus that they rely on signals received throughout the CEO's tenure to update their knowledge about CEO quality (Hirshleifer & Thakor 1994, 1998). Empirical evidence is consistent with these models: the likelihood of a CEO turnover increases after poor accounting and stock market performance (e.g. Coughlan & Schmidt 1985; Warner *et al.* 1988; Weisbach 1988; Jenter & Kanaan 2015; Jenter & Lewellen 2019), after bad acquisitions (Lehn & Zhao 2006), after option-backdating (Efendi *et al.* 2012), and after accounting irregularities, such as fraud, GAAP violations, or earnings restatements (Desai *et al.* 2006; Hennes *et al.* 2008; Leone & Liu 2010).

However, whether directors optimally dismiss the CEO after receiving a negative signal about the CEO's skill or about the quality of the CEO-firm match may depend on their incentives to adequately monitor or their loyalty to the CEO. If directors lack incentives to monitor impartially, then CEOs may be relatively insulated from poor performance since directors may not challenge them (Weisbach 1988; Hermalin & Weisbach 1998). Studies such as Weisbach (1988), Taylor (2010), Jenter and Kanaan (2015) provide empirical evidence that is supportive of this hypothesis.

Previous research suggests that the threat of shareholder litigation is one governance device that can discipline corporate managers and reduce agency costs (Shleifer & Vishny 1997; La Porta *et al.* 1998). Directors have greater incentives to monitor when shareholders' litigation rights are stronger as failing to monitor adequately could result in shareholder action against them. Therefore, by providing directors with incentives to monitor, shareholder litigation rights increase the sensitivity of CEO turnover to firm performance. In the context of this study, this argument implies a lower CEO turnover-performance sensitivity after the adoption of UD laws since UD laws reduce litigation risk for directors. Formally, the main hypothesis that I test in this study is (in the alternative form):

> H1: There is a lower likelihood of a CEO turnover resulting from poor performance following the adoption of UD laws.

I propose and test three additional hypotheses in this paper. The first additional hypothesis relates to the interaction of litigation rights and shareholder monitoring. Specifically, I argue that litigation rights are less important as a governance device for sophisticated shareholders, since sophisticated shareholders have more resources to monitor and have better access to management compared to other investors. Therefore, these types of shareholders are more likely to discipline managers in the event of wrongdoing and thus the presence of these investors is more likely to incentivise directors to monitor effectively (Parrino *et al.* 2003); resulting in a higher sensitivity of CEO turnover to performance. I therefore hypothesise that the effect of UD laws on the relation between performance and CEO turnover is strongest for firms that have lower institutional ownership, since litigation rights are more important for these firms:

> H2: The effect of UD laws on the performance-turnover sensitivity is less pronounced for firms with a higher level of institutional ownership**.**

The next hypothesis that I test in this paper relates to firms' ex-ante litigation risk. Following previous papers, I suggest that the passage of UD laws is likely to be less important for firms that are relatively less likely to face litigation (Ni & Yin 2018). This conjecture receives support by Huang *et al.* (2019) who find evidence that the effect of the 1999 Ninth Circuit Court ruling (an exogenous shock to shareholders' ability to pursue a securities class action) is only present for firms that are already prone to a securities class action. Formally, hypothesis 3 is:

> H3: The effect of UD laws on the performance-turnover sensitivity is more pronounced for firms with higher ex-ante litigation risk.

Finally, I test whether the main results of this paper depend on the earnings measure that I employ. Theoretical models generally suggest that different firms should employ different performance measures when evaluating CEO success (Hermalin & Weisbach 1998; Engel *et al.* 2003). In general, these models suggest that the link between market performance measures and CEO skill is confounded by the fact that stock returns contain information about the probability of future CEO turnovers, and thus that directors will rely more on accounting earnings rather than on stock returns when making CEO turnover decisions. However, there are some instances when stock returns will be preferred. In particular, directors of high-growth firms should rely less on accounting measures and more on market measures of performance since, for these types of firms, accounting earnings are less likely to be informative about CEO skill. This is because these firms are likely to be R&D intensive and thus current earnings are

not likely to be informative about current success. I therefore hypothesise that the effect of UD laws on the relation between turnover and accounting performance is stronger for firms with less R&D expenditures, since accounting earnings are more informative about CEO success for these firms. I further hypothesise and test that the effect of UD laws on the relation between turnover and stock returns is only present for firms with high R&D expenditures:

H4a: The effect of UD laws on the relation between CEO turnover and accounting performance is more pronounced for firms with lower current-year R&D expenditure.

H4b: The effect of UD laws on the relation between CEO turnover and market performance is more pronounced for firms with higher current-year R&D expenditure.

3. Method and data

3.1. Method

My empirical tests exploit the staggered adoption of Universal Demand laws across 23 US states over the period 1989 to 2005 in order to examine the impact of reduced shareholder litigation rights on the sensitivity of CEO turnover to performance. I estimate the following difference-in-differences (DiD) specification:

$$\text{Turnover}_{ist} = \beta_1 \text{UD law}_{st} + \beta_2 \text{Performance}_{it} + \beta_3 \text{UD law}_{st} * \text{Performance}_{it} + \delta' \text{controls}_{it} + \omega_i + \tau_t + \varepsilon_{ist} \quad (1)$$

Where *i* indexes firms, *s* indexes firms' state of incorporation, and *t* indexes years. The variable UD law is a dummy variable that equals one if state *s* has a UD law at time *t* and 0 otherwise (i.e. it is equal to one in the first year that a given state enacts a UD law as well as every year after that). Since this model includes firm and year fixed effects, the coefficient on this variable is the DiD estimator. The main focus of this paper is whether turnover is less sensitive to underperformance in the presence of UD laws. Thus, the main variable of interest in this regression is the interaction between UD law and performance, which measures the difference in the sensitivity of CEO turnover to performance between states with and without UD laws. Hypothesis 1 predicts a positive coefficient on this variable. The main DiD tests use ordinary least squares regressions to estimate equation (1). However, previous papers that study CEO turnover frequently employ logistic regressions and/or Cox proportional hazard regressions (Jenter & Kanaan 2015; Jenter & Lewellen 2019). Thus, as a robustness test, I

estimate equation (1) using these alternative methodologies in addition to ordinary least squares.

