

# Non-Compete Agreements and the Market for Corporate Control\*

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## Abstract

Non-compete agreements (NCAs) limit outside employment options and, therefore, increase personal costs of job displacement for managers. Using state-level changes in NCA enforceability as a natural experiment, we find that managers are more averse to horizontal takeovers when NCA enforcement tightens. In particular, higher enforceability is associated with fewer takeovers. Those that do materialize are more likely to be hostile, involve higher premiums, and are less likely to complete. Overall, the findings indicate that the use of NCAs and their enforceability have implications for the market for corporate control.

**Keywords:** Takeovers, Executive Mobility, Non-Compete Agreements, Enforcement

**JEL Codes:** G34; K31; M12; M55

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# 1 Introduction

CEOs and other top executives play key roles in the corporation by setting the firm's strategy and spearheading major initiatives and deals. One of the most consequential initiatives a firm's executives could pursue is mergers and acquisitions (M&As), especially when the firm is to become the target in a transaction. While M&As typically enhance value for target shareholders through takeover premiums, they can be a double-edged sword for management due to likely job displacement after the firm is sold. This paper examines how top executives' career concerns affect their disposition towards takeovers and the associated impact on deal outcomes.

In the U.S., the majority of executives are subject to Non-Compete Agreements (NCAs) – parts of an employment contract that effectively restrict the post-employment options of workers. The main purpose of this contractual device is to safeguard a firm's proprietary knowledge and information by imposing industry-specific and geographic limitations on former employees. Typically, an NCA prohibits employees from joining a rival firm or launching a new enterprise within the same industry for a duration ranging between one to two years subsequent to their departure from the company.

Firms perceive even greater threats when CEOs and key executives, who carry substantial internal proprietary information, including strategies, customer lists, supplier terms, and trade secrets, join competitor organizations. In response, NCAs have become a prevalent instrument to mitigate potential information leaks from CEOs. Approximately 80% of CEOs with employment contracts are subjected to NCA constraints (Bishara, Martin, and Thomas (2015)). Garmaise (2011) shows that NCAs substantially inhibit executive mobility, with executives experiencing fewer compensation increases upon changing firms. Concurrently, the turnover rate significantly increases for CEOs subject to NCAs, escalating the unemployment risk for such executives during instances of involuntary or voluntary transition. Consequently, CEOs bound by NCAs bear significant personal costs associated with potential job displacement. This presents an interesting potential link between NCA use and the market for corporate control.

We expect NCAs to affect takeover dynamics in several ways. First, executives subject to higher post-employment risk due to NCAs are likely to be more averse to takeovers, leading to a reduction in the number of attempted takeovers. Second, when bids are made, the target firm's management

is more likely to exhibit a hostile attitude. Furthermore, CEOs may negotiate for a higher premium to partially offset their personal costs, particularly if they hold shares in the target. This premium may also serve as a deterrent to discourage certain bidders from proceeding with their offers. These combined effects are also expected to result in a decrease in the overall deal completion rate.

To test these predictions we exploit changes in the *enforceability* of NCAs at the state level. These changes are introduced through state legislative and/or court decisions that are unlikely to be influenced by the takeover outcomes we study, making them plausibly exogenous for our purposes. In our main tests we focus on horizontal deals where both the target and acquirer operate in the same industry – deals in which a higher level of operational overlap results in a higher post-merger turnover rate for CEOs (Buchholtz, Ribbens, and Houle (2003)).<sup>1</sup> This allows us to use non-horizontal takeovers as an effective placebo test: to the extent that the timing of NCA enforcement changes may be endogenous, any such omitted variable would have to affect horizontal deals differentially for our identification strategy to suffer.

Specifically, we use the twelve questions proposed by Malsberger, Brock, and Pedowitz (2002) to quantify the state-level enforcement and examine how changes in NCA enforceability affect firms' takeover activities. The enforcement score ranges from zero to twelve, with zero indicating no enforcement of NCAs, and a higher score means tighter enforcement. This measure has been widely used in prior literature regarding NCAs and labor mobility (Garmaise (2011), Kini, Williams, and Yin (2021), Conti (2014), Ysmailov (2022)). Our research design amounts to a difference-in-differences approach with multiple staggered treatments, and we use methods that are robust to the associated challenges pointed out in recent econometric literature (e.g., Baker, Larcker, and Wang (2022)).

We begin by analyzing the consequences of NCA enforcement changes on the incidence of horizontal takeovers of public firms. Using the entire Compustat panel spanning the years 1981-2014 and M&A data from Thomson Reuters SDC, we find that greater NCA enforcement has a robust negative effect on the likelihood a firm becomes a target of a horizontal takeover. In our most comprehensive regression specification controlling for firm-level characteristics, state economic conditions, and other relevant state laws, a one-point increase in NCA enforceability is associated

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<sup>1</sup>In contrast, unrelated mergers more often necessitate retaining of target employees to ensure smooth ongoing operations. Target CEO's industry-specific human capital makes them more difficult to replace.

with a 10% reduction in the likelihood of horizontal takeover. Note that some of the reforms change the NCA enforcement score by more than one point, meaning that these events have a large economic effect on the takeover market.

We then turn to a deal-level analysis and investigate the potential impact of NCA enforceability on the characteristics and outcomes of deals that do materialize. Starting with deal attitude, our findings reveal a notable positive correlation between NCA enforceability and the likelihood of the deal being characterized as hostile, unsolicited or neutral – as opposed to friendly. Specifically, stricter NCA enforcement is associated with a 2.29 percentage point increase in the probability of negative target attitude, representing approximately half of the unconditional average of 4.4%.

We next examine the potential relationship between NCA enforcement and takeover premiums. We find that a one-point increase in the NCA enforcement score corresponds to a 3.23 percentage point increase in takeover premium, which is about a 7% increase relative to the average takeover premium in our sample. Again, notice that certain states experience changes in NCA enforcement scores greater than one, leading to even larger effects. These findings for takeover premiums are corroborated by evidence from target firm abnormal returns.

We also investigate whether deal withdrawal rates are influenced by changes in NCA enforcement. The results indicate that a one-point increase in the NCA enforcement score is associated with a significant 4.2 percentage point increase in the deal withdrawal rate. Considering that the average withdrawal rate in our sample is 10%, this effect is highly economically significant. Overall, our findings on takeover likelihood, deal attitude, takeover premiums, and deal withdrawal rates are consistent with our conjecture that executives subject to stricter NCA enforcement become more averse to takeovers that threaten their jobs.

In our penultimate set of tests we take advantage of a “holdout” sample of non-horizontal takeovers. To the extent that our findings above are driven by executives’ career concerns caused by changes in NCA enforceability, we expect weaker or even no effects for deals in which the likelihood of executive turnover is lower. If, on the other hand, our findings are driven by an omitted variable correlated with both NCA enforcement changes and takeover outcomes, then we would expect similar effects in the sample of diversifying deals (unless the omitted variable in question is particularly relevant for horizontal deals, which we view as less likely). We repeat all of our tests using non-horizontal takeovers and find that none of the outcomes is affected by NCA

enforceability in that sample, which raises the bar for potential alternative explanations.

Finally, we return to the overall panel of firms and examine whether changes to NCA enforceability are associated with contemporaneous changes in various firm fundamentals. We find no such effects on characteristics such as firm size, profitability, book-to-market ratio, leverage, and cash holdings. Lack of such effects gives us more confidence that our findings above are driven by changes in executives' attitude towards takeovers, rather than by some changes to the fundamentals of firms comprising the pool of available targets.

Overall, our paper contributes to the literature on executive mobility and executive contracts, as well as to the voluminous literature on M&A. While earlier papers by Garmaise (2011), Kini, Williams, and Yin (2021), and Jeffers (2023) have shed light on executive NCA agreements and their potential effects on firm investments, none have comprehensively explored the impact of these contractual devices on the market for corporate control.<sup>2</sup> Our findings also add to the literature on corporate governance by showing how NCA agreements may inadvertently heighten agency conflicts arising from executive self-interest. This adds to the debate on the benefits and costs of NCA agreements – a debate that is highly relevant given the recent proposal by the Federal Trade Commission for a national ban on the use of NCAs in the U.S.<sup>3</sup> Our analysis would suggest that such a ban might result in a more vibrant takeover market.

The rest of the paper is organized as follows. Section 2 discusses related literature. Section 3 provides institutional background on CEO Non-Compete Agreements and their state-level enforcement. Data sources and research design are described in Section 4. Section 5 presents our main analysis of the effects of the NCA enforcement on M&A outcomes. Section 6 elaborates on further tests designed to address alternative explanations. Finally, Section 7 concludes the paper with a summary of the findings.

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<sup>2</sup>The only exception is Younge, Tong, and Fleming (2015). They examine the impact of the NCA change in Michigan on the likelihood of takeover and find the effect opposite to ours. We discuss this paper in more detail in the literature review section.

