NONCOMPETE AGREEMENTS:

HISTORY, DIFFUSION, AND CONSEQUENCES

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HISTORY, DIFFUSION, AND CONSEQUENCES

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Given NCAs' widespread use and substantial impact on both employees and the overall economy, it is worth investigating more closely the various implications of NCA use. There remain three big questions about NCAs. First, even though existing studies have focused on state law differences in NCA enforcement, not many have paid attention to how U.S. state laws governing NCAs have developed in different states. Second, in contrast to growing research on the consequences of NCAs, no studies have examined how NCAs have diffused or what caused organizations to use NCAs. Last, studies that investigated the consequences of NCAs rather relied on the proxy measure of different state NCA laws, but a dearth of research has looked into organizations and their employees that actually have NCAs.

In the following three chapters of my dissertation, I attempt to answers each of the above questions, respectively. I begin by introducing briefly the history of NCAs and variation in NCA enforceability across states with an emphasis on how existing research on NCAs have utilized such variation to investigate various phenomena related to organizational NCA use. I indicate limitations of prior studies and suggest ways to improve understanding of NCAs. Then, I move on to investigate what factors facilitated or slowed down the organizational NCA adoptions by Standard & Poor's 500 firms with their CEOs. I present predictors at different levels in and outside the organization. Finally, I examine changes to CEO compensation and tenure due to

having NCAs. The moderating effects of employment pathway of CEOs and state NCA laws are also discussed in detail.

BIOGRAPHICAL SKETCH

Kwan Seung Lee is a Ph.D. candidate in Industrial and Labor Relations at Cornell University. His research interests lie especially in recent employment practices that undermine employee rights. He investigates antecedents and consequences of such practices with an emphasis on the role of legal environments. Before pursuing his Ph.D., he did his LL.M. at Cornell Law School and has been a member of the District of Columbia Bar since 2012.

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PREFACE

Post-employment covenants not to compete, or noncompete agreements, have been increasingly used in the U.S. The noncompete agreement (NCA) is a contractual agreement between an employer and an employee which stipulates that the latter will not compete against the former by working for a competitor or setting up a new business of the same industry in designated geographic areas for a certain period after the termination of employment relationship (Malsberger, Carr, Pedowitz, & Tate, 2013).

Debate over NCAs has been only intensifying in both the academia and the public arena. Just as mandatory arbitration policies in organizations have sparked intense controversy over its harm to employees (Colvin, 2011), some scholars have shown the detrimental effect of NCAs (Garmaise, 2009; Marx, Singh, & Fleming, 2015; Marx, Strumsky, & Fleming, 2009; Samila & Sorenson, 2011; Stuart & Sorenson, 2003). They posit that the prevalent NCA use can seriously undermine employee freedom to move and pursue economic benefits and wage growth. In the era of knowledge economy, they also argue, high employee mobility is conducive to innovations, but NCAs that block the free flow of employees and knowledge will end up stifling creativity and, eventually, economic growth (Franco & Mitchell, 2008; Samila & Sorenson, 2011). By contrast, others argue that NCAs may be necessary to keep legitimate business interests like confidential information or trade secrets (Conti, 2014; Younge, Tong, & Fleming, 2015). Employers also claim that NCAs allow them to invest in R&D with more guarantee; without them, they cannot prevent their employees involved in new projects from leaving the firm and joining competitors (Samila & Sorenson, 2011).

Media and policymakers have also weighed in on this NCA issue. Recent media reports that introduced the stories of workers who made a career detour due to fear of retaliatory litigation have fueled public outrage against organizational impositions of NCAs upon employees (The Economist, 2018; The New York Times, 2017; Wall Street Journal, 2013). When it was revealed that Jimmy John's has widely used NCAs with their low-wage workers, attorneys general in New York and Illinois initiated investigations into this anticompetitive practice of Jimmy John's (Bishara & Starr, 2016). Two government reports also indicate that many NCAs are imposed even when they are not enforceable because state NCA laws do not allow such excessive NCAs (The White House, 2016; U.S. Department of Treasury, 2016). In response to concerns over such harm inflicted on U.S. employees, the Senate has proposed bills that limit or even abolish the use of NCAs (Bishara & Starr, 2016).

Given NCAs' widespread use and substantial impact on both employees and the overall economy, it is worth investigating more closely the various implications of NCA use. There remain three big questions about NCAs. First, even though existing studies have focused on state law differences in NCA enforcement, ironically not many have paid attention to how U.S. state laws governing NCAs have developed in different states. Second, in contrast to growing research on the consequences of NCAs, no studies have examined how NCAs have diffused or what caused organizations to use NCAs. Last, studies that investigated the consequences of NCAs rather relied on the proxy measure of different state NCA laws, but a dearth of research has looked into organizations and their employees that actually have NCAs (c.f. Marx, 2011).

In the following three chapters of my dissertation, I attempt to answers each of the above questions, respectively. I begin by introducing briefly the history of NCAs and variation in NCA enforceability across states with an emphasis on how existing research on NCAs have utilized

such variation to investigate various phenomena related to organizational NCA use. I indicate limitations of prior studies and suggest ways to improve understanding of NCAs. Then, I move on to investigate what factors facilitated or slowed down the organizational NCA adoptions by Standard & Poor's 500 firms with their CEOs. I present predictors at different levels in and outside the organization. Finally, I examine changes to CEO compensation and tenure due to having NCAs. The moderating effects of employment pathway of CEOs and state NCA laws are also discussed in detail.

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NONCOMPETE AGREEMENTS: HISTORY, REVIEW, AND FUTURE DIRECTION

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ABSTRACT

This paper introduces noncompete agreements by briefly explaining their legal history and how present laws have developed and diverged among different states. Noncompete agreements was not enforced in the 16th-century English courts because they were deemed as the constraint on trade. As the economy transformed into capitalism after independence, most U.S. state courts began to recognize the importance of the protectable business interests and have attempted to strike a balance between business interests and employee freedom. Next, I review recent scholarly research on noncompete agreements in law, economics, and management and further indicate that existing studies relied on state law differences as the proxy measure to investigate the impact of noncompete agreements on organizations and the economy. I conclude with a need to employ direct measure of organizational use of noncompete agreements.

INTRODUCTION

Post-employment covenants not to compete, or noncompete agreements (NCAs), have been increasingly used in the U.S. Accordingly, more studies have begun to investigate how NCAs might affect employees, organizations, and the overall economy (Garmaise, 2009; Marx, Singh, & Fleming, 2015; Marx, Strumsky, & Fleming, 2009; Samila & Sorenson, 2011; Stuart & Sorenson, 2003). Some argue that in the era of knowledge economy, they also argue, high employee mobility is conducive to innovations, but NCAs that block the free flow of employees and knowledge will end up stifling creativity and, eventually, economic growth (Franco & Mitchell, 2008; Samila & Sorenson, 2011). By contrast, others argue that NCAs may facilitate innovations and acquisitions by easily protecting legitimate business interests like confidential information or trade secrets (Conti, 2014; Younge, Tong, & Fleming, 2015).

