

# Playing it Safe? Managerial Preferences, Risk, and Agency Conflicts<sup>\*</sup>

Todd A. Gormley<sup>†</sup> and David A. Matsa<sup>‡</sup>

September 5, 2014

## Abstract

This paper examines managers' incentive to "play it safe" by taking value-destroying actions that reduce their firms' risk of distress. We find that, after managers are insulated by the adoption of an antitakeover law, firms take on less risk. Stock volatility decreases, cash holdings increase, and diversifying acquisitions increase by more than a quarter relative to firms that operate in the same state and industry. The acquisitions target "cash cows," have negative announcement returns, and are concentrated among firms with greater risk of distress and inside ownership. Our findings suggest that shareholders face governance challenges beyond motivating managerial effort, and that instruments typically used to motivate managers, like greater financial leverage and larger ownership stakes, intensify these challenges.

(JEL D22, D81, G32, G34, K22)

**Keywords: risk, managerial preferences, agency conflicts, acquisitions**

---

<sup>\*</sup> For helpful comments, we thank Jonathan Cohn, Alex Edmans, Doron Levit, Michael Roberts, and seminar participants at the NBER Summer Institute, Pennsylvania State University Harrisburg, University of Melbourne, University of New South Wales, University of Pennsylvania (Wharton), University of Sydney, University of Technology Sydney, and University of Virginia (Darden). We are grateful to Moshe Cohen, James S. Linck, Dimitris Papanikolaou, and David Yermack for providing data used in this study. Matthew Denes and Christine Dobridge provided research assistance. Gormley thanks the Rodney L. White Center for Financial Research and the Brandywine Global Investment Management Research Fellowship for financial support.

<sup>†</sup> The Wharton School, University of Pennsylvania, 3620 Locust Walk, Suite 2400, Philadelphia, PA, 19104. Phone: (215) 746-0496. Fax: (215) 898-6200. E-mail: [tgormley@wharton.upenn.edu](mailto:tgormley@wharton.upenn.edu)

<sup>‡</sup> Kellogg School of Management, Northwestern University, and NBER, 2001 Sheridan Road, Evanston, IL 60208. Phone: (847) 491-8337. Fax: (847) 491-5719. E-mail: [dmatsa@kellogg.northwestern.edu](mailto:dmatsa@kellogg.northwestern.edu)

*“The dangers of taking too much risk are very clear. We’re reminded of them in the news every day...Unfortunately, we rarely hear any warnings about playing it safe...The dangers of playing it safe aren’t sudden, obvious, and dramatic. They don’t make headlines...The dangers of playing it safe are hidden, silent killers.”*

— *Taking Smart Risks*, by Doug Sundheim

Managers of publicly held corporations do not always act in the best interests of their shareholders. Agency theories of the firm tend to focus on three aspects of managerial preferences causing these conflicts: private benefits, costly effort, and risk preference. First, managers have an incentive to undertake value-destroying activities that create private benefits for themselves, such as in “empire building” (Baumol, 1959; Marris, 1964; Williamson, 1964). Second, managers might exert less effort than shareholders desire, so as to “enjoy the quiet life” (Holmström, 1979; Grossman and Hart, 1983; Bertrand and Mullainathan, 2003). Whereas existing empirical studies mostly focus on these two agency conflicts, this paper aims to shed light on the third: motivated by risk-aversion or career concerns, managers might take on less risk than desired by a diversified shareholder or even undertake value-destroying actions that reduce the firm’s risk (Jensen and Meckling, 1976; Amihud and Lev, 1981; Smith and Stulz, 1985; Holmstrom, 1999). This “playing it safe,” as its described in Doug Sundheim’s business book *Taking Smart Risks* (see above), reduces the incidence of negative corporate outcomes that are personally costly to the manager. Although managerial risk aversion and career concerns are pervasive in agency theory, the practical importance of risk-related conflicts is less clear. This paper examines the empirical relevance of such conflicts.

Agency conflicts arising from managers’ risk preference have implications for both economic outcomes and optimal corporate policy. Taking on risk is almost always a prerequisite for creating shareholder value, so failing to take risks can hamper aggregate investment and long-term economic growth.<sup>1</sup> The corporate policies and compensation structures that maximize shareholder value are also quite different when risk, rather than costly effort, is the dominant driver of managerial preferences. For example, although increasing a firm’s leverage can induce its manager to exert greater effort (Jensen,

---

<sup>1</sup> For example, observers have argued that an increasingly risk-averse culture among U.S. workers, entrepreneurs, and firms contributes to the long-term slowing of the U.S. economy (Casselman, 2013).

1986), it can also amplify conflicts arising from managers' risk preferences by increasing the firm's (and manager's) exposure to risk (Parrino, Poteshman, and Weisbach, 2005). Likewise, an increase in a manager's ownership stake or risk of being fired for poor corporate performance might exacerbate, rather than reduce, agency conflicts because the ownership interest and termination risk amplify the manager's incentive to play it safe by reducing the firm's risk. Indeed, the potential for risk-related agency conflicts is increasingly relevant as equity-based executive compensation has exploded (Frydman and Jenter, 2010) and boards are more likely to terminate CEOs for poor corporate performance (Jenter and Lewellen, 2014).

To assess the importance of agency conflicts arising from managers' risk preferences, we exploit state anti-takeover laws in the United States as a source of variation in external shareholder governance. During 1980s, many states passed "business combination" (BC) laws that made it more difficult to complete a hostile takeover of firms incorporated in the state. Because hostile takeovers usually involve replacing the manager, an active market for corporate control is thought to play an important role in corporate governance (Manne, 1965; Jensen and Meckling, 1976; Scharfstein, 1988). By making it more difficult to remove a manager who engages in value-destroying activities, BC laws weaken external shareholder governance and increase the scope for managerial agency conflicts. To examine the importance of motives to play it safe, we exploit the BC laws' staggered adoption across states and employ a difference-in-difference estimation strategy, similar to that of Bertrand and Mullainathan (2003) and others, that compares changes in the behavior of firms incorporated in states that enact BC laws to that of firms incorporated elsewhere. We control for both unobserved, time-invariant differences across firms and unobserved, time-varying differences across industries; and because many firms are incorporated in a different state than where they are located, we are also able to control for unobserved time-varying, state-level economic conditions that coincide with the laws' adoption.

We find that firms reduce their risk when the threat of a hostile takeover declines. After a BC law is adopted in a firm's state of incorporation, stock volatility declines by 2.3 percentage points, on average, relative to firms headquartered in the same state and operating in the same 4-digit SIC industry. This

corresponds to a roughly 5 percent drop in firms' stock volatility. We also find that affected firms increase their holdings of cash; average cash holdings increase by 13 percent after a BC law is adopted.

Although these results imply that agency costs lead managers to reduce their firms' risk, it does not clarify the source of this conflict. In principle, the results may reflect either managers' risk preference or their reluctance to exert effort. Managers' risk preference could be motivating them to play it safe and to work explicitly to reduce their firms' risk. Alternatively, managers' reluctance to exert effort could lead them to take to fewer risky investments, which could inflate firms' cash holdings and reduce their stock volatility. To investigate the nature of the relevant agency conflict, we analyze firms' acquisition activity. We focus on acquisitions for two reasons. First, prior evidence suggests that managers use diversifying acquisitions as a way to reduce their firms' risk (Amihud and Lev, 1981; May, 1995; Acharya, Amihud, and Litov 2011; Gormley and Matsa, 2011). Second, any observed increase in acquisitions would be inconsistent with managers simply exerting less effort when governance is weakened.<sup>2</sup>

Consistent with managers exerting more effort to reduce their firms' risk, we find that firms sharply increase their diversifying acquisitions. Firms affected by the reduced threat of a takeover undertake, on average, 27 percent more acquisitions after the law is passed relative to unaffected firms operating in the same state and in the same 4-digit SIC industry. The timing of this increase coincides with the passage of a BC law—there is no evidence of a pre-existing differential trend in acquisitions—and occurs at both the extensive and intensive margins. Firms are 12 percent more likely to undertake an acquisition, and the total value of deals, normalized by the lagged market value of total assets, increases by about 20 percent. The average cumulative abnormal return (CAR) associated with acquisitions undertaken by firms after a BC law's adoption is -1.2 percent, two-thirds of the increased acquisitions are diversifying acquisitions, and the acquisitions are largely funded with equity rather than cash. After a BC law is adopted, the types of firms' targeted by acquisitions also changes; affected firms are more likely to acquire "cash cows"—large, high growth firms with significant cash flow and payouts. Consistent with

---

<sup>2</sup> While an increase in acquisitions after passage of an anti-takeover law might seem counterintuitive, it is important to recognize that the BC laws only make *hostile* takeovers of target firms *incorporated* in that state more difficult; friendly mergers are unaffected by the law, as are hostile takeovers of firms incorporated elsewhere, even when the acquirer is incorporated in the affected state.

these acquisitions benefitting CEOs personally by increasing job security, managers who increase acquisitions after a BC law are less likely to lose their jobs over the next ten years.

To distinguish between playing it safe and empire building motives for the increase in diversifying acquisitions, we analyze firms' differential response to BC laws based on their ex-ante leverage and cash flow. If the acquisitions are driven by empire building motives, we would expect the increase in acquisitions to be more prominent among firms with high cash flow and low leverage such that the manager has a larger amount of free cash flow at his or her disposal (Jensen, 1986). On the other hand, if the increase in acquisitions is driven by risk-reducing motives, then we would expect the increase in acquisitions to be concentrated among firms at a greater risk of distress (Jensen and Meckling, 1976), including firms with *low* cash flow and *high* leverage.

Consistent with managers playing it safe, the increase in diversifying acquisitions are concentrated among firms with greater leverage and lower cash flow prior to the passage of the BC law. Affected firms with above median leverage immediately prior to the BC law undertake 30 percent more diversifying acquisitions after a BC law is adopted than non-affected firms with similar leverage levels. We find no increase in the number of acquisitions by firms with below median leverage. The increase in acquisitions is also concentrated among firms with a below median ratio of cash flow to assets before the law is adopted. The average firm with below median cash flow undertakes about 25 percent more diversifying acquisitions after a BC law is adopted, while there is no change in the number of diversifying acquisitions by affected firms with above median cash flow.

Additional heterogeneity in firms' responses to BC laws further supports the playing it safe explanation. Specifically, the increase in acquisitions is concentrated among firms with a greater risk of bankruptcy and among firms whose manager has a greater ownership stake, and hence, a greater financial exposure to the firm's risk. We detect an increase in diversifying acquisitions only among firms that have an elevated risk of distress, as measured using either a below median Altman z-score or the absence of dividends in the year prior to BC law's adoption. The increase in diversifying acquisitions also occurs only among managers with an above median share of ownership in their firm. After a BC law is adopted,

affected firms with above inside ownership increase diversifying acquisitions by about 28 percent more than non-affected firms with similar ownership levels.

Various additional tests support a causal interpretation of the estimates. First, we find no measureable differences in the characteristics of firms incorporated in states adopting the laws before the laws come into effect. Second, the location state-by-year and industry-by-year fixed effects control for political economy or business cycle factors that may have coincided with or led to the laws' passage. Third, the laws' adoption precedes the effects we assign to them rather than the other way around. Fourth, we estimate similar effects on firms incorporated in states adopting BC laws whether they operate in the state or elsewhere. Finally, our findings are robust to various alternative samples, time periods, and empirical specifications, including excluding firms incorporated in Delaware, which accounts for 50 percent of our observations, or individually excluding any of the 32 other states that adopted a BC law.

Overall, our evidence suggests that avoiding empire building and motivating managerial effort are not the only challenges shareholders face. While prior research has found evidence that weakened governance is associated with managers exerting less effort and enjoying the quiet life (Bertrand and Mullainathan, 2003), we show that, for many firms, weakened governance leads managers to play it safe by actively working to reduce their firms' risks.<sup>3</sup> We complement the existing literature by showing that various aspects of managerial preferences manifest when governance is weakened and that which aspect is the most salient varies across firms. One important determinant is firms' financial condition. This finding suggests that the primary challenge shareholders face also varies over time: even a manager who exerts too little effort in normal times might be overly active in reducing risk in periods of distress.

The multiplicity of managerial agency conflicts implies that there are tradeoffs in how leverage and inside ownership affect agency conflicts within firms. Although we find that leverage and inside ownership exacerbate managers' incentive to play it safe, they can mitigate other agency conflicts.

---

<sup>3</sup> In practice, the difference between the "quiet life" and "playing it safe" conflicts can be difficult to distinguish in reduced form estimations and the theories are interrelated. For example, for some managers, the ultimate motive of playing it safe could be to achieve a quiet life of less managerial effort. Furthermore, playing it safe might not entail much effort at all if it simply entails foregoing risky investments. The key distinction between what we observe and what has been shown previously, however, is that some managers do not simply exert less effort when governance is weakened, and that these increased efforts appear to be driven by managers' exposure to the firm's risk.

Indeed, we find that firms with little leverage or inside ownership tend to suffer reductions in ROA after a BC law's adoption, which is consistent with leverage and inside ownership discouraging managers from pursuing the quiet life. These findings support agency theories that focus on this tradeoff inherent in high inside ownership (e.g., Holmström, 1999). Debt's tendency to magnify risk-related managerial agency conflicts, however, is less developed in economic theory. Our findings suggest that this managerial agency cost of debt is economically important and affects firms' optimal capital structures.<sup>4</sup>

Our paper contributes to the growing literature on how managers' exposure to risk affects the way that they manage their firms. In a seminal paper, Chevalier and Ellison (1999) show that career concerns and the fear of termination affect mutual fund managers' portfolio choices. We apply a similar idea of career concerns and fear of termination to corporate leadership. Indeed, Jenter and Lewellen (forthcoming) show that career concerns affect the willingness of CEOs of acquisition targets to agree to a takeover. Other research finds that CEOs' risk preferences affect their firms' responses to changes in the firms' risk environment (Gormley and Matsa, 2011; Panousi and Papanikolaou, 2012) and that equity-based ownership can affect how managers act on their risk preferences (Tufano, 1996; Low, 2009; Kim and Lu, 2011). We build on this literature by showing how managers' preference to reduce risk manifests when governance is weakened and examine what corporate factors aggravate this conflict.