<sup>3</sup>For public comments regarding this proposal see: <https://www.regulations.gov/docket/FTC-2023-0007/comments>

## 2 Related Literature

Non-Compete Agreements have been receiving increasing attention from researchers. Previous literature has extensively explored NCAs and their implications in the labor market. For instance, Blake (1960) highlights that while there was opposition to broad restrictions on labor mobility, NCAs were commonly enforced with specific limitations in the U.S. to safeguard employers' confidential information and business relationships.

There is a growing body of literature that investigates the effects of NCAs on different groups, such as inventors (Marx, Strumsky, and Fleming (2009)), venture capital activities, innovation, and patents (Samila and Sorenson (2011)), as well as their influence on entrepreneurial prominence and the emergence of Silicon Valley (Gilson (1999)). Additionally, Stuart and Sorenson (2003) indicates that NCAs discourage the founding of new firms after initial public offerings, highlighting how they impede employee mobility and restrict knowledge outflow. Overall, these studies underscore the significant implications of NCAs on labor market dynamics and knowledge flow.

In the United States, the majority of CEOs are bound by NCAs, highlighting their widespread use in executive employment contracts (Bishara, Martin, and Thomas (2015)). The presence of NCAs has been found to have a substantial impact on executive mobility. Garmaise (2011) demonstrates that NCAs strongly reduce CEO mobility, making it less likely for executives to switch firms. When CEOs do transfer to new firms, they tend to receive fewer compensation increases. Kini, Williams, and Yin (2021) documents that CEOs are more likely to be fired and experience a higher turnover rate if they are subject to NCAs. However, there is some doubt on the effect on executive compensation where Garmaise (2011) concludes that NCA reduces compensation while Kini, Williams, and Yin (2021) concludes the opposite.

Furthermore, NCAs limit the willingness of executives to leverage their information advantage for personal gain. Gao, Guo, Lisic, and Omer (2023) finds that NCA decreases the insider trading profits for management because they are less likely to exploit their information advantage by timing their sales before unfavorable corporate earnings announcements. Overall, NCAs are a powerful tool that shapes the behavior of CEOs as it impact CEOs' personal cost and risk level. While a considerable amount of research has been carried out on the effect of NCAs on the employee side, much less is known about corporate decisions and outcomes.

NCAs serve the primary purpose of protecting the confidential information of firms. Conti (2014) and Jeffers (2023) demonstrate that firms with stringent NCA enforcement tend to increase their investments in research and development (R&D) and physical capital, particularly in knowledge-intensive sectors. This suggests that the preservation of firm knowledge and human capital through NCAs can incentivize companies to invest more in innovation and expansion. Moreover, Bird and Knopf (2015) highlights that tight NCA enforcement leads to reduced firm growth, lower labor expenses, and increased profitability in the banking sector. Ysmailov (2022) suggests that CEOs facing higher unemployment risk tend to adopt more conservative capital structures, providing insights into how NCAs can influence managerial incentives and decision-making. So far, there has been very little discussion about the impact of the executive post-employment risk on the market of corporate control. This paper extends the understanding of the impact of NCAs on M&A dynamics by focusing on the effect on the target firms.

In focusing on M&A activities, this paper relates to Zhao (2013) and Younge, Tong, and Fleming (2015). Zhao (2013) finds that acquirers with an explicit CEO employment contract obtain better announcement returns, pay lower premiums, generate superior long-run post-acquisition operating performance, and undertake riskier deals. Like us, Younge, Tong, and Fleming (2015) studies the impact of NCA enforceability on takeover likelihood. However, unlike our analysis, they examine only one episode of NCA enforcement change – the 1985 legislative change in Michigan – and find that greater enforcement of NCAs is associated with *higher* takeover likelihood. We use a comprehensive set of NCA reforms in our analysis resulting in the opposite conclusion regarding takeover likelihood, and we also consider a much broader set of takeover outcomes.

### 3 Institutional Background

This section provides a comprehensive institutional background for the empirical methodology, focusing on Non-Compete Agreements (NCAs) and their implications on executive mobility, as well as the change in state-level enforceability.

### 3.1 CEO Non-Compete Agreements

Non-Compete Agreements (NCAs) are contractual arrangements between employers and employees that restrict the employee’s ability to work for or establish a competing business after leaving the company. The primary purpose of an NCA is to protect the employer’s confidential information, trade secrets, customer relationships, or unique expertise, thereby preventing the employee from directly competing against the employer within a specific geographic area and for a certain period of time, typically ranging from one to two years after the termination of employment.

NCAs are widely prevalent in the U.S. labor market. According to a comprehensive survey conducted by Starr, Prescott, and Bishara (2021), approximately 38.1% of the US labor force has signed an NCA at some point in their careers. These agreements are particularly common in positions that require specialized skills and knowledge, making them more prevalent among CEOs and high-level executives. Unlike rank-and-file employees, CEOs pose a greater threat to firms if they join competitor companies because they possess sensitive information. Bishara, Martin, and Thomas (2015) indicates that approximately 80% of CEOs are bound by non-compete restrictions, highlighting the significance of these agreements in the executive employment landscape. Furthermore, there has been a discernible increase in the usage of NCAs over time.<sup>4</sup>

NCAs are a distinctive legal practice that specifically impacts executive post-employment mobility compared to other agreements that protect a company’s intellectual property and market share. These agreements may also be accompanied by Non-Solicitation Agreements, which restrict employees from soliciting the firm’s employees, clients, or customers for a specified period, as well as Non-Disclosure Agreements, which prevent employees from disclosing confidential information to third parties. Although the general purpose of these contracts is similar, it is often more straightforward to determine whether a former employee continues working within a specific industry than to ascertain whether the employee is using confidential information. Appendix A1 provides examples of NCAs in CEO employment contracts. To ensure enforceability, NCAs must adhere to reasonable limitations, specifying criteria such as time frames, geographical boundaries, and a clear definition of the competing business.

The existence of NCA decreases executive mobility by limiting their post-employment options.

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<sup>4</sup>Kini, Williams, and Yin (2021) shows that the use of NCA within CEOs increased from 42% to 67% between year 1992 to 2014.



Garmaise (2011) highlights that increasing enforceability substantially reduces CEO mobility, particularly within-industry job changes. However, enforcing NCAs across state boundaries poses challenges compared to within-state enforcement.<sup>5</sup> In general, court decisions on NCA enforcement can be influenced by factors such as choice-of-law provisions, which determine the applicable state law based on the relationship to the parties or the transaction and the state’s materially greater interest. In *Sabol-Krutz v. Quad Electronics Inc.*, the employee moved from California to Michigan. The California court deemed Michigan law applies as the employee signed the NCA and worked in Michigan.

### 3.2 State-Level Enforceability

NCAs are governed at the state level, leading to significant variations in their usage across different states. Notably, four states - California, Minnesota, North Dakota, and Oklahoma - have completely banned the practice of NCAs, while the remaining states have varying levels of enforceability. To assess changes in state-level enforceability over time, we use enforcement indices from three different sources: Bird and Knopf (2015) for the period from 1981 to 1992, Garmaise (2011) for the period from 1992 to 2004, and Kini, Williams, and Yin (2021) for the period from 2004 to 2014<sup>6</sup>. We then adjust our sample based on the method used in Jeffers (2023), where if the reform took place in the last three months of the calendar year, we would assign the treatment year as the following year.

The enforceability score is constructed based on twelve questions proposed by Malsberger, Brock, and Pedowitz (2002), with each question assigned one point if the enforcement of that perspective exceeds a certain threshold. The questions are designed based on several key criteria, such as the employer’s protectable interest, the temporal and geographical restrictions within the covenant, and the court’s ability to modify over-broad covenants<sup>7</sup>. A complete list of these questions

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<sup>5</sup>The governing case is *Application Group, Inc. v. Hunter Group, Inc.*, 61 Cal. App. 4th 881, 72 Cal. Rptr. 2d 73 (1st Dist. 1998) where the employee signed the NCA in Maryland, breached the agreements, and worked for a competing firm in California after resigning. The California court held that the NCA was invalid and unenforceable. A choice-of-law provision in the contract was not binding, as the company failed to present evidence of damage. *Keener v. Convergys Corp.*, 342 F.3d 1264 (11th Cir. 2003) Georgia court void the NCA under an Ohio choice-of-law provision because the term was overly broad.

<sup>6</sup>We incorporated one additional reform, documented in Jeffers (2023) but not covered in Kini, Williams, and Yin (2021), specifically the Montana 2012 reform. Our results remain the same when excluding this reform.