Media and policymakers have been suspicious of growing use of NCAs. Media have described the stories of workers who made a career detour due to fear of retaliatory litigation (The Economist, 2018; The New York Times, 2017; Wall Street Journal, 2013). When it was revealed that Jimmy John's has widely used NCAs with their low-wage workers, attorneys general in New York and Illinois initiated investigations into this anticompetitive practice of Jimmy John's, which led to its withdrawal of the mandatory NCA policy (Bishara & Starr, 2016). The Obama administration also indicates that many NCAs are imposed even when they are not enforceable because state NCA laws do not allow such excessive NCAs (The White House, 2016; U.S. Department of Treasury, 2016). the Senate has also proposed bills that limit or even illegalize the use of NCAs (Bishara & Starr, 2016).

In this introductory chapter, I first explain how laws governing NCA enforcement have developed to the present state by tracing back its trajectory. NCA laws have transformed in tandem with changes in the societal and technological needs over time. Next, I examine the scholarly understanding of NCAs and critically review the methodological approaches of prior research on NCAs across disciplines. The literature review reveals that previous NCA studies rely on proxy measures instead of direct observation of organizational NCA use. I conclude that a direct measure of NCAs could warrant advancement in research.

HISTORY OF LAWS GOVERNING NONCOMPETE AGREEMENTS

NCAs have the source of an underlying tension between fundamentally opposed interests: employers' need to protect their trade secrets or confidential information and employees' freedom to move and make their own economic decisions. Blake (1960) believes that the changing nature of the American economy and technology advancement have made it

necessary to protect employers' interests but also worries about employees' weaker bargaining power vis-à-vis their employers in negotiating the terms of NCAs.

Blake (1960) provides a detailed history of NCAs from the 16th-century England leading up to the 20th century U.S. The earliest case on NCAs in England goes as far back as the pre-capitalist economy era. At those times, customary contracts were made between a master craftsman and an apprentice – an indenture. The 1563 Statute of Apprentices made a seven-year apprenticeship period mandatory. The corollary to this long period of servitude was that after the termination of the indenture, the apprentice was free as a member of his guild, a journeyman, to practice his own trade. In those days, interference with apprentices' right to enter the guild was deemed a restraint of "trade", a serious violation of public policy. If a master withheld his apprentice's entry into the guild by lengthening the apprenticeship period or asked the apprentice not to practice in town, common law held that their agreement was void as a restraint of trade without further consideration. The guild system was the vehicle of the English medieval economy, and an encroachment of the guild-based economy was considered both legally and morally wrong.

There was no notion of employee rights in medieval England, and thus the 1563 Statute failed to distinguish restraint of trade (macro-economic level public policy) and that of individual employees. Therefore, verdicts banning restrictive covenants were rendered on grounds of a restraint of trade, not of undue hardship on the covenantee apprentice. In other words, English courts critically scrutinized restrictive covenants primarily as a social issue, which is the opposite of modern court rulings that regard NCAs primarily as private employment contracts. Not until mass manufacturing and division of labor became a dominant mode of production with the

advent of capitalism, did people begin to move frequently between professions or trades in different locations, and the class of salaried workers emerge. Since the capitalism took hold, restrictive covenants have been considered an employment matter involving the deprivation of covenantee employees of their employment and livelihood.

In 1711, *Mitchel v. Reynolds* heralded the beginning of modern common law. The court still ruled that covenants not to compete were not allowed. However, it opined in dictum, which refers to the court opinion that does not affect the verdict, that the refusal to enforce a reasonable restraint accompanying the transfer of a business would result in unnecessary hardship on the buyer of the business. In the case of the sale of a business, the *Mitchel* court believed that a partial restraint of trade might be permissible if 1) the buyer had protectable business interests, and the restriction did neither 2) impose undue hardship on the seller nor 3) violate public policy. This three-prong test is called the "reasonableness test" and continues to be widely adopted in current U.S. court rulings. Note, however, that the three-prong test suggested in *Mitchel*'s was to judge the validity of constraints in the sale of a business, not in the employment context.

U.S. courts initially followed English common law after independence and would not allow to enforce NCAs. However, after the advent of the Industrial Revolution in the 18th century, the pendulum swung into the opposite direction. Court began to rule that reasonably tailored restrictive covenants could be enforced. In 1874, in *Oregon Steam Nav. Co. v. Winsor*, the Supreme Court upheld a covenant not to compete that was concluded in connection with the sale of a steamship. Shortly, New York, Massachusetts, and Rohde Island followed suit and allowed partial and reasonable restraints on trade.

In addition to restrictive covenants in the sale of a business, restrictive covenants in the context of employment also began to be enforced in the 19th century if they were deemed reasonable. Both reflecting and advancing ideologies of economic liberalism, judges invoked freedom of contract in upholding the legality of restrictive covenants not to compete. Infringement upon employee freedom caused by unequal bargaining power, as well as the possible impediment of public policy, were overshadowed by the assumption that contracting parties are free to engage in any contracts they find suitable in the free economy (Packer & Cleary, 2006). The disregard for the disparities in bargaining power between the parties to the contract reflected the emergence of early capitalism and capitalists' dominance over laborers.

In the 20th century, most U.S. states, except for California and North Dakota, finally attempted to balance between the two opposing interests. To date, most of the U.S. states have been doing so by adopting the reasonableness test and enforcing reasonable NCAs only. However, it was not until the late 20th century that organizational use of NCAs became a main employment issue. By this time, confidential information and trade secrets had become ever more crucial to the success of business. Accordingly, NCAs have been increasingly used across organizations.

Many legal scholars point out the harm to employees and argue against NCAs. For example, Stone (2002) argues that the NCA use should be treated as suspect because it undermines the *status quo* that resulted from an implicit bargaining between employers and employees. During the New Deal era, she explains, employers implicitly promised long-term employment in return for employees' commitment to the job. This is what labor relations and legal scholars call a psychological contract (Schein, 1965). However, by the 1980s, American

firms had begun to transform their employment practices, dismantle internal labor markets, and use external human resources with valuable knowledge at any position. Accordingly, workers had also begun to move across firms more frequently.

Stone (2002) argues that along with the transition of the U.S. economy, the old psychological contract that implicitly guaranteed long-term employment has been replaced with a new one in which employers provide employees with opportunities for training, networking, and building general human capital instead of job security. At the same time, employees are no longer bound to one workplace and can move freely to other jobs. Under the framework of this new psychological contract, they are granted employability security at the expense of employment security. Employability security in this new psychological contract logically presumes that workplace knowledge gained during the course of employment belongs to employees. However, signing an NCA deprives employees of ownership of such workplace knowledge. Stone (2002) argues that this deprivation caused by NCAs violates the initial bargaining between the employer and the employee. Therefore, she urges that just as courts in the 1980s relied on the old notions of traditional psychological contract to restrict employers' termination of employment, they should now reassess NCAs and rule in favor of employees under the terms of the new psychological contract that employees are provided with opportunities to move across firms with the acquisition of general human capital in previous workplaces.

