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Shareholder Litigation Rights and Corporate Cash Holdings: Evidence from  
Universal Demand Laws

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## Abstract

We exploit the staggered adoption of universal demand (UD) laws, which hinders shareholders' rights to initiate derivative lawsuits, by 23 states in the United States from 1989-2005 as a quasi-natural experiment to examine the effects of shareholder litigation as a corporate governance mechanism on corporate cash holdings and its implication for shareholder value. We find that reduced derivative lawsuit risk following the passage of UD laws leads to lower level and higher value of cash. Further analysis indicates investment as a channel through which UD laws affect the level and value of cash. Our evidence highlights the dark side of shareholder litigation, which induces firms to pursue a conservative liquidity policy that hampers shareholder value.

*JEL classifications:* G30, G32, G38

*Keywords:* Universal Demand Law; Derivative Lawsuits; Shareholder Litigation; Cash Holdings; Value of Cash

## 1. Introduction

Shareholder litigation, together with shareholder voice and exit, has been considered a channel through which shareholders exert corporate governance (Ferris et al., 2007; Edmans, 2014; Pukthuanthong et al., 2017). La Porta et al. (1998) argue that legal protection of shareholders can mitigate agency problems that arise from the separation of ownership and control. In particular, litigation enables shareholders to deter ex-ante and find remedies ex-post to managers' self-dealing and moral hazard problems. Ferris et al. report that shareholder litigations strengthen the power of the board of directors, while Romano (1991) and Bhagat et al. (1987) suggest that shareholder litigation can deter managerial misconduct.

Shareholder litigation has its own limitations. It can impose substantial costs on firms, such as attorney fees and cash settlements. In addition to its direct negative financial ramifications, shareholder litigation may raise managers' career concerns and discourage them from pursuing risky but potentially value-increasing projects (Lin et al., 2016), reduce corporate takeover efficiency (Chu and Zhao, 2016), and lead to higher external financing costs and a loss of corporate reputation (Deng et al., 2014). Bhagat et al. (1998) and Ferris et al. (2007) find that, on average, defendant corporations experience a significant decline in their market value of equity at the time of the shareholder litigation filing. Their finding raises a question about the net benefits of litigation as a governance mechanism to shareholders of the target firms.

There are two major forms of shareholder litigation: securities class action and derivative lawsuits. A securities class action lawsuit usually involves a subset of shareholders who bought or sold a company's shares within a specific period and is initiated in response to a sudden decrease in stock price due to some alleged securities fraud. Any cash settlement in the securities class action lawsuit belongs to the shareholders. In contrast, a derivative lawsuit is filed by

shareholders on behalf of the corporation, which typically alleges that directors and officers breach their fiduciary duties. Unlike in a securities class action lawsuit, whatever the directors and officers agree to pay in a derivative lawsuit goes to the corporation after paying the plaintiff's attorney fees. Thus, the primary goal of a derivative lawsuit is presumably to introduce corporate governance reforms. Consistent with this proposition, Ferris et al. (2007) find an increase in both the departure rate of board directors and outside representation following derivative lawsuits.

To commence a derivative lawsuit, shareholders first need to demand that the board of directors take actions to deal with the challenged misconduct. While this process, known as the "demand requirement", is designed to provide boards of directors an opportunity to decide whether they would reject or bring any remedies and litigation against the wrongdoers, the boards usually reject such demand because the named defendants in these lawsuits often include board members. Once a board rejects the demand, shareholders can file the derivative lawsuit in court and plead that the board of directors wrongfully refuses the demand. However, the court usually sides with the boards and dismisses the lawsuits following the business judgment rule, which is based on the presumption that directors make business decisions on an informed basis, with good faith, and in the honest belief that their decisions are in the best interest of the company.

It is worth noting that a demand is not always a prerequisite to initiate a derivative lawsuit. The futility exception allows plaintiff shareholders to skip the demand requirement if they have reasonable doubt that the directors are disinterested and independent and that transaction follows business judgment (Kinney, 1994). Appel (2015) points out that shareholders

prefer to argue demand futility rather than make a demand because courts are usually reluctant to overturn demand refusal.

The following piece of anecdotal evidence illustrates the costs of derivative lawsuits to firms:

“... On November 19, 2014, Activision, which is the maker of the popular videogames “Call of Duty” and “Worlds of Warcraft,” announced the \$275 million settlement of the shareholder derivative lawsuit that had been filed in Delaware Chancery Court. The lawsuit had been filed in connection with the transaction announced in July 2013 whereby Activision and an entity controlled by Activision’s two senior officers acquired over 50% of Activision’s outstanding shares from Vivendi S.A., its controlling stockholder, for approximately \$8 billion in cash... The defendants in the litigation included members of the Activision board (including six members of Activision board that had been designated by Vivendi); the senior Activision officers that were participating in the transaction and the corporate vehicles through which they were purchasing the Activision shares from Vivendi; and Vivendi itself.”<sup>1</sup>

Between 1989 and 2005, 23 states in the United States adopted UD laws, which imposed significant hurdles to derivative lawsuits against corporate directors and managers for their breach of duty. Appendix A1 provides the list of the states that adopted UD laws over time. UD laws require shareholders to obtain board approval prior to launching a derivative lawsuit. However, boards rarely grant approval because the defendants in the lawsuits usually include board members. Thus, the procedural obstacle imposed by UD laws can effectively hinder shareholders from challenging managerial misconducts. Appel (2015) reports that firms

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<sup>1</sup> Available at <http://www.dandodiary.com/2014/12/articles/shareholders-derivative-litigation/two-recent-massive-merger-objection-lawsuit-settlements-include-significant-do-insurer-contributions/>. Last accessed on July. 1, 2017.

incorporated in the states that adopted UD laws experience lower incidence of derivative lawsuits subsequent to the adoption of the laws, which suggest that UD laws do reduce shareholder litigation risk. In this research, we ask how a decrease in shareholder litigation risk following the adoption of UD laws by the states in which firms were incorporated affects corporate cash holdings, one of the most important corporate financial policies, and the value of cash to shareholders.

Previous research finds that cash-rich firms are more likely to be the targets of shareholder lawsuits, possibly because attorneys can extract better settlement terms (Jones, 1980; Romano, 1991). This evidence suggests that an investigation of the effects of shareholder litigation on the level and value of cash is susceptible to endogeneity bias due to reverse causality. Unlike other legal events that are directly related to firm behavior or characteristics, UD laws, which were adopted by different states at different time, are exogenous to firms. The exogeneity of the staggered adoption of UD laws, which reduces derivative lawsuit risk, alleviates endogeneity concern and allows us to make causal inference about the relations between shareholder litigation and the level and value of cash.

We develop two competing hypotheses about the possible effects of UD law adoption on corporate cash holdings. Early research on derivative lawsuits suggests that this litigation form can be a good channel through which shareholders exercise corporate governance. Ferris et al. (2007) report that, following derivative lawsuits, firms reduce board size and increase outside representation. Thus, the adoption of UD laws, which hinders shareholders' rights to initiate derivative lawsuits, can weaken the governance power of shareholder litigation. Appel (2015) finds that firms tend to adopt governance provisions that entrench managers, limit shareholder voice, and have lower blockholder ownership following the passage of UD laws. Ni and Yin

(2018) document that weaker shareholder litigation rights following the adoption of UD laws lead to higher cost of private debt. To the extent that the adoption of UD laws weakens the external discipline power of shareholder litigation, thereby exacerbating the managerial agency problem, it could make it easier for self-interested managers to entrench and retain cash rather than paying dividend to shareholders. Elyasiani and Zhang (2015) report that entrenched managers hold more cash since it helps lower firm risk, provides job security, and give them discretion in pursuing personal interests. This line of argument suggests that firms increase cash holdings following the passage of UD laws.

The adoption of UD laws, which weakens shareholder litigation rights to discipline managers, exposes firms with excess cash to the free cash flow agency problem. Harford et al. (2008) find that firms with weaker shareholder rights tend to dissipate cash quickly on value-destroying investment projects. Jensen (1986) suggests that firms with free cash flow agency problem reduce cash available for value-destroying investment by self-interested managers. Alternatively, shareholder litigation can impose substantial costs on managers and firms, such as attorney fees and cash settlements. Arena and Julio (2015) report that firms that are exposed to the risk of securities class action lawsuits are inclined to hold more cash as a precautionary measure in anticipation of future legal expenses and settlements. To the extent that UD laws reduce the risk of shareholder litigation, firms may reduce precautionary cash reserves while increasing investment in value-enhancing projects, leading to smaller cash holdings. Following these arguments, our alternative hypothesis posits that the passage of UD laws leads to lower corporate cash reserves.

Using a sample that includes 74,842 firm-year observations of 6,408 U.S. public firms between 1985 and 2010, we find robust evidence consistent with the argument that the adoption



of UD laws leads to lower corporate cash reserves. The economic effect of UD laws on corporate cash holdings is nontrivial. On average, firms reduce the cash-to-assets ratio by 2.2-4.5 percentage points following the adoption of UD laws.

If reduced shareholder litigation threat following the passage of UD laws aggravates managerial agency problems and constrains shareholder power in disciplining managers, we predict that, all else equal, the value of cash to shareholders will decrease following the adoption of UD laws. Conversely, if the decline in litigation threat lessens managers' concerns about derivative lawsuits, motivating them to reduce precautionary cash reserves while increasing corporate investment in value-enhancing projects, we predict that the adoption of UD laws leads to a higher value of cash to shareholders. Thus, an analysis of the relation between UD laws and the value of cash to shareholders helps identify the main driver of the relation between UD laws and corporate cash holdings. Our results indicate a positive relation between the adoption of UD laws and the value of cash to shareholders. Our point estimates suggest that the value of one dollar of incremental cash holdings is \$0.17-\$0.25 higher to shareholders following the adoption of UD laws. Moreover, our findings are robust to controlling for corporate governance measures.

Previous research (Harford, 1999; Opler et al., 1999) document that financially constrained firms use cash reserves as a buffer against adverse shocks and the opportunity costs of cash holdings are higher for these firms than for financially unconstrained ones. We examine the impact of UD laws on the value of cash of firms that vary on the degrees of financial constraints. In the context of our analysis, since UD laws raise hurdles to derivative lawsuits, which reduces firms' need for precautionary cash reserves, we expect the effects of UD laws on the value of cash to be more pronounced for financially constrained firms. Using alternative proxies for financial constraints including firm size, credit ratings, Whited-Wu (WW) index

(Whited and Wu, 2006), and size-age (SA) index (Hadlock and Pierce, 2010) for analysis, we find evidence consistent with our expectation.

Although using the UD law adoption by states as an exogenous shock to shareholder litigation risk can alleviate endogeneity concern, it is possible that both the state adoption of UD laws and corporate cash reserves are driven by unobserved factors such as the business environment in the concerned states. We address this concern by controlling for state GDP growth, GDP per capita, and industry and state-year fixed effects in both the level and value of cash regressions, but our findings persist.

Both corporate cash holdings and the adoption of UD laws might follow time trends, implying a possible spurious relation between the two. To explore out this possibility, we perform falsification tests by including indicator variables for each of the years in the period  $t-1$  to  $t+2$ , where  $t$  is the year in which the UD law was actually adopted by a given state. If the negative relation between the adoption of UD laws and cash holdings is due to time trends, we expect the indicator variable for year  $t-1$  to be also negative and significant in the cash level regression. Our results indicate a negative and significant relation between the adoption of UD laws and corporate cash holdings for each of the years from  $t$  to  $t+2$ , but an insignificant relation between the two for the year  $t-1$ . This evidence rules out the possibility that our results are driven by a spurious relation between the adoption of UD laws and corporate cash holdings.

We are interested in discerning the channels through which the adoption of UD laws affects the level and value of cash. In a complementary analysis, we examine and the relations between the adoption of UD laws and firm-level investments and risks. Our results indicate that firms deploy cash for investment and are willing to pursue risk-increasing but potentially value-enhancing activities following the adoption of UD laws. A subsample analysis suggests that the

increase in corporate investment following the adoption of UD laws is concentrated among firms with higher growth opportunities and financially constrained firms. We further investigate and find that firm investment is more profitable following the adoption of UD laws, and the results are also more pronounced for financially constrained firms. Taken together, our evidence suggests increased investment in riskier but value-enhancing projects as a channel through which the adoption of the UD laws affects the level and value of cash.