<sup>7</sup>For a discussion of this, see “How ‘Red Penciling’ and ‘Blue Penciling’ Affects Covenants Not to Compete?”, available at <https://www.hg.org/legal-articles/how-red-penciling-and-blue-penciling-affects-covenants-not-to-compete-43946>

can be found in Appendix A2. The score ranges from zero to twelve, with higher scores indicating stricter enforcement of NCAs, and a score of zero means that the state does not enforce NCAs at all. Table 1 provides a comprehensive overview of all the changes in the scores across different states over time. Figure 1A shows the enforceability of NCA in 2013 for different states, and Figure 1B illustrates the changes in enforcement scores between the period 1981 to 2013, showing how NCA enforceability has evolved over time.

While most states maintain a constant level of NCA enforceability, 16 states experienced some changes in their enforceability levels between 1981 and 2014. Among these states, six states underwent multiple changes, resulting in a total of 26 changes observed across states during the sample period. The most significant reform occurred in Michigan in 1985 when the Michigan Legislature repealed the statutory prohibition on NCAs through the Michigan Antitrust Reform Act, leading to a notable increase in the enforcement score from zero to five.

The change in enforcement scores is considered plausibly exogenous as it is driven by amendments to statutory laws or the state’s higher court decisions that bind other courts. These changes in enforceability affect all NCAs within the corresponding states, regardless of whether they were entered into before or after the law change or court decision. Although it is possible that state statutes may be influenced by lobbying from firms within the state, they are more likely to be driven by considerations of employee mobility and the protection of intellectual property rather than solely being influenced by M&A decisions.

## 4 Sample and Research Design

### 4.1 Sample

The M&A data come from the Thomson Reuters SDC M&A database covering acquisitions with announcement dates spanning from January 1, 1981, to December 31, 2013<sup>8</sup>. The sample selection steps are as follows:

1. The sample is restricted to completed or withdrawn M&A deals, excluding transactions such as repurchases, self-tendering, recapitalization, restructuring, bankruptcy acquisition, going

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<sup>8</sup>The sample period begins in 1981 because Baker and Savaşoglu (2002) argues that “prior to 1981, SDC does not provide full coverage of mergers and acquisitions”. Our sample period ends in 2014 because the NCA enforcement data ended in 2014.

private, or leveraged buyout transactions.

2. Targets are U.S. public firms listed on NYSE, AMEX, or Nasdaq stock exchanges.
3. Acquirers are public companies, both U.S. and foreign.
4. Transaction value is at least \$1 million USD.
5. The acquisition represents a change of control, where the acquirer initially owns less than 10% of the target and seeks more than 50% after the transaction.
6. Deals with unknown payment methods are excluded.

The use of these filters is consistent with standard practices in the M&A literature<sup>9</sup>. After applying these filters, the initial pool of M&A deals consisted of 5,903 transactions. To include standard control variables, we merge the M&A deal characteristics with the CRSP and Compustat data, and we exclude the target firms within the Real Estate Investment Trusts and Non-Operating Establishment industries (SIC code 6798 and 9995), the sample further reduces to 5,625. We also supplement the data with state-level economic variables such as GDP growth from the U.S. Bureau of Labor Statistics and collect the state-level antitakeover law passage times from Karpoff and Wittry (2018) based on the state of incorporation. State-level data on Inevitable Disclosure Doctrine (IDD) laws are collected from Klasa, Ortiz-Molina, Serfling, and Srinivasan (2018).

We split our sample M&A deals into two categories, horizontal and unrelated, based on the firm’s historical two-digit SIC code. In horizontal takeovers, where both the acquirer and target firms operate in the same industry, the acquirer executives possess sufficient industry knowledge due to the similarities in business activities. Meanwhile, there may be overlap and redundancies within the merging company’s management teams, where multiple executives perform similar roles and responsibilities. To improve efficiency, the acquiring company may choose to consolidate management teams, resulting in the replacement of the target company’s CEO and top executives, who, in turn, become subject to NCAs and face outside option constraints after the takeover. Therefore, in our main analysis we focus on horizontal M&A deals only. Approximately 65% of the acquisitions are classified as horizontal deals. The “holdout” sample of non-horizontal deals is used for “placebo” tests, in which we expect little-to-no effects.

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<sup>9</sup>See, e.g., Golubov, Petmezas, and Travlos (2016), Masulis, Wang, and Xie (2007)

The final sample size varies across tests due to the availability of the required dependent and control variables. The dependent variables takeover deals, offer premium, attitude, and deal status are collected from SDC. Premium is calculated as the difference between the offer price and the target stock price four weeks before the acquisition announcement, divided by the latter and multiplied by one hundred. Values beyond the range of  $[0, 200]$  are winsorized as in Officer (2003). The mean premium is 45%, with a median of 36%. Note that some offer prices from the SDC data are missing, usually due to the existence of contingent value rights (CVRs), which are rights given to stockholders that entitle them to additional compensation based on specific events or criteria. For all the deal-level tests, we require the deal premium to be non-missing and we exclude deals with multiple bidders since our outcome variables are not correctly defined for multiple bidder contests (e.g., a given bid can be coded as withdrawn even if the target is actually sold to a different bidder).

To measure announcement returns, we use the standard event study method to calculate the cumulative abnormal return (CAR). The primary analysis includes two types of CAR. The first is the CAR until completion, which is based on the event window  $[-2, \text{completion}]$ , with day 0 representing the announcement date and completion denoting the M&A deal's completion date. The average target completion CAR is 28%. The CARs are calculated based on the market-adjusted model.

Summary statistics are provided in Table 2 and are consistent with prior M&A literature. Appendix B provides definitions for all the variables used in the analysis. To address potential outliers, all CARs and continuous variables are winsorized at the 1st and 99th percentiles. *Hostile* is a dummy variable that takes the value of one if the deal is classified as hostile, unsolicited, or neutral (vis-a-vis friendly), which represents 4.3% of the sample. *Withdrawn* is a dummy variable that equals one if the deal is withdrawn and zero if complete. Within our sample, just over 10% of the deals were withdrawn. Additionally, 15.9% of the deals are classified as *tender* offers, while 12.2% are categorized as *cross-border* deals.

## 4.2 State of Headquarter

Unlike corporate law (such as Business Combination laws) that follows the regulation in the state of incorporation, employment contracts are more relevant to the location where the employee works. We randomly selected and collected a sample of 80 firm-executive pairs from the SEC's

EDGAR system, where explicit employment contracts were available. These contracts were typically attached in the 8-K, 10-K, or 10-Q filing exhibits and contained information on the state of the governing law. Within this sample, 64 disclosed the same governing laws and headquarters location, representing 80% of the total sample. This is consistent with the results presented in Kini, Williams, and Yin (2021), who conclude that most contracts are governed by the law of the headquarters state. Therefore, we combine the M&A deal information with the state enforcement score on the historical headquarters state of the targets. The data on the historical headquarters location is collected from Gao, Leung, and Qiu (2021).

### 4.3 Research Design

To identify the causal impact of CEO post-employment risk on the market for corporate control, this study employs both difference-in-difference with multiple staggered treatments (Two-way Fixed Effect) and a stacked difference-in-difference (DID) research design, comparing how the outcome changes in states that undergo enforcement changes (potentially by one or more), relative to states where no enforcement change takes place. Specifically, we use the Two-Way Fixed Effect (TWFE) model to explore intertemporal variation in the NCA enforcement score as a natural experiment. In addition, to address the recent criticism on the validity of the TWFE model (e.g., Baker, Larcker, and Wang (2022)), we also employ a stacked DID approach as in Gormley and Matsa (2011).

### 4.4 Two-Way Fixed Effect

The main explanatory variable, *Score*, is introduced based on the state NCA enforcement level, which ranges from 0 to 12. For deal-level tests (management attitude, offer premium, target and combined CAR, and withdrawn rate), we perform the following specifications estimated by ordinary least squares (OLS):

$$y_{ijst} = \alpha + \beta \times \text{Score}_{st} + \theta \times X_{ist} + \theta X_{ijst} + \gamma_t + \delta_s + \nu_j + \varepsilon_{ijst} \quad (1)$$

where  $y_{ijst}$  is the outcome variables for deal  $i$  in industry  $j$  state  $s$  and year  $t$ ,  $\text{Score}_{s,t}$  represents the NCA enforcement score in state  $s$  and year  $t$ ,  $X_{ist}$  is a vector of controls, and  $\varepsilon_{ijst}$  is the error term.  $\gamma_t$ ,  $\delta_s$ , and  $\nu_j$  represents time, state, and industry fixed effect. Industry is defined based on

SIC industry divisions<sup>10</sup>.

In all tests, statistical inferences are based on standard errors corrected for heteroskedasticity and are double-clustered by state and year since  $Score_{s,t}$  is a state-year level variable. The main coefficient of interest is  $\beta$ , which identifies the effect of changes in NCA enforcement on M&A-related variables.