3.2. Performance measures

The main measure of performance that I consider in this study is the firm's return on assets, which is a measure of accounting performance. I choose to focus on accounting performance rather than market performance because Hermalin and Weisbach (1998) and Engel *et al.* (2003) show that accounting earnings are better at predicting CEO turnover than market measures of performance such as the firm's stock price. They argue that the reason for this is that earnings are a function of current management decisions only, whereas stock returns reflect current performance as well as expectations about the manager's future employment, which confounds the link between performance and turnover. As a robustness test, I empirically explore issues related to different performance measures in a later section in this paper.

3.3. Data

Data on CEO turnover comes from the ExecuComp database by identifying instances where there is a change of CEO. Of these turnover events, I identify which are forced using Peters and Wagner's (2014) dataset,[8] which they generously make publicly available on Florian Peters' website.[9] I also obtain information about CEOs' equity, compensation, age, and tenure from ExecuComp. I obtain data on firms' accounting performance and control variables from the Compustat database and data on firms' stock market performance from CRSP. All variable definitions appear in Appendix A.

3.4. Sample and summary statistics

The main sample in this study consists of 31,178 firm-year observations, which covers 2,791 firms and spans the period 1992-2017. The sample begins in 1992 as this is the first year is reported in the ExecuComp database. Since my sample begins in 1992, I drop firms in states that adopt UD laws on or prior to 1992 since I do not have data on these firms prior to UD law

[8] The method Peters and Wagner (2014) use to distinguish between voluntary and forced CEO turnovers follows Parrino's (1997) methodology. This method involves reading press articles to identify the reason for the CEO departure. Turnovers are identified as forced if the article (1) explicitly states that the CEO was fired, (2) The CEO is under 60 and the article does not state that the reason for the departure was for health reasons or due to the CEO accepting another position, or (3) the CEO is under 60 and the article states that the reason is retirement, but the retirement is not announced at least 6 months prior to the article. The latter cases are further investigated.

[9] Forced CEO turnover data can be found at https://www.florianpeters.org/data/.

adoption.[10] Table 1 shows a breakdown of the sample by states that adopt UD laws. In total, of the 2,791 firms in the sample, 1,183 are incorporated in a state that adopts a UD law; and of the 31,178 firm-years, 13,532 are of firms in states that adopt a UD law.

Table 2 presents summary statistics for the main variables considered in this study. It shows that a CEO turnover occurs in approximately 11% of all firm-years, and that a forced turnover occurs in approximately 3% of all firm-years. It further shows that the mean (median) firm in the sample has total assets worth $4,757.96 ($1,165.15) million, a market-to-book ratio of 2.06 (1.61), a leverage ratio of 0.23 (0.21), and a ROA of 4% (5%). The mean (median) CEO in the sample earns a total salary of $4,482.22 ($2,711.69) thousand, is 56 (56) years old, has been the CEO of their current firm for 7 (5) years, and holds equity in their firm worth $50,491.23 ($14,461.81) thousand.

Table 3 presents means of each of the variables considered in this study separately for firm-years when UD law equals 0 versus firm-years when UD law equals one, as well as the *t*-statistic and *p*-value of the difference. Table 3 shows that there is no difference in the rate of CEO turnovers, firm size, or ROA between firms in states with UD laws and states without UD laws. However, firms in states with UD laws tend to have lower market-to-book ratios, use more leverage, and have higher paid CEOs; thus, there appears to be significant differences between firms in UD law-states versus non-UD law-states. Given these differences, it is possible that the adoption of UD laws is driven by firm characteristics, or that firms choose their state of incorporation based on the state's legal environment. In this case, any differences between firms caused by UD laws may be driven by unobserved firm characteristics instead of by litigation risk. I take the following steps to mitigate these concerns. First, I remove from the sample firms that change states throughout the sample period and therefore reduce the number of instances where firms moved states in order to benefit from a less shareholder-friendly legal environment. Second, I use propensity score matching to match firms in states with UD laws with firms in non-UD law states on observed characteristics and thus construct a sample of similar control and treated firms. I then repeat the main analysis on this matched sample.

[10] Qualitatively similar results are found if I include these firms in the sample.

4. UD laws and CEO turnover after underperformance

4.1. OLS regressions

In this section, I test the effect of the adoption of UD laws on the CEO performance-turnover sensitivity in a regression setting. The main results are presented in Table 4. In each regression, I include a dummy variable for states that adopt a UD law. This variable is equal to one in the year that the state first adopts a UD law, and one every year after that. The main variable of interest in these regressions is the interaction of UD with the measure of firms' performance. This variable captures the difference in the effect of performance on the likelihood of a CEO turnover between states that adopt UD laws and states that do not adopt UD laws. These tests only consider CEO turnovers that are identified as forced. I present results of regressions without control variables, as well as results of regressions that include controls for firm and CEO characteristics that are expected to be related to the likelihood of a CEO turnover. Each regression contains firm and industry-year fixed effects, and standard errors are clustered at the state level.

Before examining the effect of UD laws on the relation between performance and CEO turnover, I test whether UD laws affect the rate of forced CEO turnover overall. These tests are presented in columns 1 and 2 of Table 4, where I present results from equation 1 without the UD law-performance interaction term. These regressions reveal that, overall, there is no difference in the likelihood of a forced CEO turnover between states with UD laws and states without UD laws (the coefficient on UD law is statistically indistinguishable from 0). However, columns 3 and 4 show that the sensitivity of a forced turnover to firms' accounting performance does indeed vary by whether or not the firm is in a state that adopts UD laws. The coefficient on the interaction between ROA and UD law is positive and statically significant. Thus, since the coefficient on ROA is negative, this finding suggests that, while CEOs are more likely to be dismissed after accounting under-performance, the affect is less pronounced (closer to 0) for firms in states where directors are relatively protected from the threat of shareholder litigation. This result suggests that shareholder litigation rights can potentially act as a disciplinary mechanism for directors: when shareholders are able to hold directors accountable via litigation, directors are more likely to monitor the CEO and are less likely to be loyal to the CEO in the event of under-performance.