Our paper also builds on the literature studying the importance of BC and other anti-takeover laws. Although papers have found evidence of firms and managers reducing their exposure to risk following a BC law's adoption,<sup>5</sup> our paper is the first to show that the reduction in risk is not merely a side effect of managers exerting less effort but instead seems to reflect an agency conflict arising from managers' risk preferences. Our analysis also illustrates how this tendency to play it safe varies across firms. In this regard, our paper is also similar to Giroud and Mueller (2010), Kose, Li, and Pang (2010),

---

<sup>4</sup> Note that this agency cost of debt refers to a different concept than manager's tendency to act in the interests of shareholders over bondholders when the two's interests diverge, which is often referred to as the "agency cost of debt" (Jensen and Meckling, 1976).

<sup>5</sup> For example, Garvey and Hanka (1999) find that firms reduce their leverage; Cheng, Nagar, and Rajan (2004) find that managers reduce their ownership stakes; Yun (2009) finds that firms increase their cash holdings relative to lines of credit; Francis, Hasan, John, and Waisman (2010) find that bond values increase; and Atanassov (2013) finds that patenting declines.

and Atanassov (2013), who find that the severity of agency conflicts arising from costly effort are likely to be more severe for firms in less competitive industries, with greater cash flow, and with less leverage. In contrast, we show that another agency conflict, the conflict arising from managers' risk preferences, is more severe for firms with *lower* cash flow, *greater* leverage, and *higher* inside ownership.

Finally, our paper illustrates the importance of properly accounting for unobserved heterogeneity and of avoiding endogenous controls. The existing literature's focus on agency conflicts arising from costly effort is largely driven by the lack of evidence that firms increase their acquisitions when takeover threats are reduced. We show that the failure to detect this increase in acquisitions was driven by two errors in the workhorse empirical specification relied on in this literature: the average effects (AvgE) estimator (Gormley and Matsa, 2014) and endogenous controls (Angrist and Pischke, 2009). Our difference-in-difference estimations control for firm, industry-year, and state-year unobserved heterogeneities using fixed effects (instead of dependent variable means) and exclude time-varying controls that could be affected by the passage of the BC law and thus introduce a selection bias. Given the frequent use of AvgE estimators and endogenous controls in the finance and accounting literature, our findings serve as a warning of how these flawed approaches can confound researchers' inferences.

The remainder of this paper is organized as follows. Section 1 describes our data sources and identification strategy. Section 2 presents our main findings, and Section 3 describes our interpretation of the evidence and provides supporting evidence for this interpretation. Section 4 examines the robustness of our findings, and Section 5 concludes.

## **1. Empirical framework**

In the cross-section, weaker shareholder governance is correlated with reduced risk-taking by firms. Figure 1 plots the correlations between various measures of firms' risk-taking and the governance index from Gompers, Ishii, and Metrick (2003), a standard proxy for firms' external shareholder governance. Using data from all years in which the Gompers, Ishii, and Metrick index is available from the Investor Responsibility Research Center, averages of the various measures of firms' risk-taking are

plotted for each governance index score with at least 50 observations, and the reported regression line is weighted based on the number of underlying observations. The figure shows that weaker shareholder governance (i.e., a higher governance index score) is associated with lower stock volatility, lower cash flow volatility, more cash holdings, and more diversifying acquisitions. The magnitudes of these correlations are sizable. Relative to the sample average, a one standard deviation decrease in shareholder governance is associated with a 9 percent decline in stock volatility ( $t$ -stat = 12.3, adjusted for clustering at the firm level), a 10 percent reduction in cash flow volatility ( $t$ -stat = 4.5), a 13 percent increase in cash holdings ( $t$ -stat = 3.9), and a 9 percent increase in diversifying acquisitions ( $t$ -stat = 2.4). These cross-sectional correlations are consistent with managers playing it safe when external governance is weaker.

These statistical relations between shareholder governance and firms' riskiness, however, might not reflect causal relations. Standard proxies for governance, such as the governance index, institutional ownership, and board size, might be correlated with factors, such as firm size or investment opportunities, that directly affect a firm's risk. Failure to control for all of these factors could introduce an omitted variable bias that confounds the cross-sectional relations. Simultaneity bias could also distort these relations, as a firm's governance and risk are jointly determined; for example, firms that operate in riskier environments might elicit stronger shareholder governance, all else equal.

### *1.1. Business combination laws*

To overcome these challenges and to determine the importance of playing it safe motives, we follow Bertrand and Mullainathan (2003) and use U.S. states' passage of antitakeover laws as a negative shock to firms' shareholder governance. The idea behind this identification strategy is that the threat of a takeover reduces agency conflicts between managers and shareholders. Takeovers and the market for corporate control discipline managers because value-destroying activities impair the firm's stock value and invite a potential takeover that would result in the manager's termination (e.g., see Manne, 1965; Jensen and Meckling, 1976; Scharfstein, 1988). When the threat of a takeover is weakened, managers will be freer to act upon their underlying preferences that do not align with shareholders' interests. Consistent with this, Karpoff and Malatesta (1989) find that the initial press announcement of antitakeover

legislation in a state is associated with a negative stock price reaction for affected firms.<sup>6</sup>

We focus on the adoption of business combination (BC) laws across states as a source of variation in takeover threats. BC laws, also known as freeze-out laws, were adopted by 33 states between 1985 and 1997; the list and timing can be found in Appendix Table A.1. These laws, which were upheld by the Supreme Court in 1987 (*CTS v. Dynamics Corp.*), were viewed as the most stringent antitakeover laws passed at the time (Bertrand and Mullainathan, 2003).<sup>7</sup> While the laws' particular provisions vary by state, BC laws typically prevent a wide range of business combination transactions—including the sale of assets, mergers, share exchanges, and spinoffs—between a target firm and an interested acquirer for three to five years unless the target's board of directors approves the transaction *prior* to the acquirer becoming an interested shareholder (which is typically defined as owning more than 10-20 percent of the target). These state laws applied only to target firms incorporated in the state and are thought to have significantly reduced the threat of a hostile takeover in those states.<sup>8</sup>

Romano (1987) and Bertrand and Mullainathan (2003) analyze the political economy of the BC laws' passage and find that the passage of these laws typically did *not* result from the pressure of a large coalition of economic players in the state. Given the lack of broad-based lobbying, these authors conclude that an omitted economic variable is unlikely to explain measured effects of the law. Indeed, we find no

---

<sup>6</sup> Although in theory takeover threats could foster “managerial myopia” by discouraging profitable long-term investments that are undervalued by equity markets (Stein 1988), empirical research has found no evidence that the antitakeover legislation we analyze had this effect. In addition to the negative stock price reaction to these laws (Karpoff and Malatesta, 1989), the laws are associated with reduced total factor productivity (Bertrand and Mullainathan, 2003). Furthermore, the investments focused on in our analysis—whole-firm acquisitions—are subject to robust public scrutiny and debate, unlike the actions typically focused on in theories of managerial myopia, such as the sales of individual assets and long-term capital investments (Auletta, 1986).

<sup>7</sup> In addition to BC laws, other antitakeover laws passed at the time included fair price and control share laws. Fair price laws regulated the price of takeover bids and other significant business combinations, while control share laws required that target shareholders preapprove any acquisition of voting rights above a certain level. For detailed discussions of these laws, see Romano (1987), Karpoff and Malatesta (1989), and Bertrand and Mullainathan (2003). Following the prior literature, we focus on BC laws in our analysis because they resulted in the largest stock price drop upon announcement for firms incorporated in those states (Karpoff and Malatesta, 1989) and were viewed by many as being the most stringent of the new state-level, antitakeover laws (Bertrand and Mullainathan, 2003).

<sup>8</sup> Consistent with this, Comment and Schwert (1995) find evidence that passage of a BC law is associated with an increase in takeover premiums paid to targets. While Comment and Schwert (1995) do not find evidence of a decline in the likelihood of a takeover, Garvey and Hanka (1999) note that this can occur in equilibrium even when BC laws reduce the takeover threat. By reducing the takeover threat, BC laws will increase managers' ability to engage in value-destroying behavior, which has an offsetting effect of increasing the gains to doing a hostile acquisition. Consistent with this argument, Giroud and Mueller (2010) find evidence that the likelihood of a takeover does decline in more competitive industries, where this offsetting effect is argued to be smaller.

measurable differences in the characteristics of firms incorporated in states adopting the laws before the laws come into effect. Nevertheless, we control for political economy or business cycle factors that may have coincided with or led to the passage of the antitakeover law by including both location state-by-year and industry-by-year fixed effects in our analysis. We also examine the timing of the effects and find that the law’s adoption precedes the effects we assign to it rather than the other way around. Finally, we estimate similar effects on firms incorporated in states adopting BC laws whether they operate in the state or elsewhere, casting further doubt that the observed effects are driven by an omitted state-level shock. For these reasons, political economy or business cycle factors are unlikely to explain our results.

### *1.2. Empirical specification*

We exploit the staggered adoption of BC laws across U.S. states to evaluate the importance of playing it safe motives in managerial preferences. Using a difference-in-differences estimator, we compare changes among firms located in states that pass a BC law to changes among firms incorporated elsewhere. The underlying identification assumption is that, but for the law, the two sets of firms would follow parallel trends; that is, the change in outcome  $y$  for firms incorporated in the states that pass a BC law would have been the same as for firms incorporated in states that did not pass a BC law.

Specifically, we estimate:

$$y_{ijlst} = \beta_1 BC_{st} + f_i + \omega_{lt} + \lambda_{jt} + \eta_{ijlst}, \quad (1)$$

where  $y$  is the outcome of interest for firm  $i$ , in industry  $j$ , located in state  $l$ , incorporated in state  $s$ , in year  $t$ ;  $BC$  is an indicator that equals 1 if state  $s$  has passed a BC law by year  $t$ ;  $f_i$  are firm fixed effects;  $\omega_{lt}$  are state-by-year fixed effects; and  $\lambda_{jt}$  are 4-digit SIC industry-by-year fixed effects. We include the firm fixed effects to control for unobserved, time-invariant differences across firms; state-by-year fixed effects to control for unobserved, time-varying differences across states; and industry-by-year fixed effects to control for unobserved, time-varying differences across industries. The inclusion of these fixed effects ensures that our difference-in-differences estimates are robust to many types of unobservable omitted variables that might otherwise confound our analysis (Gormley and Matsa, 2014). Finally, we adjust the standard errors for clustering at the state-of-incorporation,  $s$ , level.

Our difference-in-differences estimate,  $\beta_l$ , is identified using within-state-year and within-industry-year variation that relaxes the parallel trends assumption underlying our estimation. We are able to obtain estimates for the BC laws' effects even after including state-by-year fixed effects because more than 60 percent of our firms are incorporated and located in different states. Our estimates are identified by comparing the differential response of two firms that operate in the same state,  $l$ , but where only one of these firms is incorporated in a state,  $s$ , that passes a BC law. Thus, any unobserved, time-varying state-level factors, such as local business cycles, that might coincide with a BC law's adoption and affect our outcome of interest will not bias our findings. Including industry-by-year fixed effects further mitigates identification concerns. With their inclusion, our findings are robust to any potential differential trends across industries over time.

Our estimation strategy differs from previous analyses of BC laws in two ways. First, to account for state- and industry-specific trends, existing studies control for state-year and industry-year averages of the dependent variables in their regression specifications. Gormley and Matsa (2014) refer to this empirical approach as an Average Effects (AvgE) estimator. Second, existing studies further augment the estimation to include a vector of time-varying controls,  $\mathbf{X}_{ijlst}$ , thought to affect the outcome of interest.

That approach, however, is biased. First, the industry-year and state-year dependent variable means measure the unobserved heterogeneities with error, and this measurement error introduces a bias that confounds inference (Gormley and Matsa, 2014).<sup>9</sup> Second, the inclusion of time-varying controls,  $\mathbf{X}$ , into the difference-in-difference estimation can also introduce a bias if any of these controls are affected by passage of the BC law. Angrist and Pischke (2009) refer to such endogenous variables as "bad controls." For example, prior studies of how BC laws affect firms' acquisition activity have included a time-varying control for firm size; but presumably, if passage of the BC law affects acquisition activity, it will also affect firm size. Therefore, inclusion of firm size as a control can introduce a bias. Our estimation avoids these biases by estimating fixed effects instead of average effects and by excluding endogenous controls.

---

<sup>9</sup> Computational difficulties are a likely explanation for why the earliest papers in this literature failed to use fixed effects. For example, Bertrand and Mullainathan (2003, p. 1057) note that they rely on an average effects estimation because the inclusion of so many fixed effects is computationally infeasible. We overcome this difficulty of estimating a model with multiple, high-dimensional fixed effects by using the iterative procedures described in Guimarães and Portugal (2010) and Gormley and Matsa (2014). As discussed later, we find that properly controlling for fixed effects substantively affects inferences.

### *1.3. Sample, data sources, and descriptive statistics*

We study firms' financial data from Compustat over the period from 1976 to 2006, excluding regulated utility firms (SIC codes 4900-4999), firms located or incorporated outside the U.S., and firm-year observations with either missing or negative assets or sales. Financial ratios are winsorized at the 1% level. The BC law changes occurred between 1985 and 1997, so we selected our sample period to include at least 10 years of data after the laws' adoption. Although this sample period is longer than the 1976–1995 time period examined by Bertrand and Mullainathan (2003), our findings are robust to using the shorter time frame and to excluding the three additional state laws reported in Pinnell (2000)—Oregon in 1991, and Iowa and Texas in 1997. Our data on acquisitions are from the Securities Data Company's (SDC) U.S. Mergers and Acquisitions Database, which begins in 1980.