#### 4.5 Stacked Difference-in-Difference

The main criticism of the TWFE model for difference-in-difference designs with multiple staggered treatments is that previously treated units can serve as controls for future treatments. This is problematic when treatment effects are not immediate but rather take a number of periods to take force. Baker, Larcker, and Wang (2022) argue that the severity of the potential bias depends on the number of never-treated units in the sample, since these units are not contaminated. We note that the number of never-treated units in our sample is over 50%, and that the change in executives' behavior resulting from the change in NCA enforcement should be immediate. Thus, we expect the bias in the TWFE estimation (if any) to be minimal.

To fully eliminate the possibility of “contaminated” comparisons we implement the stacked DID approach. First, we only keep the “clean” treatments where no additional reforms occur within the four years prior to and four years after the specific reform (this also excludes reforms occurring within the last four years of our sample period as these cases do not have a complete post-treatment period). Following this criterion, sixteen reforms remain.<sup>11</sup> Then, for each reform that we keep, we create a stack  $c$  of treated and control observations with an eight-year window centered around the treatment year (four years before and four years after). Within each stack, we use all the not-yet-treated observations as the control group. Specifically, we perform the following regression:

$$y_{ijstc} = \alpha + \beta \times (\text{Treat}_s * \text{Post}_t) + \theta X_{ijst} + \gamma_{tc} + \delta_{sc} + \nu_{jc} + \varepsilon_{ijstc} \quad (2)$$

where  $\text{Treat}_s * \text{Post}_t$  is an indicator that equals 1 following an increase of the enforceability of the NCA,  $-1$  after a decrease of enforceability, and 0 otherwise. We have incorporated state-, year-, and

<sup>10</sup>For more information, see <https://www.osha.gov/data/sic-manual>

<sup>11</sup>The remaining reforms are: Florida (1990), Florida (1996), Georgia (2011), Idaho (2008), Kentucky (2006), Louisiana (1990), Massachusetts (1983), Michigan (1985), Montana (1986), Oregon (2008), South Carolina (2010), Texas (1989), Texas (1994), Virginia (1992), Wisconsin (2009), and Wyoming (1994).

industry-stack fixed effects. Similar to the TWFE method, the standard errors are double-clustered by state and year.

While in the TWFE approach the coefficient of interest shows an effect of a 1-point change in the NCA enforcement score on the outcome variable, in the stacked DID approach the same coefficient shows the effect of an average NCA enforcement reform. Considering that some of these reforms entail a change in the NCA enforcement score of more than one point, we expect a larger magnitude of the estimated effect in the stacked DID approach as compared to the TWFE approach.

## 5 Empirical Results

### 5.1 Takeover Probability

This section investigates the impact of NCA enforcement reforms on the overall activity of the takeover market. As NCA enforcement tightens, executives face an increased post-employment risk, resulting in higher personal costs. Consequently, we hypothesize that such tightening will influence the likelihood of firms being targeted for horizontal takeovers. Here, horizontal refers to cases where the acquirer and target belong to the same industry, as defined by the 2-digit SIC code. This shared industry classification results in a heightened similarity of business and executive functions between the two entities. Consequently, this heightened similarity increases the likelihood of job displacement for the target firm. Conversely, unrelated mergers have a higher probability of retaining existing management to ensure smooth and continuous firm operations. Target CEOs may counter potential takeovers by implementing anti-takeover defenses or withholding information sharing with the acquirer, effectively acting as barriers to takeover attempts.

To test this hypothesis, we employ firm-level takeover incidence to assess the impact of changes in NCA enforceability on the likelihood of horizontal takeovers. In the following sections, we concentrate all of our analysis on the horizontal deals. The sample spans all Compustat firm-year observations from the period 1981 to 2013. Observations following the year in which a firm becomes a takeover target for the first time are excluded, as the deal may take a long time to execute and the firm may continue to report its financial after the announcement date. In addition, we eliminate firms with a market valuation below \$1 million USD, aligning with our exclusion criterion for takeover deals below the \$1 million threshold. The variable *Horizontal Takeover Dummy<sub>ist</sub>* takes a

value of one if firm  $i$  in state  $s$  becomes the target of any horizontal deal within a given year. Table 3 presents the results.

In the first two columns, we employ the TWFE method on the firm-level analysis. Column 1 reports the baseline estimate of the effect of the NCA Enforcement Score ( $Score$ ) on the probability of a firm becoming a target. The main explanatory variable,  $Score$ , has a negative effect on the probability of a specific firm being targeted. The coefficient is -0.0008, significant at the 5% level. This indicates that, following a one-point increase in state enforcement  $Score$ , the likelihood of a firm being targeted decreases by 0.08 percentage points, indicating a 7.55% decrease in the likelihood of being targeted by the same industry acquirers, compared to the average takeover probability of 1.06%. In column 2, we incorporate state and firm-level controls, namely *GDP growth*, *Business Combination laws*, *Inevitable Disclosure Doctrine (IDD)*<sup>12</sup>, *in-state competition*<sup>13</sup>, *return on assets (ROA)*, *firm size*, *leverage*, *market-to-book ratio*, *dual-class shares indicator*, and *cash position*. The inclusion of these controls increases the economic magnitude of the coefficient to -0.0011, and now statistically significant at the 1% level.

In columns 3 and 4, we further examine the effect of NCAs on the takeover probability using the stacked DID method. Consistent with the TWFE results, the findings reveal a significant negative relationship between the reforms that tighten NCA enforcement and the takeover likelihood. In column 3, an average reform is associated with a 0.38 percentage point decrease in takeover probability, significant at the 1% level, which represents a 35.85% decrease relative to the unconditional sample mean. In column 4, we include firm- and state-level controls, and the coefficient further decreases to -0.0045. These findings demonstrate that increases in NCA enforcement are associated with reductions in takeover likelihood.

## 5.2 Deal Attitude

So far we have demonstrated that stricter NCA enforcement decreases the likelihood of being targeted in a horizontal deal. For those takeover attempts that do materialize, we investigate whether NCA enforcement has an impact on deal attitude. Given the higher job displacement probabil-

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<sup>12</sup>IDD is a legal doctrine positing that a former employee may be enjoined from engaging in employment with a competing firm if the employee would inevitably divulge the originating firm's confidential trade secrets.

<sup>13</sup>Following Garmaise (2011), in-state competition is defined as the fraction of total industry sales generated by in-state competitors, excluding the firm itself.



ity associated with horizontal takeovers, executives may become more averse to such transactions, leading to a more negative (hostile) attitude towards the deal. By exploring this dynamic, we aim to shed light on how changes in NCA enforcement influence the overall deal landscape and the decision-making process of target firms. The dependent variable *Hostile Dummy* is a binary variable that takes a value of one if the deal is classified as hostile, unsolicited, or neutral (as opposed to friendly) by SDC. Deals where the attitude is labeled as not applicable are excluded from the sample. Table 4 presents the results.

Columns 1 and 2 present the TWFE results. The baseline result in column 1 indicates a marginally insignificant positive relationship. After adding controls in column 2, the estimated coefficient is 0.0229, which is statistically significant at the 10% level. Specifically, a one-point increase in the NCA enforcement score is associated with a 2.29 percentage-point increase in the likelihood of non-friendly deal attitude. This effect is economically large, representing a 51.11% increase relative to the average hostile probability of approx. 4%. In columns 3 and 4 we present the stacked DID estimation results. In column 3, the baseline coefficient increases to 0.096, and further rises to 0.1084 after incorporating control variables in column 4, representing an effect equal to a 242% increase relative to the unconditional mean. Even though the statistical strength of this result may be limited, the substantial economic impact supports the hypothesis that the increased cost of executive turnover leads to greater reluctance among executives to leave their positions, thus fostering a less friendly attitude toward M&A deals.

### 5.3 Takeover Premiums, Target Gains, and Acquirer Gains

In this section, we further examine the effect of NCA enforcement changes on the takeover premiums and target firm cumulative abnormal returns (CAR). Target executives subject to stricter NCA enforcement may bargain more aggressively with their bidders, thereby increasing acquisition premiums. This enhanced bargaining power arises for several reasons. Firstly, stricter NCAs heighten the career concerns of executives, as they face an elevated cost of losing their jobs following an acquisition. To partially offset potential personal losses, target CEOs may demand a higher takeover premium. By doing so, they aim to reduce the acquirer's willingness to proceed with the deal and also seek to benefit more from the subsequent increase in the value of their own shares. Table 5 presents the estimation results for the offer premiums.

Column 1 presents the baseline estimate of the effect of NCA enforcement changes on takeover premiums using the TWFE method, where the coefficient indicates that, on average, a one-point increase in NCA enforcement *Score* is associated with an increase in the offered premium of approximately 2.11 percentage points, representing a 4.76% increase compared to the mean premium value, statistically significant at the 5% level. Column 2 adds deal-level, target-level, and state-level control variables to the specification. The estimated coefficient increases to 3.23, meaning that takeover premiums increase by approx. 7% in response to a one-point increase in the NCA enforcement score.