REVIEW OF EXISTING RESEARCH ON NONCOMPETE AGREEMENTS

Variation in NCA enforceability

Currently, except for California and North Dakota where NCAs are absolutely banned, U.S. states recognize both the importance of protecting legitimate business interests and the gravity of infringement upon employee freedom. As a result, most take a middle-of-the-road policy and allow employers to use "reasonable" NCAs. Using the reasonableness test that originated from the *Mitchel* case, NCAs can be enforceable if there are protectable business interests, the restraint is no more than necessary, and it does not violate public policy (Malsberger, Carr, Pedowitz, & Tate, 2013). Unfortunately, these three prongs still beg the question: What are protectable business interests, and what restrictions are regarded as unenforceable because it is more than necessary or violates public policy of the state? Answers to these differ much widely by state, which creates substantial variation in legal environments regarding NCA enforcement.

Legal scholars and practitioners first have studied these variations in NCA laws of different states. One effort has been made by Bloomberg BNA Senior Editor Malsberger and his colleagues. In their revised treatise on "Covenants Not to Compete: State-by-state Survey," Malsberger et al. (2013) list fourteen questions that attempt to capture comprehensive aspects of state laws on NCAs. They then go through relevant statutory laws and court rulings for all fifty states and Washington D.C. by question and provide their answers. For example, their first question asks whether there is "a state statute of general application that governs the enforceability of covenants not to compete". Another addresses whether state courts rewrite or interpret NCAs favorable to employers when it is overbroad therefore otherwise unenforceable. This state court's policy is called the "blue-pencil" doctrine. The same NCAs might end up being

struck down in some state courts that do not adopt this blue-pencil doctrine whereas others that do so are likely to enforce them after courts modify or just enforce them to the extent that they view enforceable. The use of this doctrine by state courts turns out very beneficial to employers as much as it is intimidating to employees. Another question concerns what employer's protectable interests are. Some states broadly recognize business interests whereas others strictly review whether NCAs can effectively protect claimed interests. For example, some state courts may allow all the employer's customers as protectable business interests while others view customers that the departing employee directly contacted as such. The more broadly a court recognizes business interests, the more easily employers can impose NCAs upon employees.

Previous research on NCAs in economics and management

Social scientists have also attempted to understand various phenomena involving NCAs. They have sought implications of NCAs for organizations and the economy by looking into NCA laws. Seminal research on law and economy indicates a crucial impact of state variations in NCA enforcement on regional economic success (Gilson, 1999; Saxenian, 1996). In effect, many existing NCA studies in the social sciences have used a measure created by Garmaise (2009) to quantify all U.S. states' laws governing NCA enforcement. He draws on afore-mentioned Malsberger et al. (2013)'s work to grade each state on the scale of zero to nine in terms of the ease of enforcing NCAs. As an economist, Garmaise dichotomizes the answers to Malsberger et al.'s questions and tallies the numbers of the affirmative ones. He then terms the sums of all states and Washington, D.C. the *noncompetition enforceability index*: the higher the score, the easier for employers and courts to enforce NCAs within a state.

Management scholars also adopted this measure to investigate the impact of NCAs on organizations. For example, Conti (2014) uses the same index and examines the impact of NCAs on firms' R&D projects. On the assumption that NCAs could better protect their R&D projects, he finds that firms located in states of higher index scores are more likely to engage in risky but breakthrough R&D projects. On the other hand, Samila and Sorenson (2011) assume that strong state NCA laws could also create disincentives for creativity because talented patent workers are blocked from moving to firms with higher salaries. Their findings show that states that have weak or no NCA laws tend to have more patent registrations. They also show that since reduced creativity may impact entrepreneurship, these states also enjoy higher firm foundings.

Instead of using the continuous measure of such *index*, other scholars employed a natural-experimental design to examine the impact of state NCA laws on organizations. Marx et al. (2009) investigates how employee mobility changed in Michigan before 1985 when the state did not allow NCA enforcement, and after the Michigan legislature "unexpectedly" changed its laws. In this natural experiment, two indicators that differentiate Michigan/non-Michigan and before/after 1985 could be applied as predictor variables to examine the impact of Michigan law changes. Their approach confirmed the assumption that the 1985 reversal did decrease Michigan patent creators' mobility. This work has been regarded as a seminal management study that investigated NCA impacts on organizations and employees. Younge et al. (2015) also investigate changes in the M&A market following the Marx et al. (2009)'s natural experiment approach and found that after 1985, Michigan firms are more likely to be targets of M&A. Their logic is that NCAs will help acquiring firms better protect their trade secrets.

Limitations of previous research

Prior NCA research vastly contributed to our understanding of how NCAs can impact organizations, employees, and the overall economy. However, they failed to distinguish clearly state laws governing NCAs from organizations within a state that use them. In other words, both methodological approaches shown in prior NCA studies rely on state NCA laws to indicate organizational use of NCAs. For example, in order to argue that the predictor variables (Michigan/non-Michigan and before/after 1985) are the causes of the observed reduction in employee mobility, the Michigan natural experiment approach logically implies that none of the Michigan companies used NCAs before 1985, but that all did so after 1985 whereas firms outside Michigan showed no difference in NCA use either before or after 1985. In addition, if this assumption is solid, the impact of the predictors should accumulate over time (since the new workforce entering the Michigan job market will sign NCAs while existing one remains bound), but their own statistical results reveal that the effects of the predictors decrease over the long run.

Second, in order to justify the use of the *noncompetition enforceability index* as the predictor of state-level differences, the index is assumed to be linearly correlated with the likelihood that in-state organizations have NCAs. That is, no firms in California use NCAs, but all the Floridian firms have them. In sum, prior research's use of state NCA laws in the examination of organizational-level outcomes conflates the *enforcement* of NCAs by the state with the *use* of NCAs by the organization.

At a deeper level, the use of differences in law to indicate the organizational use of NCAs necessitates an underlying condition that the law effectively determines organizational practices. However, organizations could also violate the law by either maliciously or negligently making

unenforceable NCAs with employees if punishments were not sufficiently imposed on violator organizations. Actual practices within organizations also suggest that the use of NCAs may be less closely related to the state NCA enforceability than previous studies assumed (U. S. Department of the Treasury, 2016). Employers may ask employees to sign NCAs even when they cannot or may not be enforceable. For example, Jimmy John's employees had to sign NCAs even though the absolute majority of the employees would not hurt Jimmy John's protectable business interests that are a crucial requirement for NCA enforcement. If Jimmy John's sues cleaning staff for moving to Subway, their suit will be dismissed. Unsurprisingly, it recently abandoned its mandatory policy of asking every employee to sign NCAs after two state attorneys general in the states of New York and Illinois claimed Jimmy John's NCAs served no legitimate business interest (Bishara & Starr, 2016). Moreover, the state's statutory ban on the enforcement of NCAs does not completely bar organizations from making such contracts, either. California is one of a few states that ban NCAs, but a recent study found that many Californian employers nevertheless ask their employees to sign NCAs (Bishara & Starr, 2016). Most of the Californian employers asking employees to sign NCAs must be aware that these agreements cannot be enforced in the state. However, some employees might be ignorant of the law that protects their freedom to move. Even if they know the law, they could still bind themselves to the NCAs that they signed for fear of losing their current employment. As a result, many NCAs in California might be effectively honored by employees who voluntarily reject other job offers (The White House, 2016).