4.2. Alternative models

Table 4 presents results from a linear probability model (i.e. OLS regressions). Previous papers that study CEO turnover often estimate logit regressions and Cox proportional hazard models (e.g. Jenter & Kanaan 2015). Thus, in this section, I repeat my main analysis using these alternative estimation methods. These results are presented in Table 5. Columns 1 and 2 show results from hazard regressions, and columns 3 and 4 show results from logit regressions.

Table 5 reveals that the main findings presented in Table 4 do not depend on the estimation method. The negative and statistically significant coefficient on ROA remains: the higher the firm's ROA, the less likely it is that the CEO will be dismissed. Further, the interaction between ROA and the UD law dummy variable is positive and statistically significant in each specification. These findings suggest that the effect of ROA on the likelihood of a CEO dismissal is less negative in states that adopt UD laws, similar to the previous section. Again, I interpret this finding as the threat of shareholder litigation acting as a disciplinary mechanism for directors. Directors are more likely to monitor and therefore dismiss the CEO after under-performance in shareholders' interests when they face a greater likelihood of litigation from shareholders.

4.3. Propensity score matching

The main results in this paper document that the effect of accounting performance on CEO turnover differs for firms in states that adopt UD laws versus firms in states that do not adopt UD laws. I argue that the reason for this difference is that UD laws reduce litigation risk for directors, which in turn reduces their incentives to monitor, thus insulating CEOs from poor performance. While the adoption of UD laws is a relatively clean empirical setting, one potential concern with the main results is that firms incorporated in states that adopt UD laws may differ fundamentally from firms incorporated in states that do not adopt UD laws, and thus the results may be driven by unobserved firm characteristics rather than by directors' litigation risk. I address this concern in this subsection by constructing a propensity score matched sample to match each treated firm with a control firm on observable covariates and re-running the main regressions.

The propensity score matching procedure is somewhat complicated in the setting of UD laws since there are multiple treatment events and the treatment events occur at different points in time. Therefore, firms may be a control firm at the beginning of the period, but a treated firm by the end. Thus, my empirical strategy follows papers such as Gormley and Matsa (2011),

Appel (2019), and Ni and Yin (2018). Specifically, for each year that a UD law is adopted, I create a cohort of treated and control firms. Each of these cohorts spans the period five years before and five years after the UD law is adopted. For a given cohort, if a firm is in a state that adopts a UD law after the treatment event but during the cohort sample period, that firm is dropped from the cohort in the year that its state adopts a UD law.[11]

After defining a cohort for each year that a UD law is adopted, I combine each cohort together and calculate propensity scores. I calculate propensity scores by estimating a logit regression of the likelihood of being in a state that adopts UD laws on firm size, market-to-book, leverage, R&D expenditure, and Altman's Z score in the year before the UD law is adopted. I then use the estimated propensity scores to match treated firms with one control firm, with replacement. Panel A of Table 6 shows the means of firm and CEO variables for the treated and control groups after the matching procedure, as well as the *t*-statistic and *p*-value of the difference. The matching appears to be effective, as the there is no statistical difference between treated and control firms for any of the variables presented. Thus, the propensity score matching somewhat alleviates concerns that the main results are driven by firms that choose to incorporate in states with UD laws.

Panel B of Table 6 shows results of equation 1 when estimated in the propensity score matched sample. Inference from this test is similar to the main findings: the UD law dummy variable is statistically insignificant, suggesting that UD laws do not affect CEO turnover overall. However, the UD law-ROA interaction term is positive and significant, suggesting that CEO turnover is less sensitive to accounting performance for firms that are incorporated in states with UD laws.

4.4. Pennsylvania

In this section, I address the potential endogeneity of the adoption of UD laws. Although less likely to be an issue in this setting due to the staggered adoption and the difference-in-differences specification, it is possible that identification is an issue since some firms lobbied for UD laws. Thus, it may be the case that firms with poorer governance are more likely to lobby for UD laws and thus that states with poorer governance firms are more likely to adopt

[11] For example, North Carolina adopted UD laws in 1995, and five other states (Connecticut, Maine, Pennsylvania, Texas, and Wyoming) adopted UD laws in 1997. Thus, for the 1995 cohort, firms incorporated in any of the states that adopted UD laws in 1997 are included in the 1995 cohort as control firms until 1997, after which they are dropped.

UD laws. In this scenario, the observed effect of UD laws on CEO turnover-performance sensitivity is driven by firms that have weaker governance structures and not by litigation risk.

To mitigate this concern, I follow Appel (2019) and restrict the sample of treated firms to those incorporated in Pennsylvania. Unlike every other state that adopted UD laws, UD laws were adopted in Pennsylvania by a decision in the state Supreme Court [Cuker v. Mikalauskas 692 A.2d 1042 (1997)], and were adopted to maintain consistency with judicial precedent. Thus, the adoption of UD in Pennsylvania was not a result of corporate lobbying and is thus a plausibly exogenous shock to firms' ex-ante litigation risk.

Similar to the main tests in Table 4, I estimate a difference-in-differences model around the adoption of UD in Pennsylvania. Firms incorporated in Pennsylvania form the treatment group and firms incorporated in any other state form the control group. Further, I exclude firms in states that adopt UD laws before 1997 from the analysis, and I only examine the period 5 years before and 5 years after the Supreme Court's decision. These tests are presented in Table 7. All specifications include firm and industry-year fixed effects, and standard errors are clustered at the state level.

Results from these tests are consistent with the main findings in this paper: the effect of performance on CEO turnover is less pronounced for firms that are in Pennsylvania compared to firms in US states that do no adopt UD laws (the coefficient on the interaction of the Pennsylvania dummy variable and ROA is positive and statistically significant). Again, I interpret this finding as directors being less effective monitors when they face less litigation risk. However, it should be noted that the economic magnitude is slightly lower in these tests compared to the main results. Another interesting finding arising from the Pennsylvania tests is that, unlike the main tests, the coefficient on the UD law dummy variable is positive and statistically significant, suggesting that the overall rate of forced turnover is higher in Pennsylvania after the adoption of UD.