Columns 3 and 4 provide the stacked DID estimates. As is the case with all our prior tests, the magnitude of the estimated effect in the stacked DID approach is higher. An average reform is associated with an 11-13 percentage points increase in takeover premiums, which is highly economically significant. Overall, our findings in the section provide strong evidence supporting the hypothesis that CEOs in states that tighten NCA enforcement demand a higher premium for takeovers, leading to more favorable terms for target shareholders during takeover negotiations.

To corroborate the results on takeover premiums, we also consider target firm abnormal returns. To that end, we define *Target CAR*  $[-2, completion]$ , which is the market-adjusted return of the target firm stock over the period from two days before the announcement of the deal to the completion day of the deal (naturally, these tests are limited to completed deals). Columns 1 to 4 of Table 6 present the results. Our findings here mirror those for takeover premiums in both magnitude and statistical significance.

For completeness, we also examine acquiring firm abnormal returns, *Acquirer CAR*  $[-2, completion]$ , defined the same way. Columns 5 to 8 of Table 6 present the results, showing that NCA enforcement changes are not associated with changes in acquiring firm abnormal returns. Note that the sample size in these latter tests is further reduced since some of the acquirers in our sample are foreign firms and do not have stock price data on CRSP.

## 5.4 Deal Withdrawal Rate

Our final outcome of interest is whether an announced deal is completed or withdrawn. We have shown that, as NCA enforcement tightens, deals are more likely to be hostile and entail higher takeover premiums. This negative sentiment may manifest in a higher deal withdrawal rate, as

target management may be more inclined to resist the proposed takeover and bidders are put off by higher required premiums. We therefore examine the effects of NCA enforcement changes on the deal withdrawal rate.

The dependent variable *Withdrawn Dummy* is a binary variable that equals one if the deal is withdrawn and zero if it is completed. Table 6 presents the results. Columns 1 and 2 report the TWFE estimates. The coefficient in column 1 is 0.0367 and significant at the 1% level, indicating that a one-point increase in the NCA enforcement score is associated with a 3.67 percentage point increase in the incidence of deal withdrawal. Considering that the unconditional average withdrawal rate is 10%, the estimated effect is a sizeable 35.7% increase. Column 2 repeats the analysis with deal-level, target-level, and state-level control variables included and shows that the coefficient increases to 0.0420 – a 4.2 percentage point increase for a one-point increase in the NCA enforcement score.

Columns 3 and 4 repeat the analysis using the stacked DID approach. Consistent with all prior results, we estimate a larger effect in the stacked DID regressions: an average NCA enforcement reform is associated with an 8-9 percentage point increase in the likelihood of deal withdrawal. Overall, the results of these tests suggest that as NCA enforceability tightens, target firms are more likely to withdraw from proposed M&A deals, likely due to heightened resistance from executives concerned about job displacement risks.

## 6 Further Tests Aimed at Establishing the Channel

### 6.1 Non-Horizontal Deals as Placebo

In our analysis so far we have focused on horizontal takeovers where the acquirer and the target come from the same general industry. Since operational overlap and acquirer’s familiarity with the target’s business are higher in such deals, the likelihood of executive redundancies at the target is also higher. To the extent that diversifying (non-horizontal) deals pose a lower threat of dismissal for executives, we would expect executives to exhibit lower aversion to such takeovers, if any. Therefore, if our findings above are indeed driven by executive career concerns due to NCAs, the effects of NCA enforcement changes on diversifying deals should be less pronounced or not present at all. If, on the other hand, our findings are driven by some omitted variable correlated

with both the timing of NCA enforcement changes and takeover outcomes, we would expect the same findings among diversifying deals.

Table 8 repeats all of our tests above on the “holdout” sample of non-horizontal takeovers (those where the 2-digit SIC code of the target is different from that of the acquirer). For every outcome variable and every specification we find no significant effect of NCA enforcement changes. We believe this is consistent with executive self-interest as the channel behind our main results, and that this raises the bar for any alternative explanation of our findings (i.e. any such alternative explanation would have to predict a differential effect for horizontal versus diversifying deals).

## 6.2 NCA Enforcement Changes and Concurrent Firm Fundamentals

In our final set of tests we return to the overall panel of firms and consider whether changes to NCA enforcement coincide with changes in key firm fundamentals. If this were the case, this could signify changes in the characteristics of firms available for takeovers and could potentially explain some of the changes to deal outcomes that we document. To that end, we relate NCA changes to contemporaneous book-to-market ratio, profitability (ROA), size, leverage, and cash holdings of all firms in the corresponding states. Table 9 shows that none of the firm characteristics we consider is correlated with NCA enforcement changes. This gives us comfort that our main findings above are not driven by a change in the composition of firms available for takeover and that executives’ self-interest is the likely driving force behind the associations we document.

## 7 Conclusion

We examine the impact of executive career concerns on the market for corporate control, focusing on the role of non-compete agreements in M&A deals. We hypothesize that stricter enforcement of NCAs imposes greater personal costs on executives, making them more averse to the type of takeovers that can result in their displacement. Using changes in NCA enforceability across the U.S. states over the period from 1981 to 2013, we show that increased enforceability results in decreases in the probability that a firm will be taken over by firms within the same industry.

Further evidence of aversion/resistance to takeovers can be gleaned from the characteristics and outcomes of takeover attempts that do materialize. In particular, greater enforceability of NCAs

is associated with more hostile deal attitude. Stricter enforcement of NCAs is also associated with significantly higher takeover premiums. In addition, more enforceable NCAs are associated with significantly higher withdrawal rates for announced deals. Consistent with the above effects being driven by executive career concerns, none of these associations hold for a sample of non-horizontal takeovers where the likelihood of executive job losses is smaller.

Overall, our findings suggest that executive career concerns are a significant driver of the market for corporate control. While the use of NCAs might benefit firms by protecting their proprietary information and encouraging investment in knowledge assets, our analysis suggests that an unintended consequence of the use of these agreements for executives is a heightening of agency conflicts when it comes to takeovers. More broadly, our results contribute to the body of evidence on the benefits and costs of this type of contractual agreement for the economy. Our findings help inform the debate on the current Federal Trade Commission proposal to institute a national ban on the use of NCAs. Our analysis would suggest that such a ban might make the takeover market more vibrant.

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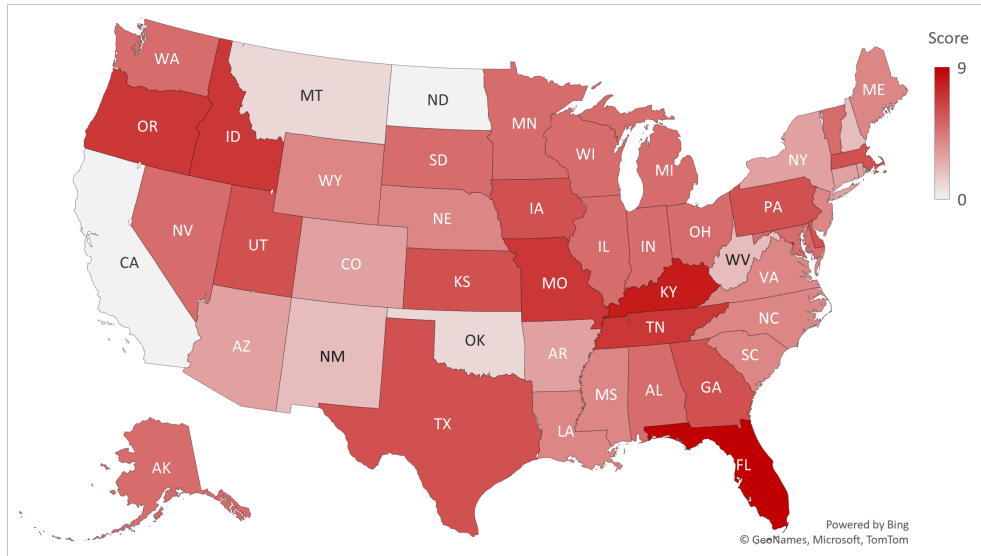
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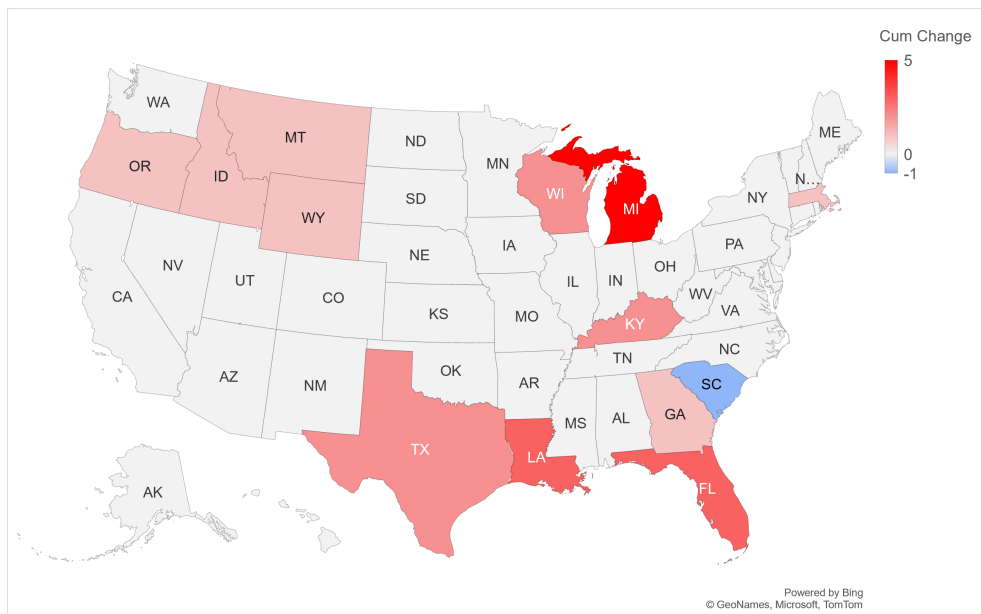