A mismatch between state NCA laws and actual NCA use suggests that we might need to directly measure the organizational NCA use to investigate more rigorously the impact of NCAs and their antecedents as well. Even though research in sociology, economics, and management

has relied on variation in law to examine various phenomena, a line can be drawn between studies that investigate the impact of law itself on organizations and others that use the law as a proxy. NCA research belongs to the latter, and when laws are used as a proxy for corresponding organizational practices, a careful review of the validity of employing such approaches may be required beforehand.

CONCLUSION

NCAs have been increasingly used across organizations. In the U.S., state laws that govern NCA enforceability have wide variations, and scholars who research NCA impact on organizations have relied on the very differences across states as a proxy for organizational NCA use. However, the validity of this approach may be questionable. Direct measuring of organizational NCA uses will help researchers conduct rigorous research.

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HOW FIRMS COMPETITIVELY BECAME ANTI-COMPETITIVE:

THE DIFFUSION OF CEO NONCOMPETE AGREEMENTS, 1996-2015

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How Firms Competitively Became Anti-competitive:

The Diffusion of CEO Noncompete Agreements, 1996-2015

ABSTRACT

This paper examines organizational-, subpopulation-, and population-level factors to explain the rapid and widespread diffusion of contested practices whose legitimacy and effectiveness are debatable. Taking noncompete agreements with CEOs as a specific case of such contested practices, I show that contestation both within and beyond the organization as well as unexpected shocks can either undermine or facilitate diffusion of noncompete agreements across the biggest U.S. corporations. First, consistent with studies that focus on internal contestation between management and the firm, I find that organizations are less likely to adopt noncompete agreements with powerful CEOs. Second, I explore the impact of variation in enforceability of noncompete agreements among U.S. states in order to reveal that organizations not only comply with state laws but also actively test the limit to their use of noncompete agreements. Finally, this paper investigates exogenous disruptions that broadly affect organizations across different legal environments. In anticipation of negative consequences, organizations could be more likely to adopt practices that they otherwise reconsider due to strong opposition. Findings of this paper show that as the financial crisis loomed over the economy, organizations were far more likely to adopt a noncompete agreement with their CEOs.

Keywords: noncompete agreements, contested practices, diffusion, legal environments, financial crisis.

INTRODUCTION

Why and under what conditions organizational practices are likely to diffuse have been a core research question in the management literature (David & Strang, 2006; Davis & Greve, 1997; Edelman, 1992; Strang & Soule, 1998; Tolbert & Zucker, 1983). Diffusion studies in the sociological tradition have found that organizations tend to adopt practices because they are socially motivated even if efficiency of adopted practices is debatable (Ansari, Fiss, & Zajac, 2010; Meyer & Rowan, 1977). Recently, scholars took note of the diffusing practices that also lack social legitimacy and have attempted to explain why organizations adopt these practices even though their adoption could lead to contestation inside and outside the organization (Chuang, Church, & Ophir, 2011; Fiss, Kennedy, & Davis, 2012; Fiss & Zajac, 2004; Ingram & Rao, 2004; Sanders & Tuschke, 2007).

One research strand argues that the organization itself is a political arena, focusing on internal contestation within the organization (Fiss et al., 2012; Fiss & Zajac, 2004; Jung, 2016; Ocasio, 1994; Westphal & Zajac, 1995; Zajac & Westphal, 1995). In this vein, studies examine how divergent interests among organizational constituents may shape organizational decisions to adopt controversial practices. For example, powerful actors in the organization push for the adoption of practices beneficial to them even though such practices could undermine their firm's overall interests. Another strand of diffusion research examines contestation at the institutional level by focusing on the role of legal environments in diffusion patterns (Chuang et al., 2011; Guthrie & Roth, 1999; Ingram & Rao, 2004; Sanders & Tuschke, 2007). Varying legal environments with conflicting laws and regulations can precipitate or deter organizational adoption of contested practices and create distinct diffusion patterns by jurisdictions.

Thus far, most studies that investigate the impact of legal environments on organizations have solely exploited the binary distinction in terms of the legality of the focal practice. For example, researchers compared organizational changes after the state legislature reversed state laws (Marx, Singh, & Fleming, 2015; Marx, Strumsky, & Fleming, 2009; Younge, Tong, & Fleming, 2015). However, few have further investigated meaningful differences among legal environments that legalize such practices. More important, no research to date has examined exogenous shocks that may seriously influence organizations across different legal environments and how such shocks may shape overall diffusion trajectories. In response to sudden adverse changes in circumstances, organizations might take action that otherwise would not be considered due to potential opposition.

I take organizational adoption of noncompete agreements with CEOs as an example of contested practices and attempt to provide a more comprehensive perspective on the diffusion of contested practices. A noncompete agreement (NCA) refers to a legal contract between an employer and an employee that forbids competitive activities by the latter, including working for a competitor or starting a new business in related industries, for a certain period of time in designated areas (Garmaise, 2009; Malsberger, Carr, Pedowitz, & Tate, 2013). I start from within the organization and explore how organizational constituents' divergent interests could affect the adoption. Organizations are more likely to impose mobility restrictions on CEOs whereas CEOs are less likely to second it. Powerful CEOs might be successful at avoiding practices harmful to them, and I find that organizations are less likely to adopt NCAs with CEOs when they have large shares or serve as chair of the board. Second, different states where organizations are embedded have varying, even conflicting, laws that affect the enforcement of NCAs. To start, a few outlier states do not allow organizations to use NCAs while most states

enforce reasonable NCAs. Findings show that organizations in enforcing states are more likely to have NCAs with their CEOs. In addition, even among most states that allow organizations to use NCAs, they vary in terms of how they address severe restrictions included in NCAs: When NCAs partially violate state NCA laws, some states enforce only parts of a NCA that are not in violation, while other states invalidate all of it (Bishara, 2011; Malsberger et al., 2013; Pivateau, 2007). This variation could provide organizations substantial leeway to test their NCAs. Consistently, organizations are found to more likely to adopt NCAs with their CEOs in states that take a more lenient approach to enforcing NCAs.

Finally, this paper delves into unexpected macro-economic shocks that may render organizations more loss-averse (Tversky & Kahneman, 1992). For example, organizations may perform layoffs when they experience financial hardship (Jung, 2016). Likewise, such an systemic shock as the recent global financial crisis can make organizations less tolerant of loss (Demyanyk & Van Hemert, 2011; Hoffmann, Post, & Pennings, 2013). In response to the recent crisis that broke out in 2007, organizations are far more likely to use NCAs with their CEOs to prevent poaching.

In this paper, I contribute to diffusion studies by revealing predictors at different levels of the organization, subpopulation, and population, respectively. Intra-organizational divergence of interests, different state legal environments, and unexpected exogenous shocks all contributed to the adoption of NCAs. Moreover, I advance management research on laws and regulations. Most scholars have characterized different state legal environments only in terms of whether practices of interest are legalized. By contrast, I further examine subtle differences in state laws which govern NCAs and show that even among NCA-enforcing states, different patterns of adopting NCAs can emerge. Last, I contribute to studies of organizational responses to the financial crisis.

Although existing organizational studies have mostly singled out changes in laws and regulations as the most crucial macro-level driver of organizational practice adoptions, the exploration of the impact of non-institutional disruptions like the 2007-8 financial crisis on organizations has been relatively scant. This paper reveals how massive economic shocks could encourage organizational adoption of contested practices.