Our research contributes to a burgeoning stream of literature that examines the impacts of the staggered adoption of UD laws on information environment (Boone, Fich and Griffin, 2018), corporate takeover efficiency (Chu and Zhao, 2018), corporate innovation (Lin, Liu and Manso, 2017), cost of debt (Ni and Yin, 2018), corporate disclosure (Bourveau et al., 2015), and corporate governance efficiency, policies, and performance (Appel, 2015). Although some of these studies highlight the bright side of derivative lawsuits (e.g., Ferris et al., 2007) or the negative effects of the adoption of UD laws on corporate governance and contracting environment (e.g., Appel, 2015; Ni and Yin, 2018), it is puzzling that shareholder value, on average, decreases at the time of the derivative lawsuit filings (Ferris et al., 2007). This finding raises doubt about the net benefits of derivative lawsuits as a governance mechanism to shareholders of the target firms. To the best of our knowledge, our research is the first that examines the effects of the adoption of UD laws, which adversely affect shareholders' right to initiate litigation thereby reducing shareholder litigation risk, on both the level and value of corporate cash holdings. We demonstrate that reduced derivative lawsuit threat following the adoption of UD laws motivate firms to pursue more aggressive corporate liquidity and investment policies that increase the value of cash to shareholders. Our evidence, thus, reveals the limitations of shareholder litigation, particularly derivative lawsuits, as a corporate

governance mechanism. Our research also adds to a more established stream of research on corporate cash policy (e.g., Bates et al., 2009; Riddick and Whited, 2009) by suggesting derivative lawsuit threat as a determinant of corporate cash holdings. Finally, in recognition of potential adverse impacts of frivolous shareholder lawsuits on firm operations through increased litigation expenses and compliance costs and managerial distraction, policy makers have recently introduced a series of legal reforms, such as the Lawsuit Abuse Reduction Act of 2017 and the Fairness in Class Action Litigation Act of 2017, to impose mandatory sanctions for frivolous legal claims. In this context, our research provides important empirical evidence that helps policy makers to make informed decisions on shareholder litigation rights.

Our paper is closely related to Arena and Julio (2015), who examine the relation between securities class action lawsuits and corporate cash policy. However, our study is different from theirs in several ways. First, the motivation of securities class action lawsuits that are brought by a subset of shareholders affected by stock mispricing is to obtain settlement for themselves. In contrast, derivative lawsuits are brought by shareholders who represent the corporation as an entity with the incentive to introduce governance reform. Any cash settlement in a derivative lawsuit goes to the corporation after paying the plaintiff shareholders' attorney fees. Different shareholder motivations may have different implications for corporate governance and firm behavior. Second, our research focuses on an underexplored mechanism of shareholder protection: the right to initiate shareholder litigation rather than the litigation per se. In particular, our study provides evidence that this shareholder litigation right induces corporate conservative policies that reduce the value of cash to shareholders. Third, as pointed out by Arena and Julio (2015), the relations between litigation risk and corporate policies are prone to endogeneity concerns due to simultaneity bias or omitted variable problem, which may invalidate the

statistical inferences. By exploiting the adoption of UD laws as an exogenous shock to shareholder litigation risk for identification purpose, we can draw reliable causal inferences about the relation between shareholder litigation risks and the level and value of cash.<sup>2</sup>

The remainder of the paper is structured as follows. Section 2 provides institutional backgrounds of derivative lawsuits and UD laws. Section 3 presents the hypotheses development and identification strategy. Section 4 describes the data and sample. Section 5 discusses empirical models and results. Section 6 provides robustness checks and Section 7 concludes the paper.

## **2. Hypotheses Development and Identification Strategy**

### *2.1. Hypotheses Development*

Previous research has investigated the governance effect of shareholder litigation through corporate restructuring around litigation filings. For example, Ferris et al. (2007) report that, following derivative lawsuits, firms reduce board size and increase outside representation. The adoption of UD laws, therefore, hinders shareholders' rights to initiate derivative lawsuits, which potentially weakens the governance power of shareholder litigation. Appel (2015) finds that, following the passage of UD laws, firms tend to adopt governance provisions that entrench managers, limit shareholder voice, and have lower blockholder ownership. A deterioration of corporate governance could make it easier for self-interested managers to entrench and retain cash rather than paying dividend to shareholders. Indeed, Elyasiani and Zhang (2015) report that

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<sup>2</sup> Appel (2015) also examines the effect of the passage of UD laws on the level of cash, however, cash is not the focus of his study. Moreover, his cash level analysis does not appear to control for firm characteristics and other factors that are documented to explain corporate cash holdings in the cash literature.

entrenched managers hold more cash since it helps lower firm risk, provides job security, and gives them discretion in pursuing personal interests.

Ni and Yin (2018) document that the adoption of UD laws leads to an increase in the cost of external financing. Faced with higher external financing costs, firms are more likely to increase cash reserves as a buffer against future financial shocks. Cash reserves also enable firms to maintain smooth investment curves without having to access external capital markets, which helps them save transaction costs associated with debt and equity issuances (Faulkender and Wang, 2006). Moreover, self-interested managers may consider the trade-off between current overinvestment and cash reserves for future flexibility and the potential of capital market discipline (Easterbrook, 1984). If the cost of potential market discipline is lower for cash holdings, managers may prefer to increase cash reserves rather than engaging in overinvestment when their firms generate excess cash flows. Following these arguments, we predict a positive relation between the adoption of UD laws and corporate cash holdings. We state our first hypothesis as follows:

*H1a: The adoption of UD laws leads to an increase in corporate cash holdings.*

Since the adoption of UD laws weakens shareholder litigation rights to discipline managers, firms with excess cash are prone to the free cash flow agency problem. Harford et al. (2008) report that firms with weaker shareholder rights tend to dissipate cash quickly on value-destroying investment projects. Jensen (1986) suggests that firms with free cash flow agency problem reduce cash available for value-destroying investment by self-interested managers. Thus, a possible deterioration of corporate governance following the passage of UD laws can result in a lower level of cash holdings.

Firms that are exposed to lawsuits may hold larger cash reserves as a buffer against future legal expenses and settlements. In a derivative lawsuit, a cash settlement typically goes to the firm rather than directly to the plaintiff shareholders. Firms can also purchase director and officer (D&O) liability insurance that covers lawsuit settlements. For these two reasons, one may expect that derivative lawsuits are unlikely to affect corporate cash reserves. However, note that the lawyers of the plaintiff shareholders, who usually work on a contingent basis, may take a large share of the cash settlement. Moreover, litigation insurance may not provide full or partial coverage in certain cases, exposing firms to costly attorney fees. Alternatively, directors and managers' concern about personal reputation loss and job security due to a derivative lawsuit may motivate them to pursue conservative investment and financial policies that result in a lower level of investment but larger corporate cash reserves. To the extent that UD laws reduce the risk of shareholder litigation, we expect firms to reduce cash holdings while increasing investment in value-enhancing projects following the adoption of UD laws. The foregoing discussions suggest our alternative hypothesis as follows:

*H1b: The adoption of UD laws leads to a decrease in corporate cash holdings.*

Dittmar and Mahrt-Smith (2007) report a positive relation between the quality of corporate governance and the value of cash. Harford et al. (2008) find that firms with low shareholder rights and excess cash have lower profitability and valuations. To the extent that derivative lawsuits are an effective governance mechanism, we predict that a decrease in shareholder litigation risk following the adoption of UD laws will lead to a decrease in the value of cash to shareholders. We state our second hypothesis as follows:

*H2a: The adoption of UD laws leads to a decrease in the value of cash to shareholders.*

Notwithstanding the foregoing, the passage of UD laws, which raises hurdles to commencing a derivative lawsuit, may improve the value of cash to shareholders for a number of reasons. Previous studies document that cash can serve as a buffer against litigation risk due to potential direct settlement costs and other indirect costs following the litigation, such as reputational loss and increased external financing costs (Deng et al., 2014). Therefore, a decrease in derivative lawsuit threat following the passage of UD laws can motivate firms to reduce cash reserves while increasing investment in profitable projects, leading to an increase in the value of cash.

Although derivative lawsuits may serve as a plausible governance vehicle for shareholders, the primary beneficiaries of such lawsuits could be the plaintiff shareholders' attorneys who usually obtain substantial legal fees in settlements. If the attorneys are eager for quick settlements while the plaintiff shareholders aim to institute long-term governance reforms, their divergent interests can undermine the governance effectiveness of litigation (e.g., Coffee and Schwartz, 1981; Kraakman et al., 1994). Ferris et al. (2007) find that the stock prices of the defendant firms decrease significantly at the time of the derivative lawsuit filing, which raises doubts about the net benefits of derivative lawsuits to the shareholders. If the direct and indirect costs of shareholder litigation outweigh the benefits of governance reform motivated by derivative lawsuits, a decrease in shareholder litigation risk may result in an increase in the value of cash to shareholders.

Derivative lawsuits can deter managers and officers' misconducts, however, their exposure to litigation risk may discourage them from pursuing risk-increasing but value-enhancing projects that are beneficial to shareholders. Indeed, Lin et al. (2016) find that litigation



risk *ex ante* raises managers' career concern and myopia, leading to a decrease in investment in innovation. Firms can protect the defendant directors and officers from the consequences of shareholder litigation by purchasing D&O liability insurance but their insurance premiums may increase following the lawsuits. Firms with higher litigation risk also face higher external financing costs and reputation loss (Deng et al., 2014). Taken together, these arguments suggest that derivative lawsuits may have an adverse effect on the value of cash to shareholders, thus, the adoption of UD laws can increase the value of cash to shareholders. These arguments lead to our second alternative hypothesis as follows:

*H2b: The adoption of UD laws leads to an increase in the value of cash to shareholders.*

The ultimate impacts of the adoption of UD laws on the level and value of cash will reflect the tension between the opposing effects that we discuss above, thus, the net effects of UD laws on the outcome variables are best determined empirically.

## *2.2. Identification Strategy*

Previous research documents that cash-rich firms are more likely to be the targets of shareholder litigation because these firms have more resources to satisfy potential recovery (Jones, 1980; Romano, 1991; Ferris et al., 2007; Arena and Julio, 2015). This evidence raises concern about a potential endogenous relation between shareholder litigation and corporate cash holdings due to reverse causality. Endogeneity could render the coefficient estimates of the level and value of cash regressions biased and inconsistent. To mitigate endogeneity concern, we use the staggered adoption of UD laws by 23 states in the United States between 1989 and 2005 as a quasi-natural experiment to identify the relations between shareholder litigation and the level and value of cash. Since UD laws are adopted by states, they are considered exogenous to corporate

decisions. Moreover, the staggered adoption of UD laws throughout the sample period enables us to exploit the difference-in-differences (DID) approach that further addresses endogeneity concern. In particular, the DID approach allows us to compare the level and value of cash of firms incorporated in states that adopt the UD laws (treatment firms) and firms incorporated in states that do not adopt the UD laws (control firms).

### 3. Sample and Variables Construction

Our sample consists of all publicly listed U.S. firms in the Compustat database. The sample period begins in 1985 and ends in 2010.<sup>3</sup> We drop firms in utility and financial industries (4-digit SIC codes from 4900 to 4999 and from 6000 to 6999, respectively) because these industries are highly regulated. We also require firms to have positive cash holdings and sales. We winsorize the continuous variables at the top and bottom 1% of the distribution to mitigate the impact of outliers. The final sample includes 74,842 firm-year observations of 6,408 unique firms. Similar to Bates et al. (2009), we use the ratio of cash to book value of assets as a proxy for cash holdings. To identify the effect of UD laws, we construct the *UD indicator* variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. We provide the definitions of the variables in Appendix A2. Table 1 reports the summary statistics of the sample. On average, firms hold 18.5% of their total assets in cash. *UD indicator* has mean of 0.093, indicating that 9.3% of the firm-year observations were affected by the UD laws.

### 4. Empirical Models, Results, and Discussions

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<sup>3</sup> Our results are not sensitive to extending the sample period to include a few earlier and later years.