4.5. Class action lawsuits and the Ninth Circuit Court Ruling

The previous subsections document a relation between shareholder litigation rights and CEO performance-turnover sensitivity. These tests examine shareholder litigation rights in the setting of derivative lawsuits, whereby shareholders initiate litigation on behalf of the firm and allege a breach of fiduciary duty by corporate insiders. However, instead of filing a derivative lawsuit, shareholders also have the option to file a class action lawsuit to address harm done by directors and officers. Class action lawsuits typically allege a violation of securities law,

and, unlike derivative lawsuits, any financial remedy resulting from a class action is awarded to the set of shareholders alleging harm (i.e. the class). Moreover, 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, since shareholders have more than one avenue to pursue litigation, and since the two are not substitutes, my next set of tests examine whether the threat of class action litigation (as opposed to derivative litigation) affects the CEO performance-turnover relation.

The empirical setting for these tests is the 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 much 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 have to show that the defendants acted with deliberate recklessness, which is a stricter requirement compared to other circuits. Thus, this decision by the Ninth Circuit Court of Appeals makes it more difficult for plaintiffs in the ninth district to initiate a securities class action lawsuit, thus reducing litigation risk for firms in this circuit.

Similar to the main tests, I use a difference-in-differences approach around the Ninth Circuit Court decision to examine if the effect of firm performance on CEO turnover is affected by litigation risk. Similar to previous papers (e.g. Huang *et al.* 2019), I consider the period 5 years before (i.e. beginning 1994) and 5 years after (i.e. ending 2004) the decision. I also exclude the year 1999 from the sample in these tests. I define a dummy variable (ninth circuit) equal to one if the firm is in the ninth circuit[12] and if the year is 2000 or later. Thus, firms in the Ninth Circuit represent the treatment group, and firms not in the Ninth Circuit represent the control group.

Results from the difference-in-differences tests around the Ninth Circuit court ruling appear in Table 8. Similar conclusions are drawn to the main analysis. The coefficient on the ninth

[12] States under the jurisdiction of the Ninth Circuit Court of Appeals include Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, and Washington. Thus, firms incorporated in these states form the treatment group and firms incorporated outside of these states form the control group.

circuit dummy variable is statistically insignificant, suggesting that litigation risk does not affect the rate of forced CEO turnovers overall. However, the coefficient on the interaction between ROA and the ninth circuit dummy is positive and significant at the 5 percent level, suggesting that CEO dismissals are less sensitive to performance when insiders are more protected from securities litigation. Thus, the main results in this paper appear not to be unique to derivative lawsuits. However, economically, the effect is stronger in the setting of UD laws, potentially suggesting that directors are more concerned with derivative lawsuits than class action lawsuits.

5. Further tests

5.1. Institutional ownership

In this section, I examine whether the effect of directors' litigation risk on the relation between CEO turnover and performance is moderated when shareholders have more power. The idea is that, if the firm performs poorly and directors fail to dismiss the CEO in shareholders' best interests, then powerful shareholders may exert pressure on the CEO to resign, thus reducing the effect of litigation risk on CEO turnover. To test this hypothesis, I partition my sample into two groups by splitting firms at the median level of institutional ownership, as institutional investors are likely to be more effective monitors compared to other shareholders. I then re-estimate the difference-in-differences regressions separately for the high and low institutional ownership subsamples. Data on institutional ownership comes from the Thomson Reuters 13f Filings database.

Results for these tests are presented in Table 9. Columns 1 and 2 show results of regressions that do not include control variables, and columns 3 and 4 show results from regressions that include controls for firm and CEO characteristics. All regressions include firm and industry-year fixed effects. Table 9 reveals that the coefficient on the interaction between UD law and ROA is larger in magnitude and is only statistically significant in the low institutional ownership subsample. Further, this difference holds both with and without control variables and is statistically significant at the one percent level. This finding suggests that the effect of litigation risk on the relation between CEO turnover and performance is only present when shareholders are less effective monitors. Thus, it appears that sophisticated shareholders who have the power and resources to monitor and discipline management can somewhat offset an ineffective board.

5.2. Ex-ante litigation risk

This subsection tests whether the effect of UD laws on the relation between CEO turnover and performance depends on firms' ex-ante susceptibility to litigation. I hypothesise that UD laws matter more for firms that face higher ex-ante litigation risk because such firms are likely to benefit more when shareholders face increased hurdles to succeed with litigation. Thus, we would expect to see the effect of UD laws be stronger amongst firms that face higher ex-ante litigation risk.

I use two proxies based on prior literature to measure firms' ex-ante litigation risk. The first proxy is a dummy variable based on industry membership. Specifically, I follow Francis *et al.* (1994) and consider firms in the biotechnology, computers, electronics, and retail industries as at high risk of litigation. In my empirical tests, I define a dummy variable (FPS) that is equal to one for firms that belong to any of these industries.[13] I then split my sample into two groups and re-run my difference-in-differences regression separately for each group. However, since industry membership may proxy for unobserved characteristics other than litigation risk, I also consider a second measure of firm-level litigation risk. Specifically, I employ Kim and Skinner's (2012) measure, SUE. The construction of this variable is described in detail in Appendix A. Similar to the industry-based tests, I partition my sample into two groups based on the median value of SUE and run the main regressions separately for each subsample.

Results of these tests are presented in Table 10. Panel A presents results when I use the industry-based measure of litigation risk, and Panel B presents results when I use Kim and Skinner's (2012) measure. Panel A shows that the effect of UD laws on the relation between performance and CEO turnover is only present in the subsample of firms not in any of the FPS industries, as the interaction between UD law and ROA is positive and statistically significant only in the non-FPS subsample. Further, the results presented in Panel B are consistent with this finding: the interaction between UD law and ROA is only significant in the subsample of firms with below-median SUE (i.e. firms with low ex-ante litigation risk). Thus, it appears that UD laws only matter for firms that already face low risk of litigation. For firms that face a higher risk of litigation ex-ante, UD laws do not appear to disincentivise directors from monitoring in shareholders' interests.