BC laws affect firms based on their state of incorporation. Compustat, however, only reports firms' most recent state of incorporation and state of location, which we use as a control variable. Thus, firms that changed their state of incorporation or location anytime in the three decades since the law was passed would be assigned to an incorrect state. To address this concern, we obtain information about firms' historical states of incorporation and location from Cohen (2012), who collected incorporation and location information back to 1990 from the SEC disclosure CDs and Compustat back-tapes, and from SEC Analytics, which contains historical incorporation and location information back to 1994 from firms' SEC filings. For observations prior to 1990, we use the earliest incorporation and location information available for each firm. When information is missing entirely for a firm, such as for firms that stopped filing prior to 1990, we use the legacy version of Compustat to obtain this information. Finally, to avoid endogenous changes in whether a firm is subject to a BC law, we exclude firms that reincorporate from a state without a BC law to a state with a BC law or vice versa.<sup>10</sup>

Firms in states adopting BC laws appear to be similar to firms in other states. Table 1 reports firms' average characteristics (and standard errors) in the three years before each law was adopted;

---

<sup>10</sup> It turns out that our choice of data here does not have a significant impact on our estimates. Our conclusions remain the same if, similar to other researchers, we instead ignore the measurement concern and endogenous relocations and just use the most recent version of Compustat to obtain firms' locations and states of incorporation. The lack of a significant change likely reflects that only a small fraction of firms reincorporate. Relative to the most recent version of Compustat, our updates only change the state of incorporation for about 6% of observations and change treatment status for 2% of observations.

statistics in Column (1) correspond to firms incorporated in states adopting a BC law, and statistics in Column (2) correspond to firms incorporated in states not adopting a BC law. The  $p$ -value from t-tests for statistical differences between the two samples are reported in Column (3). The firms are similar in terms of their size, return on assets (ROA), debt/assets, and growth. We also find no statistically significant differences in their average risk, as measured by either stock volatility or the volatility of ROA, or in their acquisition activity, as measured using an indicator for undertaking an acquisition or the number of diversifying acquisitions they complete.

## **2. How takeover threats affect stock and cash flow volatilities, cash holdings, and acquisitions**

Does managers' underlying preference to play it safe affect corporate decisions? In the absence of strong external shareholder governance, is some managerial effort directed toward value-destroying activities designed to reduce firms' risk of distress? In this section, we investigate these questions by examining how various measures of firms' risk-taking change when external shareholder governance is weakened by the adoption of a BC law.

### *2.1. Stock volatility, cash flow volatility, and cash holdings*

To investigate whether BC laws are associated with firm risk, we analyze the laws' impact on firm's stock volatility, cash flow volatility, and cash holdings. A firm's stock volatility provides a measure of the firm's riskiness and captures any corporate choices made to reduce the firm's risk. We calculate a firm's stock volatility from CRSP using the square root of the sum of squared daily stock returns over the year; and we calculate the volatility of a firm's operating cash flow using the standard deviation of the firm's quarterly ROA. Detailed definitions of all variables can be found in Appendix Table A.2, and estimates of the laws' effects on stock and cash flow volatilities are reported in Table 2.

We find that firms' stock volatility decreases after a BC law is adopted. As reported in Column (1) of Table 2, stock volatility declines by about 2.3 percentage points, on average, for firms affected by a BC law relative to firms that are located in the same state and operating in the same industry but are unaffected by the law change. This drop in stock volatility corresponds to about 5% of the pre-law sample

mean, 7.5% of the pre-law standard deviation, and is statistically significant at the one percent confidence level. Cash flow volatility may also decrease: the point estimate, reported in Column (2), indicates an economically large decrease (of about one-third the pre-law standard deviation) but is estimated imprecisely and not statistically significant at conventional confidence levels ( $p$ -value = 0.15).<sup>11</sup>

We also analyze firms' holding of cash. A manager who wishes to reduce the firms' risk of distress might accumulate a larger cash buffer so as to reduce the likelihood of becoming distressed in the future. Consistent with this motivation, we find that firms increase their cash holdings after a BC law is adopted. On average, firms' total cash holdings increase by 12.1 log points, or about 13 percent [Column (3)]. The increase is statistically significant at the five percent confidence level.

## 2.2. *Acquisitions*

While the decline in stock volatility and increase in cash holdings are suggestive of managers playing it safe and reducing their firms' risk when the threat of a takeover is reduced, the evidence could also be consistent with managers exerting less effort. For example, if managers are avoiding taking on risky R&D expenditures because these investments would entail costly effort, we might observe a decrease in firms' risk and an increase in their cash holdings.

To differentiate between costly effort and managerial risk preferences as potential explanations for the observed decline in risk, we examine firms' acquisition activity. We focus on acquisitions because they are a way to reduce the firms' risk that requires substantial managerial effort. There is a long tradition, dating back to Amihud and Lev (1981), if not before, of viewing diversifying mergers in this way. More recently, Gormley and Matsa (2011) find that when faced with an increase in left-tail risk, managers aggressively try to reduce risk through diversifying acquisitions and acquisitions of "cash cows" (firms with significant cash flow). Because initiating and completing an acquisition requires significant managerial time and energy, one could safely conclude that an observed increase does *not* stem from managers' reluctance to exert effort. Our estimates for acquisitions are found in Table 3.

---

<sup>11</sup> The decline in stock volatility is not due to a reduction in leverage. We find no evidence that passage of a BC law is associated with a significant drop in firms' market leverage (coefficient =  $-0.0004$ , standard error = 0.0032). The small, insignificant decline may reflect a downward rigidity in leverage (see Heider and Ljungqvist, 2013).

We find that firm's acquisition activity increases after the takeover threat is reduced. After a state adopts a BC law, firms incorporated in that state undertake 0.027 more acquisitions per year relative to other firms operating in the same state and in the same industry [Table 3, Column (1)]. This increase is economically large, averaging more than 25 percent of the pre-law level, and is statistically significant at the 5 percent level. The increase occurs at both the extensive and intensive margins. Firms are 12 percent more likely to undertake an acquisition (0.009 more likely per year relative to the baseline likelihood of 0.076) when the firm is protected from takeovers by a BC law [Column (2)], and the total value of deals, normalized by the lagged market value of total assets, increases by 0.17 percentage points, a 20 percent increase over the average level before the law [ $p < 0.05$ , Column (3)].<sup>12</sup>

Many of the additional acquisitions are diversifying in nature. For a target firm, SDC lists a primary four-digit SIC industry classification and up to nine other four-digit SIC codes that represent "any small side lines the company is involved in" (Thomson Financial 1999). We define an acquisition as diversifying when the acquirer's primary SIC code does not coincide with any SIC code of the target firm. Even when SIC codes match, an acquisition typically diversifies away some idiosyncratic risk. The effect of BC laws on diversifying acquisitions, which is reported in column (4) of Table 3, is large and statistically significant. After a BC law is adopted, firms incorporated in that state undertake 0.018 more diversifying acquisitions annually ( $p < 0.05$ ). This increase represents a jump of about 25 percent relative to the average number of diversifying acquisitions before the law was adopted. Compared to the coefficient for the total number of acquisitions [Column (1)], we can see that two-thirds of the additional acquisitions are outside the acquirer's primary industry. This increase in diversifying acquisitions is consistent with the acquisitions being aimed at reducing firms' risk and likely contributes to the drop in firms' stock volatility documented above.

The timing of the increase in diversifying acquisitions coincides with the adoption of the BC laws. Figure 2 plots point estimates from a modified version of Equation (1), where we allow the effect of

---

<sup>12</sup> Many acquisitions reported by SDC do not include the value of the target firm. We calculate the total value of deals undertaken by a firm in a given year by summing over deals for which a value is available and drop observations for which none of the acquisitions reported by SDC include the value. Given this limitation, we have more confidence in the estimates of the likelihood or number of acquisitions.

*BC* to vary by year in the years before and after a BC law is passed. There is no indication of an increase in diversifying acquisitions before the BC laws take effect, but afterwards, firms incorporated in the state tend to increase their diversifying acquisitions relative to firms that are operating in the same state and in the same industry but are incorporated elsewhere. The precise timing of this change suggests that the additional acquisitions are in fact caused by the reduced takeover threat.

To shed some light on how the BC laws affect the types of firms being acquired, we examine the subsample of acquisitions for which the target firm’s financial data are available in Compustat.<sup>13</sup> We examine characteristics of the target firms based on their most recent financial data available in Compustat before the acquisition announcement using the following regression:

$$y_{ijlst} = \beta_2 BC_{st} + \phi EverBC_i + \alpha_j + \theta_l + \delta_t + v_{ijlst}, \quad (2)$$

where  $y$  is an ex ante characteristic of target firm  $i$ , for an acquisition undertaken by a firm located in industry  $j$ , operating in state  $l$ , incorporated in state  $s$ , and announced in year  $t$ . We examine the following target characteristics as dependent variables: log total assets, assets’ three-year compounded annual growth rate, the ratio of debt to assets, the ratio of cash flow to assets, and the ratio of the total payout to assets.<sup>14</sup>  $BC$  is defined as in Equation (1). To ensure that our estimates maintain a difference-in-differences interpretation, we include an indicator,  $EverBC$ , that is equal to one if the firm is ever affected by the adoption a BC law.<sup>15</sup> We also include industry, state of location, and year fixed effects, and we adjust the standard errors for clustering at the state of incorporation level. The estimates are reported in Table 4.

After the adoption of a BC law, firms are more likely to acquire cash cows—large, high growth,

---

<sup>13</sup> We match the firms in SDC Platinum to Compustat using their CUSIPs. Unfortunately, historical CUSIPs are not available in Compustat, so we determine a firm’s historical CUSIP by matching observations to CRSP using the CRSP/Compustat Merged Database, and then using the historical CUSIP reported by CRSP. When the historical CUSIP is missing, we use the CUSIP recorded in Compustat’s header file.

<sup>14</sup> Except for the regression of log total assets, the regressions are estimated by weighted least squares, using the target firms’ total assets as weights. Given the magnitude of the size differences between deals, weighting gives the estimates a more meaningful interpretation: the estimated coefficients represent the effect of a BC law on characteristics associated with the average dollar of transaction value (rather than the average deal). For example, the regression of the ratio of cash flows to assets examines whether the ratio of the total cash flows across all acquired targets to the total assets acquired increases after a BC law is adopted.

<sup>15</sup> In earlier estimations, this control was absorbed by the firm fixed effect. Within-firm analysis is not possible in this setting, because very few firms in our sample acquire public targets both before and after a BC law’s adoption.

high cash flow, high payout firms. As reported in Table 4, targets acquired by firms incorporated in a BC law state are about 40 percent larger, on average, than targets acquired by firms incorporated in other states [Column (1)] and exhibit a growth rate in the three years before being acquired that is, on average, 17.7 percentage points greater [Column (2)]. These estimates are statistically significant at the 10 and 5 percent levels, respectively. Affected firms also tend to acquire targets that generate and pay out greater cash flow per dollar of assets. Targets acquired by affected firms average 9.6 percentage points greater ratios of operating cash flow to assets [Column (3)], and 2.5 percentage points greater ratios of total payouts to assets [Column (4)]. Both of these estimates are statistically significant at the 1 percent level.

Because swapping cash for illiquid assets can be risky, we would expect these acquisitions to be financed with equity rather than with cash if they are driven by “playing it safe” motives. Indeed, firms in states that enact a BC law are more likely to finance acquisitions with stock. Among the acquisitions analyzed in Table 4, stock accounts for 53.6 percent (standard error 1.17) of deal financing for deals undertaken by acquirers incorporated in a state with a BC law, which is almost 30 percentage points higher than for deals undertaken by acquirers not incorporated in those states. Regression analysis using Equation (2) leads to similar conclusions. The results are reported in Panel B of Table 4. The share of financing using stock increases by 21 percentage points [Column (5)]. The shifting of finance from cash to stock is consistent with managers financing the deals in a way that avoids increasing their firms’ risk of distress.

Investors appear to perceive the announcements of these mergers as bad news for the firms’ shareholders. For the acquisitions analyzed in Table 4, the acquirer’s average abnormal return over a three-day window  $[-1, +1]$  around the deals’ announcement is  $-1.20\%$  (standard error 0.15) for acquisitions by firms incorporated in a state that has passed a BC law.<sup>16</sup> The average announcement return is also lower than for deals undertaken by firms incorporated in other states. Regression estimates using Equation (2) and reported in Column (6) of Table 4 show that acquisitions undertaken by firms incorporated in states with a BC law are associated with 3.5 percentage point lower average abnormal

---

<sup>16</sup> To estimate abnormal returns, we use standard event study methods (see MacKinlay 1997) and compute market model abnormal returns using CRSP equally weighted index returns. The parameters for the market model are estimated over the  $[-300, -46]$  day interval.

returns than acquisitions undertaken prior to enactment of the law and by firms not incorporated in a state with a BC law. The estimate is statistically significant at the 1 percent level.

In theory, one of managers' main motivations for playing it safe is to secure their jobs and protect their careers. To shed some light on whether they succeed, we examine whether increased acquisition activity after a BC law's adoption reduces CEO separation rates and their firms' likelihood of exiting Compustat.<sup>17</sup> Specifically, for firms incorporated in states adopting a BC law, we construct an indicator, *Firm exit*, that equals one if a firm is no longer in Compustat ten years later. For firms still in Compustat, we then use data from the Disclosure database (Linck, Netter, and Yang, 2008) to construct an indicator, *CEO exit*, that equals one if a firm's CEO has changed and zero otherwise. Finally, we analyze whether CEO and firm exit rates are lower among firms that undertake more acquisitions in the five years after a BC law is adopted than in the five years before. To account for ex ante differences in firms' risk of distress, we also control for firms' Altman z-score in the year prior to adoption of a BC law. The estimates are reported in Table 5.

CEOs that increase acquisition activity after a BC law is adopted are less likely to leave their jobs. The 10-year CEO exit rate is nearly 8.3 percentage points lower among firms that increased acquisition activity [Table 5, Column (1)]. This estimate is sizable, measuring more than a 15 percent of the overall exit rate of 53 percent, and statistically significant at the one percent level. This greater job security may be one way that CEOs benefit personally from the acquisitions. While this estimate is consistent with managers' motivation for playing it safe, it is also consistent with other interpretations. For example, if only the most entrenched managers increase acquisition activity after a BC law, then the coefficient in Table 5 could reflect this entrenchment rather than a direct effect of the acquisitions. However, entrenchment is less likely to explain why the 10-year exit rate of the firm is also lower by 2.7 percentage points [Column (2)], which corresponds to about 10 percent of firms' overall exit rate of 28 percent. Combining the two types of exits, increased acquisition activity is associated with an average rate

---

<sup>17</sup> Although there are a number of reasons why a firm might exit Compustat, most of them, such as bankruptcy or takeover, are typically associated with managerial turnover. And while a reduced likelihood of firm exit is also likely to benefit shareholders, our earlier evidence on announcement returns suggests that, on average, the potential costs to shareholders of this diversifying growth exceed the expected benefits.

of CEO or firm exit that is about 7 percentage points lower [Column (3)], which measures about a 11 percent of the overall sample mean of 62.2 percent.