#### 4.1. UD Laws and Corporate Cash Holdings

We employ the DID approach to examine the effect of UD laws on firms' cash holdings. Our treatment (control) group include firms incorporated in states that have (have not) adopted the UD laws. Our cash holdings model is motivated by Bates et al. (2009) and has the following form:

$$\begin{aligned} \frac{C_{i,t}}{NA_{i,t}} = & \beta_0 + \beta_1 UD Indicator_{i,t} + \beta_2 Size_{i,t} + \beta_3 MB_{i,t} + \beta_4 \frac{CF_{i,t}}{NA_{i,t}} + \beta_5 \frac{NWC_{i,t}}{NA_{i,t}} + \beta_6 \frac{Capex_{i,t}}{NA_{i,t}} + \\ & \beta_7 Leverage_{i,t} + \beta_8 Ind\ cash\ flow\ volatility + \beta_9 Dividend\ dummy_{i,t} + \beta_{10} \frac{R\&D_{i,t}}{Sales_{i,t}} + \\ & \beta_{11} \frac{M\&A_{i,t}}{NA_{i,t}} + firm\ fixed\ effects + state - year\ fixed\ effects + e_{i,t}, \end{aligned} \quad (1)$$

In Equation 1, the dependent variable is cash holdings, measured as the ratio of cash and marketable securities to total assets. Our test variable is *UD indicator*. If the passage of UD laws has a positive effect on corporate cash holdings, we expect the coefficient  $\beta_1$  to be positive and statistically significant. In contrast, if the adoption of UD laws reduces corporate cash holdings,  $\beta_1$  should be negative and statistically significant. We control for several factors that are documented in the literature as having power to explain corporate cash holdings including firm size, growth opportunities, cash flows, net working capital, financial leverage, industry cash flow volatility, research and development (R&D) expense, capital expenditures, and acquisition activities.

Table 2 reports the results of the level of cash regressions with heteroscedasticity-robust standard errors clustered by headquarters states.<sup>4</sup> Since corporate cash holdings can be correlated with unobserved firm fixed effects, state business environment, industry common factors, and

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<sup>4</sup> We also use standard errors clustered by firms or by states of location for the level and value of cash regressions, but the findings are virtually unchanged.

time-varying macroeconomic factors, we further control for firm or industry fixed effects, and state and year fixed effects. In some models, we control for headquarters state-year fixed effects that difference out potential confounding factors that vary at the state-year level.<sup>5</sup>

The first two columns of Table 2 report the results of the baseline regressions that exclude *UD indicator*. We find that the coefficient estimates are consistent with those reported by Bates et al. (2009). The regression results reported in Columns 3-8 indicate that the coefficients on *UD Indicator* are all negative, ranging from  $-0.045$  to  $-0.022$ , and statistically significant across the columns. The coefficients on other control variables are also consistent with those documented in the literature. For example, the level of cash is negatively (positively) related to capital expenditures, financial leverage, and acquisition (market-to-book ratio, and industry cash flow volatility). The economic effect of the adoption of UD laws on cash holdings is also important. Using the point estimates in Table 2 for calculation, we find that, holding other variables unchanged at their sample means, firms incorporated in the states that adopted UD laws decrease the cash-to-assets ratio by 2.20-4.50 percentage points following the adoption of UD laws. This evidence lends support to Hypothesis H1b that a decrease in derivative lawsuit risk induced by the adoption of UD laws motivates firms to reduce cash reserves.

An important underlying assumption of the DID approach is that in the absence of the adoption of UD laws, the cash policies of firms incorporated in states that do and do not adopt the UD laws would have evolved in the same way. This assumption of parallel trends would be invalid if firms incorporated in states that do and do not adopt UD laws were systematically different, and their cash policies would have evolved differently regardless of the adoption of

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<sup>5</sup> We note that the intercepts drop out of the regression models that control for state-year fixed effects due to perfect collinearity.

UD laws. To ensure that our results are not driven by systematic differences between the treatment and control firms, we further perform a propensity score matching and DID analysis to identify the impact of the adoption of UD laws on corporate cash holdings. Specifically, we define treatment (control) firms as those that were incorporated in a state that passes (does not pass) UD law in year  $t$ . We then use a probit model to predict the likelihood of a firm being a treatment one based on its key firm characteristics including size, market-to-book ratio, capital expenditures, and financial leverage.<sup>6</sup> We match each treatment firm with a control firm that has propensity score closest to that of the treatment firm in the year preceding the UD law adoption.

Panels A and B of Table B1 in the Internet Appendix provide a comparison of the treatment and control firms' characteristics before and after the match, respectively. In Panel A, we find that there are significant differences in *market-to-book ratio* and *financial leverage* between the treatment and control firms before the match. In Panel B, the  $t$ -test statistics indicate no significant differences in characteristics between the two groups, implying a successful match that satisfies the parallel assumption of the DID approach. Panel C of Table B1 reports the cash holdings regressions using the matched sample. We find that the coefficients on *UD Indicator* are all negative, ranging from  $-0.026$  to  $-0.008$ , and highly significant, which is consistent with our earlier finding.

#### 4.2. UD Laws and the Value of Cash

We use the excess stock returns (Faulkender and Wang, 2006; Dittmar and Mahrt-Smith, 2007) regression models to investigate the effect of UD laws on the value of cash. The test variable is *UD indicator*. We control for other variables that have power to explain excess stock returns. The excess stock return model has the following form:

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<sup>6</sup> We also try a number of other firm characteristics but the results are qualitatively similar.

$$\begin{aligned}
r_{i,t} - R_{i,t}^B = & \gamma_0 + \gamma_1 UD Indicator_{i,t} + \gamma_2 UD Indicator_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_3 \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_4 \frac{\Delta E_{i,t}}{M_{i,t-1}} + \gamma_5 \frac{\Delta NA_{i,t}}{M_{i,t-1}} + \\
& \gamma_6 \frac{\Delta RD_{i,t}}{M_{i,t-1}} + \gamma_7 \frac{\Delta I_{i,t}}{M_{i,t-1}} + \gamma_8 \frac{\Delta D_{i,t}}{M_{i,t-1}} + \gamma_9 \frac{C_{i,t-1}}{M_{i,t-1}} + \gamma_{10} L_{i,t} + \gamma_{11} \frac{NF_{i,t}}{M_{i,t-1}} + \gamma_{12} \frac{C_{i,t}}{M_{i,t-1}} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \\
& \gamma_{13} Leverage_{i,t} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \text{firm fixed effects} + \text{state} - \text{year fixed effects} + \varepsilon_{i,t}, \quad (2)
\end{aligned}$$

In Equation 2,  $r_{i,t}$  is the stock  $i$ 's return over a year from  $t-1$  to  $t$  and  $R_{i,t}^B$  is the Fama and French (1993) size and book-to-market matched portfolio return from year  $t-1$  to  $t$ .  $\Delta X$  denotes the change in  $X$  from year  $t-1$  to  $t$ .  $M$  is the market value of equity,  $C$  is cash,  $E$  is earnings before extraordinary items,  $NA$  is assets minus cash,  $RD$  is research and development expenses,  $I$  is interest expenses,  $D$  is common dividends,  $L$  is market leverage, and  $NF$  is the sum of net new equity and debt issues. In this model, both dependent and independent variables are normalized by the firms' market value of equity of the preceding year, thus, the coefficient on the change in cash captures the dollar change in equity value associated with a one-dollar change in the amount of cash held by the firm. Moreover, since the excess return model controls for other factors that may affect stock returns over the one-year estimation window, the results can be interpreted similar to a long-run event study, where the event is an unexpected change in cash (Dittmar and Mahrt-Smith, 2007). The variable of interest in the model is the interaction between *UD indicator* and the change in cash, which indicates the effect of UD laws on the value of cash.

Table 3 reports the results of the excess return regressions. The first two columns report the results of the baseline regressions that exclude *UD indicator*. Our baseline results suggest that an extra dollar of cash holdings is worth about \$0.85-\$0.90 to shareholders. These values are close to those reported by Faulkender and Wang (2006). The results reported in Columns 3-8 indicate that the coefficients on the interaction between *UD Indicator* and the change in cash are all positive, ranging from 0.174 to 0.254, and statistically significant at the 1% level. The

economic effect of UD laws on the value of cash is also important: Using the point estimates in Column 3 for illustration, we find that, holding other variables fixed at their sample means, the value of an incremental dollar of cash is approximately \$0.23 higher for shareholders following the adoption of UD laws. Moreover, the results are insensitive to controlling for firm or industry fixed effects, and year and state or headquarters state-year fixed effects. This evidence indicates that the passage of UD laws increases the value of cash to shareholders, which is consistent with Hypothesis H2b.<sup>7,8</sup>

#### 4.3. UD Laws, Corporate Investments, and Firm Risk

Our evidence thus far indicates that UD law adoption leads to a decrease in corporate cash holdings and an increase in the value of cash. In this section, we examine the link between the passage of UD laws and corporate investments as a possible channel through which derivative lawsuits affect the level and value of cash. Since UD laws reduce shareholder

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<sup>7</sup> For robustness check, we also examine the effect of UD laws on the value of cash using the market-to-book value model (Dittmar and Mahrt-Smith, 2007; Bates et al., 2009). The results reported in Table B2 in the Internet Appendix indicate that the adoption of UD laws increases the value of cash to shareholders. However, we choose to report the results of the excess returns model for discussion since this model incorporates time-varying risk factor into the estimation and the dependent variable is easier to measure and interpret (readers can refer to Faulkender and Wang (2006) for a detailed discussion).

<sup>8</sup> It is possible that firms lobby state legislatures for the adoption of UD laws, which may undermine the exogeneity assumption of the UD law adoption. We note that, in Pennsylvania, the UD law was adopted by the supreme court in *Cuker v. Mikalauskas* (1997), which is less likely to be affected by corporate lobbying. Therefore, to address the lobbying concern, we run the level and value of cash regressions for a subsample that includes only firms incorporated in Pennsylvania. We find that our findings persist (the results are not reported for brevity but available from the authors).

litigation risk and lessens the need for precautionary cash reserves, we expect firms to deploy cash for investment, leading to an increase in corporate investments following the adoption of UD laws. We examine the effects of the adoption of UD laws on three proxies for corporate investments including capital expenditures, research and development (R&D) expenses, and acquisitions. We use the baseline investment model suggested by Fazzari et al. (1998), which controls for firms' cash flows and investment opportunities proxied by Tobin's Q, but augmented with *UD indicator* as the test variable. *Capital expenditures* are measured as capital expenditures (Compustat item "CAPX") scaled by the book value of assets at the beginning of the year. *R&D* is calculated as R&D expenses (Compustat item "RD") scaled by the book value of assets at the beginning of the year. *Acquisition* is measured as the ratio of acquisition value in a given year (Compustat item "AQC") to the book value of assets at the beginning of the year. To capture the effect of UD laws on total investment, we further aggregate capital expenditures, R&D investment, and acquisitions of a given firm on an annual basis and use this aggregate measure as an additional dependent variable in the regressions. Our investment models control for firm fixed effects and either year and headquarters state fixed effects or headquarters state-year fixed effects.

Panel A of Table 4 presents the results of the investment regressions. The coefficients on *UD indicator* are positive in all models, ranging from 0.002 to 0.011, and statistically significant, indicating an increase in corporate investments following the adoption of UD laws. This evidence is consistent with the view that as UD laws reduce shareholder litigation risk, firms reduce precautionary cash savings and deploy cash for investments.

Next, we analyze the investment of firms sorted on growth opportunities. If the adoption of UD laws motivates firms to reduce precautionary cash reserves while increasing investment in



risky but value-increasing projects, we expect the real effect of UD laws to be more pronounced for firms with better growth opportunities. Since the standard investment model controls for lagged Tobin's Q, which can also proxy for growth opportunities, we use the average annual sales growth over the previous three years as a surrogate for firm growth opportunities to sort firms into subgroups. We run the *Total investment*, *Capital expenditures*, *R&D*, and *Acquisition* regressions for subgroups and report the results in Panel B of Table 4. Consistent with our expectation, the results indicate that firms with high growth opportunities increase their investment significantly following the UD laws adoption, whereas firms with low growth opportunities experience little change in their investment.

We further explore how the adoption of UD laws affects the overall risk of the firms. John et al. (2008) argue that better investor protection reduces managers' private benefits while pressuring them to invest in positive net present value risky projects for shareholder benefits. Consistent with their argument, they find positive relations between corporate governance quality and firm risk measures. Thus, to the extent that reduced derivative lawsuit threat weakens corporate governance, one may expect a decrease in firm risk following the UD law passage. However, since UD laws reduce the risk of derivative lawsuits, managers would be less concerned about the threat of litigation and more willing to take risk, leading to an increase in firm risk. We use two measures of firm risk to examine this possibility. The first measure is the variance of stock returns calculated from daily stock returns of a firm in a given year. The second measure, cash flow volatility, is the standard deviation of the seasonally adjusted quarterly cash flow-to-assets ratio from year  $t$  to year  $t+4$ .