[13] This includes firms with SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374, and 8731-8734.

5.3. Accounting versus market performance measures

The main results of this paper employ accounting earnings as the measure of the CEO's performance. However, theory models suggest that directors should use performance measures that are most sensitive to the CEO's effort and skill (Hermalin & Weisbach 1998; Engel *et al.* 2003). Thus, in this subsection, I split my sample into two groups based on how informative accounting earnings are likely to be about the CEO's effort and skill and rerun my main model for each subsample. Specifically, I split firms based on their research and development expenditures as a fraction of total sales. R&D expenditures reduce accounting earnings in the current year as they are reported as an expense under Generally Accepted Accounting Principles (GAAP), however, firms do not generally enjoy the benefits of current-period R&D expenditures until many years in the future. Thus, accounting earnings are less likely to be informative about CEO skill and about the CEO-firm match for firms that have high R&D expenditures. For these firms, directors may give more weight to market measures of performance rather than accounting measures when evaluating the CEO and thus when they make CEO dismissal decisions.

Table 11 tests whether the effect of UD laws on the relation between performance and forced CEO turnovers depends on how informative performance measures are of the CEO's skill. Panel A presents results of the main regression model using accounting performance (ROA) separately for the high and low R&D subsamples, and panel B presents results for the high and low R&D subsample when I use the firm's market performance (stock return) as a measure of performance. Panel A shows that the interaction between ROA and UD law is positive and statistically significant only in the subsample of firms that have relatively low R&D expenditures. This finding may be explained by the fact that directors of R&D intensive firms already pay less attention to ROA when evaluating CEO skill and therefore a change in their incentives to monitor has an insignificant effect on the sensitivity of turnover to performance. Panel B shows results of the main regression for the high and low R&D subsamples when I replace the firm's accounting performance with a market performance measure. Interestingly, the results are similar to Panel A: the interaction of UD law and stock return is positive and statistically significant only in the low R&D subsample.

6. Conclusion

Choosing the right CEO is of critical importance to a firm to maximise shareholder value. Thus, hiring and firing the CEO is one of the most important functions of the board of directors.

If directors act in shareholders' best interests, then they should hire a CEO who they believe can maximise firm value, and, in the event of underperformance, directors should replace the incumbent CEO. If, however, directors' incentives are inadequately aligned with shareholders', then they may fail to perform their monitoring role and thus the CEO may be relatively insulated from poor performance.

In this paper, I test the prediction that CEO turnover is less sensitive to underperformance when directors have weak incentives to monitor in the setting of directors' personal litigation risk. The option to bring legal action against firm insiders is likely to be an important governance device for shareholders as it allows them to hold insiders accountable for opportunistic actions that harm the firm (Shleifer & Vishny 1997; La Porta *et al.* 1998). I argue that directors' monitoring incentives are weaker when they face a relatively low probability of litigation, and thus that they are less likely to replace an underperforming CEO.

My empirical setting exploits the passage of Universal Demand (UD) laws across 23 US states over the period 1989 to 2005. UD laws require shareholders to seek approval from the board of directors prior initiating a derivate lawsuit. Thus, UD laws raise significant procedural hurdles for shareholders trying to initiate legal action against a director or officer who has harmed the corporation. The staggered adoption of these laws across various US states over time provides several attractive features for empirically studying how litigation risk affects firms' behaviour. First, it allows the researcher to study how ex-ante litigation risk affects firm outcomes, rather than relying on observed lawsuits, which are an equilibrium outcome (Ni & Yin 2018). Second, the adoption of UD laws is a plausible exogenous shock to the ability of shareholders to initiate a derivative lawsuit, and therefore allows the use of a difference-in-differences methodology. Thus, endogeneity is less likely to be an issue in this setting.

The main findings in this paper support the hypothesis that litigation rights are an important governance device that can align directors' interests with shareholders'. I find that the effect of performance on forced CEO dismissals is weaker for firms that are located in states that adopt UD laws. Thus, CEOs are less likely to be replaced even if they perform poorly when directors face a lower risk of litigation. This finding is robust to various alternative empirical models and to alternative settings such as the risk of securities class action lawsuits instead of derivative lawsuits. I further find that the effect is strongest amongst firms with a lower level of institutional ownership, a lower level of ex-ante litigation risk, and less current-year R&D expenditures.

This paper contributes to the literature that studies the role that directors play in CEO succession after underperformance. Previous studies show an increased rate of CEO turnover after firms underperform relative to their peers (e.g. Coughlan & Schmidt 1985; Warner *et al.* 1988; Weisbach 1988; Jenter & Kanaan 2015; Jenter & Lewellen 2019), and after firms are involved in misconduct such as option-backdating or accounting irregularities (Desai *et al.* 2006; Hennes *et al.* 2008; Leone & Liu 2010; Efendi *et al.* 2012). However, empirical evidence presented by Taylor (2010) suggests that the observed rate of CEO turnover is much lower than what is predicted by theory. This paper contributes to this literature by testing whether directors' incentives provided through the threat of shareholder litigation can partially explain the lower than expected rate of observed CEO turnover.

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Appendix A: Variable definitions