THEORIES AND HYPOTHESES

Noncompete Agreements as Instances of Contested Practices

Most management studies have implicitly assumed that adoptions of practices are justified because they are socially legitimate (Ansari et al., 2010; DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Tolbert & Zucker, 1983). Debunking this assumption, recent diffusion studies have indicated that increasing adoptions of certain practices do not necessarily coincide with an improvement in legitimacy (Chuang et al., 2011; Fiss et al., 2012; Sanders & Tuschke, 2007). Researchers who study these types of practices use the term "contested terrain" to describe a contentious situation in which some interested parties in and around the organization approve of a new practice whereas others are against it (Briscoe & Murphy, 2012; Fiss & Zajac, 2004; Sanders & Tuschke, 2007).

NCAs are another example of highly contested practices that many stakeholders and even governments and policymakers oppose. In order to protect intellectual property, organizations increasingly require employees to sign NCAs (U.S. Department of Treasury, 2016). In a typical NCA, employees assume a contractual obligation not to work for the current employer's competitors or establish a startup in the same industry for up to a certain period after they leave the firm. In essence, The use of NCAs explicitly pits business interests in protecting their trade secrets against employee rights to freely pursue their career and wealth.

Legal scholars say no contractual clause would trigger as much controversy as NCAs (Hyde, 2012; Pivateau, 2007). Historically, any restraint on employee departure used to be disfavored because it constituted an anti-competitive behavior (Bishara & Starr, 2016; Blake, 1960). Medieval English courts held that the restrictive covenants that prevent free moves by apprentices were not enforceable without any exceptions. Scholars also argue that since high employee mobility is conducive to innovation, NCAs that constrain the free move by employees could have a dampening impact on entrepreneurship and economic growth (Franco & Mitchell, 2008; Samila & Sorenson, 2011). Nonetheless, as the importance of intellectual property rights and other trade secrets increases in this era of knowledge economy, organizations have increasingly pushed for the use of NCAs. Business practitioners stress that NCAs are the most effective mechanisms to protect important trade secrets, intellectual property rights, and other legitimate business interests like customer lists (Bishara, 2011). Without NCAs, they might remain reluctant to invest in important R&D projects (Conti, 2014).

Media and policymakers have also realized adverse impacts of NCAs and weighed in. First, recent media reports on workers who could not accept job offers and remained out of work due to fear of retaliatory litigation have fueled public outrage against organizational impositions of NCAs upon employees (The Economist, 2018; The New York Times, 2017; Wall Street Journal, 2013). Recently, it was also revealed that Jimmy John's and Amazon, Inc. have widely used NCAs with their low-wage workers. In particular, two state attorneys general in New York and Illinois initiated investigations about the anticompetitive practice of Jimmy John's before the sandwich franchise scrapped its NCAs in response to mounting pressures (Bishara & Starr, 2016). Administrative agencies also took note of the misuse of unnecessary NCAs and highlighted the need for NCA law reform. For example, two government reports indicate that

many NCAs are imposed even when they are not enforceable either because state laws categorically ban NCA enforcement (e.g., California) or because restrictions in NCAs may cause unreasonable hardship to employees (The White House, 2016; U.S. Department of Treasury, 2016). NCAs are not at all designed to punish or terrorize innocent employees but to defend employers against unfair competition by the former employee (Bishara, 2011; Hyde, 2012). Thus, if an employee's departure does not considerably threaten the employer's business, NCAs could end up unduly infringing upon the employee's rights to pursue his or her economic interests and thus should be unenforceable. In response to concerns over such harm inflicted on U.S. employees, the Senate has also proposed bills that limit or abolish the use of NCAs (Bishara & Starr, 2016).

Just as society is divided on the use of NCAs, so are U.S. states. Ever since Silicon Valley's success in contrast with the collapse of Route 128 in Massachusetts was attributed to California's legal ban on NCAs (Gilson, 1999; Saxenian, 1996), researchers across disciplines have found dramatic differences in NCA enforceability among states and investigated how variation in state NCA enforcement policies led to different economic outcomes (Garmaise, 2009; Marx et al., 2009; Samila & Sorenson, 2011; Stuart & Sorenson, 2003). On one end of the spectrum, a handful of states ban NCAs. In the states of California, North Dakota, and Oklahoma, NCAs are either categorically unenforceable or allowed only under exceptional circumstances. On the opposite end, some states are very lenient about the NCA use. For example, Florida and Texas largely stand on the employer's side and protect business interests more broadly than other states by allowing employers to place strict limitations on employee mobility. Between these two poles, most states like New York and Massachusetts have allowed organizations to adopt a reasonably tailored NCA. However, what constitutes a reasonable NCA

differs among these moderate states; some interpret reasonableness very narrowly leaning toward non-enforcing states, while others expand the range of reasonable restrictions quite broadly, thereby granting organizations wider discretion.

Internal Contestation and CEO Power

Thus far, contestation over organizational practices has referred to disagreement over the practice at different levels. I clarify three different planes starting from within the organization. First, contestation could originate internally; an organization itself can be a political arena which consists of multiple subgroups upholding their own parochial interests. When the organization plans to adopt or implement such a practice as NCAs that could end up severely restricting employee mobility, employees are likely to protect their own interests and mobilize resistance against that decision.

Although earlier research mostly identified the organization with management in relation to external stakeholders or rank-and-file employees in deciding on organizational practices (e.g., Edelman, Uggen, & Erlanger, 1999; Sutton & Dobbin, 1996), management has their own interests that are different from those of shareholders or owners of the firm (Tolbert & Hiatt, 2009). For instance, a conflict of interests exists between managers and shareholders over the issues of compensation, succession, and board composition (Joseph, Ocasio, & McDonnell, 2014; Ocasio, 1994; Sanders & Tuschke, 2007; Zajac & Westphal, 1995). As the highest-ranking employee in most organizations, CEOs may especially manage to insulate themselves from new policies harmful to their own interests while pushing for other practices that benefit them. CEOs and their firms have divergent interests in adopting NCAs as well. Previous research showed that CEOs tend to stay longer but receive less compensation as the state enforces NCAs more easily (Garmaise, 2009). Since the prevention of voluntary transfers will undermine CEOs' own

interests, CEOs with strong bargaining power are likely to obstruct or delay the organizational decision to adopt NCAs with them.

Hypothesis 1: The more powerful CEOs, the less likely the organizational adoption of the noncompete agreement with them.

State Legal Environments as Subpopulation-level Mechanism

Contestation over organizational NCA use may occur outside of the organization as a social issue. Recent diffusion studies have introduced population-level mechanisms that might affect multiple organizations within the same environment (Ansari et al., 2010; Fiss et al., 2012). Previous studies have clarified different types of population-levels that affect organizations, population-level mechanisms can be further categorized based on the extent of their influence: whether they affect sub-groups of organizations or the total population.