### 2.3. Importance of including fixed effects and avoiding endogenous controls

The observed increase in acquisitions stands in contrast to what one finds when using empirical methods from the prior literature. To illustrate this, we estimate the standard AvgE specification used in the prior literature, which is given by

$$y_{ijst} = \beta_3 BC_{st} + \phi_1 StateYear_{it} + \phi_2 IndustryYear_{jt} + f_i + \delta_t + \Gamma \mathbf{X}_{ijst} + u_{ijst}, \quad (3)$$

where  $y$  is a dependent variable,  $BC$  is defined as before,  $StateYear$  is the average  $y$  for firms located in state  $l$  in year  $t$ , and  $IndustryYear$  is the average  $y$  for firms in industry  $j$  in year  $t$ , and  $X_{ijst}$  is a vector of time-varying controls that includes firm size (measured using the natural logarithm of assets), firm size squared, firm age (measured using the number of years that a firm has been in Compustat), and the Herfindahl-Hirschman index (HHI) of sales in the firm's three-digit SIC industry (computed using Compustat).<sup>18</sup> The use of  $StateYear$  and  $IndustryYear$  as controls, rather than state-by-year and industry-by-year fixed effects, makes this an Average Effects (AvgE) estimator, as defined in Gormley and Matsa (2014). So as to better match prior papers, we also use firm locations as reported in the legacy version of Compustat, restrict our sample to end in 1995, and code the BC laws as reported in Bertrand and Mullainathan (2003). Our estimate of Equation (3) is reported in Column (1) of Table 6.

Using Equation (3), we fail to detect a significant increase in acquisition activity. In analysis of the number of acquisitions, the estimated coefficient on the BC law indicator is 0.014 [Table 6, Column (1)]. When examining an acquisition indicator, we find a point estimate of 0.005 (standard error 0.004). When examining scaled deal value, we find a point estimate of 0.0008 (standard error 0.0010). None of these estimates are statistically significant at conventional levels. These estimates are similar in magnitude and statistical significance to those reported in prior research.<sup>19</sup>

<sup>18</sup> These time-varying controls match those used by Giroud and Mueller (2010).

<sup>19</sup> For example, Giroud and Mueller (2010) find no evidence of an increase in either the likelihood of an acquisition or the ratio of acquisition volume to market capitalization [see Table 9, Panel A, Columns (4) and (5) of their paper].

Our main specification [Table 3, Column (1)] differs from the standard specification [Table 6, Column (1)] in only six ways, so our finding of an increase in acquisitions must be because of at least one of these six differences. The six differences are: (1) the longer sample period, which ends in 2006 rather than 1995; (2) the addition of the three additional states that adopted BC laws (Pinnell, 2000); (3) the 4-digit, rather than 3-digit, SIC industry controls; (4) the use of fixed effects (FE) to control for unobserved heterogeneity instead of an average effects estimation; (5) the exclusion of endogenous controls, like firm size, that could also be affected by passage of the BC law; and (6) the updated data on firms' historical locations. In Columns (2)-(7) of Table 6, we implement each of these changes one at time to ascertain which changes affect our estimates.

Our ability to detect the increase in acquisitions comes from using FE rather than AvgE to control for unobserved heterogeneity and from excluding the endogenous control variables. Extending the sample period to 2006 [Column (2)] and including the additional BC law changes in Iowa, Oregon, and Texas [Column (3)] does not increase our estimate. Switching to 4-digit SIC controls (when calculating the *industry-year* control) also has no effect [Column (4)]. But once we control for industry-by-year and state-by-year fixed effects in place of AvgE controls, we detect a statistically significant increase in the number of acquisitions that is more than 20 percent of the pre-law average and double the magnitude found using the AvgE specification [Column (5)]. The AvgE estimator suffers from measurement error bias, which makes the increase in acquisitions harder to detect.<sup>20</sup> The magnitude and statistical significance of the estimate further increases to more than 30 percent of the pre-law average when we drop the endogenous control variables [Column (6)]. Updating firms' historical locations and dropping firms that reincorporate from a state without a BC law to a state with a BC law (and vice versa) slightly reduces the magnitude and significance of the estimate [Column (7)], suggesting that endogenous changes in treatment status positively bias the estimate, as we would expect.<sup>21</sup>

---

<sup>20</sup> The importance of using the fixed effects estimator is not specific to our sample period or other specification changes. When we re-estimate the standard specification [Table 6, column (1)] and replace AvgE with FE at the 4-digit level without any other changes, the estimate is 0.021 (standard error 0.008).

<sup>21</sup> Given that there is a cost of switching a firm's state of incorporation, firms that switch because of the BC law will be the ones for which their managers perceive the greatest benefits of switching and thus most likely to undertake actions, including the diversifying acquisitions, that were otherwise deterred by the takeover pressure.

Overall, our findings reported in Table 6 highlight the importance of researchers avoiding AvgE estimation, as discussed in Gormley and Matsa (2014), and excluding endogenous controls, as discussed in Angrist and Pischke (2009).

### 3. Interpretation and heterogeneity in responses

*“Nobody likes to fail but failure is an essential part of life and learning.  
If your uniform isn’t dirty, you haven’t been in the game.”*

— Federal Reserve Chairman Ben Bernanke, June 2, 2013

The increase in acquisitions after BC laws are adopted indicates that motivating managerial effort is not the only challenge that shareholders face. After shareholder governance weakens, at least some managers appear to be quite active. This increased activity runs counter to the typical presumption that, absent strong governance, managers will exert too little effort. Our finding suggests that the literature’s tendency to focus on governance mechanisms related to managerial effort overlooks additional aspects of managerial preferences that are important for corporate outcomes and shareholder value.

The acquisition results suggest that managers are often tempted to play it safe. Because distress can be personally costly, managers have an incentive to reduce the likelihood of distress even when doing so is not in shareholders’ interest (Jensen and Meckling, 1976; Amihud and Lev, 1981; Holmström, 1999).<sup>22</sup> Negative corporate outcomes often adversely affect managers’ career prospects (Gilson, 1989; Eckbo, Thorburn, Wang, 2014), even if poor corporate performance is caused by factors beyond their control (Jenter and Kanaan, forthcoming). Consequently, managers may prioritize the value of their own human capital above shareholder value and take actions that will reduce the risk of future distress.

Combined, the increase in diversifying acquisitions, the negative abnormal returns, the increase in cash holdings, and the decline in stock volatility suggest that these acquisitions are driven by managers’ desire to reduce risk. The shift in the type of acquisitions towards cash cows and the use of equity to fund these deals is also consistent with managers using these acquisitions to reduce risk. But is some of the observed increase in acquisitions also driven by other type of agency conflicts, such as empire building?

---

<sup>22</sup> A number of other theoretical papers also find that managers’ exposure to risk can cause a misalignment between managers and shareholders’ risk preferences. For example, see Smith and Stulz (1985), Lambert (1986), Hirshleifer and Suh (1992), Hugonnier and Morellec (2007), and Acharya and Bisin (2009).

After all, after the takeover threat is reduced, some managers might be tempted to use their firms' free cash flow to seek additional private benefits (Jensen, 1986).

To better assess the relative importance of playing it safe and empire building motives in explaining our results, we analyze heterogeneity in firms' responses to BC laws. If the acquisitions reflect empire building motives, we would expect them to be more prominent among firms with greater cash flow and little inside ownership. But if the dominant agency conflict is from managers' desire to play it safe, then we would expect the increase in acquisitions to be larger among firms at a greater risk of distress and whose managers are more exposed to such risks through large ownership interests. We next examine which of these patterns holds in the data.

### *3.1. Specification for identifying heterogeneity in firms' responses*

To avoid endogeneity concerns, we modify our empirical specification so that we can compare firms' responses based on *ex ante* characteristics. We want to test whether firms with different characteristics in the year prior to passage of the law, denoted as year  $T-1$ , respond differently to a BC law's adoption. For example, do firms with high versus low cash flows respond differently? However, specification (1) is not amenable to such a test; because there are multiple dates on which BC laws are adopted, there is no unique  $T-1$  period for each firm in the panel. This difficulty in testing for heterogeneous responses occurs whenever researchers are analyzing responses to multiple events that occur at different points in time.

To overcome this challenge, we use the matching difference-in-differences estimator proposed by Gormley and Matsa (2011). For each year that a new BC law is adopted, we identify firms incorporated in states that passed a BC law in that year, and we compare them to firms not incorporated in those states. We analyze firm-year observations in the ten years before and the ten years after the law's adoption. Firms are not required to be in the sample for the full twenty years around the law's adoption, and firms are allowed to be chosen as matches in multiple cohorts (i.e., we are matching with replacement). We then estimate a separate difference-in-differences coefficient for each BC law adoption year and report the average effect across all of these cohorts. By estimating the effect separately for each BC law cohort, we are able to identify the  $T-1$  characteristics of each firm and test for heterogeneity in responses based on

these  $T-I$  characteristics. In practice, a separate estimation for each BC law is not necessary; instead, we pool the data across all new BC laws and estimate the average effect using the following regression:

$$y_{cijlst} = \beta_4 BC_{st} + f_{ci} + \omega_{cjt} + \lambda_{cjt} + \eta_{cijlst}, \quad (4)$$

where  $y$  is the outcome of interest for firm  $i$  in cohort  $c$ , industry  $j$ , state-of-location  $l$ , state-of-incorporation  $s$ , and year  $t$ .  $BC$  is the same as before, but we now include firm-by-cohort fixed effects,  $f_{ci}$ , state-by-year-by-cohort fixed effects,  $\omega_{cjt}$ , and industry-by-year-by-cohort fixed effects,  $\lambda_{cjt}$ , to ensure that we separately estimate the impact of firm, state-year, and industry-year unobserved heterogeneities for each BC law cohort. We allow the fixed effects to vary by cohort, because this approach is more conservative than including simple fixed effects. To account for potential covariance among firm outcomes within the same state of incorporation (including covariance from multiple draws of the same comparison firm), we again adjust the standard errors for clustering by state of incorporation.

Switching to the matching difference-in-differences estimator does not affect our earlier findings. This is shown in Table 6, Column (8). Estimating Equation (4), we again find a large increase in the number of acquisitions after passage of a BC law. The magnitude, 0.026 more acquisitions in a given year, is similar to our earlier estimate of 0.027 [Table 6, Column (7)]. The small difference in estimates from Equations (1) and (4) is due primarily to the different sampling periods of the two estimators. In our earlier estimation, firms that were affected by passage of a BC law prior to 1997 had more than 10 years of post data while firms affected by later events might have more than 10 years of pre data; in the matching estimation, each firm has at most 10 years each of pre and post data.

To test for heterogeneity in firms' responses, we estimate Equation (4) separately for various subsamples of firms that are constructed using characteristics of firms in the year prior to the BC law's adoption. The approach allows us to examine heterogeneity in the effect of BC laws, even when the subsampling variable is itself affected by the laws. Moreover, by estimating Equation (4) separately for each subsample, we also allow for different industry and state-of-location trends for firms with different ex ante characteristics by estimating separate industry-by-year and state-by-year fixed effects for each subsample of firms.

### *3.2. Evidence on the relative importance of playing it safe versus empire building motives*

To assess the importance of playing it safe versus empire building motives for the observed increase in acquisitions, we examine variation in how firms respond to BC laws based on their ex ante cash flows, leverage, distress risk, and inside ownership. Theories of playing it safe and empire building have different predictions for among which firms, based on these characteristics, the different agency problems are likely to manifest.

To start, the alternative theories lead to different predictions for the importance of a firm's cash flows. Empire building theory predicts acquisitions will be less prominent among firms with less cash flow, because it is more difficult for a manager to extract private benefits if the firm has to raise external capital to finance the acquisitions (Jensen, 1986). Playing it safe theory, on the other hand, predicts that acquisitions will be more prominent among firms with less cash flow, because scarce cash flow increases firms' risk of distress, which motivates managers to reduce their firms' risk (Jensen and Meckling, 1976).

Consistent with a playing it safe motive, we find that the increase in acquisitions is concentrated among firms with low cash flow and not among firms with high cash flow. These estimates are reported in Table 7. After a BC law is adopted, firms with a below median ratio of cash flow to assets average 0.026 more acquisitions a year than other firms with below median cash flow operating in the same state and in the same industry but that are incorporated in a state that does not pass a BC law [Panel A, Column (1)]. Most of these additional acquisitions are diversifying. Firms with a below median ratio of cash flow to assets average 0.018 more diversifying acquisitions a year after a BC law's adoption [Column (3)]. This amounts to a roughly 30 percent increase in diversifying acquisitions relative to the subsample average. Contrary to an empire building explanation, we find no increase in total acquisitions or diversifying acquisitions among firms with above median cash flows [Panel B, Columns (1) and (3)].

Financial leverage also has opposite roles in the playing it safe and empire building theories. Whereas leverage discourages empire building by reducing the cash flow available to fund such growth (Jensen, 1986), leverage magnifies managers' incentive to play it safe to alleviate the firm's greater risk of distress (Parrino, Poteshman, and Weisbach, 2005). In further support that playing it safe explains our

results, we find that the increase in acquisitions is concentrated among firms that have greater leverage when a BC law is adopted. These estimates are also reported in Table 7. Firms with above median leverage in year  $T-1$  average 0.021 more diversifying acquisitions a year after a BC law's adoption [Column (4)]. This amounts to a roughly 22 percent increase in diversifying acquisitions relative to the subsample average. We find no increase in diversifying acquisitions among below median leverage firms; the point estimate is smaller and not statistically significant [Panel B, Column (4)]. Our findings for the total number of acquisitions are similar [Column (2)].