Variable	Definition
Litigation	
UD law	A dummy variable equal to one for firms incorporated in states with UD laws.
Pennsylvania	A dummy variable equal to one for firms incorporated in Pennsylvania on or after the year 1997.
Ninth Circuit	A dummy variable equal to one for firms in the Ninth Circuit from 1999 onwards.
FPS	Francis et al.'s (1998) proxy for litigation risk. This is a dummy variable equal to one for firms with SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374, and 8731-8734.
SUE	Kim and Skinner's (2012) proxy for litigation risk. This variable is firms' estimated litigation probability based on a regression of actual lawsuits on firm size, growth, and stock volatility.
Firm	
CEO turnover	A dummy variable equal to one if there is a CEO turnover in the current year.
Forced turnover	A dummy variable equal to one if there is a forced turnover in the current year. Forced turnovers are identified using Peters and Wagner's (2014) dataset.
Total assets	The book value of firms' assets.
Market-to-book	The market value of the firm's equity divided by the book value of the firm's equity.
Leverage	The book value of total assets divided by the book value of liabilities.
ROA	EBIT divided by total assets.
Stock return	The annual change in the firm's stock price as a percentage.
Institutional ownership	The percentage of outstanding shares that are held by institutional investors.
Industry ROA	The average ROA of firms in the same industry.
Industry stock return	The average stock return of firms in the same industry.
CEO	
Total compensation	The sum of the CEO's cash and equity compensation.
Salary	The CEO's annual salary.
Bonus	The CEO's annual cash bonus.
Age	The CEO's age in years.
Tenure	The number of years the CEO has been in office.
Delta	The dollar change in the value of the CEO's equity portfolio for a 1% change in the firm's stock price.
Vega	The dollar change in the value of the CEO's equity portfolio for a 0.01 change in the standard deviation of the firm's stock return.
CEO equity	The percentage of outstanding shares that are held by the CEO.

CEO equity>5%	A dummy variable equal to one if the CEO holds 5% or more of the firm's outstanding shares.

Table 1: UD laws by year of adoption

This table presents a breakdown of the sample for states that adopted universal demand laws, including the year of law adoption.

Year	State	Code	Firms	Obs
1989	Georgia	GA	83	1,022
	Michigan	MI	55	776
1990	Florida	FL	100	1,093
1991	Wisconsin	WI	42	648
1992	Montana	MT	1	4
	Virginia	VA	73	844
	Utah	UT	22	183
1993	New Hampshire	NH	13	120
	Mississippi	MS	9	84
1995	North Carolina	NC	58	778
1996	Arizona	AZ	46	469
	Nebraska	NE	10	161
1997	Connecticut	CT	64	676
	Maine	ME	4	52
	Pennsylvania	PA	113	1,290
	Texas	TX	310	3,324
	Wyoming	WY	1	8
1998	Idaho	ID	10	102
2001	Hawaii	HI	1	5
2003	Iowa	IA	12	174
2004	Massachusetts	MA	145	1,553
2005	Rhode Island	RI	8	132
	South Dakota	SD	3	34

Table 2: descriptive statistics

This table presents summary statistics for the variables considered in this study. Formal variable definitions appear in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles.

	Mean	Std. Dev.	25th	Median	75th
Firm					
CEO turnover	0.11	0.32	0.00	0.00	0.00
Forced turnover	0.03	0.16	0.00	0.00	0.00
Total assets	4,757.96	11,136.7	421.17	1,165.15	3,627.28
Market-to-book	2.06	1.39	1.21	1.61	2.37
Leverage	0.23	0.19	0.05	0.21	0.34
Return on assets	0.04	0.12	0.01	0.05	0.09
Stock return	0.12	0.53	-0.19	0.05	0.31
Institutional	0.59	0.34	0.38	0.68	0.85
Restate	0.06	0.23	0.00	0.00	0.00
CEO					
Total	4,482.22	5,068.32	1,234.63	2,711.69	5,703.97
Salary (thousands)	684.94	344.46	435.64	629.77	895.83
Bonus (thousands)	341.29	665.31	0.00	0.00	412.50
Age	55.76	7.42	51.00	56.00	61.00
Tenure	7.09	7.21	2.00	5.00	10.00
Delta	581.89	1,281.36	67.84	182.78	511.69
Vega	105.45	182.44	8.36	37.02	112.56
CEO equity	50,491.2	119,992.	5,368.89	14,461.8	40,688.5
CEO equity>5%	0.17	0.37	0.00	0.00	0.00

Table 3: Sample means by UD laws

This table presents means for each of the variables considered in this study separately for firms in states that adopt UD laws versus firms in states that do not adopt UD laws. This table also reports differences, as well as *t*-statistics and *p*-values of the differences based on a two-tail t-test. All variables are defined in Appendix A. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	No UD law	UD law	Diff.	*t*-stat (diff.)	p-value
Firm					
CEO turnover	0.115	0.112	0.003	0.74	0.46
Forced turnover	0.028	0.025	0.002	0.99	0.32
Total assets	4,743.868	4,905.354	-161.486	-1.05	0.29
Market-to-book	2.150	1.887	0.263	13.72***	0.00
Leverage	0.219	0.231	-0.011	-4.23***	0.00
Return on assets	0.033	0.035	-0.002	-1.14	0.25
Stock return	0.114	0.121	-0.007	-0.95	0.34
Restate	0.053	0.067	-0.014	-4.5***	0.00
CEO					
Total compensation	4,463.706	4,683.776	-220.070	-3.12***	0.00
Salary	672.644	702.401	-29.757	-6.26***	0.00
Bonus	347.525	328.015	19.510	2.13**	0.03
Age	55.641	55.569	0.072	0.70	0.48
Tenure	7.152	7.047	0.105	1.04	0.30
Delta	615.982	518.727	97.255	5.38***	0.00
Vega	111.421	99.738	11.683	4.48***	0.00
CEO equity	53,409.800	44,680.130	8,729.671	5.17***	0.00
CEO equity %	0.031	0.027	0.004	5.68***	0.00
CEO equity>5%	0.175	0.152	0.024	4.65***	0.00

Table 4: UD laws and CEO turnover

This table presents OLS regressions of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. UD law is a dummy variable equal to one if the firm is incorporated in a state that has adopted a UD law in year t, and 0 otherwise. ROA is the firm's EBIT divided by total assets. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)	(3)	(4)
UD law	0.002	0.005	0.003	0.004
	(0.29)	(0.85)	(0.44)	(0.61)
ROA		-0.180***	-0.223***	-0.196***
		(-15.64)	(-18.17)	(-14.74)
ROA*UD law			0.056***	0.049**
			(2.68)	(2.33)
Industry ROA		0.108***		0.102***
		(3.12)		(2.94)
ln(Total assets)		-0.003		-0.003
		(-1.15)		(-1.32)
ln(Market-to-book)		-0.022***		-0.022***
		(-6.91)		(-6.94)
Leverage		0.007		0.007
		(0.79)		(0.83)
Age		0.001***		0.001***
		(4.65)		(4.64)
Tenure		-0.002***		-0.002***
		(-7.85)		(-7.86)
CEO equity>5%		0.019***		0.020***
		(5.08)		(5.13)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	31,178	30,279	31,178	30,279
Adj. R-squared	0.01	0.03	0.03	0.03