Our risk model specification is motivated by Gormley et al. (2013), which controls for firm characteristics such as market-to-book ratio, capital expenditures, financial leverage, sales,

and R&D, but augmented with *UD indicator*. Table 5 reports the stock return variance and cash flow volatility regression results in Panels A and B, respectively. The results in Panel A indicate that the coefficients on *UD indicator* are positive (ranging from 0.015 to 0.053) and highly significant across specifications. The results in Panel B indicate that the coefficients on *UD indicator* is positive and statistically significant at the 10% level in 4 of 6 columns. These results are consistent with the argument that the passage of UD laws reduces shareholder litigation risk, leading to an increase in corporate risk-taking and firm risk. However, our findings do not appear to be consistent with the argument that shareholder litigation is an efficient corporate governance mechanism for an average firm. We acknowledge that our findings may be specific to the governance effects of derivative lawsuits but may not extend to securities class action lawsuits, the other major form of shareholder litigation, due to their fundamental differences as discussed above.

## 5. Robustness Checks

### 5.1. Control for Possible Confounding Effects

States might adopt other laws and regulations during our sample period that also affect the level and value of cash, potentially confounding our results. For example, Fich et al. (2016) find that Business Combinations laws (BC laws) and Poison Pill legislation (PP laws) adopted by a number of states during the period 1985-1997 also lead to an increase in the value of cash. To control for potential confounding effects of BC laws and PP laws, we include the indicator variables for these two laws in our cash holdings and value of cash regressions. The cash holdings results reported in Panel A of Table 6 indicate that UD laws have a negative effect on the level of cash holdings when we control for BC laws and PP laws. The value of cash results

reported in Panel B of Table 6 indicate that the coefficients on the interaction  $UD Indicator \times \Delta Cash/ME$  remain positive and highly significant, suggesting that our finding is robust to controlling for the adoption of the BC and PP laws. The coefficients on the interaction between BC laws and the change in cash are positive and statistically significant, implying a positive effect of BC laws on the value of cash. This result is consistent with the finding of Fich et al. Moreover, the coefficients on the interaction between PP laws and the change in cash are positive and statistically significant in 3 of 6 columns. In an unreported analysis we run the cash holdings and excess return regressions while controlling for BC Laws (in Panels A and C, respectively) and PP Laws (in Panels B and D, respectively) separately but the results hold.

The Private Securities Litigation Reform Act of 1995 (PSLRA) makes it difficult for shareholders to initiate shareholder litigation because it requires plaintiffs to provide evidence that managers intentionally deceive shareholders. Since the implementation of PSLRA took place in our sample period and served a similar purpose as UD laws, we additionally control for this regulation in the level and value of cash regressions to alleviate concern that our results may simply pick up the effects of the PLSRA.<sup>9</sup> We construct the *PSLRA Indicator* variable, which equals 1 for the years in which PSLRA is effective, and 0 otherwise. The results of the cash holdings regressions reported in Panel A, Table 7, indicate that the negative effect of UD laws on corporate cash holdings remains qualitatively unchanged. In addition, PSLRA also has a negative, albeit smaller, effect on corporate cash holdings. The value of cash regression results reported in Panel B of Table 7 indicate that the coefficients on the interaction  $UD Indicator \times \Delta Cash/ME$  are significantly positive across different specifications. However, the coefficients on the interaction  $PSLRA \times \Delta Cash/ME$  are statistically insignificant across models. Overall, the evidence suggests

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<sup>9</sup> We thank an anonymous referee for suggestion to control for PSLRA.

that our findings about the effects of the UD law adoption on the level and value of cash are robust to controlling for the adoption of PSLRA.

### 5.2. Dynamic Cash Holdings and Value of Cash Models

The DID framework is grounded on the premise that the changes in the level and value of cash are due to the exogenous variation in the risk of derivative lawsuits associated with the passage of UD laws rather than other confounding or omitted factors. However, it is possible that the level and value of cash and the adoption of UD laws by states simply follow time trends, which implies spurious relations among them. If this argument is valid, we should also observe significant effects of UD laws on the level and value of cash prior to the actual passage of UD laws. To explore this possibility, we run falsification tests for the level and value of cash. In particular, we estimate the following cash holdings model:

$$\frac{C_{i,t}}{NA_{i,t}} = \beta_0 + \beta_1 \text{Before}^{-1} + \beta_2 \text{Current} + \beta_3 \text{After}^1 + \beta_4 \text{After}^2 + \mathbf{X}' \boldsymbol{\delta} + e_{i,t}, \quad (3)$$

The dependent variable in Equation 3 is the cash-to-assets ratio. *Before*<sup>-1</sup> is a dummy variable that equals 1 for the year preceding the adoption of UD law by the state of incorporation of a given firm, and 0 otherwise. *Current* is a dummy variable that equals 1 for the actual year in which the UD law is adopted, and 0 otherwise. *After*<sup>1</sup> is a dummy variable that equals 1 for the first year after the passage of UD law, and 0 otherwise. *After*<sup>2</sup> is a dummy variable that equals 1 for the second year after the passage of UD law, and 0 otherwise.  $\mathbf{X}$  is a vector of other determinants of cash holdings, which are similar to those in Equation 1. Panel A, Table 8, reports the regression results. We find that the coefficients on *Before*<sup>1</sup> are statistically insignificant but the coefficients on *Current*, *After*<sup>1</sup> and *After*<sup>2</sup> are negative and statistically significant, indicating that our finding is driven by the adoption of UD laws rather than time trends.

In a complementary analysis, we run the cash holdings regression with year dummies for

years  $t-4$  to  $t+4$ , where  $t$  is the year in which a state passed the UD law, while controlling for other variables that explain corporate cash holdings. Figure 1 plots the coefficient estimates of these year dummies. The plot indicates that the coefficients on year dummies are negative and statistically significant in year  $t$  and after but not in the years before year  $t$ , which lends further support to the effect of the adoption of UD laws on corporate cash holdings.

We employ a similar empirical design for the excess return model to ensure that our finding of a positive relation between UD laws and the value of cash is not driven by time trends. The excess return model has the following form:

$$r_{i,t} - R_{i,t}^B = \gamma_0 + \gamma_1 \text{Before}^{-1} + \gamma_2 \text{Before}^{-1} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_3 \text{Current} + \gamma_4 \text{Current} \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_5 \text{After}^1 + \gamma_6 \text{After}^1 \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \gamma_5 \text{After}^2 + \gamma_6 \text{After}^2 \times \frac{\Delta C_{i,t}}{M_{i,t-1}} + \mathbf{Z}' \boldsymbol{\delta} + \varepsilon_{i,t}. \quad (4)$$

Panel B, Table 8, reports the excess return regression results.  $\mathbf{Z}$  is a vector of control variables similar to those in Equation (2). The coefficients on the interaction  $\text{Before}^{-1} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  are statistically insignificant across models, indicating that the value of cash does not increase in the year preceding the UD law adoption. Conversely, the coefficients on the two-way interactions  $\text{Current} \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ ,  $\text{After}^1 \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$ , and  $\text{After}^2 \times \frac{\Delta C_{i,t}}{M_{i,t-1}}$  are positive and statistically significant, which further indicates that the increase in the value of cash is associated with the passage of UD laws.

To alleviate a concern that our results may be driven by other state-level macroeconomic factors, in alternative specifications, we control for annual state GDP per capita (in natural logarithm form) and the growth rate of state GDP in the cash holdings and excess return regressions. We obtain these two macroeconomic factors from the Bureau of Economic Analysis

(BEA).<sup>10</sup> The results reported in Table B3 in the Internet Appendix indicate that our findings are qualitatively unchanged when we control for these state-level macroeconomic factors.

### *5.3. Control for Other Corporate Governance Measures*

As discussed above, the passage of UD laws may weaken corporate governance, which in turn increases managerial agency problems that potentially affect the level and value of cash. Therefore, we rerun the cash holdings and excess return regressions while additionally controlling for corporate governance proxied by the number of antitakeover provisions that a firm adopts (i.e., the G-index) and institutional ownership. Although the regression sample size is smaller due to missing observations of the G-index and institutional ownership, the cash holdings regression results reported in Panel A of Table 9 indicate that the negative effect of UD laws on corporate cash holdings is not sensitive to controlling for the governance measures. The excess return regression results reported in Panel B of Table 9 indicate that the coefficients on the interaction between UD law and the change in cash remain positive, ranging from 0.128 to 0.332, and are highly significant. This evidence suggests that our results are robust to controlling for corporate governance measures.<sup>11</sup>

### *5.4. UD Laws and Financial Constraints*

Financially constrained firms tend to suffer more from the negative effects of adverse shocks than financially unconstrained firms do, thus, they are more likely to retain cash for precautionary purpose. The opportunity cost of cash is typically higher for financially constrained firms due to their higher marginal profitability relative to that of financially

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<sup>10</sup> Available at <https://www.bea.gov/>. Last accessed on May 11, 2017.

<sup>11</sup> Ferris et al. (2007) find that derivative lawsuits are associated with a significant increase in outside representation in the boards of directors. In an unreported analysis, we further control for the percentage of independent directors in the boards but our findings hold.

unconstrained firms. Following the argument that UD laws reduce the risk of shareholder litigation and hence lessen firms' incentive to hold cash for precautionary purpose, we expect the effects of UD laws on the value of cash to be more pronounced for financially constrained firms.

We use four different measures of financial constraints that include firm size, S&P long-term credit ratings, WW index (Whited-Wu, 2006), and SA index (Hadlock and Pierce, 2010) in our analysis. Firm size is proxied by the book value of assets. The WW index is calculated as:  $WW\ index = -0.091*CF - 0.062*DIVPOS + 0.021*TLTD - 0.044*LNTA + 0.102*ISG - 0.035*SG$ , where  $CF$  is the ratio of cash flow to the book value of assets;  $DIVPOS$  is a dummy variable that equals to one if the firm pays cash dividends in a given year, and zero otherwise;  $TLTD$  is the ratio of the long-term debt to the book value of assets;  $LNTA$  is the natural log transformation of the book value of assets;  $ISG$  is the firm's three-digit SIC industry sales growth; and  $SG$  is the firm's sales growth. The SA index is calculated as:  $SA\ index = -0.737*Assets + 0.043*Assets^2 - 0.040*Age$ , where  $Assets$  is the log of the minimum value between actual book value of assets and \$4.5 billion, and  $Age$  is the minimum value between firms' age and thirty-seven years. By construction, financially constrained (unconstrained) firms have high (low) WW index values, high (low) SA index values, or without (with) S&P long-term credit ratings. Except for the credit ratings, we use the sample medians of the respective financial constraint measures to sort sample firms into financially constrained (FC) and unconstrained (Non-FC) subgroups.

Table 10 reports the results of the excess return regressions for subgroups of firms sorted on measures of financial constraints. Consistent with our expectation, the estimation results indicate that the effect of the adoption of UD laws on the value of cash is more pronounced for financially constrained firms.

We further examine the relation between corporate investment and the adoption of UD laws for firms sorted on the levels of financial constraints. The results reported in Table B4 in the Internet Appendix indicate that the positive relation between the adoption of UD laws and corporate investment is concentrated among financially constrained firms.

#### *5.5. UD Laws and Operating Performance.*

Our evidence thus far indicates that UD law adoption leads to decreased corporate cash holdings and increased value of cash and corporate investment. Next, we investigate the relation between the adoption of UD laws and corporate performance. If the adoption of UD laws reduces shareholder litigation risk, lowers precautionary cash savings, and motivates firms to engage in value-increasing investments, we expect higher investment profitability following the passage of UD laws. In contrast, if the adoption of UD laws impedes the disciplinary power of shareholder litigation and, thus, worsens corporate governance, self-interested managers may pursue value-destroying investment projects that have negative effect on firm operating performance.

We regress firm operating performance proxied by the return on assets (ROA) on *UD indicator*, change in investment, and an interaction between these two variables while controlling for other firm characteristics that have power to explain firm performance (An et al., 2016). We control for several types of fixed effects including firm, state, and year fixed effects. Since the opportunity costs of cash held for precautionary purposes are higher for financially constrained firms, we expect the impact of UD laws on firms' operating performance is more pronounced for financially constrained firms. Therefore, we further sort firms into subgroups based on their levels of financial constraints for subgroup analysis.