Consistent with the risk of distress motivating managers to diversify their firms through acquisitions, we find that the increase in acquisitions is also concentrated among firms with low Altman z-score. These estimates are reported in Table 8. Altman (1968) developed the z-score to measure the probability that a firm will go into bankruptcy within two years, and a low z-score is used frequently to predict corporate defaults. We find that firms with a below median z-score in year  $T-1$ , undertake 0.042 more acquisitions and 0.024 more diversifying acquisitions per year after a BC law is adopted than below median z-score firms incorporated other states [Panel A, Columns (1) and (3)]. This represents about a 25 percent increase in the number of acquisitions relative to the subsample average. We find less of an increase in acquisitions among firms with above median z-scores [Panel B, Columns (1) and (3)].

Firms' dividend policy also contains information about their future prospects and risk of distress in that firms struggling to raise capital or at risk of distress are unlikely to payout their capital to shareholders (Lintner, 1956; Kaplan and Zingales, 1997). Given this, playing it safe theory predicts that the increase in acquisitions would be concentrated among firms that do not pay dividends. As reported in Table 8, this is indeed what we find. Zero dividend firms in year  $T-1$ , undertake 0.035 more acquisitions and 0.024 more diversifying acquisitions annually after a BC law is adopted than zero dividend firms incorporated in other states [Panel A, Columns (2) and (4)]. This represents about a 30 percent increase in the number of acquisitions relative to the subsample average. In contrast, we find no evidence of an increase in either total acquisitions or diversifying acquisitions among dividend paying firms affected by a BC law [Panel B, Columns (2) and (4)].

Like cash flows and financial leverage, managerial ownership has opposite roles in the playing it safe and empire building theories. Share ownership lessens managers' empire building motives but exacerbates managers' incentive to play it safe. Because empire building destroys shareholder value, managers are less inclined to engage in it when they hold a significant ownership stake. But a large ownership stake also increases a manager's exposure to the firms' risk, which magnifies their incentive to play it safe (e.g., Holmström, 1999). To further assess which of these incentives—empire building or playing it safe—underlies the increase in acquisitions after a BC law, we examine whether the acquisitions are associated with high or low inside ownership.

To sort firms based on inside ownership, we use the reported shares held by a firm's CEO as a fraction of the firm's total shares outstanding in the year prior to adoption of a BC law, as recorded by Yermack (1995). Similar to our other analyses, we classify firms based on whether this ratio is above or below the sample median. Although the Yermack data are available from 1984–1991, they cover only the approximately 800 firms listed by *Forbes* magazine as among the 500 largest U.S. public corporations. When this ownership information is missing, we classify firms based on the senior management's ownership stake, as recorded by TFN Insider Filing Data.<sup>23</sup> Even after combining information from the two datasets, our sample is limited to only about 35% of firms in our full sample.

Consistent with a playing it safe motive, we find that the increase in diversifying acquisitions is concentrated among firms with high inside ownership. The estimates are reported in Table 9. After a BC law is adopted, firms with above median inside ownership average 0.030 more diversifying acquisitions a year than other firms with above median inside ownership operating in the same state and in the same industry but incorporated in a state that does not pass a BC law [Panel A, Column (2)]. While the increase is only statistically significant at the 10 percent confidence level, it is considerably different than what we observe among the firms with low inside ownership. Contrary to what empire building theories would predict, we find no increase in diversifying acquisitions among firms with below median inside

---

<sup>23</sup> The share of inside ownership is calculated using the filings derived from Forms 3, 4, and 5 over the period 1986–2006. These filings originate from trades by firms' insiders that must be reported to the SEC. The measure of inside ownership reflects the total holdings of the inside officers at the end of the year. More details on the construction of these data are described in Panousi and Papanikolaou (2012).

ownership; the point estimate is negative and statistically insignificant [Panel B, Column (2)]. Although neither estimate for total acquisitions is statistically significant, the point estimates are also suggestive of an increase among firms with high but not among firms with low inside ownership [Column (1)].

Overall, the heterogeneity in responses suggests that managers' inclination to play it safe leads them to undertake diversifying acquisitions after a BC law is adopted. The acquisitions are concentrated among firms with a greater risk of distress and high inside ownership and not among firms where agency conflicts associated free cash flows are more likely to be prevalent. Managers, particularly those at firms with a greater risk of distress and those with a larger financial exposure to their firms' risk, appear to act to reduce their firms' risk of distress when external governance is weakened. These findings support theoretical models and calibrations that suggest agency conflicts arising from managers' exposure to risk can significantly affect firms' investment choices (Parrino, Poteshman, and Weisbach, 2005).

### *3.3. Different prescriptions for different agency problems*

Our findings imply that boards and shareholders need to be careful with leverage and inside ownership. Although these instruments aggravate managers' incentives to play it safe, they can also help prevent other agency problems by eliciting managerial effort (Jensen, 1986). Indeed, Bertrand and Mullainathan (2003) and others have shown that some managers reduce effort and "enjoy the quiet life" after a BC law is adopted.

To examine the dual role of inside ownership and financial leverage in both exacerbating and mitigating different managerial agency conflicts, we analyze heterogeneity in the response of firms' return on assets (ROA) to BC laws. Following Giroud and Mueller (2010) and others, we examine ROA as a test for managers' enjoying the quiet life, because ROA declines when managers fail to exert the effort necessary to grow revenues and hold down expenses. Indeed, Giroud and Mueller (2010) find that the average firm's ROA declines after BC laws are adopted. We examine heterogeneity in this response based on firms ex ante leverage and inside ownership.

Consistent with inside ownership and financial leverage mitigating agency conflicts arising from costly effort, we find that ROA declines only among firms with low leverage and low inside ownership. The estimates are reported in Table 10. Among firms with below median leverage, ROA declines by 2.3

percentage points, on average, after a BC law is adopted relative to other firms with below median leverage operating in the same state and same industry but incorporated elsewhere [Panel B, Column (1)]. Among firms with above median leverage, however, ROA stays the same after a BC law is adopted [Panel A, Column (1)]. Likewise, we find statistically significant evidence of a decline in ROA among firms with below median inside ownership [Panel B, Column (2)] but not among firms whose managers already own large equity stakes [Panel A, Column (2)].

The contrasting findings for ROA and diversifying acquisitions highlight that shareholders face multiple agency conflicts with managers and that these different conflicts call for different prescriptions. In fact, the solution to one agency problem may often exacerbate another. Whether higher inside ownership or greater leverage will improve firm value depends on these inherent tradeoffs.

#### **4. Robustness**

Our findings are robust to a variety of alternative empirical specifications. In this section, we show that the decrease in risk and increase in acquisitions after a BC law's adoption hold under alternative samples and are not restricted to any specific state. These additional robustness tests confirm that our findings indeed reflect the causal effect of BC laws.

##### *4.1. Robustness to alternative samples*

The decline in stock volatility, increase in cash holdings, and increase in acquisition activity are robust to alternative sample selection criteria. As shown in Appendix Table A.3, excluding financial firms (i.e., SIC codes 6000 through 6999) leaves our findings largely unchanged. Likewise, ending our sample in 1995, as was done in the initial studies of BC laws, does not affect our findings. These results are reported in Appendix Table A.4. Although the shorter sample period reduces the number of laws examined and the amount of post-period data for laws adopted in the early 1990s, we still find a decline in volatility, increase in cash holdings, and increase in acquisitions in the limited sample.

##### *4.2. Robustness to source of within-state variation*

Because we control for state-of-location-by-year fixed effects, our findings are estimated using only the differential responses to the passage of a BC law for firms located in the same state. This

identification strategy is feasible because nearly 60 percent of firms in our sample are incorporated in a different state than where they are headquartered. By focusing on within-state variation, we mitigate concerns that confounding local economic shocks might coincide with the adoption of BC laws. But what if firms incorporated locally and nonlocally face different economic shocks related to their difference in size, dependence on external finance, or other factor? If politicians are more sensitive to the shocks affecting firms operating within their borders than those affecting firms operating outside, then we might wonder if policy endogeneity still affects our results. We address this concern with an additional test.

The differential within-state response to BC laws that we isolate in our analysis could be coming from two sources: (1) the differential response of firms incorporated and located in state  $A$  that adopts a BC law, relative to other firms located in state  $A$  but incorporated elsewhere, or (2) the differential response of firms incorporated in state  $A$  but located in a different state  $B$  that does not adopt a BC law, relative to other firms located in state  $B$  but not incorporated in state  $A$ . The latter source of variation is not subject to the above concern about policy endogeneity to local economic shocks. To assess whether either or both types of variation contribute to our findings, we re-estimate the effect of BC laws in our base specification but allow for a differential effect for firms located and incorporated in the same state and for firms located and incorporated in different states. These estimates are reported in Appendix A.5.

The results are inconsistent with our findings being driven by local economic shocks. We find that the decrease in stock volatility, the increase in cash holdings, and the increase in acquisition activity are present for both types of affected firms. Although the increases in two of the four acquisition activity measures (deal value and the number of diversifying acquisitions) are not statistically significant for firms located and incorporated in the same state [Appendix Table A.5, Columns (6)-(7)], the point estimates are similar to those for firms located and incorporated in different states. These findings, particularly those for firms incorporated and located in different states, support the interpretation that the observed responses are not being driven by local political economy factors related to adoption of BC laws.

#### *4.3. Robustness to excluding firms incorporated in Delaware or any other state*

Our findings are also robust to excluding firms incorporated in Delaware, which account for about 50 percent of the observations in our sample and 80 percent of observations in which a firm is

incorporated outside of their state of location. In analysis reported in Appendix Table A.6, we repeat the estimation after excluding observations for firms incorporated in Delaware. Although the decline in stock volatility is not statistically significant [Appendix Table A.6, Column (1)], the point estimate remains largely unchanged. Moreover, the decline in cash flow volatility is statistically significant whereas it was not before [Column (2)], and the increases in cash holdings and acquisitions remain largely unchanged [Columns (3)-(7)]. These results mitigate concerns that some confounding event in Delaware in 1988, when its BC law was adopted, could explain our findings. In further tests, we confirm that our findings are also robust to individually excluding any of the 32 other states that adopted a BC law.

## 5. Conclusion

Based on data back to the 1980s, the *Wall Street Journal* recently declared that “long-running trends suggest the U.S. economy has turned soft on risk” and blames decreased risk-taking for contributing to the long-term slowing of the U.S. economy, increased corporate cash holdings, and “sluggish economic recoveries” from recessions (Casselmann, 2013). Multiple factors surely contribute to this trend. But interestingly, the decrease in risk-taking has coincided with increases in equity-based compensation (Frydman and Jenter, 2010) and the sensitivity of CEO turnover to corporate performance (Jenter and Lewellen, 2014), both of which give corporate leaders incentives to tread carefully. In this paper, we ask: might managers of U.S. firms be “playing it safe”?

We find that firms reduce risk-taking when shareholder governance is weakened by the adoption of a state antitakeover law. On average, firms incorporated in these states undertake over a quarter more diversifying acquisitions relative to firms unaffected by the law operating in the same state and in the same industry. The acquisitions follow (rather than precede) the laws’ adoption, are funded largely with equity, and are associated with negative average announcement returns. Similarly, we find concomitant declines in firms’ stock volatility and increases in their cash holdings. Consistent with managers playing it safe, the acquisitions tend to target “cash cows”—large, high cash flow, high payout firms—which can bolster a firms’ cash holdings and reduce their risk of distress. The acquisitions appear to increase managers’ job security and are concentrated among firms at a greater risk of distress and among firms

whose managers have greater equity positions, which increase the managers' exposure to their firms' risk.

Discouraging managers from playing it safe is one of several obstacles that shareholders face in designing managers' incentives so as to maximize shareholder value. Managers may also shirk or seek out private benefits at shareholders' expense. Understanding the relevance of these various agency conflicts and how they vary across firms and over time is crucial for designing incentive structures that mitigate their impact on shareholder value and potentially the aggregate economy. If a manager fails to make risky investments out of reluctance to exert costly effort, then shareholders might wish to increase the manager's ownership stake to better align their interests and encourage the risk-taking. On the other hand, if the manager is forgoing these investments, particularly during periods of distress, either because she is risk-averse or because she worries about the potential impact of failure on her income and wealth, then increasing the managers' ownership stake in the firm will only worsen the agency conflict. In this case, increasing the convexity of the manager's payoff structure would be more appropriate (see Guay, 1999; Gormley, Matsa, and Milbourn 2013; and many others).

Understanding the agency conflict's source and the salience of various conflicts between managers, shareholders, and debtholders also has implications for a firm's optimal leverage, cash management, and other corporate policies. For example, although higher leverage can encourage managerial effort, it can also exacerbate managers' incentive to play it safe, which is an agency cost of debt highlighted by our findings. Managers' incentive to play it safe may also explain why empirical research finds little evidence of risk-shifting among firms in distress (e.g., Andrade and Kaplan, 1998; Rauh, 2009; Gilje, 2014); although risk-shifting is in shareholders' interest, managers' self interest in playing it safe may dominate.

Given managers' inclination to play it safe and the difficulty of detecting such behavior, boards must design governance and compensation contracts to motivate managers to take the risks necessary to maximize shareholder value. While our evidence highlights a visible manifestation of managers playing it safe, managers' risk-reducing choices are typically difficult to observe, even when they are pervasive. A manager faced with investment choices of varying risks, for example, might systematically choose investments of both lower risk and lower NPV, and because of information asymmetries, shareholders

would likely have a hard time detecting such behavior. Similarly, managers may hoard cash under the ruse of “keeping the powder dry” for future investments, when, in reality, the manager is more concerned about avoiding distress that is personally costly. Other managers might mimic the actions of their peer to avoid standing out even when these actions are not best for their own company’s shareholder value. If ignored, such actions could have important implications for shareholder value, and more broadly, aggregate investment and economic growth.