One example of predictors affecting sub-groups of organizations is varying legal environments. Legal environments have long been regarded as a source of coercive institutional pressure, leading organizations to adopt similar practices (DiMaggio & Powell, 1983; Edelman, 1992; Edelman et al., 1999; Scott, 2013). Environmental law, tax law, and employment law, to cite a few, are driving forces that lead organizations to adopt similar practices or structures. However, each jurisdiction, whether it is a country, a state, or a province, may have different laws and regulations, and organizations in different jurisdictions are thus subject to different legal environments. Changes in laws of one jurisdiction cannot directly bind organizations in other jurisdictions. These variations in regulatory isomorphic pressure can be more complicated and significant than expected. For instance, the granting of health benefits to same-sex partners diffused faster in U.S. states that legalized the practice than those that did not (Chuang et al.,

2011). In the early 20th century, chain stores were not allowed in some states due to state laws designed to protect local businesses, while other state laws did legalize their establishment (Ingram & Rao, 2004). In this globalized economy, multi-national corporations also need to address international differences in laws. The grant of stock options used to be banned in Germany whereas it has long been an element of executive compensation in the U.S. (Sanders & Tuschke, 2007).

These inter-jurisdictional differences could differently shape organizational decision on contested practices (Sanders & Tuschke, 2007). The adoption of practices could vary depending on the existence of relevant regulatory basis. In states that legally permit organizations to adopt contested practices, that facilitative legal environment can protect adopting organizations from delegitimation threats, and the practices could spread rapidly (Sanders & Tuschke, 2007; Tolbert & Zucker, 1983). When the organization attempts to adopt NCAs with their CEOs, similar impacts of state laws governing NCA enforceability could encourage those decisions. Thus, when the state legal environment allows the organization to enforce NCAs, it will substantially increase the likelihood that they will make the agreement with their CEO. On the other hand, in states where NCAs are banned or enforceable under exceptional circumstances, organizations should face delegitimation threats if they adopt NCAs, nonetheless. Accordingly, organizations in non-enforcing states are less likely to use NCAs with their CEO.

Hypothesis 2. Organizations in states where NCAs are enforceable are more likely to adopt NCAs with CEOs.

Despite the essential insight into the relationship between law and organizations, the dichotomization of varying legal environments (i.e. states that do & do not permit certain

practices) can be overly simplistic. The dichotomous compliance/non-compliance distinction portrays a simple dominance of law over organizations (DiMaggio & Powell, 1983; Powell, 1996). In response, law and society studies have argued that organizations do not just passively respond to the law but can take advantage of the law's vagueness (Edelman et al., 1999; Suchman & Edelman, 1996). Edelman and her colleagues have shown how organizations manage to shift the focus of equal employment opportunity (EEO) laws from actual increases in the representation of minority and female employees to the visible existence of formal grievance procedures or Affirmative Action Offices (Edelman, 1992; Edelman, Krieger, Eliason, Albiston, & Mellema, 2011). Organizations claimed that the establishment of formal organizational structures demonstrates compliance with EEO laws. Courts have eventually considered whether the organization has a formal structure as a manner of compliance in ruling employment discrimination cases.

Organizations may actively push the boundaries of contested practices if laws apparently have some vagueness or loopholes regarding contested practices. In particular, one specific characteristic of state legal environments could encourage organizations to test actively the extent to which they can restrict employee mobility with NCAs. Part of NCA-enforcing states have also adopted modification approaches to contracts. One of the approaches is called the "blue pencil," which refers to "a judicial standard deciding whether to invalidate the whole contract or only the offending words" (Garner, 2009; Pivateau, 2007).

Whether state courts modify NCAs or strike them down entirely has a great implication for organizational NCA use. If a state court rules based only on original NCAs, even a slightly overbroad mobility restrictions specified in an NCA will render the entire NCA unenforceable. Therefore, organizational discretion is severely restricted, and they have to carefully draft NCAs

with their employees. In stark contrast, organizations in states that edit out or modify unenforceable NCAs may venture to test the maximum restriction on employee mobility through NCAs. In these states, even if a state court rules that part of the original NCA is unreasonable, it will delete only the unenforceable part and enforce the rest or even rewrite the contract so that it is deemed enforceable under its laws. Organizations in these states can enjoy only gain but bear no loss when imposing harsh NCAs upon employees. Even if the employee reasonably doubts if the NCA is enforceable as is, the ruling would still ironically find for their employer: it will be enforced to the extent that the state court deems enforceable. Because of this perverse incentive for organizations, legal scholars argue against the application of the modification doctrine to NCAs (Hyde, 2012; Pivateau, 2007). In these states, organizations can actively test the limit to their NCAs by imposing the harshest terms on employees. Therefore, the modification approach to unenforceable contracts leads to the next hypothesis on state legal environments and organizational behavior about contested practices.

Hypothesis 3. Organizations in states that take modification approaches to NCA enforcement are more likely to adopt NCAs with CEOs.

Exogenous Shocks as Disruptive Population-level Mechanism

As opposed to institutional changes that might mainly impact the organizations located within a jurisdiction, systemic shocks such as national economic crises can influence organizational decisions across different legal environments. Although most existing studies focused rather on legal or political changes as macro-level predictors of diffusion of contested practices, an abrupt negative change in the economic outlook can cause great confusion and cause actual or potential losses for organizations across the country (Hoffmann et al., 2013;

Kahneman & Tversky, 1972; Sirola & Pitesa, 2017). Economic uncertainty could precipitate the adoption of contested practices that would otherwise face tougher opposition in- and outside the organization. As a grave disruptor, the recent financial crisis started in 2007 when an exceptionally large proportion of subprime mortgage became delinquent or faced foreclosure, which finally led to the collapse of Lehman Brothers (Demyanyk & Van Hemert, 2011; Spiegel, 2011). As the subprime mortgage debacle escalated into a full-blown global crisis, investors overestimated risks and became increasingly cautious (Hoffmann et al., 2013). In studies related to risk perception, experimental research also indicates that when participants experience economic hardship, they are likely to adopt the zero-sum framework of success and regard others' success as their failure (Sirola & Pitesa, 2017).

When shareholders and investors experience or expect exceptional losses, they may become more risk-averse and take the zero-sum view of success. As a result, they are likely to favor more protective practices that help them prevent further damage. One practice that could help alleviate investors' apprehension can be the adoption of NCAs with CEOs. This is where NCAs could come in because NCAs have been touted as an effective protective mechanism that aims to protect confidential information and trade secret. For example, in states that enforce NCAs are seen as more attractive acquisition targets because employees in these organizations could have NCAs (Younge et al., 2015). Organizations are more likely to engage in high-risk R&D projects in states that enforce NCAs (Conti, 2014).

The salience of NCAs as a protection of their interests will become stronger when owners and investors are under exceptional economic hardship like the recent Great Recession. The departure of a talented CEO itself could deal a significant blow to the organization's future, and it would be interpreted as twice the damage if the departing CEO takes office at a rival firm.

Thus, during the financial crisis, preventing an unexpected turnover of CEO could be a very effective practice to prevent further misfortune.

Hypothesis 4. After the recent financial crisis, organizations are more likely to adopt an NCA with CEOs.

METHODS

Data

The initial sample for this study consisted of Standard &Poor's (S&P) 500 firms as of December of 2015 and their CEOs between 1996 and 2015. In event history analysis, if a subject is left-censored, an observed failure event may not be the first one for it (Allison, 2014). To address this left-censoring problem, CEOs who were appointed before 1996 were excluded because their noncompete agreements found in the data set might not be their first. Among the S&P 500 firms, 493 firms changed their CEOs at least once during the period, and a total of 1,097 CEOs were appointed. All these CEOs were considered at risk of signing an NCA as soon as they were appointed. After they signed one, they were no longer included into the dataset.