Table 11 reports the results of the operating performance regressions for the full sample (Panel A) and financially constrained (FC) and unconstrained (Non-FC) subgroups (Panel B).



The results reported in Panel A indicate that the adoption of UD laws has a positive effect on the operating performance of an average firm. Moreover, the positive effect of the interaction between UD laws and the change in investment indicates that firms pursue value-increasing investments following the UD law adoption. The results of the subsample analysis reported in Panel B indicate that the positive effect of the passage of UD laws on corporate operating performance is concentrated among financially constrained firms. Overall, our evidence is consistent with the view that as UD laws reduce shareholder litigation risk, firms reduce precautionary cash savings while increasing value-enhancing investments, leading to greater value of cash to shareholders. In an unreported analysis, we further control for corporate governance measures proxied by the G-index and institutional ownership in the regressions but our results continue to hold.<sup>12</sup>

#### *5.6. Delaware Effect*

A large number of firms in our sample were incorporated in Delaware. To the extent that firms' choice of state of incorporation and their level and value of cash are related (Daines, 2011), our estimation results could be biased by the Delaware effect. To mitigate this concern, we drop firms incorporated in Delaware from the sample and rerun the level and value of cash regressions. The results reported in Tables B5 in the Internet Appendix indicate that our findings are essentially unchanged.

#### *5.7 Other Analyses*

Central to our arguments is the assumption that the adoption of UD laws impedes shareholder litigation rights, leading to lower incidence of derivative lawsuits. We run a test to

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<sup>12</sup> We thank an anonymous referee for suggestion to consider the profitability of corporate investments as an explanation for the increased value of cash following the UD law adoption.

verify the validity of this important assumption. We obtain the derivative lawsuit data from the Audit Analytics database, which provides information on shareholder lawsuits from 2000 to 2010. Similar to Lin et al. (2016), we determine derivative lawsuits as those that are classified as “shareholder suits” and “derivatives”. After merging the derivative lawsuit data with Compustat data, our sample includes 402 derivative cases over the period 2000-2010.

We run the regressions of  $\ln(\text{Derivative})$ , which is the natural logarithm transformation of the number of derivative lawsuits faced by firms in a state in a given year, on the UD law indicator variable while controlling for state GDP growth, GDP per capita, and the number of firms incorporated in the state. The regression results reported in Columns 1 and 2 of Table B6 in the Internet Appendix indicate that the adoption of UD laws is associated with a significant decrease in the incidence of derivative lawsuits. This evidence is consistent with the findings reported by Appel (2015) and Lin et al. (2016).

As UD laws raise hurdles to initiate derivative lawsuits, shareholders may resort to securities class action lawsuits to address managerial misconduct. Moreover, securities class action lawsuits with institutional investors as lead plaintiffs are less likely to be dismissed and have greater settlements than securities class actions with individual lead plaintiffs (Cheng, Li, and Lobo, 2010). Thus, it is possible that the passage of UD laws may lead to a higher frequency of securities class action lawsuits with institutional investors as the lead plaintiffs. Our next analysis examines this possibility. We obtain the data on securities class action lawsuits and the lead plaintiffs of securities class action lawsuits for the period 1996-2015 from the Cornerstone Research and Stanford Law School. We construct two variables to measure the frequency of class action lawsuits: i)  $\ln(\text{Class})$  is the natural logarithm transformation of the number of securities class action lawsuits in a state in a given year, and ii)  $\ln(\text{Institution})$  is the natural

logarithm transformation of the number of securities class action lawsuits with institutional investors as the lead plaintiffs in a state in a given year. We run regressions of the number of class action lawsuits on *UD indicator* and other state-level control variables, and report the results in Columns 3-6 of Table B6 in the Internet Appendix. The coefficients on *UD indicator* reported in these columns are all statistically insignificant, implying no direct substitution between derivative and securities class action lawsuits. In an unreported analysis, we rerun the level and value of cash regressions augmented with securities class action lawsuits but our results are qualitatively unchanged.

Finally, firms in states that adopt UD laws may choose to preserve shareholder litigation rights by relocating to other states that do not adopt the UD laws. To address this possibility, we use a web crawler program to search for firms' relocation information in the 10K reports. Due to the large sample, we restrict our search to S&P 1500 firms. Our search identifies 10 firms that relocate from UD laws to non-UD law states over the sample period. We drop these firms from the sample and rerun the level and value of cash regressions, but our results continue to hold (the results are not reported for brevity but are available from the authors).

## 6. Conclusions

We use the staggered adoption of UD laws, which hinder shareholders' right to initiate derivative lawsuits, by 23 states in the United States over the period 1989-2005 as a quasi-natural experiment to identify the relation between shareholder litigation as a corporate governance mechanism and corporate cash holdings. We find that firms incorporated in the states that adopted UD laws decrease cash reserves but increase investments and firm risk following the passage of the laws. We further find that the value of cash to shareholders increases following

the adoption of UD laws and the effect of UD laws on the value of cash is stronger for financially constrained firms. The results of our analysis suggest that firms are concerned about the risk of derivative lawsuits so they hold larger cash reserves for precautionary purpose. The adoption of UD laws imposes hurdles to derivative lawsuits, which decrease the risk of shareholder litigation. Reduced derivative lawsuit threat motivates firms to lower cash reserves while deploying cash for investment in risk-increasing but value-enhancing projects, leading to an increase in the value of cash. Our evidence highlights the dark side of shareholder litigation, particularly derivative lawsuits, which induces conservative corporate policies and adversely affects shareholder value.

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## Appendix A1. UD Laws Adoption by States

Year	State	Citation
1989	GA	Ga. Code Ann. § 14-2-742
1989	MI	Mich. Comp. Laws Ann. § 450.1493a
1990	FL	Fla. Stat. Ann. § 607.07401
1991	WI	Wis. Stat. Ann. § 180.742
1992	MT	Mont. Code. Ann. § 35-1-543
1992	VA	Va. Code Ann § 13.1-672.1B
1992	UT	Utah Code. Ann. § 16-10a-740(3)
1993	NH	N.H. Rev. Stat. Ann. § 293-A:7.42
1993	MS	Miss. Code Ann. § 79-4-7.42
1995	NC	N.C. Gen. Stat. § 55-7-42
1996	AZ	Ariz. Rev. Stat. Ann. § 10-742
1996	NE	Neb. Rev. Stat. § 21-2072
1997	CT	Conn. Gen. Stat. Ann. § 33-722
1997	ME	Me. Rev. Stat. Ann. 13-C, § 753
1997	PA	Cuker v. Mikalauskas (547 Pa. 600, 692 A.2d 1042)
1997	TX	Tex. Bus. Org. Code. Ann. 607.07401
1997	WY	Wyo. Stat. § 17-16-742
1998	ID	Idaho Code § 30-1-742
2001	HI	Haw. Rev. Stat. § 414-173
2003	IA	Iowa Code Ann. § 490.742
2004	MA	Mass. Gen. Laws. Ann. Ch. 156D, § 7.42
2005	RI	R.I. Gen. Laws. § 7-1.2-710©
2005	SD	S.D. Codified Laws 47-1A-742

**Appendix A2. Definitions of Variables**

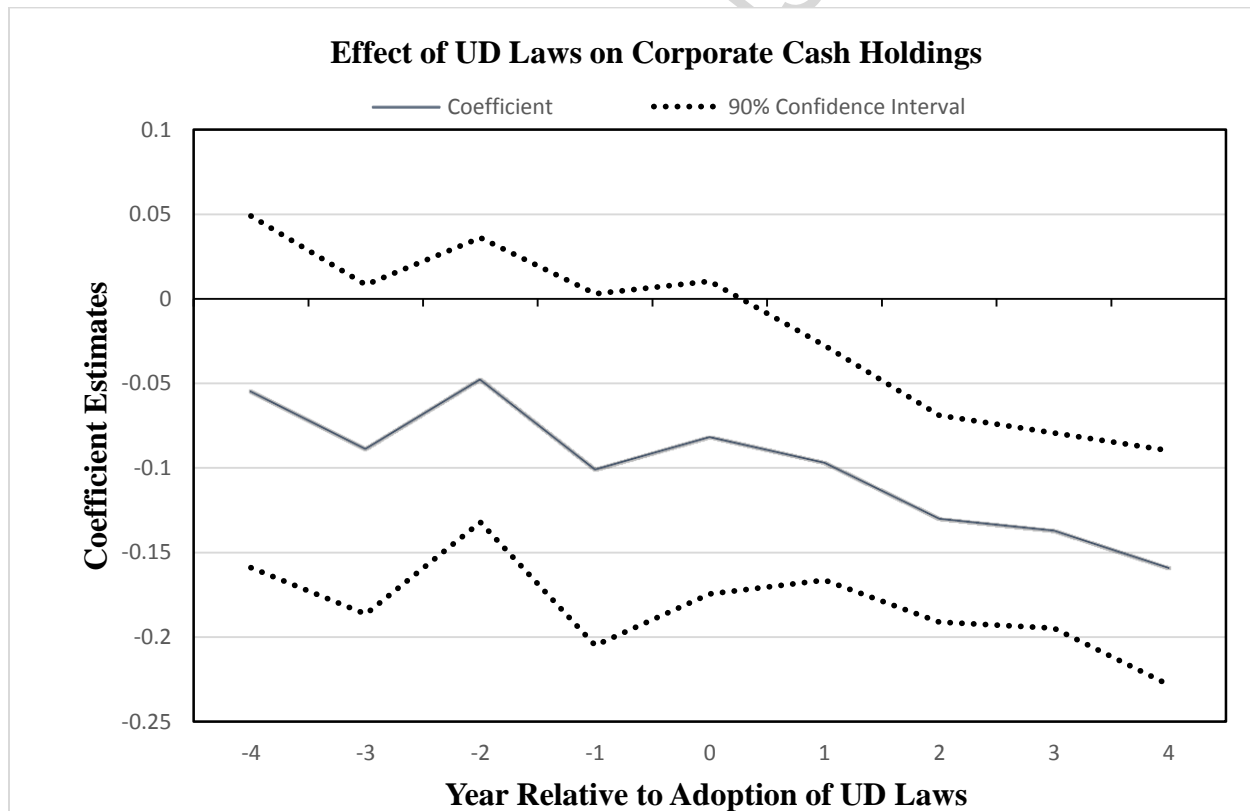
Variable	Description
<i>Acquisition</i>	Ratio of acquisitions to the book value of assets
<i>Cash/Assets</i>	The ratio of cash plus marketable securities to the book value of assets
<i>Cash flow/Assets</i>	Operating income before depreciation minus interest, taxes, and common dividends, all divided by the book value of assets
<i>Capital expenditures</i>	Ratio of capital expenditures to the book value of assets
<i>Dividend</i>	An indicator variable that equals 1 for the fiscal year that firms pay a dividend and 0 otherwise
<i>Financial leverage</i>	Long-term debt plus debt in current liabilities, all divided by the book value of assets
<i>Industry sigma</i>	The two-digit SIC industry average standard deviation of cash flow over assets in the previous 10 years (with at least 3 nonmissing observations)
<i>M/B</i>	Market-to-book ratio, measured as the book value of assets minus the book value of common equity plus the market value of equity, all divided by the book value of assets.
<i>NF</i>	The sum of net new equity and debt issues, which is calculated as the sale of common and preferred stock minus the purchase of

	common and preferred stock plus issuance of long-term debt minus reduction of long-term debt
<i>NWC</i>	Net working capital, measured as working capital minus cash and marketable securities, divided by the book value of assets
<i>R&amp;D/Sales</i>	Ratio of R&D expenditures to sales, set to 0 if missing
<i>Ln(Sale)</i>	Natural logarithm of sales
<i>Size</i>	Natural logarithm of book assets adjusted to 2012 dollar value using the consumer price index (CPI) reported on the website of the Federal Reserve Bank of St. Louis ( <a href="https://www.stlouisfed.org">https://www.stlouisfed.org</a> )
<i>Tobin's Q</i>	(Book value of assets + market value of common equity – book value of common equity – balance sheet deferred taxes)/Book value of assets.
<i>E</i>	Earnings before extraordinary items
<i>NA</i>	The book value of assets minus cash and marketable securities
<i>RD</i>	R&D expense, set to zero for missing value
<i>D</i>	Common dividends issued in fiscal year $t$
<i>I</i>	Interest expenses in fiscal year $t$
<i>UD Indicator</i>	a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise.