## References

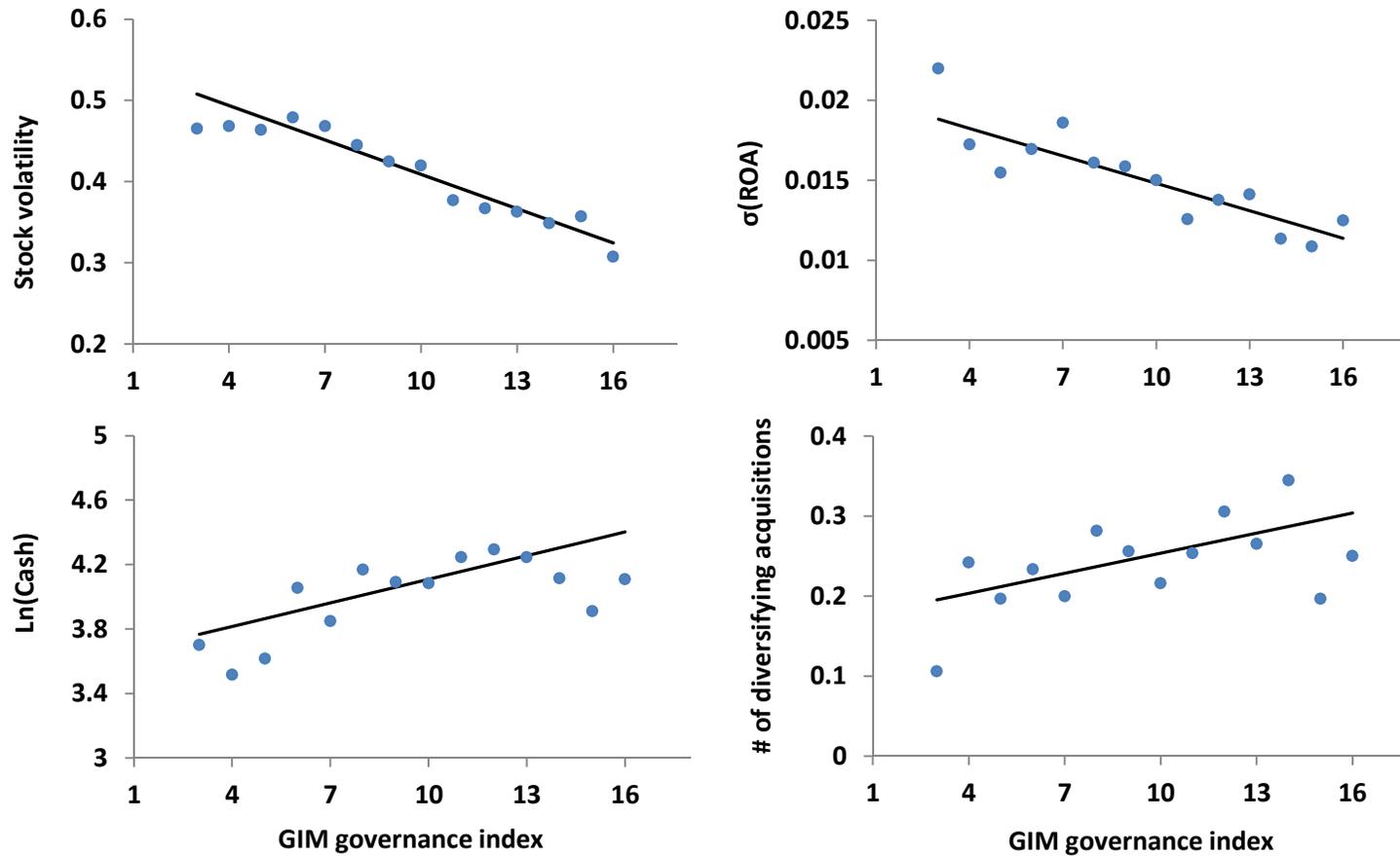
- Acharya, V. V., Y. Amihud, and L. Litov. 2011. Creditor Rights and Corporate Risk-Taking. *Journal of Financial Economics* 102(1): 150-166.
- Acharya, V. V., and A. Bisin. 2009. Managerial Hedging, Equity Ownership, and Firm Value. *RAND Journal of Economics* 40(1):47-78.
- Amihud, Yakov, and Baruch Lev. 1981. Risk Reduction as a Managerial Motive for Conglomerate Mergers. *Bell Journal of Economics* 12(2):605-617.
- Atanassov, Julian. 2013. Do Hostile Takeovers Stifle Innovation? Evidence from Antitakeover Legislation and Corporate Patenting. *The Journal of Finance*. 68(3):1097-1131.
- Andrade, Gregor, and Steven N. Kaplan. 1998. How Costly is Financial (Not Economic) Distress? Evidence from Highly Leveraged Transactions that Became Distressed. *The Journal of Finance*. 53(5):1443-1493.
- Angrist, Joshua D., and Jorn-Steffen Pischke, 2009, *Mostly Harmless Econometrics*, Princeton University Press: New Jersey.
- Auletta, Ken. 1986. *Greed and Glory on Wall Street: The Fall of the House of Lehman*. Random House: New York.
- Bertrand, Marianne, and Sendhil Mullainathan. 2003. Enjoying the Quiet Life? Corporate Governance and Managerial Preferences. *Journal of Political Economy* 111(5):1043-1075.
- Casselmann, Ben. 2013. Risk-Averse Culture Infects U.S. Workers, Entrepreneurs. *The Wall Street Journal*, June 2.
- Cheng, Shijun, Venky Nagar, and Madhav V. Rajan. 2004. Identifying Control Motives in Managerial

- Ownership: Evidence from Antitakeover Legislation. *Review of Financial Studies*, 18(2), 637-672.
- Chevalier, Judith, and Glenn Ellison. 1999. Career Concerns of Mutual Fund Managers? *The Quarterly Journal of Economics*. 114(2):389-432.
- Cohen, Moshe. 2012. Corporate Governance Law: Firm Heterogeneity and the Market for Corporate Domicile. Working paper. Columbia University.
- Comment, Robert, and G. William Schwert. 1995. Poison or Placebo? Evidence on the Deterrence and Wealth Effects of Modern Antitakeover Measures. *Journal of Financial Economics* 39:3-43.
- Eckbo, Espen B., Karin S. Thorburn, and Wei Wang. 2014. How costly is corporate bankruptcy for top executives? Working paper. Dartmouth College.
- Francis, Bill B., Iftekhar Hasan, Kose John, and Maya Waisman. 2010. The Effect of State Antitakeover Laws on Firm's Bondholders. *Journal of Financial Economics* 96(1):127-154.
- Frydman, Carola, and Dirk Jenter. 2010. CEO Compensation. *Annual Review of Financial Economics* 2:75-102.
- Garvey, Gerald T., and Gordon Hanka. 1999. Capital Structure and Corporate Control: The Effect of Antitakeover Statutes on Firm Leverage. *The Journal of Finance*. 54(2):519-546.
- Gilje, Erik. 2014. Do Firms Engage in Risk Shifting? Empirical Evidence. Working paper. University of Pennsylvania.
- Gilson, Stuart C. 1989. Management Turnover and Financial Distress. *Journal of Financial Economics* 25(2):241-262.
- Giroud, Xavier, and Holger M. Mueller. 2010. Does Corporate Governance Matter in Competitive Industries. *Journal of Financial Economics* 95:312-331.
- Gormley, Todd A. and David A. Matsa. 2011. Growing Out of Trouble: Corporate Responses to Liability Risk. *Review of Financial Studies*, 24(8), pp. 2781-2821.
- Gompers, Paul, Joy Ishii, and Andrew Metrick. 2003. Corporate Governance and Equity Prices. *The Quarterly Journal of Economics*, 118(1), 107-155.
- Gormley, Todd A. and David A. Matsa. 2014. Common Errors: How to (and Not to) Control for Unobserved Heterogeneity. *Review of Financial Studies*, 27(2), 617-61.
- Gormley, Todd A., David A. Matsa, and Todd Milbourn. 2013. CEO compensation and corporate risk: Evidence from a natural experiment. *Journal of Accounting and Economics* 56, 79–101.
- Guay, W.R., 1999. The Sensitivity of CEO Wealth to Equity Risk: An Analysis of the Magnitude and Determinants. *Journal of Financial Economics* 53, 43–71.
- Guimarães, P., and P. Portugal. 2010. A Simple Feasible Procedure to Fit Models with High-Dimensional Fixed Effects. *Stata Journal* 10:628–49.
- Heider, Florian, and Alexander Ljungqvist. 2013. As Certain as Debt and Taxes: Estimating the Tax

- Sensitivity of Leverage from Exogenous State Tax Changes. Working paper. New York University.
- Hirshleifer, David, and Yoon Suh. 1992. Risk, Managerial Effort, and Project Choice. *Journal of Financial Intermediation* 2(3):308-345.
- Holmström, Bengt. 1999. Managerial Incentive Problems: A Dynamic Perspective. *Review of Economic Studies* 66(1):169-182.
- Hugonnier, J., and E. Morellec. 2007. Corporate Control and Real Investment in Incomplete Markets. *Journal of Economic Dynamics and Control* 31(5):1781-1800.
- Jensen, Michael C. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review* 76(2):323-329.
- Jensen, Michael C., and William H. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics* 3(4):305-360.
- Jenter, D., and F. Kanaan. Forthcoming. CEO Turnover and Relative Performance Evaluation. *The Journal of Finance*.
- Jenter, Dirk, and Katharina Lewellen. 2014. Performance-induced CEO Turnover. Working paper. Stanford University.
- Jenter, Dirk, and Katharina Lewellen. Forthcoming. CEO Preferences and Acquisitions. *The Journal of Finance*.
- John, Kose, Yuanzhi Li, and Jiaren Pang. 2010. When Does Corporate Governance Matter? Evidence from Anti-Takeover Legislation. Working paper. New York University.
- Kaplan, Steven N., and Luigi Zingales. 1997. Do Investment-Cash Flow Sensitivities Provide Useful Measures of Financing Constraints? *Quarterly Journal of Economics* 112:169-215.
- Karpoff, Jonathan M., and Paul H. Malatesta. 1989. The Wealth Effects of Second-Generation State Takeover Legislation. *Journal of Financial Economics* 25:291-322.
- Kim, E. Han, and Yao Lu. 2011. CEO Ownership, External Governance, and Risk-Taking. *Journal of Financial Economics* 102:272-292.
- Lambert, R. A. 1986. Executive Effort and Selection of Risky Projects. *RAND Journal of Economics* 17(1):77-88.
- Linck, J. S., J. M. Netter, and T. Yang. 2008. The Determinants of Board Structure. *Journal of Financial Economics* 87:308-28.
- Lintner, John, 1956, Distribution of Incomes of Corporations Among Dividends, Retained Earnings, and Taxes, *American Economic Review* 46, 97–113.
- Low, Angie. 2009. Managerial Risk-Taking Behavior and Equity-Based Compensation. *Journal of Financial Economics* 92(3):470-490.
- MacKinlay, A. Craig. 1997. Event Studies in Economics and Finance. *Journal of Economic Literature*

35(1):13-39.

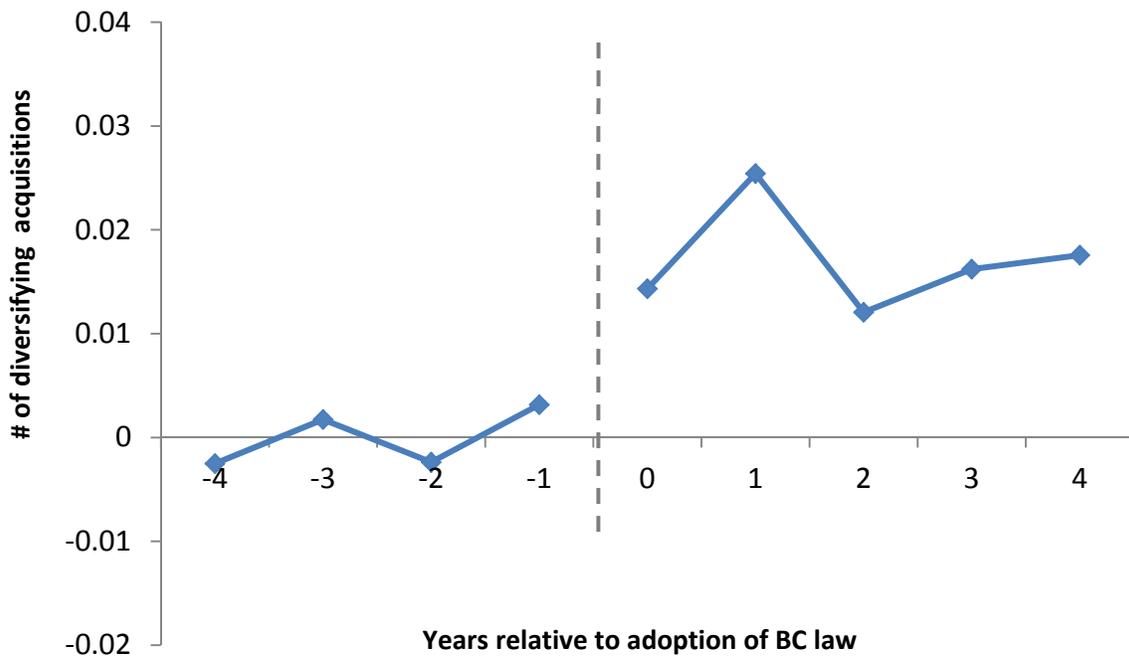
- Mann, Henry G. 1965. Mergers and the Market for Corporate Control. *Journal of Political Economy* 73(2): 110-120.
- May, Don O. 1995. Do Managerial Motives Influence Firm Risk Reduction Strategies? *The Journal of Finance* 50(4):1291-1308.
- Panousi, Vasia, and Dimitris Papanikolaou. 2012. Investment, Idiosyncratic Risk, and Ownership. *Journal of Finance* 67(3): 1113-1148.
- Parrino, Robert, Allen M. Poteshman, and Michael S. Weisbach. 2005. Measuring Investment Distortions When Risk-averse Managers Decide Whether to Undertake Risky Projects. *Financial Management* 32: 21-61.
- Pinnell, Maria Carmen S., 2000, *State Takeover Laws* Washington, DC: Investor Responsibility Research Center Inc.
- Rauh, Joshua D. 2006. Own Company Stock in Defined Contribution Pension Plans: A Takeover Defense? *Journal of Financial Economics* 81: 379-410.
- Rauh, Joshua D. 2009. Risk Shifting versus Risk Management: Investment Policy in Corporate Pension Plans. *Review of Financial Studies* 22(7): 2687-2733.
- Romano, Roberta. 1987. The Political Economy of Takeover Statutes. *Virginia Law Review* 73: 111-199.
- Scharfstein, David. 1988. The Disciplinary Role of Takeovers. *The Review of Economic Studies* 55(2): 185-199.
- Smith, Clifford W., and Rene M. Stulz. 1985. The Determinants of Firms' Hedging Policies. *Journal of Financial and Quantitative Analysis* 20(4):391-405.
- Stein, Jeremy C. 1988. Takeover Threats and Managerial Myopia. *Journal of Political Economy* 96(1): 61-80.
- Sundheim, Doug. 2013. *Taking Smart Risks: How Sharp Leaders Win When Stakes Are High*. McGraw Hill: New York.
- Thomson Financial. 1999. Mergers & Acquisitions Definitions. Securities Data Corporation.
- Tufano, P. 1996. Who Manages Risk? An Empirical Examination of Risk Management Practices in the Gold Mining Industry. *Journal of Finance* 51(4):1097-1137.
- Yun, Hayong. 2009. The Choice of Corporate Liquidity and Corporate Governance. *Review of Financial Studies*. 22(4): 1447-1475.