Table 5: Hazard and Logit Regressions

This table presents hazard (columns 1 and 2) and logit (columns 3 and 4) regressions of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. UD law is a dummy variable equal to one if the firm is incorporated in a state that has adopted a UD law in year t, and 0 otherwise. ROA is the firm's EBIT divided by total assets. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)	(3)	(4)
	Hazard regression		Logit regression	
UD law	-0.039	-0.058	-0.059	-0.067
	(-0.55)	(-0.99)	(-0.69)	(-0.91)
ROA	-1.455***	-1.942***	-3.996***	-3.630***
	(-9.13)	(-10.80)	(-20.79)	(-15.39)
ROA*UD law	0.798**	0.779**	0.780***	0.713**
	(2.01)	(1.99)	(2.74)	(2.37)
Industry ROA		1.144		2.166*
		(1.51)		(1.78)
ln(Total assets)		0.034**		0.030
		(2.16)		(1.02)
ln(Market-to-book)		-0.128**		-0.688***
		(-2.31)		(-8.20)
Leverage		-0.467***		0.136
		(-3.55)		(0.73)
Age		0.049***		0.017***
		(16.32)		(3.30)
Tenure				-0.160***
				(-12.97)
CEO equity>5%		-0.461***		0.347**
		(-8.42)		(2.33)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	12,804	12,798	25,211	24,495
Pseudo R-squared	0.01	0.02	0.06	0.12

Table 6: Propensity score matching

This table presents tests of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals for a propensity score matched sample. For each year that a UD law is adopted, I define a cohort of control and treated firms spanning the period 5 years before and 5 years after the law is adopted. I then stack all cohorts together and estimate a logit regression of UD law on firm size, leverage, market-to-book, R&D, and Altman's Z score in the year before the law adoption to calculate propensity scores. I then match treated firms with one control firm using nearest neighbour matching, with replacement. Panel A reports post-match means and differences between the treatment and control samples, and Panel B reports results from an OLS regression of CEO turnover on UD law and ROA. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

Panel A: Post-match differences					
	No UD law	**UD law**	**Diff.**	***t*-stat (diff.)**	**p-value**
Firm					
Forced turnover	0.03	0.03	0.00	-0.18	0.86
Total assets	3,324.42	3,176.71	-147.71	-0.58	0.56
Market-to-book	1.91	1.96	0.05	1.14	0.25
Leverage	0.22	0.22	0.00	0.15	0.88
Return on assets	0.03	0.03	0.00	0.95	0.34
Stock return	0.07	0.05	-0.02	-1.03	0.30
CEO					
Total compensation	3,450.98	3,717.61	266.63	1.69*	0.09
Delta	530.92	488.83	-42.08	-1.19	0.23
Vega	95.59	98.90	3.31	0.57	0.57
CEO equity %	0.04	0.04	0.00	-0.01	0.99
Age	55.52	55.02	-0.50	-1.99**	0.05
Tenure	7.00	6.78	-0.22	-0.89	0.37

Panel B: PSM sample regression	
UD law	-0.020
	(-1.11)
ROA	-0.365***
	(-5.35)
ROA*UD law	0.165**
	(2.03)
Firm FE	Yes
Year FE	Yes
Observations	3,711
Adj. R-squared	0.04

Table 7: Pennsylvania

This table presents OLS regressions of the effect of the adoption of Universal Demand (UD) laws in Pennsylvania and firm performance on CEO dismissals. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. Pennsylvania is a dummy variable equal to one if the firm is incorporated in Pennsylvania in the year 1997 onwards, and 0 otherwise. ROA is the firm's EBIT divided by total assets. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)
UD law	0.062***	0.062***
	(3.11)	(3.04)
ROA	-0.315***	-0.272***
	(-12.50)	(-9.66)
ROA*UD law	0.331**	0.335**
	(2.01)	(2.01)
Industry ROA		0.006
		(0.07)
ln(Total assets)		-0.008
		(-1.22)
ln(Market-to-book)		-0.021***
		(-2.85)
Leverage		0.025
		(1.01)
Age		0.000
		(0.14)
Tenure		-0.001*
		(-1.67)
CEO equity>5%		-0.004
		(-0.47)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	7,114	6,698
Adj. R-squared	0.04	0.04

Table 8: Ninth Circuit Court of Appeals Ruling

This table presents OLS regressions of the effect of the 1999 Ninth Circuit Court of Appeals ruling and firm performance on CEO dismissals. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. UD law is a dummy variable equal to one if the firm is incorporated in a state that has adopted a UD law in year t, and 0 otherwise. ROA is the firm's EBIT divided by total assets. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)
Ninth circuit	-0.002	0.001
	(-0.73)	(0.26)
ROA	-0.183***	-0.166***
	(-19.73)	(-15.94)
ROA*Ninth circuit	0.035**	0.036**
	(2.02)	(2.05)
Industry ROA		0.072**
		(2.21)
ln(Total assets)		-0.000
		(-0.47)
ln(Market-to-book)		-0.010***
		(-4.81)
Leverage		-0.004
		(-0.77)
Age		0.000***
		(2.96)
Tenure		-0.002***
		(-14.16)
CEO equity>5%		0.009***
		(3.21)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	29,960	29,123
Adj. R-squared	0.02	0.03