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**Figure 1. The Effect of UD Laws on Corporate Cash Holdings**

This figure plots the coefficients of the year dummies for years  $t-4$  to  $t+4$ , where year  $t$  is the year in which a state passed the UD law, in the cash holdings regression. The dependent variable is cash-to-assets ratio. The control variables include those included in Equation 1 state and year fixed effects as discussed in the text. The dashed lines indicate the 90% confidence intervals of the coefficient estimates.



**Table 1. Summary Statistics**

The sample includes 74,842 firm-year observations of 6,408 firms between 1985 and 2010. *Cash-to-assets* is the ratio of cash plus marketable securities to the book value of assets. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. *Capex* is the ratio of capital expenditures to the book value of assets. *Financial leverage* is measured as long-term debt plus debt in current liabilities, all divided by the book value of assets. *M/B* is measured as the book value of assets minus the book value of common equity plus the market value of equity, all divided by the book value of assets. *NWC* is measured as working capital minus cash and marketable securities, all divided by the book value of assets. Other variables are defined in Appendix A2. Continuous variables are winsorized at the top and bottom 1% to reduce the impact of outliers. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	N	Mean	p25	Median	p75	Standard deviation
UD Indicator	74,842	0.093	0.000	0.000	0.000	0.093
Cash-to-assets ratio	74,842	0.185	0.026	0.094	0.271	0.185
Book assets (in \$ million)	74,842	2,148.34	54.89	194.92	939.26	9,321.67
M/B	74,842	2.047	1.130	1.511	2.287	2.047
Financial leverage	74,842	0.214	0.025	0.175	0.336	0.214
NWC	74,842	0.099	-0.023	0.082	0.218	0.099
Cash Flow	74,842	0.040	0.025	0.072	0.114	0.040
R&D	74,842	0.178	0.000	0.002	0.066	0.178
Capex	74,842	0.063	0.022	0.043	0.080	0.063
Acquisition	74,842	0.023	0.000	0.000	0.009	0.023
Dividend	74,842	0.009	0.000	0.000	0.009	0.009

**Table 2. UD Laws and Corporate Cash Holdings**

The table presents the results of the cash holdings regressions. Panel A reports the results of baseline cash holdings regressions. Panel B reports the results of UD laws and corporate cash holdings. The dependent variable is *cash-to-assets ratio*. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with firm or industry fixed effects, and year and state fixed effects or state-year fixed effects, but their estimates are suppressed for brevity. *t-statistics* based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UD Indicator			-0.022*	0.038**	-0.026*	-0.045*	-0.031**	0.024**
				*				*
			(1.82)	(5.08)	(1.85)	(1.73)	(2.20)	(2.93)
Size <sub>t-1</sub>	-	-	-	-	-	-	-	-
	0.002**	0.007**	0.013**	0.017**	0.013**	0.010**	0.015**	0.016**
	*	*	*	*	*	*	*	*
	(8.54)	(7.36)	(5.12)	(19.43)	(9.41)	(4.96)	(16.63)	(13.79)
M/B <sub>t-1</sub>	0.017*	0.096**	0.005**	0.011**	0.005**	0.011**	0.022**	0.022**
		*	*	*	*	*	*	*
	(1.72)	(19.54)	(6.05)	(8.94)	(7.05)	(22.87)	(35.33)	(35.86)
Financial leverage <sub>t-1</sub>	-	-0.248	-	-	-	-	-	-
	0.390**		0.134**	0.234**	0.139**	0.142**	0.348**	0.344**

	*		*	*	*	*	*	*
	(4.61)	(1.54)	(11.09)	(10.65)	(11.01)	(11.22)	(46.45)	(43.82)
	-	-	-	-	-	-	-	-
NWC <sub>t-1</sub> /Assets <sub>t-1</sub>	0.122**	0.269**	0.331**	0.390**	0.288**	0.239**	0.366**	0.363**
	*	*	*	*	*	*	*	*
	(8.43)	(35.77)	(17.09)	(37.70)	(22.32)	(16.13)	(21.03)	(23.06)
	-	-	-	-	-	-	-	-
Cash Flow <sub>t-1</sub> /Assets <sub>t-1</sub>	0.651**	0.627**	0.022*	-0.009	0.012**	0.022**	0.082**	0.087**
1	*	*			*	*	*	*
	(5.27)	(34.84)	(1.81)	(0.84)	(4.39)	(5.72)	(19.86)	(19.68)
R&D <sub>t-1</sub> /Sales <sub>t-1</sub>	0.044**	0.034**	0.001**	0.001**	0.001**	0.008**	0.055**	0.055**
	*	*	*	*	*	*	*	*
	(6.84)	(13.15)	(3.17)	(2.33)	(3.01)	(11.22)	(28.00)	(27.04)
	-	-	-	-	-	-	-	-
Capex <sub>t-1</sub>	-0.343	0.591**	0.415**	0.456**	0.309**	0.417**	0.465**	0.455**
		*	*	*	*	*	*	*
	(1.15)	(3.68)	(26.67)	(21.47)	(24.59)	(31.88)	(16.83)	(18.38)
	-	-	-	-	-	-	-	-
Acquisition <sub>t-1</sub>	0.316**	-0.001	0.257**	0.209**	0.143**	0.174**	0.205**	0.261**
	*		*	*	*	*	*	*
	(13.95)	(1.42)	(21.29)	(20.68)	(24.98)	(24.58)	(13.36)	(11.45)
	0.309**	0.261**						
Industry sigma <sub>t-1</sub>	*	*	0.109**	0.165**	0.115**	0.057**	0.024	0.025*
			*	*	*	*		
	(4.69)	(24.41)	(5.66)	(7.61)	(7.58)	(4.19)	(1.52)	(1.99)
	-	-	0.058**		0.063**	0.060**	-	-
Dividend <sub>t-1</sub>	0.069**	-0.064*		-0.003			0.455**	0.455**
	*		*		*	*	*	*

	(3.72)	(1.81)	(5.71)	(0.11)	(8.10)	(6.91)	(3.97)	(4.12)
Intercept	0.929**	1.418**	0.337**	0.338**	0.322**		0.598**	
	*	*	*	*	*		*	
	(7.70)	(39.62)	(21.53)	(37.38)	(42.63)		(47.13)	
Firm fixed effects	Yes	No	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	No	No	No	No
State fixed effects	No	No	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	No	No	Yes	No	Yes
Number of observations	74,842	74,842	74,842	74,842	74,842	74,842	74,842	74,842
Adjusted $R^2$	0.69	0.32	0.75	0.49	0.75	0.76	0.56	0.56

**Table 3. UD Laws and the Value of Cash – Excess Return Regressions**

The table reports the results of the excess return regressions. Panel A reports the results of baseline value of cash regressions. Panel B reports the results of UD laws and the value of cash. The dependent variable, *excess returns*, is measured as the stock return of a firm in a given year minus the benchmark return from the Fama and French (1993) 25 size and book-to-market portfolios.  $\Delta$  denotes a change in value from year  $t-1$  to year  $t$ . *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with firm or industry fixed effects, and year and state fixed effects or state-year fixed effects but their estimates are suppressed for brevity.  $t$ -statistics based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.



Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UD								
Indicator $\times(\Delta\text{Cash}_t$								
/ME $_{t-1}$ )			0.230***	0.174**	0.254***	0.253***	0.175**	0.175**
			(3.89)	(2.27)	(4.18)	(4.16)	(2.28)	(2.28)
UD Indicator			-0.009	-0.005	-0.035**	-0.024	0.001	0.001
			(0.51)	(0.79)	(2.10)	(1.06)	(0.13)	(0.09)
$\Delta\text{Cash}_t/\text{ME}_{t-1}$	1.206***	1.186***	0.700***	0.758***	0.669***	0.669***	0.699***	0.699***
	(17.34)	(9.26)	(13.92)	(12.96)	(13.05)	(13.05)	(11.77)	(11.78)
$\Delta\text{Earnings}_t/\text{ME}_{t-1}$	0.169***	0.140***	0.275***	0.287***	0.001	0.001	0.294***	0.294***
	(23.81)	(20.31)	(24.65)	(14.46)	(0.99)	(0.98)	(14.66)	(14.65)
$\Delta\text{Net Assets}_t/\text{ME}_{t-1}$								
1	0.105*	0.203	0.017***	0.009	0.001	0.001	0.005	0.005
	(1.85)	(1.27)	(4.13)	(1.56)	(0.99)	(1.09)	(0.89)	(0.88)
					-	-		
$\Delta\text{R\&D}_t/\text{ME}_{t-1}$	1.05	1.013	-0.156*	-0.101	0.522***	0.526***	-0.103	-0.103
	(0.89)	(0.24)	(1.77)	(0.69)	(5.90)	(5.95)	(0.69)	(0.69)
	-	-	-	-				
$\Delta\text{Interest}_t/\text{ME}_{t-1}$	1.249***	1.177***	0.504***	0.403***	-0.137	-0.104	-0.349**	-0.349**
	(3.82)	(2.84)	(4.93)	(2.61)	(1.60)	(1.22)	(2.26)	(2.26)
			-					
$\Delta\text{Dividends}_t/\text{ME}_{t-1}$	0.320**	0.045	0.716***	-0.446*	-0.189	-0.182	-0.558**	-0.558**
	(2.20)	(0.37)	(3.14)	(1.77)	(0.82)	(0.79)	(2.18)	(2.18)
$\text{Cash}_{t-1}/\text{ME}_{t-1}$	0.268***	0.059***	0.292***	0.134***	0.267***	0.271***	0.116***	0.116***
	(26.79)	(8.27)	(21.93)	(9.06)	(20.58)	(20.86)	(7.72)	(7.72)
	-	-	-	-	-	-	-	-
Financial leverage $_t$	0.238***	0.158***	0.247***	0.204***	0.213***	0.218***	0.185***	0.185***
	(23.17)	(26.95)	(15.27)	(16.50)	(13.14)	(13.42)	(15.12)	(14.86)

New finance <sub>t</sub> /ME <sub>t</sub>	-	-	-	-	-	-	-	-
$\beta_1$	0.048***	0.033***	0.061***	-0.025	0.090***	0.097***	-0.042**	-0.042**
	(5.60)	(4.36)	(4.48)	(1.44)	(6.58)	(7.09)	(2.39)	(2.38)
(Cash <sub>t-1</sub> /ME <sub>t</sub>	-	-						
$\beta_2$ ) $\times(\Delta$ Cash <sub>t</sub> /ME <sub>t-1</sub> )	0.509***	0.315***	0.380***	0.302***	0.446***	0.447***	0.285***	0.285***
	(3.26)	(9.51)	(10.67)	(5.15)	(12.23)	(12.25)	(4.81)	(4.81)
Financial leverage <sub>t</sub>	-		-	-	-	-	-	-
$\beta_3$ $\times(\Delta$ Cash <sub>t</sub> /ME <sub>t-1</sub> )	1.195***	-1.062	0.299***	0.448***	0.268***	0.252***	0.447***	0.447***
	(3.90)	(1.37)	(3.98)	(4.21)	(3.47)	(3.26)	(4.20)	(4.19)
	-		-					
Intercept	0.077***	-0.038	0.083***	-0.034	0.006		-0.047	
	(13.09)		(8.73)	0.00	(1.12)		(0.14)	
Firm fixed effects	Yes	No	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	No	No	No	No
State fixed effects	No	No	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	No	No	Yes	No	Yes
Number of observations	62,889	62,889	62,889	62,889	62,889	62,889	62,889	62,889
Adjusted R <sup>2</sup>	0.12	0.10	0.12	0.11	0.03	0.02	0.03	0.03

**Table 4. UD Laws and Corporate Investments**

The table reports the results of the investment regressions. *Capital Expenditures* is the ratio of capital expenditures to the book value of assets at the beginning of the year. *Acquisition* equals to the ratio of acquisitions to the book value of assets at the beginning of the year. *R&D Expense* equals to the ratio of R&D expenditures to the book value of assets at the beginning of the year. *Total Investment* equals the sum of capital expenditures, acquisitions, and R&D expenses, all scaled by the book value of assets at the beginning of the year. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. *Tobin's Q* is defined as (book value of assets + market value of common equity – book value of common equity – balance sheet deferred taxes)/book value of assets. *Cash flow/Assets* is defined as (operating income before depreciation – interest – taxes – common dividends)/book value of assets. In Panel B, the *High\_Growth (Low\_Growth)* subgroup includes firms whose average annual sales growth rate over the previous 3 years are above (below) the sample median. The models are estimated with firm fixed effects and year fixed effects or state-year fixed effects, but their estimates are suppressed for brevity. *t*-statistics based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