**Figure 1A: NCA Score in 2013**



**Figure 1A:** This figure shows the NCA enforcement level across the U.S. as of 2013. The potential scores range from 0 to 12; the highest score observed in our sample is 9.

**Figure 1B: Change in Score from 1981 - 2013**



**Figure 1B:** This figure shows the cumulative changes in state-level NCA enforcement scores from 1981 to 2013. The change for a given state is computed by subtracting the NCA enforcement score of 1981 from that of 2013.

**Table 1: NCA Enforcement Score Changes**

State	Year	Score Change	State	Year	Score Change
Colorado	2011	2 to 3	Montana	1986	1 to 2
Florida	1992	6 to 7	Montana	2012	2 to 1
Florida	1996	7 to 9	Oregon	2008	6 to 7
Georgia	2011	5 to 6	South Carolina	2010	5 to 4
Idaho	2008	6 to 7	Texas	1989	4 to 5
Illinois	2012	5 to 6	Texas	1994	5 to 3
Illinois	2013	6 to 5	Texas	2006	3 to 4
Kentucky	2006	6 to 8	Texas	2009	4 to 5
Louisiana	1990	1 to 4	Texas	2012	5 to 6
Louisiana	2001	4 to 0	Virginia	1992	4 to 3
Louisiana	2003	0 to 4	Virginia	2013	3 to 4
Massachusetts	1983	5 to 6	Wisconsin	2009	3 to 5
Michigan	1985	0 to 5	Wyoming	1994	3 to 4

**Table 1:** This table presents the change in state-level Non-Compete Enforcement Score over the period from 1981 to 2013 following the twelve questions proposed by Malsberger, Brock, and Pedowitz (2002). Reforms are collected from Bird and Knopf (2015), Ysmailov (2022), Garmaise (2011), Kini, Williams, and Yin (2021), and Jeffers (2023). If the reform took place in the last three months of the calendar year, we would assign the treatment year as the following year. *Score* ranges from 0 to 9, with 9 being the strictest enforcement state, and 0 means not enforceable.

**Table 2: Sample Descriptive Statistics**

Variables	Mean	SD	Min	Median	Max	N
<i>Deal characteristics</i>						
Premium	44.398	38.448	0.000	35.710	200.000	2,793
Target CAR [-2, completion]	27.926	31.388	-46.312	24.172	136.731	2,409
Hostile Dummy	0.044	0.206	0.000	0.000	1.000	2,787
Withdrawn Dummy	0.103	0.304	0.000	0.000	1.000	2,793
Cash Offer Dummy	0.284	0.451	0.000	0.000	1.000	2,793
Tender Offer Dummy	0.159	0.366	0.000	0.000	1.000	2,793
Cross-Border Dummy	0.122	0.327	0.000	0.000	1.000	2,793
<i>Target characteristics</i>						
ROA	0.032	0.206	-1.083	0.051	0.365	2,773
Size(log)	5.176	1.795	0.139	5.067	11.035	2,693
Leverage	0.196	0.201	0.000	0.138	0.901	2,783
Book-to-Market	0.664	0.568	-0.311	0.543	3.413	2,693
Cash Position	0.183	0.224	0.000	0.073	0.873	2,773
Dual Class Share	0.033	0.179	0.000	0.000	1.000	2,738
<i>State level characteristics</i>						
NCA Enforcement Score	3.805	2.326	0.000	4.000	9.000	2,793
In-state Competition	0.094	0.153	0.000	0.035	0.915	2,766
GDP Growth	0.059	0.029	-0.054	0.058	0.187	2,776
Business Combination	0.841	0.366	0.000	1.000	1.000	2,793
IDD	0.473	0.499	0.000	0.000	1.000	2,793

This table presents summary statistics for the main variables used in the paper. The sample contains all U.S. target, public-to-public horizontal M&A deals during the period 1981 to 2013 from Thomson Reuters SDC. The sample only includes horizontal deals, where the target and acquirers share the same two-digit SIC Codes. *Premium* is winsorized to be between 0 and 200. All other continuous variables are winsorized at the 1st and 99th percentiles. Variables are defined in Appendix B.

**Table 3: NCAs and Takeover Activity**

	TWFE		Stacked DID	
	(1)	(2)	(3)	(4)
Score	-0.0008** [-2.17]	-0.0011*** [-5.61]		
Treated×Post			-0.0038*** [-2.97]	-0.0045*** [-3.46]
ROA		0.0001 [0.10]		0.0014* [1.79]
Size		0.0007** [2.17]		0.0005** [2.27]
Leverage		-0.0041*** [-2.85]		-0.0016 [-1.13]
Book-to-Market		0.0013** [2.47]		0.0017*** [4.50]
Cash Position		0.0028 [0.58]		0.0003 [0.06]
Dual Class Share		-0.0101*** [-4.81]		-0.0082*** [-4.62]
GDP Growth		0.0240* [1.71]		0.0305 [1.39]
In-state Competition		0.0039 [1.01]		0.0037 [1.10]
Business Combination		-0.0015 [-0.72]		-0.0028 [-1.37]
IDD		-0.0011 [-0.89]		-0.0006 [-0.35]
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes
Adjusted R-Squared	0.0075	0.0080	0.0071	0.0076
N	155,235	155,235	493,121	493,121

This table presents the estimates of the effect of NCA law amendments on M&A the takeover activity. The sample includes all Compustat firm-year observations from 1981-2013. The dependent variable *Horizontal Takeover Dummy* is a dummy variable that equals one if the firm was targeted by the acquirer from the same industry defined by the 2-digit SIC code within that specific year. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. *N* denotes the number of observations.

Table 4: NCAs and Deal Attitude

	TWFE		Stacked DID	
	(1)	(2)	(3)	(4)
Score	0.0188 [1.52]	0.0229* [1.70]		
Treated×Post			0.0960 [1.68]	0.1084* [1.92]
Cash Offer		0.0388*** [3.30]		0.0405* [1.91]
Tender Offer		0.0348 [1.52]		0.0371 [1.23]
Cross-Border		-0.0231 [-1.39]		-0.0093 [-0.37]
ROA		0.0201 [1.06]		-0.0022 [-0.06]
Size		0.0087** [2.52]		0.0103* [2.04]
Leverage		-0.0263 [-0.78]		-0.0683 [-1.06]
Book-to-Market		0.0200** [2.25]		0.0204 [1.46]
Cash Position		-0.0633 [-1.59]		-0.1156* [-1.71]
Dual Class Share		-0.0171 [-0.79]		-0.0304 [-0.76]
GDP Growth		0.1647 [1.02]		0.4850 [1.41]
In-state Competition		0.0116 [0.33]		0.1001** [2.11]
Business Combination		0.0127 [0.97]		0.0065 [0.35]
IDD		0.0188 [1.19]		0.0542 [1.12]
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes
Adjusted R-Squared	0.0322	0.0510	0.0392	0.0692
N	2,610	2,610	5,869	5,869

**Table 4 notes:** This table presents the effect of change in NCA enforcement level on M&A management attitude. The sample contains all U.S. target, public-to-public horizontal M&A deals during the period 1981 to 2013 from Thomson Reuters SDC. *Hostile Dummy* is a dummy equal to one if the deal is Hostile, Unsolicited, or Neutral. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. *N* denotes the number of observations.