The NCAs that the CEOs in the sample agreed to was retrieved from proxy statements that the sample firms reported to the Securities and Exchange Commission (SEC). The SEC requires that companies publicly listed on the U.S. stock exchange register proxy statements with them so that present and future investors can access all the information related to the firm. Proxy statements are prepared and issued to shareholders for annual shareholder meetings. In proxy statements, employment contracts and other compensation agreements with CEOs can be found as agenda that bring shareholders' attention or require shareholder approval, and these contracts can include noncompete clauses.

Through keyword search, only the proxy statements that might contain information on noncompete restrictions were selected for further review.[1] When the computer matched any keyword, it also stored other information like the company name, the issue date of the proxy statement. After narrowing down possible contracts that have NCAs, human coders read these contracts and checked the correctness of the information.[2] Organizations also make NCAs

[1] The following keywords were applied to find information on NCAs from contracts in the proxy statements that CEOs agreed to: noncompete, noncompetition, non-compete, non-competition, not to compete, restrictive agreement, and restrictive covenant.

[2] The following examples illustrate variations in noncompete clauses in employment and compensation contracts.

> **Employment Agreements with Named Executive Officers**
>
> CVS has entered into employment agreements with Messrs. Ryan, Conaway, Rickard, Nelson and Merlo. These employment agreements supersede the Change in Control Policy, described above, as it relates to such executives. The employment agreements provide for an initial employment term of three years, automatically renewed for a one-year term at the end of the initial term and each one-year renewal term unless either party gives notice of non-renewal at least 180 days prior to expiration of the then current term. The employment agreements generally provide for payment of an annual base salary, subject to review for increase at the discretion of the Compensation Committee. Base salaries are, as of year end 1999, $975,000, $650,000, $575,000, $470,000 and 470,000 for Messrs. Ryan, Conaway, Rickard, Nelson and Merlo, respectively. *The employment agreements also generally provide for non-competition for a period of 18 months subsequent to a voluntary termination of employment if CVS elects to continue paying 50% of the executive's base salary during such period.* (definitive proxy statement by CVS; italics added)
>
> **Recoupment of Compensation**
>
> We maintain clawback provisions relating to stock options, restricted stock units, performance share units and market share units. Under these clawback provisions, *executives that violate non-competition* or non-solicitation agreements, or

among themselves when they sell part of their business; the buyer asks the seller not to engage in the business that the seller sells off, which is reasonable in the sale of business.

Insert Figure 1 about here

Figure 1 shows the percentage of CEOs who first signed their NCAs during the data period. Those who signed in the previous year are dropped and newly appointed CEOs are added into the data set. Before 2007, the percentage of new NCAs among CEOs did not exceed ten percent. However, in 2007 when the financial crisis started, about a quarter of CEOs signed their first NCAs. Thereafter, the percentage remains high through 2015 relative to the pre-crisis era.

Additionally, this paper collected personal information of CEOs such as age, sex, and the number of owned shares, tenure, and compensation from BoardEx and Execucomp. For other

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otherwise act in a manner detrimental to our interests, *forfeit any outstanding awards, and any accrued and unpaid dividend equivalents* underlying these awards, as of the date such violation is discovered and have to return any gains realized in the twelve months prior to the violation. These provisions serve to protect our intellectual property and human capital, and help ensure that executives act in the best interest of BMS and our stockholders (definitive proxy statement by Bristol Myers Squibb; italics added)

Noncompetition and Confidentiality

Under the Compensation Agreement, *Mr. Brian L. Roberts has agreed not to compete with the Company* during his employment and *for two years after termination of his employment*. The Compensation Agreement also requires him to maintain the confidentiality of certain information of the Company, and not to use such information except for the benefit of the Company, at all times during his employment and after termination of his employment. *Breach by Mr. Brian L. Roberts of any of such obligations constitutes cause for termination of the Compensation Agreement, and terminates the Company's obligations for payments subsequent to such termination.* (definitive proxy statement by Comcast Corp; italics added)

financial information on organizations, Compustat was consulted. Combining all the collected information, this paper created a final data set of 4,557 firm-year observations with multiple new entries and exits in each year as existing CEOs were dropped from the data set after they signed an NCA and new CEOs were appointed.

Measure

Dependent variable. In event history analysis the technical dependent variable is timing to the failure. This paper uses when each CEO signed their *first NCA* as the failure. Each CEO was observed until he or she was found to sign an NCA. The signing of an NCA was treated also as the absorbing event, meaning that the CEO and his or her organization were no longer included in the dataset after its CEO signed an NCA. The organization could reappear as a new CEO was appointed.

Predictor variables. First, as the indicator of CEO power, *duality* of the CEO is a dichotomous variable indicating whether the CEO also sits as chairperson of the board. It is coded 1 for CEOs who are also chairperson of the board and 0 otherwise. Second, two predictors measure variations in state legal environments. *Enforcing states* is a dichotomous variable that refers to the states where NCAs can be enforced (i.e. where NCAs are not banned). Thirty-eight states have at least one corporate headquarters of the sample S&P 500 companies during 1996-2015. Among these states, California, Oregon, and Oklahoma either ban or allow the enforcement of the noncompete agreement in only a few exceptions. These three states are coded non-enforcing states, so firm-year observations that pertain to these states are coded 0, and 1 otherwise. In addition, the *blue pencil* is another dichotomous variable which indicates states that edit out or modify partially unenforceable NCAs. When state courts apply the blue-pencil doctrine to their rulings, they do not invalidate an entire NCA but instead enforce only the

reasonable part or even rewrite the agreement to make it enforceable under its state law. Twenty-eight states in the dataset have adopted the doctrine. Firm-year observations that relate to these states are coded 1 and 0 otherwise. Last, to indicate an exogenous shock that influences organizational decision making, the *financial crisis* refers to the recent global financial crisis which initially boiled with the collapse of Lehman Brothers in 2007. Thus, it is coded 1 for observations with year indicators from 2007 to 2015, and 0 before 2007.

Control variables. The following individual-level controls are included. *Sex*, the log of *age*, and *total compensation* of CEOs are controlled for. Since age variation is perfectly collinear with calendar years, the age of the CEO when the CEO took office was used. CEO compensation is controlled for because it can also indicate CEO power and influence. In addition, to control for organizational-level confounding factors, the following variables are included. *Total assets* measures size. *Sales* and *return on equity* (*ROE*) measure firm performance. I also control for the number of *common shares outstanding*. *Invested capital* reflects the degree of their spending on new projects and measures the practical need to adopt a noncompete agreement. These organizational-level controls are all logged. In survival analysis, infectiousness of existing adopters can be a substantial factor contributing to the diffusion (Strang & Macy, 2001). Thus, the number of *prior adopters* in the same state is controlled for. Additionally, the same industry peers might differently affect non-adopting firms. *Industry indicators* control for possible industry-level effects on the adoption of NCAs. Industries are grouped by the first two-digit of the North America Industry Classification System (NAICS).