*Panel A: UD Laws and*

*Investment*

Capital			
Total Investment	Expenditures	Acquisitions	R&D
_____	_____	_____	_____

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				0.004**	0.005**			
UD Indicator	0.006** (1.97)	0.011* (1.71)	0.003* (1.82)	* (3.95)	* (4.49)	0.003* (1.70)	0.002** (1.99)	0.010** (2.08)
	0.048**	0.069**	0.027**	0.006**	0.006**	0.020**	0.013**	0.016**
Tobin's $Q_{t-1}$	* (58.70)	* (64.23)	* (58.09)	* (47.42)	* (46.95)	* (58.39)	* (29.61)	* (9.83)
Cash Flow		0.013**	0.069**	0.080**	0.079**	0.052**	0.034**	0.076**
$\sqrt{\text{Assets}}_{t-1}$	0.008** (2.25)	* (3.62)	* (17.56)	* (36.86)	* (36.19)	* (19.13)	* (5.85)	* (6.69)
			-	-	-	-	-	-
	0.034**		0.006**		0.103**		0.029**	
Intercept	* (14.42)		* (3.84)		* (3.55)		* (23.13)	
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	No	Yes	No	Yes	No	Yes	No
State-year fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Number of observations	68,434	68,434	68,434	68,434	68,434	68,434	68,434	68,434
Adjusted $R^2$	0.44	0.33	0.49	0.49	0.17	0.16	0.79	0.42

*Panel B: UD Laws, Investment, and Growth Opportunities*

Capital			
Total Investment	Expenditures	Acquisitions	R&D

	High_Gr	Low_Gr	High_Gr	Low_Gr	High_Gr	Low_Gr	High_Gr	Low_Gr
	owth	owth	owth	owth	owth	owth	owth	owth
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
					0.010**			
UD Indicator	0.011** (2.09)	0.001 (0.18)	0.007* (1.71)	0.001 (0.32)	* (4.25)	0.001 (0.54)	0.004* (1.86)	0.001 (0.07)
	0.029**	0.093**	0.031**	0.047**	0.002**	0.030**	0.014**	
Tobin's $Q_{t-1}$	* (39.00)	* (29.47)	* (7.87)	* (17.02)	* (7.60)	* (18.83)	* (24.52)	0.012* (1.89)
	-						-	
Cash Flow	0.019**	0.029**		0.037**	0.008**		0.087**	
$\sqrt{\text{Assets}}_{t-1}$	* (6.45)	* (5.71)	0.065** (2.05)	* (7.65)	* (4.19)	-0.001 (0.22)	* (13.98)	-0.028 (1.38)
		-				-		
	0.091**	0.013**		-	0.020**	0.016**	0.041**	
Intercept	* (38.96)	* (3.42)	-0.016* (1.92)	0.007** (2.05)	* (20.84)	* (9.13)	* (16.86)	0.015** (2.41)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	No	No	No	No	No	No	No	No
State-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	34,217	34,217	34,217	34,217	34,217	34,217	34,217	34,217
Adjusted $R^2$	0.46	0.34	0.24	0.10	0.24	0.11	0.77	0.49

**Table 5. UD Laws and Firm Risks**

The table reports the results of the firm risk regressions. The dependent variable in Panel A is annual stock return variance, which is calculated as the variance of daily stock returns of a firm in a given year. The dependent variable in Panel B is cash flow volatility, which is measured as the standard deviation of the ratio of seasonally adjusted quarterly cash flows to the book value of assets over a 5-year period of a given firm. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with firm fixed effects, year fixed effects, and state or state-year fixed effects, but their estimates are suppressed for brevity. *t*-statistics based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

*Panel A: Annual Stock Return Variance*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator	0.053*** (4.55)	0.044*** (5.60)	0.034** (2.26)	0.015* (1.76)	0.039* (1.69)	0.025* (1.68)
Ln(Sales)	-0.003 (1.11)	-0.068*** (84.73)	-0.048*** (15.91)	-0.078*** (104.09)	-0.135*** (21.19)	-0.142*** (81.79)
R&D	0.493*** (3.99)	0.099*** (11.50)	0.011*** (5.50)	0.044*** (5.39)	-0.008** (2.28)	0.956*** (13.68)
Book Leverage	0.135*** (8.07)	0.138*** (14.94)	0.236*** (17.45)	0.147*** (16.77)	0.480*** (18.63)	0.384*** (19.00)
M/B	-0.031*** (12.32)	-0.020*** (14.09)	-0.019*** (15.53)	-0.009*** (9.53)	-0.046*** (19.70)	-0.062*** (20.57)

Capex	-0.177*** (4.94)	-0.303*** (11.59)	-0.184*** (5.43)	-0.105*** (4.40)	-0.401*** (6.24)	-0.632*** (11.28)
Intercept	0.411*** (22.85)	0.793*** (118.30)			0.319*** (6.42)	0.245*** (10.37)
Firm fixed effects	Yes	No	Yes	No	Yes	No
Industry fixed effects	No	Yes	No	Yes	No	Yes
Year fixed effects	No	No	No	No	Yes	Yes
State fixed effects	Yes	Yes	No	No	No	No
State-year fixed effects	No	No	Yes	Yes	No	No
Number of observations	25,886	25,886	25,886	25,886	25,886	25,886
Adjusted R <sup>2</sup>	0.35	0.59	0.33	0.60	0.44	0.64

*Panel B: Annual Cash Flow Volatility*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator	0.021* (1.66)	0.011* (1.72)	0.001* (1.82)	0.003 (0.26)	0.004* (1.80)	0.027 (0.16)
Ln(Sales)	-0.002*** (44.92)	-0.001*** (15.45)	-0.002*** (41.94)	-0.002*** (10.44)	-0.001*** (56.62)	-0.001*** (9.95)
R&D	0.018*** (11.42)	0.000*** (2.71)	0.014*** (9.24)	0.008*** (10.33)	0.004*** (12.08)	0.003*** (4.21)
Book Leverage	0.006*** (11.06)	0.004*** (6.88)	0.006*** (10.42)	0.006*** (9.79)	0.002*** (9.29)	0.004*** (8.10)
M/B	0.002*** (15.86)	0.001*** (14.51)	0.002*** (17.24)	0.001*** (13.74)	0.001*** (21.42)	0.000*** (8.39)
Capex	0.003** (1.99)	0.005*** (4.20)	0.004*** (2.75)	0.003* (1.95)	0.003*** (4.12)	0.003*** (2.64)
Intercept	0.012*** (19.67)	0.013*** (29.73)			0.041*** (12.06)	0.024*** (13.28)

Firm fixed effects	Yes	No	Yes	No	Yes	No
Industry fixed effects	No	Yes	No	Yes	No	Yes
Year fixed effects	No	No	No	No	Yes	Yes
State fixed effects	Yes	Yes	No	No	No	No
State-year fixed effects	No	No	Yes	Yes	No	No
Number of observations	23,123	23,123	23,123	23,123	23,123	23,123
Adjusted $R^2$	0.19	0.47	0.16	0.43	0.19	0.47

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**Table 6. UD Laws, Cash Holdings, and the Value of Cash – Controlling for BC and PP Laws**

The table reports the results of the cash holdings and excess return regressions in Panels A and B, respectively. The dependent variable in Panel A is *cash-to-assets ratio*. The dependent variable in Panel B, *excess returns*, is defined as the stock return of a firm in a given year minus the benchmark return from the Fama and French (1993) 25 size and book-to-market portfolios.  $\Delta$  denotes a change in value from year  $t-1$  to year  $t$ . *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. *BC Indicator* is a dummy variable that equals 1 for the years in which BC law is effective in a firm's state of incorporation, and 0 otherwise. *PP Indicator* is a dummy variable that equals 1 for the years in which PP law is effective in a firm's state of incorporation, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with other controls, firm or industry fixed effects, and year and state or state-year fixed effects, but their estimates are suppressed for brevity.  $t$ -statistics based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.

*Panel A: Cash Holdings Regressions*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator	-0.004*	-0.011***	-0.037***	-0.007*	-0.006*	-0.007**
	(1.70)	(6.61)	(3.17)	(1.76)	(1.92)	(2.03)
BC Indicator	-0.003	-0.002	-0.072***	-0.023***	-0.007***	-0.008***
	(1.26)	(1.37)	(7.78)	(12.32)	(3.39)	(4.11)
PP Indicator	0.001	-0.018***	-0.025**	-0.008**	-0.010***	-0.010***

	(0.40)	(14.97)	(2.41)	(2.52)	(3.13)	(3.29)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	74,842	74,842	74,842	74,842	74,842	74,842
Adjusted $R^2$	0.76	0.49	0.67	0.77	0.56	0.75

*Panel B: Excess Return Regressions*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator $\times(\Delta\text{Cash}_t/\text{ME}_{t-1})$	0.473*** (5.62)	0.490*** (6.10)	0.469*** (5.37)	0.470*** (5.37)	0.478*** (5.77)	0.468*** (5.37)
UD Indicator	-0.009 (0.65)	0.003 (0.43)	-0.025* (1.72)	-0.050** (2.53)	-0.005 (0.41)	-0.053*** (2.68)
BC Indicator $\times(\Delta\text{Cash}_t/\text{ME}_{t-1})$	0.285*** (11.25)	0.188*** (8.27)	0.285*** (10.95)	0.287*** (10.99)	0.166*** (7.09)	0.237*** (9.06)
BC Indicator	0.004 (0.28)	0.002 (0.29)	-0.024** (2.49)	-0.027** (2.52)	0.005 (0.56)	-0.026** (2.48)
PP Indicator $\times(\Delta\text{Cash}_t/\text{ME}_{t-1})$	0.006* (1.70)	0.001 (0.33)	0.008** (2.13)	0.008** (2.06)	-0.001 (0.20)	0.004 (1.05)
PP Indicator	0.009 (0.63)	-0.012** (2.25)	0.005 (0.36)	-0.005 (0.31)	0.003 (0.24)	-0.006 (0.34)
$\Delta\text{Cash}_t/\text{ME}_{t-1}$	-0.001 (0.95)	-0.001** (2.31)	-0.001 (0.55)	-0.001 (0.56)	-0.001* (1.73)	-0.001 (0.50)
$\text{Cash}_{t-1}/\text{ME}_{t-1}$	0.279*** (22.22)	0.110*** (11.53)	0.261*** (20.93)	0.261*** (20.90)	0.096*** (9.83)	0.238*** (18.59)

$(\text{Cash}_{t-1}/\text{ME}_{t-1}) \times (\Delta \text{Cash}_t / \text{ME}_{t-1})$	0.179***	0.210***	0.216***	0.213***	0.190***	0.174***
	(4.68)	(5.98)	(5.44)	(5.38)	(5.26)	(4.40)
Financial leverage <sub>t</sub> × $(\Delta \text{Cash}_t / \text{ME}_{t-1})$	0.001	-0.053	0.011	0.008	-0.056	-0.023
	(0.01)	(0.91)	(0.17)	(0.12)	(0.93)	(0.35)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	62,889	62,889	62,889	62,889	62,889	62,889
Adjusted R <sup>2</sup>	0.10	0.09	0.02	0.02	0.03	0.03

**Table 7. UD Laws, Cash Holdings, and the Value of Cash – Controlling for PSLRA**

The table reports the results of the cash holdings and excess return regressions that control for the adoption of Private Securities Litigation Reform Act (PSLRA) in Panels A and B, respectively. The sample period spans from 1985 to 2010. The dependent variable, *excess returns*, is defined as the stock return of a firm in a given year minus the benchmark return from the Fama and French (1993) 25 size and book-to-market portfolios.  $\Delta$  denotes a change in value from year  $t-1$  to year  $t$ . *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. *PSLRA Indicator* is a dummy variable that equals 1 for the years in which PSLRA is effective, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with other controls, firm or industry fixed effects, and year and state or state-year fixed effects, but their estimates are

suppressed for brevity.  $t$ -statistics based on heteroskedasticity-robust standard errors clustered by headquarters states are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.