Table 9: Institutional ownership

This table presents OLS regressions of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals by the level of institutional ownership. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. UD law is a dummy variable equal to one if the firm is incorporated in a state that has adopted a UD law in year t, and 0 otherwise. ROA is the firm's EBIT divided by total assets. Institutional ownership is the percentage of shares held by institutional investors. Columns (1) and (3) present regression results for the subsample of firms with below median institutional ownership, and columns (2) and (4) present results for the subsample of firms with above-median institutional ownership. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1) Low inst. own	(2) High inst. own	(3) Low inst. own	(4) High inst. own
UD law	0.007	0.000	0.008	0.002
	(0.66)	(0.04)	(0.71)	(0.27)
ROA	-0.241***	-0.203***	-0.210***	-0.189***
	(-13.79)	(-9.78)	(-11.07)	(-8.57)
ROA*UD law	0.074**	0.043	0.078***	0.017
	(2.54)	(1.26)	(2.65)	(0.51)
Industry ROA			0.044	0.164***
			(0.80)	(3.43)
ln(Total assets)			-0.001	-0.007*
			(-0.44)	(-1.86)
ln(Market-to-book)			-0.026***	-0.017***
			(-5.49)	(-3.55)
Leverage			0.018	-0.010
			(1.26)	(-0.75)
Age			0.001***	0.001***
			(2.60)	(3.49)
Tenure			-0.002***	-0.002***
			(-4.98)	(-4.94)
CEO equity>5%			0.018***	0.027***
			(3.28)	(4.48)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	15,595	15,583	15,086	15,193
Adj. R-squared	0.02	0.02	0.03	0.03

Table 10: Ex-ante litigation risk

This table presents OLS regressions of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals by firms' ex-ante litigation risk. Columns (1) and (3) of Panel A present regression results for the subsample of firms in an FPS industry, and columns (2) and (4) of Panel A present results for the subsample of firms not in an FPS industry. Columns (1) and (3) of Panel B present regression results for the subsample of firms with below-median SUE, and columns (2) and (4) of Panel A present results for the subsample of firms with above-median SUE. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. UD law is a dummy variable equal to one if the firm is incorporated in a state that has adopted a UD law in year t, and 0 otherwise. ROA is the firm's EBIT divided by total assets. FPS is Francis *et al.'s* (1998) proxy for litigation risk; it is a dummy variable equal to one for firms with SIC codes 2833-2836, 3570-3577, 3600-3674, 5200-5961, 7370-7374, and 8731-8734. SUE is Kim and Skinner's (2012) proxy for litigation risk; it is firms' estimated litigation probability based on a regression of actual lawsuits on firm size, growth, and stock volatility. All other variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)	(3)	(4)
Panel A: FPS				
	Non-FPS ind.	FPS ind.	Non-FPS ind.	FPS ind.
UD law	0.000	0.007	0.002	0.009
	(0.05)	(0.52)	(0.28)	(0.71)
ROA	-0.230***	-0.216***	-0.218***	-0.171***
	(-13.76)	(-11.07)	(-11.85)	(-8.14)
ROA*UD law	0.070***	0.032	0.067***	0.015
	(2.75)	(0.85)	(2.59)	(0.41)
Controls	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	20,693	10,485	20,093	10,186
Adj. R-squared	0.02	0.03	0.03	0.03
Panel B: SUE				
	Low lit risk	High lit risk	Low lit risk	High lit risk
UD law	-0.005	0.014	-0.004	0.013
	(-0.53)	(1.32)	(-0.41)	(1.24)
ROA	-0.272***	-0.208***	-0.250***	-0.155***
	(-12.78)	(-9.94)	(-10.82)	(-6.91)
ROA*UD law	0.095***	0.005	0.094***	-0.017
	(2.78)	(0.14)	(2.72)	(-0.45)
Controls	No	No	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	12,340	12,330	11,934	12,019
Adj. R-squared	0.04	0.05	0.04	0.05

Table 11: Accounting versus market performance

This table presents OLS regressions of the effect of the adoption of Universal Demand (UD) laws and firm performance on CEO dismissals by firms' R&D expenditures. The dependent variable in each regression is a dummy variable equal to 1 if the firm dismisses the CEO in the current year and 0 otherwise. Variable definitions appear in Appendix A. *t*-statistics based on state-clustered standard errors are reported in parentheses below coefficients. ***, **, and * indicate statistical significance at the one, five, and ten percent levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: ROA				Panel B: Stock return			
	Low R&D	High R&D	Low R&D	High R&D	Low R&D	High R&D	Low R&D	High R&D
UD law	-0.006	0.010	-0.002	0.010	-0.007	0.010	-0.002	0.010
	(-0.68)	(1.15)	(-0.17)	(1.17)	(-0.79)	(1.10)	(-0.19)	(1.21)
ROA	-0.283***	-0.197***	-0.262***	-0.166***				
	(-12.96)	(-12.71)	(-10.84)	(-9.98)				
ROA*UD law	0.097***	0.030	0.087***	0.019				
	(2.96)	(1.04)	(2.61)	(0.66)				
Stock return					-0.026***	-0.014***	-0.021***	-0.008**
					(-7.33)	(-4.61)	(-5.21)	(-2.44)
Stock return*UD law					0.012**	-0.009	0.013**	-0.009*
					(2.37)	(-1.62)	(2.42)	(-1.77)
Industry ROA			0.135***	0.090				
			(3.08)	(1.37)				
Industry stock return							-0.006	0.017
							(-0.82)	(1.50)
ln(Total assets)			-0.006*	0.001			-0.011***	-0.005
			(-1.77)	(0.19)			(-3.44)	(-1.47)
ln(Market-to-book)			-0.026***	-0.020***			-0.033***	-0.028***
			(-5.12)	(-4.74)			(-6.60)	(-6.29)
Leverage			-0.013	0.020			0.021	0.047***
			(-0.99)	(1.54)			(1.59)	(3.77)
Age			0.002***	0.000			0.002***	0.000
			(5.42)	(0.89)			(5.60)	(1.20)
Tenure			-0.002***	-0.001***			-0.002***	-0.001***
			(-7.05)	(-3.79)			(-7.35)	(-4.17)

CEO equity>5%			0.022***	0.017***			0.022***	0.015***
			(4.21)	(2.96)			(4.15)	(2.62)
Inst. Own			-0.017**	-0.008			-0.023***	-0.017*
			(-2.18)	(-0.97)			(-2.95)	(-1.93)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,582	15,565	15,040	15,211	15,582	15,565	15,040	15,211
Adj. R-squared	0.02	0.03	0.03	0.03	0.01	0.02	0.03	0.03