Table 5: NCAs and Offer Premiums

	TWFE		Stacked DID	
	(1)	(2)	(3)	(4)
Score	2.1122** [2.44]	3.2338** [2.54]		
Treated×Post			11.2700** [2.50]	12.9760** [2.59]
Cash Offer		-0.3030 [-0.16]		0.2374 [0.09]
Tender Offer		9.0029*** [4.22]		8.6445** [2.66]
Cross-Border		0.3944 [0.17]		4.3096 [1.20]
ROA		-7.9164 [-0.82]		-3.0884 [-0.26]
Size		-2.6656*** [-6.17]		-3.3770*** [-5.86]
Leverage		14.8607*** [2.99]		19.9811*** [3.63]
Book-to-Market		11.3845*** [11.51]		12.2887*** [4.05]
Cash Position		11.0918** [2.45]		11.3589*** [3.17]
Dual Class Share		3.4200 [0.65]		10.0675 [1.19]
GDP Growth		15.0231 [1.03]		-33.6888 [-0.52]
In-state Competition		-9.4152 [-1.38]		-6.6987 [-0.67]
Business Combination		-3.3351* [-1.72]		-4.2886** [-2.53]
IDD		1.2298 [0.51]		6.6577 [1.28]
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes
Adjusted R-Squared	0.0501	0.0988	0.0694	0.1295
N	2,616	2,616	5,887	5,887

**Table 5 notes:** This table presents the estimates of the effect of NCA law amendments on M&A offer premiums. The sample contains all U.S. target, public-to-public horizontal M&A deals during the period 1981 to 2013 from Thomson Reuters SDC. *Premium* represents the SDC M&A deal premium. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. *N* denotes the number of observations.



**Table 6: Target & Acquirer CARs**

	Target CAR [-2, Completion]				Acquirer CAR [-2, Completion]			
	TWFE		Stacked DID		TWFE		Stacked DID	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Score	1.7904*	3.2543***			0.1789	0.1115		
	[1.81]	[2.77]			[0.16]	[0.10]		
Treated×Post			16.8812**	19.3233***			-1.9000	-1.8212
			[2.70]	[3.14]			[-0.51]	[-0.37]
Firm Controls		Yes		Yes		Yes		Yes
Deal Controls		Yes		Yes		Yes		Yes
State Controls		Yes		Yes		Yes		Yes
State FE	Yes	Yes			Yes	Yes		
Year FE	Yes	Yes			Yes	Yes		
Industry FE	Yes	Yes			Yes	Yes		
Stack×State FE			Yes	Yes			Yes	Yes
Stack×Year FE			Yes	Yes			Yes	Yes
Stack×Industry FE			Yes	Yes			Yes	Yes
Adjusted R-Squared	0.0686	0.1213	0.0858	0.1463	0.0198	0.0275	0.0107	0.0368
N	2,329	2,329	5,097	5,097	1,883	1,883	4,047	4,047

This table presents the estimates of the effect of change in NCA enforcement level on the target and acquirer CARs. The sample contains all U.S. target, public-to-public horizontal M&A deals during the period 1981 to 2013 from Thomson Reuters SDC. Firm controls include *ROA*, *Size*, *Leverage*, *Book-to-Market*, *Dual-class share dummy*, and *Cash Position*. Deal Controls include *Cash offer*, *Tender offer*, and *Cross-Border Dummy*. State-level controls include *GDP Growth*, *In-State Competition*, *Business Combination Law*, and *IDD*. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. *N* denotes the number of observations.

Table 7: NCAs and Deal Withdrawal

	TWFE		Stacked DID	
	(1)	(2)	(3)	(4)
Score	0.0367*** [6.38]	0.0420*** [9.51]		
Treated×Post			0.0858*** [3.91]	0.0939** [2.39]
Cash Offer		0.0366* [1.76]		0.0181 [0.71]
Tender Offer		-0.0880*** [-3.40]		-0.0929*** [-3.77]
Cross-Border		-0.0364* [-1.95]		-0.0346 [-1.51]
ROA		0.0512 [1.32]		0.0620 [1.34]
Size		-0.0027 [-0.84]		-0.0074 [-1.63]
Leverage		0.0065 [0.15]		-0.0140 [-0.18]
Book-to-Market		0.0336* [1.82]		0.0132 [0.87]
Cash Position		-0.0325 [-0.82]		-0.1029 [-1.50]
Dual Class Share		-0.0190 [-0.66]		-0.0331 [-0.76]
GDP Growth		0.0129 [0.06]		-0.2591 [-0.57]
In-state Competition		0.0672 [1.39]		0.1174 [1.17]
Business Combination		0.0546* [2.00]		0.0625* [1.81]
IDD		0.0245 [0.95]		0.0071 [0.10]
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes
Adjusted R-Squared	0.0338	0.0487	0.0529	0.0717
N	2,616	2,616	5,887	5,887

**Table 7 notes:** This table presents the effect of change in NCA enforcement level on M&A deal withdrawn rate. The sample contains all U.S. target, public-to-public horizontal M&A deals during the period 1981 to 2013 from Thomson Reuters SDC. *Premium* represents the SDC M&A deal premium. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively. *N* denotes the number of observations.

**Table 8: Unrelated Deals**

	TWFE		Stacked DID	
Panel A: Offer Premium				
Score	-1.5156 [-0.50]	-1.0206 [-0.34]		
Treated×Post			1.1638 [0.24]	-0.2635 [-0.03]
Panel B: Hostile Dummy				
Score	-0.0283 [-1.22]	-0.0303 [-1.25]		
Treated×Post			-0.0165 [-0.41]	-0.0179 [-0.40]
Panel C: Withdrawn Dummy				
Score	-0.0129 [-0.79]	-0.0143 [-0.58]		
Treated×Post			0.0479 [1.18]	0.0332 [0.60]
Panel D: Takeover Dummy				
Score	0.0003 [0.68]	0.0001 [0.13]		
Treated×Post			-0.0019* [-1.94]	-0.0019 [-1.45]
Firm Controls		Yes		Yes
Deal Controls (if applicable)		Yes		Yes
State Controls		Yes		Yes
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes

This table presents the estimates of the effect of change in NCA enforcement level on the unrelated takeover offer premium, deal attitude, withdrawn likelihood, and takeover likelihood in panels A, B, C, and D, respectively. The sample contains all U.S. target, public-to-public horizontal M&A deals from 1981 to 2013 from Thomson Reuters SDC for deal-level test, and all Compustat firm-year observations for firm-level test. Firm controls include *ROA*, *Size*, *Leverage*, *Book-to-Market*, *Dual-class share dummy*, and *Cash Position*. Deal Controls include *Cash offer*, *Tender offer*, and *Cross-Border Dummy*. State-level controls include *GDP Growth*, *In-State Competition*, *Business Combination Law*, and *IDD*. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

**Table 9: NCAs and Firm Fundamentals**

	TWFE		Stacked DID	
	(1)	(2)	(3)	(4)
<b>Panel A: Book-to-Market</b>				
Score	-0.0068 [-0.47]	-0.0113 [-0.92]		
Treated×Post			-0.0271 [-1.50]	-0.0251 [-1.59]
<b>Panel B: ROA</b>				
Score	-0.0004 [-0.19]	0.0001 [0.04]		
Treated×Post			-0.0001 [-0.02]	0.0004 [0.10]
<b>Panel C: Size</b>				
Score	0.0300** [2.48]	0.0259 [1.56]		
Treated×Post			-0.0288 [-0.67]	-0.0127 [-0.25]
<b>Panel D: Leverage</b>				
Score	0.0036 [1.11]	0.0047 [1.53]		
Treated×Post			-0.0033 [-0.37]	-0.0014 [-0.16]
<b>Panel E: Cash Position</b>				
Score	-0.0074 [-1.63]	-0.0074 [-1.26]		
Treated×Post			-0.0021 [-0.33]	-0.0017 [-0.27]
State Controls		Yes		Yes
State FE	Yes	Yes		
Year FE	Yes	Yes		
Industry FE	Yes	Yes		
Stack×State FE			Yes	Yes
Stack×Year FE			Yes	Yes
Stack×Industry FE			Yes	Yes

This table presents the estimates of the effect of change in NCA enforcement level on the firm's fundamentals within that year. The sample includes all Compustat firm-year observations from 1981-2013. *Score* represents the NCA enforcement level. Variables are defined in Appendix B. State fixed effect is defined based on the firm's state of headquarters, and industry fixed effect is defined based on SIC industry divisions. Standard errors are double-clustered by state and year (t-statistics in parentheses). Symbols \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

## 8 Appendix

### Appendix A1

Appendix A1 provides two Non-Compete Agreement examples.

#### NCA Example 1

Employee agrees and acknowledges that, during the Restrictive Period, he or she will not, directly or indirectly, for himself, or on behalf of others, as an individual on Employee's own account, or as a partner, joint venturer, employee, agent, salesman, contractor, officer, director or otherwise, for him/herself or any other person, partnership, firm, corporation, association or other legal entity, enter into, engage in, accept employment from, or provide any services to, or for, any business that is in the Business of the Company, or engage in any activity that is competitive with the Company, in the Restricted Area. The parties agree that this non-competition provision is intended to cover situations where a future business opportunity in which the Employee is engaged or a future employer of the Employee is selling the same or similar products and services in a Business which may compete with the Company's products and services to Customers and Prospective Customers of the Company in the Restricted Area. This provision shall not cover future business opportunities or employers of the Employee that sell different types of products or services in the Restricted Area so long as such future business opportunities or employers are not in the Business of the Company.