*Panel A: Cash Holdings Regressions*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator	-0.009*** (3.92)	-0.042*** (13.61)	-0.009*** (4.18)	-0.008*** (3.58)	-0.016*** (8.08)	-0.012*** (6.22)
PSLRA Indicator	-0.006*** (4.93)	-0.031*** (5.31)	-0.002** (2.38)	-0.005*** (3.82)	-0.011*** (9.54)	-0.006*** (3.33)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	74,842	74,842	74,842	74,842	74,842	74,842
Adjusted $R^2$	0.68	0.46	0.76	0.76	0.57	0.57

*Panel B: Excess Return Regressions*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
UD Indicator $\times(\Delta\text{Cash}_t/\text{ME}_{t-1})$	0.229*** (3.58)	0.217*** (3.82)	0.227*** (4.14)	0.288*** (4.42)	0.209*** (3.64)	0.217*** (3.81)
UD Indicator	-0.001 (0.05)	0.002 (0.60)	0.014 (1.44)	-0.006 (0.37)	0.011** (2.15)	0.007 (0.94)
PSLRA Indicator $\times(\Delta\text{Cash}_t/\text{ME}_{t-1})$	-0.014 (0.68)	-0.027 (0.81)	0.052 (0.25)	0.099 (0.34)	0.036 (0.66)	-0.098 (0.90)

PSLRA Indicator	-0.003 (0.15)	0.053*** (2.79)	0.141*** (9.15)	0.167*** (9.08)	0.081*** (4.23)	0.076*** (3.95)
$\Delta\text{Cash}_t/\text{ME}_{t-1}$	0.372*** (13.25)	0.144*** (5.95)	0.001 (0.16)	0.001 (0.12)	0.122*** (4.96)	0.118*** (4.79)
$\text{Cash}_{t-1}/\text{ME}_{t-1}$	0.237*** (23.89)	0.052*** (7.27)	0.147*** (20.18)	0.176*** (20.16)	0.052*** (7.15)	0.044*** (6.04)
$(\text{Cash}_{t-1}/\text{ME}_{t-1}) \times (\Delta\text{Cash}_t/\text{ME}_{t-1})$	-0.091*** (2.63)	-0.032 (1.05)	0.157*** (6.81)	0.219*** (8.00)	-0.042 (1.36)	-0.034 (1.09)
Financial leverage <sub>t</sub> $\times$ $(\Delta\text{Cash}_t/\text{ME}_{t-1})$	-0.202*** (3.91)	-0.051 (1.10)	0.131*** (3.29)	0.127*** (2.68)	-0.045 (0.95)	-0.056 (1.20)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	71,347	71,347	71,347	71,347	71,347	71,347
Adjusted $R^2$	0.09	0.07	0.04	0.04	0.03	0.03

**Table 8. Cash Holdings and the Value of Cash - Falsification Tests**

The table reports the results of the dynamic cash holdings and value of cash regressions in Panels A and B, respectively.  $Before^{-1}$  is a dummy variable that equals 1 for the year preceding the adoption of a UD law by the state of incorporation of a given firm, and 0 otherwise.  $Current$  is a dummy variable that equals 1 for the year in which the UD law is adopted, and 0 otherwise.  $After^1$  is a dummy variable that equals 1 for the first year after the passage of UD law, and 0

otherwise.  $After^2$  is a dummy variable that equals 1 for the second year after the passage of UD law, and 0 otherwise. Other variables are defined in Appendix A2. The models are estimated with other controls, firm or industry fixed effects, and year and state fixed effects or state-year fixed effects, but their estimates are suppressed for brevity.  $t$ -statistics based on heteroskedasticity-robust standard errors clustered by state of headquarter are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5% and 10% levels, respectively.

*Panel A: Cash Holdings Regressions*

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Before <sup>1</sup>	-0.007 (0.24)	-0.041 (1.52)	-0.008 (0.31)	-0.008 (1.55)	-0.042 (1.51)	-0.005 (0.15)
Current	-0.011* (1.85)	-0.046** (2.32)	-0.037** (2.14)	-0.013* (1.66)	-0.068*** (3.38)	-0.049** (2.11)
After <sup>1</sup>	-0.029* (1.65)	-0.050** (2.41)	-0.034* (1.92)	-0.021** (2.04)	-0.062*** (3.08)	-0.048** (2.17)
After <sup>2</sup>	-0.081*** (6.58)	-0.094*** (11.02)	-0.076*** (6.15)	-0.024* (1.94)	-0.032*** (3.10)	-0.079*** (5.46)
Other controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	74,842	74,842	74,842	74,842	74,842	74,842
Adjusted $R^2$	0.67	0.46	0.67	0.71	0.44	0.43



Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	62,889	62,889	62,889	62,889	62,889	62,889
Adjusted $R^2$	0.14	0.10	0.03	0.02	0.02	0.03

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Firm fixed effects	Yes	No	Yes	Yes	No	No
Industry fixed effects	No	Yes	No	No	Yes	Yes
Year fixed effects	Yes	Yes	No	No	No	No
State fixed effects	No	No	Yes	No	Yes	No
State-year fixed effects	No	No	No	Yes	No	Yes
Number of observations	12,326	12,326	12,326	12,326	12,326	12,326
Adjusted $R^2$	0.16	0.14	0.02	0.03	0.03	0.03

**Table 10. UD Laws, Financial Constraints, and the Value of Cash**

The table reports the results of the excess return regressions for financially constrained (FC) and unconstrained (Non-FC) subgroups. The levels of financial constraints are determined based on firm size, S&P long-term credit ratings, WW index, or SA index. FC (Non FC) subgroup includes firms without (with) Standard and Poor's (S&P) long-term credit ratings, below (above) the sample median of firm size, above (below) the sample median of the Whited-Wu index value or the size-age index value. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise. The models are estimated with firm or industry fixed effects, and state-year fixed effects but their estimates are suppressed for brevity. *t*-statistics based on heteroskedasticity-robust standard errors clustered by headquarters state are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	WW Index		SA Index		Size		Credit Ratings	
	FC	Non-FC	FC	Non-FC	FC	Non-FC	FC	Non-FC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UD	0.357**	0.067	0.336**	0.179**	0.372**	0.106	0.286**	0.178

Indicator	*	*	*	*	*	*	*	*
$(\Delta \text{Cash}_t / \text{ME}_{t-1})$	(3.72)	(1.61)	(3.90)	(2.14)	(2.46)	(1.19)	(13.73)	(0.67)
UD								
Indicator	-0.037	-0.01	-0.049	-0.005	-0.035	0.006	0.003	0.110**
	(1.50)	(0.79)	(1.01)	(0.30)	(1.15)	(0.39)	(0.04)	(2.22)
$\Delta \text{Cash}_t / \text{ME}_{t-1}$	0.412**	0.521**	0.427**	0.413**	0.465**	0.452**	0.476**	0.473**
	*	*	*	*	*	*	*	*
	(3.27)	(5.33)	(6.28)	(10.07)	(8.25)	(11.74)	(3.15)	(6.99)
Other								
controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed								
effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State-year								
fixed								
effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of								
observations	34,771	34,771	34,771	34,771	34,957	34,957	33,962	28,927
Adjusted $R^2$	0.01	0.04	0.01	0.04	0.03	0.03	0.12	0.14

**Table 11. UD Laws, Financial Constraints, and Operating Performance**

The table reports the results of the operating performance for the full sample (Panel A) and subsamples of financially constrained (FC) and unconstrained (Non-FC) firms (Panel B). The dependent variable is *ROA*, which is measured as net income scaled by the book value of assets. *UD indicator* is a dummy variable that equals 1 for the years in which UD law is effective in a firm's state of incorporation, and 0 otherwise.  $\Delta Invest$  is the change in corporate investment from year  $t-1$  to year  $t$ , where corporate investment is measured as the net fixed assets in year  $t$  minus net fixed assets in year  $t-1$  plus depreciation in year  $t$ , all divided by the book value of assets in year  $t-1$ . *Size* is the natural logarithm of firm total assets. *Cash* is measured as the current assets minus accounts receivable and inventory, divided by the book value of assets. *Sale\_growth* is measured as the difference between sales in current year  $t$  and sales in year  $t-1$ , scaled by sales in year  $t-1$ . *Financial leverage* is calculated as total debt divided by the book value of assets. *Age* is the number of year a firm has been included in Compustat. The levels of financial constraints are determined based on firm size, S&P long-term credit ratings, WW index, or SA index. FC (Non FC) subgroup includes firms without (with) Standard and Poor's (S&P) long-term credit ratings, below (above) the sample median of firm size, above (below) the sample median of the Whited-Wu index value or the size-age index value. The models are estimated with firm, state, and year fixed effects but their estimates are suppressed for brevity.  $t$ -statistics based on heteroskedasticity-robust standard errors clustered by headquarters state are reported in parentheses. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

*Panel A: Full Sample Analysis*

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Variable	(1)	(2)	(3)	(4)	(5)	(6)
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UD			0.004**	0.003**		0.025**
Indicator			*	*	0.024**	*
			(3.96)	(5.12)	(2.33)	(5.10)
UD						
Indicator ×					0.213**	0.261**
ΔInvest <sub>t</sub>					*	*
					(3.02)	(7.72)
			0.154**	0.157**	0.030**	0.018**
ΔInvest <sub>t</sub>			*	*	*	*
			(13.02)	(13.18)	(8.12)	(9.80)
		0.001**	0.001**	0.001**	0.001**	0.001**
Cash <sub>t-1</sub>	0.001**	*	*	*	*	*
	(1.98)	(3.12)	(3.13)	(3.11)	(3.15)	(4.56)
Sale <sub>t</sub> growth						0.009**
t-1	-0.001	0.000	-0.005*	-0.004	-0.002	*
	(0.22)	(0.09)	(1.68)	(1.33)	(0.55)	(6.70)
Financial		0.035**			0.030**	0.044**
leverage <sub>t-1</sub>	-0.035*	*	-0.018*	-0.017	*	*
	(1.78)	(3.40)	(1.70)	(1.64)	(2.95)	(9.05)
	0.027**	0.027**	0.027**	0.026**	0.025**	0.006**
Age <sub>t-1</sub>	*	*	*	*	*	*
	(3.53)	(8.21)	(8.42)	(8.11)	(7.65)	(17.92)
	0.024**	0.023**	0.018**	0.017**	0.022**	0.019**
Size <sub>t-1</sub>	*	*	*	*	*	*

	(6.27)	(9.38)	(7.45)	(7.00)	(8.90)	(16.23)
	0.742**	0.722**	0.688**	0.668**	0.673**	0.031**
Intercept	*	*	*	*	*	*
	(4.80)	(10.81)	(10.44)	(10.01)	(10.14)	(4.08)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
State fixed effects	No	Yes	No	Yes	No	Yes
Observations	57,972	57,972	57,972	57,972	57,972	57,972
Adjusted R <sup>2</sup>	0.26	0.26	0.26	0.26	0.26	0.26

*Panel B: Subsample Analysis*

Variable	Size		Credit Ratings		WW Index		SA Index	
	FC	Non-FC	FC	Non-FC	FC	Non-FC	FC	Non-FC
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UD	0.016**				0.022**			
Indicator	*	-0.004	0.018*	-0.003	*	-0.008	0.020**	-0.006
	(3.21)	(0.32)	(1.81)	(0.27)	(3.96)	(0.71)	(2.54)	(0.61)
UD								
Indicator ×			0.130**				0.133**	
$\Delta Invest_t$	0.077*	0.004	*	0.005	0.117**	0.111	*	0.099
	(1.86)	(0.21)	(4.06)	(0.27)	(2.56)	(1.36)	(2.79)	(1.28)
	0.118**		0.093**	0.124**	0.115**		0.090**	0.070**
$\Delta Invest_t$	*	0.016	*	*	*	0.028*	*	*
	(14.07)	(1.08)	(13.74)	(8.10)	(13.78)	(1.88)	(11.77)	(4.64)

Other								
controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed								
effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed								
effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State fixed								
effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation								
s	28,986	28,986	30,690	27,282	28,986	28,986	28,301	29,671
Adjusted R <sup>2</sup>	0.51	0.02	0.52	0.51	0.49	0.02	0.52	0.24

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## Highlights

- UD laws reduce the risk of derivative lawsuits, a form of shareholder litigation.
- Firms reduce corporate cash reserves following the adoption of UD laws.
- Reduced shareholder litigation risk leads to a higher value of cash.
- UD laws affect the level and value of cash through investment.