**Figure 1**

**Correlation between standard proxies of firm riskiness and the GIM governance index**

This figure reports the average stock volatility, volatility of quarterly ROA, log cash holdings, and the number of diversifying acquisitions against the GIM governance index for GIM index scores with at least 50 observations. The regression line shown is weighted based on the underlying number of observations.



**Figure 2**

**Effect of BC laws on number of diversifying acquisitions by year**

This figure reports the point estimates from a firm-panel regression of an indicator for doing an acquisition onto an indicator for business combination (BC) laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The specification is the same as that reported in Table 3, Column (4), except that the effect of BC laws is allowed to vary by year.

**Table 1****Ex-ante firm characteristics**

This table reports summary statistics for firm characteristics in the three years before a new business combination (BC) law is adopted. The mean and standard deviation (in parentheses) for each variable are reported separately for two samples of firms. Column (1) reports estimates for firms incorporated in states that adopt a BC law in the following year. Column (2) reports estimates for firms not incorporated in states that adopt a BC law in the following year. Column (3) reports the  $p$ -value from a t-test of the difference between treated and untreated firms, where the standard errors are adjusted for clustering at the state of incorporation.

	<b>Treated</b>	<b>Untreated</b>	<b><math>p</math>-value of difference</b>
	(1)	(2)	(3)
<b>Ln(Assets)</b>	4.09 (2.50)	4.02 (2.52)	0.533
<b>ROA</b>	-0.032 (0.387)	-0.046 (0.415)	0.217
<b>Debt / Assets</b>	0.293 (0.297)	0.294 (0.315)	0.896
<b>3-year asset CAGR (%)</b>	13.54 (31.78)	13.83 (36.64)	0.824
<b>Stock volatility</b>	0.539 (0.313)	0.547 (0.373)	0.683
<b><math>\sigma</math>(ROA)</b>	0.052 (0.984)	0.059 (1.693)	0.327
<b>Indicator for acquisition</b>	0.076 (0.265)	0.088 (0.283)	0.276
<b># of diversifying acquisitions</b>	0.070 (0.351)	0.086 (0.424)	0.148
<b>Observations</b>	5,187	44,771	

**Table 2****Effect of BC laws on volatility & cash holdings**

This table reports coefficients from firm-panel regressions of stock volatility, volatility of quarterly ROA, and log cash holdings on an indicator for business combination laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The sample includes firm-year observations from 1976 to 2006. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level.

<i>Dependent variable =</i>	<b>Stock volatility</b>	<b><math>\sigma(\text{ROA})</math></b>	<b>Log(Cash)</b>
	(1)	(2)	(3)
<b>BC law</b>	-0.023*** (0.008)	-0.287 (0.214)	0.121** (0.049)
<b>Firm FE</b>	X	X	X
<b>State-year FE</b>	X	X	X
<b>Industry-year FE</b>	X	X	X
<b>N</b>	132,494	165,410	172,739
<b>R<sup>2</sup></b>	0.66	0.25	0.83

**Table 3****Effect of BC laws on acquisitions**

This table reports coefficients from firm-panel regressions of acquisition activity on an indicator for business combination laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The dependent variables are the number of acquisitions [Column (1)], an indicator for doing an acquisition [Column (2)], deal value of acquisitions scaled by the market value of the acquirer's assets in the previous year [Column (3)], and the number of diversifying acquisitions [Column (4)]. The sample includes firm-year observations from 1980 to 2006. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent variable =</i>	<b># of acquisitions</b>	<b>Indicator for acquisition</b>	<b>Deal value / (Acquirer assets in t-1)</b>	<b># of diversifying acquisitions</b>
	(1)	(2)	(3)	(4)
<b>BC law</b>	0.027** (0.011)	0.009* (0.005)	0.0017** (0.0008)	0.018** (0.008)
<b>Firm FE</b>	X	X	X	X
<b>State-year FE</b>	X	X	X	X
<b>Industry-year FE</b>	X	X	X	X
<b>N</b>	192,133	192,133	152,970	192,133
<b>R<sup>2</sup></b>	0.38	0.33	0.27	0.35

**Table 4**  
**Effect of BC law on the characteristics of acquisitions**

This table reports coefficients from firm-panel regressions of ex-ante target firm characteristics on an indicator for business combination laws, an indicator for whether a firm is ever affected by the adoption of a business combination law, industry fixed effects, state of location fixed effects, and year fixed effects. The BC law indicator equals one if the acquirer is incorporated in a state that has adopted a business combination law. The dependent variables are ex-ante target characteristics: log total assets, three-year compounded annual growth rate (CAGR) for assets, the ratio of cash flow to assets, the ratio of the total payout to assets, and acquisition characteristics: percent equity used to complete the acquisition and cumulative abnormal returns (CAR) for the acquirer. The sample of acquisitions is the same as that used in Table 3, but it is further restricted to mergers with non-missing observations for CAR, log target assets, and deal value, leaving 1,987 firms. Target characteristics are from Compustat, and abnormal returns are computed using a market model and CRSP equally weighted index returns, estimated over the [-300, -46] day interval, and winsorized at the one percent tails. All estimates except for log total assets are weighted by deal value. Standard errors, clustered at the state of incorporation are reported in parentheses. \* significant at 10% level, \*\* significant at 5% level, \*\*\* significant at 1% level.

<i>Dependent variable =</i>	<b>A. Target characteristics</b>				<b>B. Acquisition characteristics</b>	
	<b>Ln(Assets)</b>	<b>3-year asset CAGR</b>	<b>Cash flow / Assets</b>	<b>Payout / Assets</b>	<b>Percent equity</b>	<b>Acquirer announcement CAR [-1,1]</b>
	(1)	(2)	(3)	(4)	(5)	(6)
<b>BC law</b>	0.327* (0.176)	0.177** (0.086)	0.096*** (0.019)	0.025*** (0.006)	20.98*** (5.30)	-0.035*** (0.012)
<b>N</b>	1,987	1,628	1,898	1,987	1,884	1,987
<b>R<sup>2</sup></b>	0.41	0.54	0.45	0.61	0.63	0.50
<b>Fixed effects:</b>						
<b>Industry</b>	X	X	X	X	X	X
<b>State</b>	X	X	X	X	X	X
<b>Year</b>	X	X	X	X	X	X

**Table 5****Acquisitions and exit rates for affected firms and their CEOs**

This table reports coefficients from firm-level regressions of CEO and firm exit rates on an indicator for whether a firm increases its acquisition activity in the years after a BC law is adopted and the firm's Altman z-score in the year prior to adoption of the BC law. Only firms incorporated in a state that adopts a BC law are included in the regression. A firm's acquisition response to the adoption of a BC law is measured using the change in the number of acquisitions completed between the years  $t \in [-5, -1]$  and  $t \in [0, 4]$ , and the median such change in the sample is zero. The dependent variable, CEO exit by  $t = 10$ , is an indicator equal to one for firms that did not exit Compustat in the ten years following adoption of a BC law but a change in the CEO does occur, and zero if a firm is still present in Compustat but the CEO remains the same. Firm exit occurs by  $t = 10$  is an indicator equal to 1 if a firm is no longer found withing Compustat ten years after a BC law is adopted. Firm or CEO exit by  $t = 10$  is an indicator equal to one if either the firm exits or the CEO changes in the ten years after the BC law is adopted. All estimates include cohort fixed effects, and standard errors, clustered at the state-of-incorporation level, are reported in parentheses. \*\*\*significant at the 1% level.

<i>Dependent Variable =</i>	<b>CEO exit</b>	<b>Firm exit</b>	<b>CEO or</b>
	<b>by t = 10</b>	<b>by t = 10</b>	<b>firm exit</b>
	(1)	(2)	(3)
<b>Indicator for increase in acquisitions following BC law</b>	-0.083*** (0.011)	-0.027* (0.015)	-0.070*** (0.010)
<b>N</b>	1,602	1,994	1,994
<b>R<sup>2</sup></b>	0.023	0.007	0.012

**Table 6**

**Importance of specification choice; a step-by-step change from previous literature**

This table reports coefficients from firm-panel regressions of the total number of acquisitions on an indicator for business combination laws. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. Column (1) reports estimates from the standard specification used in the existing literature, which includes state-year AvgE controls, 3-digit industry-year AvgE controls, firm fixed effects, time-varying controls for firm size (as measured using log assets), size-squared, firm age (as measured using the number of years a firm has been in Compustat), and the Herfindhal-Hirschman index of sales in the firm's three-digit SIC industry, and a sample window of 1976 to 1995 [see Equation (3)]. Column (2) repeats the estimation in Column (1), but extends the sample period to 2006, while the estimation in Column (3) then adds the BC law changes for IA, OR, and TX. Column (4) then uses 4-digit industry-year AvgE controls, rather than 3-digit industry-year controls. Column (5) then replaces the industry-year and state-year AvgE controls of Column (4) with their corresponding fixed effects. Column (6) then drops the time-varying controls of earlier columns, and Column (7) uses historical state of locations rather than the locations provided by the legacy version of Compustat and drops firms that endogenously change their treatment status by reincorporating. The estimates in Column (7) represent our earlier estimation of Equation (1), as reported in Column (1) of Table 3. Finally, Column (8) switches to the matching difference-in-difference estimator described in Equation (4). In all specifications, standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

**Dependent variable = # of acquisitions**

	Standard specification used in literature [Equation (3)]	First, extend sample to year 2006	Second, add BC law changes for IA, OR, and TX	Third, switch to 4- digit SIC controls	Fourth, properly control for FE	Fifth, drop endogenous controls	Sixth, drop endogenous movers [Our final specification, Equation (1)]	Our matched diff-in-diff [Equation (4)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>BC law</b>	0.014 (0.009)	0.010 (0.011)	0.010 (0.011)	0.010 (0.011)	0.021** (0.010)	0.031*** (0.010)	0.027** (0.011)	0.026** (0.012)
<b>N</b>	109,168	193,071	193,071	192,809	193,075	198,206	192,133	545,212
<b>R<sup>2</sup></b>	0.35	0.32	0.32	0.32	0.39	0.38	0.38	0.45

**Table 7****Cash flows, leverage, and effect of BC laws on acquisitions**

This table reports coefficients from firm-panel regressions of the number of acquisitions and number of diversifying acquisitions on an indicator for business combination laws, firm-by-cohort fixed effects, state-of-location-by-year-by-cohort fixed effects, and 4-digit SIC industry-by-year-by-cohort fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The data include firm-year-cohort observations in the 10 years before and 10 years after each adoption of a new BC law. Panel A restricts the sample to firms with less cash flows or higher leverage in the year prior to a BC law being adopted, as measured by having a below median cash flows / assets [Columns (1) and (3)] or above median leverage [Columns (2) and (4)], while Panel B restricts the sample to firms with above median cash flows / assets or below median leverage. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	<b># of acquisitions</b>		<b># of diversifying acquisitions</b>	
	(1)	(2)	(3)	(4)
<b>Panel A: Firms with LOW cash flows or HIGH leverage in T-1</b>				
	<b>Low cash flows / assets</b>	<b>High leverage</b>	<b>Low cash flows / assets</b>	<b>High leverage</b>
<b>BC law</b>	0.026*** (0.008)	0.034*** (0.012)	0.018** (0.008)	0.021** (0.010)
<b>N</b>	202,442	266,500	202,442	266,500
<b>R<sup>2</sup></b>	0.54	0.52	0.53	0.51
<b>Panel B: Firms with HIGH cash flows or LOW leverage in T-1</b>				
	<b>High cash flows / assets</b>	<b>Low leverage</b>	<b>High cash flows / assets</b>	<b>Low leverage</b>
<b>BC law</b>	0.004 (0.022)	0.014 (0.013)	-0.004 (0.019)	0.011 (0.010)
<b>N</b>	230,296	274,936	230,296	274,936
<b>R<sup>2</sup></b>	0.54	0.53	0.52	0.52
<b>Firm-cohort FE</b>	X	X	X	X
<b>State-year-cohort FE</b>	X	X	X	X
<b>Industry-year-cohort FE</b>	X	X	X	X

**Table 8****Distress risk and effect of BC laws on acquisitions**

This table reports coefficients from firm-panel regressions of the number of acquisitions and the number of diversifying acquisitions on an indicator for business combination laws, firm-by-cohort fixed effects, state-of-location-by-year-by-cohort fixed effects, and 4-digit SIC industry-by-year-by-cohort fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The data include firm-year-cohort observations in the 10 years before and 10 years after each adoption of a new BC law. Panel A restricts the sample to firms with greater distress risk in the year prior to a BC law being adopted as measured by having a below median z-score [Columns (1), (3)] or zero dividends [Columns (2), (4)], while Panel B restricts the sample to firms with an above median z-score or positive dividends. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	<b># of acquisitions</b>		<b># of diversifying acquisitions</b>	
	(1)	(2)	(3)	(4)
<b>Panel A: Firms with HIGH distress risk in T-1</b>				
	<b>Low z-score</b>	<b>Zero dividends</b>	<b>Low z-score</b>	<b>Zero dividends</b>
<b>BC law</b>	0.042** (0.018)	0.035*** (0.007)	0.024*** (0.009)	0.024*** (0.007)
<b>N</b>	190,323	328,988	190,323	328,988
<b>R<sup>2</sup></b>	0.58	0.47	0.56	0.45
<b>Panel B: Firms with LOW distress risk in T-1</b>				
	<b>High z-score</b>	<b>Positive dividends</b>	<b>High z-score</b>	<b>Positive dividends</b>
<b>BC law</b>	0.018 (0.024)	0.004 (0.020)	0.018 (0.021)	0.003 (0.018)
<b>N</b>	198,300	216,224	198,300	216,224
<b>R<sup>2</sup></b>	0.52	0.60	0.51	0.60
<b>Firm-cohort FE</b>	X	X	X	X
<b>State-year-cohort FE</b>	X	X	X	X
<b>Industry-year-cohort FE</b>	X	X	X	X

**Table 9****Inside ownership and the effect of BC laws on acquisitions**

This table reports coefficients from firm-panel regressions of the number of acquisitions and the number of diversifying acquisitions on an indicator for business combination laws, firm-by-cohort fixed effects, state-of-location-by-year-by-cohort fixed effects, and 4-digit SIC industry-by-year-by-cohort fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The data include firm-year-cohort observations in the 10 years before and 10 years after each adoption of a new BC law. Panel A restricts the sample to firms with above median inside ownership in the year prior to a BC law being adopted, while Panel B restricts the sample to firms with below median inside ownership. Standard errors are clustered at the state of incorporation.\*significant at the 10% level.