**Term.** Employee agree(s) that the term of this Agreement is effective upon the Employee's first day of employment with the Company and shall survive and continue to be in force and effect for two years following the termination of any employment relationship between the Parties, whether termination is by the Company with or without cause, wrongful discharge, or for any other reason whatsoever, or by the Employee unless an exception is specifically provided in certain situations in any such Restrictive Covenants

**"Restricted Area"** shall include any geographical location anywhere in the United States. If the Restricted Area specified in this Agreement should be judged unreasonable in any proceeding, then the Restricted Area shall be reduced so that the restrictions may be enforced as is judged to be reasonable.

## NCA Example 2

I (the employee) acknowledge that my specialized skills, abilities and contacts are important to the success of the Company, and agree that I shall faithfully and strictly adhere to the terms hereof. I acknowledge that by reason of the character and nature of the Company's business activities and operations, and further by reason of the scope of the territory in which I perform and will perform the Services (as defined below), in order to protect the Company's legitimate business interests it is necessary for me to agree not to engage in certain specified activities in such territory at any time during my employment and for a period of time thereafter.

Therefore, at all times during my employment with the Company, and for a period of **two (2) years** thereafter, I will not, directly or indirectly, within the Territory (as defined below), (a) for myself, (b) as a consultant, manager, supervisor, employee or owner of a Competing Business (as defined below), or (c) as an independent contractor for a Competing Business, engage in any business in which I provide services which are the same as or substantially similar to the Services. **"Competing Business"** shall mean any person, business or entity who or which sells, markets or distributes products and/or sells, furnishes or provides services substantially the same as those sold, marketed, distributed, furnished or supplied by the Company during the term of my employment with the Company.

**"Territory"** shall mean the geographic area encompassed within a sixty (60) mile radius of the Company's office at (Location). I agree that the Company and I may amend the definition of "Territory" from and after the date hereof to reflect any significant contraction or expansion of the geographical area in which I actually perform the Services.

**"Services"** shall mean the manager of the operations department for warehouse lending.

## Appendix A2: NCA Score Measurement Questions and Thresholds

The following questions are the original questions and thresholds from Malsberger, Brock, and Pedowitz (2002), these questions are used to determine the level of NCA enforcement in a given state. Each question will be assigned 1 point if the answer is above the threshold.

**Question 1.** Is there a state statute of general application that governs the enforceability of covenants not to compete?

**Threshold 1.** States that enforce noncompetition agreements outside a sale-of-business context receive a score of 1.

**Question 2.** What is an employer's protectable interest and how is it defined?

**Threshold 2.** States in which the employer can prevent the employee from future independent dealings with all the firm's customers, not merely with the customers with whom the employee had direct contact, receive a score of 1.

**Question 3.** What must the plaintiff be able to show to prove the existence of an enforceable covenant not to compete?

**Threshold 3.** Laws that place greater weight on the interests of the firm relative to those of the former employee are above the threshold. For example, a law that requires that the contract be reasonably protective of the firm's business interests and only meet the condition of not being unreasonably injurious to the employee's interests would receive a score of 1.

**Question 4.** Does the signing of a covenant not to compete at the inception of the employment relationship provide sufficient consideration to support the covenant?

**Threshold 4.** States for which the answer to Question 4 is clearly "Yes" are above the threshold.

**Question 5.** Will a change in the terms and conditions of employment provide sufficient consideration to support a covenant not to compete entered into after the employment relationship has begun?

**Threshold 5.** States for which the answer to Question 5 is clearly "Yes" are above the threshold.

**Question 6.** Will continued employment provide sufficient consideration to support a covenant not to compete entered into after the employment relationship has begun?



**Threshold 6.** States for which the answer to Question 6 is clearly "Yes" are above the threshold.

**Question 7.** What factors will the court consider in determining whether time and geographic restrictions in the covenant are reasonable?

**Threshold 7.** Jurisdictions in which courts are instructed not to consider economic or other hardships faced by the employee are above the threshold.

**Question 8.** Who has the burden of proving the reasonableness or unreasonableness of the covenant not to compete?

**Threshold 8.** States in which the burden of proof is clearly placed on the employee are above the threshold.

**Question 9.** What type of time or geographic restrictions has the court found to be reasonable? Unreasonable?

**Threshold 9.** Jurisdictions in which 3-year statewide restrictions have been upheld receive a score of 1.

**Question 10.** If the restrictions in the covenant not to compete are unenforceable because they are overbroad, are the courts permitted to modify the covenant to make the restrictions more narrow and to make the covenants enforceable?

**Threshold 10.** States for which the answer to Question 10 is clearly "Yes" are above the threshold.

**Question 11.** If the employer terminates the employment relationship, is the covenant enforceable?

**Threshold 11.** States for which the answer to Question 11 is clearly "Yes" are above the threshold.

**Question 12.** What damages may an employer recover and from whom for breach of a covenant not to compete?

**Threshold 12.** If, in addition to lost profits, there is a potential for punitive damages against the former employee, the state receives a score of 1 . States that explicitly exclude consideration of the reasonableness of the contract from the calculation of damages are also above the threshold.

## Appendix B: Variables Definition

Variable	Definition
Acquirer CAR [-2, completion]	Acquirer firm cumulative abnormal return calculated based on the period from two days before the announcement date to the completion date. Abnormal returns are calculated using the market-adjusted model relative to value-weighted market return.
Business combination	Dummy equal to one if the firm's state of incorporation (incorp) has implemented the business combination law, zero otherwise. The firm's state of incorporation is collected from the Compustat dataset. Business combination law data is collected from Karpoff and Wittry (2018).
Target CAR [-2, completion]	Target firm cumulative abnormal return calculated based on the period from two days before the announcement to the completion date. Abnormal returns are calculated using the market-adjusted model relative to value-weighted market return.
Book-to-market	Book value of equity (ceq) divided by the book value of common equity (csho x prcc_f) as of the most recent fiscal year end from Compustat.
Cash deal	Dummy equal to one if the deal is paid by all cash, zero otherwise.
Cash position	Cash and short-term investments (che) divided by total assets (at) as of the most recent fiscal year end from Compustat.
Cross-border dummy	Dummy equal to one if the bidder is outside of the U.S., zero otherwise.
Dual class share	Indicator variable taking the value of 1 for firms classified as dual class, and 0 otherwise. The firm is considered dual-class if at least one of the following is true: i) RismMetrics (formerly IRRC) classifies the firm as dual-class, ii) the firm is classified as dual-class in Jay Ritter's IPO database, iii) issues with identical six-digit CRSP CUSIPs but different two-digit extensions, iv) number of shares outstanding as of the fiscal year-end date from CRSP (shrout) and Compustat (csho) differ by more than 20%.
GDP growth	GDP growth rate in the firm's state of headquarters as of the most recent year-end.

<b>Variable</b>	<b>Definition</b>
Hostile dummy	Dummy equal to one if SDC reports deal attitude as hostile, unsolicited, or neutral, and zero otherwise. The value is set to missing for deals where attitude is stated as "not applicable".
In-state competition	The fraction of total SIC2 industry sales (excluding those of the firm itself) generated by in-state competitors.
Leverage	Total financial debt (dltt + dlc) divided by total assets (at) as of the most recent fiscal year end from Compustat.
Premium	Offer price relative to target stock price four weeks prior to deal announcement date reported by SDC.
ROA	Operating income before depreciation (oibdp) divided by total assets (at) as of the most recent fiscal year end from Compustat.
Score	State of Headquarter Non-compete Agreement enforcement score collected from Bird and Knopf (2015), Ysmailov (2022) for 1981 to 1992, Garmaise (2011) for 1992 to 2004, and Kini, Williams, and Yin (2021) for 2004 to 2014. The historical state of the headquarters' location is obtained from Gao, Leung, and Qiu (2021).
Size(log)	Log of the firm market calculated as annual closing share price (prcc_f) times number of common shares outstanding in US\$ million as of the most recent fiscal year end from Compustat.
Synergy	Weighted average of the target and the bidder cumulative abnormal returns. The weights are the market values of the target and the bidder four days prior to the announcement from CRSP.
Takeover dummy	Dummy equal to one if the firm is targeted by a bidder that is within the same SIC2 industry, zero otherwise.
Tender offer	Dummy equal to one if the deal is a tender offer, zero otherwise.
Withdrawn dummy	Dummy equal to one if the deal is withdrawn, and zero if complete.