<i>Dependent Variable =</i>	<b># of</b>	<b># of diversifying</b>
	<b>acquisitions</b>	<b>acquisitions</b>
	(1)	(2)
<b>Panel A. Firms with ABOVE median inside ownership at time T-1</b>		
<b>BC law</b>	0.017 (0.013)	0.030* (0.016)
<b>N</b>	104,090	104,090
<b>R<sup>2</sup></b>	0.62	0.60
<b>Panel B. Firms with BELOW median inside ownership at time T-1</b>		
<b>BC law</b>	0.005 (0.023)	-0.016 (0.026)
<b>N</b>	99,780	99,780
<b>R<sup>2</sup></b>	0.68	0.67
<b>Firm-cohort FE</b>	X	X
<b>State-year-cohort FE</b>	X	X
<b>Industry-year-cohort FE</b>	X	X

**Table 10****Leverage, inside ownership and their impact on quiet life findings**

This table reports coefficients from firm-panel regressions of return on assets, a common outcome used in studies of the "quiet life" agency conflict, on an indicator for business combination laws, firm-by-cohort fixed effects, state-of-location-by-year-by-cohort fixed effects, and 4-digit SIC industry-by-year-by-cohort fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The data include firm-year-cohort observations in the 10 years before and 10 years after each adoption of a new BC law. Panel A restricts the sample to firms with an above median leverage [Column (1)] or a above median inside ownership [Column (2)] in the year prior to adoption a BC law, while Panel B restricts the sample to firms with below median leverage or below median inside ownership . Standard errors are clustered at the state of incorporation. \*significant at the 10% level.

	<i>Dependent Variable =</i>	
	<b>ROA</b>	
	(1)	(2)
<b>Panel A: Firms with HIGH leverage or inside ownership in T-1</b>		
	<b>High leverage</b>	<b>High ownership</b>
BC law	0.003 (0.010)	-0.003 (0.009)
N	254,889	100,557
R <sup>2</sup>	0.63	0.70
<b>Panel B: Firms with LOW leverage or inside ownership in T-1</b>		
	<b>Low leverage</b>	<b>Low ownership</b>
BC law	-0.023* (0.013)	-0.016** (0.008)
N	262,662	97,369
R <sup>2</sup>	0.60	0.68
Firm-cohort FE	X	X
State-year-cohort FE	X	X
Industry-year-cohort FE	X	X

### **Appendix Table A.1**

#### **Business combination laws adopted by year and state**

This table reports the states that adopted a business combination law along with the year in which the law was adopted. To identify when BC laws were adopted in each state, we use the dates for 30 states that adopted laws between 1985 and 1991, as reported in Bertrand and Mullainathan (2003), and augment their list to account for the adoption of BC laws in three additional states reported in Pinnell (2000)—Oregon in 1991, and Iowa and Texas in 1997.

---

Arizona (1987)	Nevada (1991)
Connecticut (1989)	New Jersey (1986)
Delaware (1988)	New York (1985)
Georgia (1988)	Oklahoma (1991)
Idaho (1988)	Ohio (1990)
Illinois (1989)	Oregon (1991)
Indiana (1986)	Pennsylvania (1989)
Iowa (1997)	Rhode Island (1990)
Kansas (1989)	South Carolina (1988)
Kentucky (1987)	South Dakota (1990)
Maine (1988)	Tennessee (1988)
Maryland (1989)	Texas (1997)
Massachusetts (1989)	Virginia (1988)
Michigan (1989)	Washington (1987)
Minnesota (1987)	Wisconsin (1987)
Missouri (1986)	Wyoming (1989)
Nebraska (1988)	

---

**Appendix Table A.2  
Variable Definitions**

<b>State of incorporation and state of location for firms</b>	Obtained from Cohen (2012), who collected information back to 1990 from the SEC disclosure CDs and Compustat back-tapes, and from SEC Analytics, which contains historical information back to 1994 from firms SEC filings. In cases where the two sources disagree, we use firms' historical 10Ks and <i>Moody's Manuals</i> to determine which is correct. For observations prior to 1990, we use the earliest incorporation and location information available for each firm, and when location information is missing entirely, such as for firms that stopped filing prior to 1990, we use locations reported in the legacy version of Compustat.
<b>Stock volatility</b>	Calculated from CRSP using the square root of the sum of squared daily returns over the year. To adjust for differences in the number of trading days, the raw sum is multiplied by 252 and divided by the number of trading days.
<b><math>\sigma(\text{ROA})</math></b>	Calculated from Compustat using the standard deviation of firms quarterly ROA for the year. Quarterly ROA is calculated as $\text{niq}_t / \text{atq}_{t-1}$ .
<b>Ln(Cash)</b>	Calculated from Compustat using $\ln(\text{ch})$ .
<b># of acquisitions</b>	Calculated using SDC's Mergers and Acquisitions Database. Number of acquisitions a firm does.
<b>Indicator for acquisition</b>	Calculated using SDC's Mergers and Acquisitions Database. Indicator equal to one if the firm does an acquisition.
<b>Deal value / (Value of acquirer assets in t-1)</b>	Deal value is calculated using SDC's Mergers and Acquisitions Database. Market value of assets are calculated using Compustat, where market value of assets = $\text{csho} \times \text{prcc}_c + \text{dltt} + \text{dlc}$ .
<b># of diversifying acquisitions</b>	Calculated using SDC's Mergers and Acquisitions Database. Number of acquisitions a firm does where its primary SIC industry does not coincide with any SIC code of the target firm.
<b>ROA</b>	Calculated from Compustat using $\text{ni}/\text{at}$ .
<b>Cash flows/Assets</b>	Calculated from Compustat using $(\text{oiadp} - \text{accruals}) / \text{at}$ , where $\text{accruals} = (\text{act}_t - \text{act}_{t-1}) - (\text{che}_t - \text{che}_{t-1}) - (\text{lct}_t - \text{lct}_{t-1}) + (\text{dlc}_t - \text{dlc}_{t-1}) - \text{dp}$ .
<b>Debt/Assets</b>	Calculated from Compustat using $(\text{dltt} + \text{dlc})/\text{at}$ .
<b>Altman z-score</b>	Calculated from Compustat using $(3.3 \times \text{oiadp} + 0.999 \times \text{sale} + 1.4 \times \text{re} + 1.2 \times \text{wcap}) / \text{at} + (0.6 \times \text{csho} \times \text{prcc}_f) / \text{lt}$ .
<b>Dividend indicator</b>	Calculated from Compustat using indicator that equals 1 if $\text{dvc} > 0$ .
<b>Inside ownership</b>	Total ownership share of the CEO, as constructed by Yermack (1995), which covers firms listed by Forbes magazine as among the 500 largest U.S. public corporations in the years 1984-1991. When this information is missing, we use total reported shares held by a firm's senior management as a fraction of the firm's total shares outstanding at the end of the year, as recorded by TFN Insider Filing Data and constructed by Panousi and Papanikolaou (2012). When classifying firms, we calculate the median value separately for each data source.

\* All financial ratios are winsorized at 1% tails

### Appendix Table A.3

#### Robustness to excluding financial firms

This table reports coefficients from firm-panel regressions of stock volatility, volatility of quarterly ROA, log cash holdings, and acquisition activity on an indicator for business combination laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The sample and estimation is the same as in Tables 2 and 3, except that financial firms (SIC = 6000-6999) are now excluded. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	Stock volatility	$\sigma(\text{ROA})$	Ln(Cash)	# of acquisitions	Indicator for acquisition	Deal value / (Acquirer assets in t-1)	# of diversifying acquisitions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>BC law</b>	-0.018* (0.009)	-0.346 (0.238)	0.123** (0.051)	0.032** (0.013)	0.011* (0.006)	0.0021* (0.0011)	0.021** (0.010)
<b>Firm FE</b>	X	X	X	X	X	X	X
<b>State-year FE</b>	X	X	X	X	X	X	X
<b>Industry-year FE</b>	X	X	X	X	X	X	X
<b>N</b>	106,847	135,670	141,600	157,437	157,437	123,730	157,437
<b>R<sup>2</sup></b>	0.65	0.26	0.80	0.38	0.32	0.26	0.35

#### Appendix Table A.4

##### Robustness to stopping sample in 1995 and ignoring adoption of later BC laws

This table reports coefficients from firm-panel regressions of stock volatility, volatility of quarterly ROA, log cash holdings, and acquisition activity on an indicator for business combination laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The sample and estimation is the same as in Tables 2 and 3, except that only firm-year observations from 1976 to 1995 are included. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	Stock volatility	$\sigma(\text{ROA})$	Ln(Cash)	# of acquisitions	Indicator for acquisition	Deal value / (Acquirer assets in t-1)	# of diversifying acquisitions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>BC law</b>	-0.019** (0.007)	-0.004 (0.033)	0.123*** (0.045)	0.019** (0.009)	0.009** (0.004)	0.0015* (0.0008)	0.012* (0.007)
<b>Firm FE</b>	X	X	X	X	X	X	X
<b>State-year FE</b>	X	X	X	X	X	X	X
<b>Industry-year FE</b>	X	X	X	X	X	X	X
<b>N</b>	72,685	88,977	92,890	109,447	109,447	84,599	109,447
<b>R<sup>2</sup></b>	0.64	0.34	0.85	0.42	0.32	0.31	0.39

## Appendix Table A.5

### Robustness to being incorporated and located in the same state versus different states

This table reports coefficients from firm-panel regressions of stock volatility, volatility of quarterly ROA, log cash holdings, and acquisition activity on interactions between a business combination law indicator and indicators for being incorporated in the same state or not, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The sample and estimation is the same as in Tables 2 and 3, except that the BC law indicator is now interacted with an indicator for being incorporated in the same state and an indicator for being incorporated in a different state. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	Stock			# of	Indicator	Deal value /	# of
	volatility	$\sigma(\text{ROA})$	Ln(Cash)	acquisitions	for acquisition	(Acquirer assets in t-1)	diversifying acquisitions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>BC law × Located in same state</b>	-0.029*** (0.009)	-0.642* (0.346)	0.174*** (0.050)	0.031** (0.013)	0.013* (0.007)	0.0014 (0.0013)	0.013 (0.010)
<b>BC law × Located in different state</b>	-0.021*** (0.008)	-0.146 (0.192)	0.097* (0.050)	0.026** (0.011)	0.008* (0.005)	0.0018** (0.0008)	0.019** (0.008)
<b>Firm FE</b>	X	X	X	X	X	X	X
<b>State-year FE</b>	X	X	X	X	X	X	X
<b>Industry-year FE</b>	X	X	X	X	X	X	X
<b>N</b>	132,494	165,410	172,739	192,133	192,133	152,970	192,133
<b>R<sup>2</sup></b>	0.66	0.25	0.83	0.38	0.33	0.27	0.35

## Appendix Table A.6

### Robustness to excluding firms incorporated in Delaware

This table reports coefficients from firm-panel regressions of stock volatility, volatility of quarterly ROA, log cash holdings, and acquisition activity on an indicator for business combination laws, firm fixed effects, state-of-location-by-year fixed effects, and 4-digit SIC industry-by-year fixed effects. The BC law indicator equals one if a firm is incorporated in a state that has adopted a business combination law. The sample and estimation is the same as in Tables 2 and 3, except that firms incorporated in Delaware are excluded. Standard errors are clustered at the state of incorporation. \*\*\*significant at the 1% level; \*\*significant at the 5% level; \*significant at the 10% level.

<i>Dependent Variable =</i>	<b>Stock volatility</b>	<b><math>\sigma(\text{ROA})</math></b>	<b>Ln(Cash)</b>	<b># of acquisitions</b>	<b>Indicator for acquisition</b>	<b>Deal value / (Acquirer assets in t-1)</b>	<b># of diversifying acquisitions</b>
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<b>BC law</b>	-0.024 (0.018)	-1.168* (0.647)	0.225*** (0.081)	0.046*** (0.017)	0.020** (0.008)	0.0016 (0.0012)	0.038*** (0.011)
<b>Firm FE</b>	X	X	X	X	X	X	X
<b>State-year FE</b>	X	X	X	X	X	X	X
<b>Industry-year FE</b>	X	X	X	X	X	X	X
<b>N</b>	64,652	81,694	85,478	95,526	95,526	76,351	95,526
<b>R<sup>2</sup></b>	0.71	0.28	0.85	0.49	0.40	0.35	0.48