Finally, *year indicators* from 1996-2015 are also used. Employing year indicators suggests that this paper does not make any assumptions about the pattern of the baseline hazard function (Cox, 1992). Time dummies trade efficiency for the most conservative analysis in

discrete-time event history analysis. In robustness checks, the impact of the financial crisis is further tested using the piecewise constant hazard models categorizing the time period into three: before, during, and after the crisis.

Statistical Estimation

The empirical testing of hypotheses is performed using discrete-time event history analysis (Allison, 2014; Rabe-Hesketh & Skrondal, 2012). Since proxy statements are issued annually around April, and most of the organizational-level control variables are annually reported (e.g., compensation, sales, and return on equity), it is not feasible to track down the exact date of changes in covariates' values. In light of this, the dataset of this paper is formed using the calendar year as the time unit, and the role of time is controlled for by incorporating year indicators in the main analyses. Another reason for employing discrete-time over continuous-time (semi-) parametric models is that the coarsened time units in this paper (twenty calendar years) lead to numerous ties, which refer to simultaneous NCA adoptions by organizations.

In order to perform more rigorous discrete-time event history analysis, this paper adopts random-effects complementary log-log models, for two reasons. First, even though many previous studies commonly used the logit link function in discrete-time event history analysis, it is actually the complementary log-log link function that serves as the direct equivalent of the proportional hazards model in continuous-time event history analysis (Allison, 2014; Rabe-Hesketh & Skrondal, 2012). This equivalence suggests that the exponentiated value of coefficients in the complementary log-log model is equal to the hazard ratio of covariates, compared with the odds ratio in the logit model. As is well known, the transformation into the hazard ratio substantially facilitates the interpretation of survival analysis results.

A second reason for the use of the random-effects model is that the nested data structure needs to be addressed to rule out unobserved heterogeneity shared within groups. Since most S&P 500 firms in the dataset had multiple CEOs during between 1996 and 2015, CEOs in the same organization could share unobserved heterogeneity that could influence covariates and outcomes (Bascle, 2008; Hamilton & Nickerson, 2003). Random-effects model specifications can efficiently address this bias shared between CEOs of the same organization. Thus far, multi-level discrete-time event history analysis has been rarely conducted in the management literature even though many studies using event history analysis have the nested data structure.[3] The subsequent analysis is performed using the *xtcloglog* command using the STATA software package.

RESULTS

Insert Table 1 about here

Table 1 reports the summary statistics and correlations among the variables of this paper.

Insert Table 2 about here

[3] The data structure is multi-level in the sense that each organization has multiple CEOs. It is not to be confused with the fact that each CEO may span multiple years.

Table 2 tests how predictor variables facilitate or undermine the organizational adoption of NCAs with CEOs. Model 1 is the baseline model with controls only. *Sex* and *age* are significant. Men are more likely to have an NCA whereas older CEOs are less likely to have one. As shown across Models in Table 2, none of the industry indicators are significant. The insignificance of most organizational controls and all industry controls corroborates the organization scholars' long-held view that the diffusion of such contested practices as NCAs should be explained in terms of social process.

Models 2-6 add predictor variables and test Hypotheses 1-4. First, Model 2 uses *duality* to test how the chairperson position affects the outcome. The result shows that organizations are less likely to have NCAs with CEOs who sit also as chair of the board ($p<.0001$). Duality drops the hazard ratio by 46% ($e^{-.62}=.54$) in support of Hypothesis 1. Second, Model 3 indicates that organizations located in enforcing states are much more likely to have NCAs with CEOs ($p<.0001$). Their hazard ratio increases almost sevenfold ($e^{1.899} = 6.72$) relative to organizations in non-enforcing states. The result strongly supports Hypothesis 2 that legal environments contribute to the adoption of contested practices. Third, Model 4 employs another predictor variable, *blue pencil*, to test Hypothesis 3. As predicted, organizations in blue-pencil states have a higher hazard ratio by 220%, strongly supporting the hypothesis ($e^{1.159} = 3.20$, $p<.0001$). Fourth, Model 5 incorporates the last predictor, *financial crisis*, to investigate the impact of the exogenous shock on the organizational decision. The impact of the crisis is enormous, increasing the hazard ratio 6.56-fold in support of Hypothesis 4 ($e^{2.368} = 6.56$, $p<.05$). Organizations are noticeably more likely to ask their CEOs to sign an NCA after the financial crisis broke out.

Finally, Model 6 in Table 2 combines all the predictors to test all the hypotheses simultaneously. The results are consistent with previous Models and support all four Hypotheses. As predicted in

Hypothesis 1, CEO power decreases the hazard of their signing an NCA ($p<.01$). Organizations are 45% less likely to have NCAs with CEOs sitting as chair of the board ($e^{-.397}=.55$). They also corroborate extant organization studies that CEO power obstructs adoption or decouples implementation of practices that harm their interests while attempting to introduce ones that benefit them (Joseph et al., 2014; Jung, 2016; Ocasio, 1994; Zajac & Westphal, 1995). Second, in support of Hypothesis 2, organizations in enforcing states are almost four times as much likely to impose NCAs upon CEOs as others in non-enforcing states ($e^{1.332} = 3.81$, $p<.01$). These findings are consistent with existing organization studies that examined macro-institutional contexts and revealed how the legitimating impact of legal environments could shape different diffusion patterns by location (Chuang et al., 2011; Ingram & Rao, 2004; Sanders & Tuschke, 2007). Third, results in Model 6 also support Hypothesis 3. If organizations are headquartered in a blue-pencil state that edits out or modifies an unenforceable part of the NCA, they also have twice ($e^{.718} = 2.05$) as high hazard of having an NCA with CEO ($p<.05$). When state legal environments edit out or modify unenforceable NCAs, organizations are granted a much wider room for their strategic decisions on NCAs. They are allowed to impose most favorable terms on the employee. Last, organizations are much more likely to have NCAs after the Great Recession occurred ($e^{1.444} = 4.26$, $p<.10$), again supporting Hypothesis 4. This abrupt increase in the likelihood shows that organizations react to the massive negative shock very swiftly and defensively.

ROBUSTNESS CHECKS

Insert Table 3 about here

Table 3 employs alternative measures of predictor variables to further test the Hypotheses 1,2, and 4 and rule out alternative explanations. First, in Model 1, instead of *duality*, the *share ownership* is used to measure the CEO power. It is the log of the percentage of shares owned by CEOs among the total shares. Consistent with the main results showing organizations with powerful CEOs are less likely to have an NCA, Model 1 indicates that the higher proportion of shares that the CEO owns, the less likely that they sign an NCA ($e^{-.960}$=.38, p<.01) in support of Hypothesis 1.

Model 2 uses an alternative measure of state legal environments that govern the enforceability of NCAs. Garmaise (2009) quantified each state legal environments in terms of NCA enforceability and rated each state on a scale of zero to nine; California scores zero, while Florida is rated the highest. This measure has been used in other studies (Conti, 2014; Samila & Sorenson, 2011; Stuart & Sorenson, 2003; Younge et al., 2015). The results of Table 3 indicate that the measure of NCA enforceability is positively associated with the likelihood that an organization has an NCA with its CEO ($e^{.247}$=1.28, p<.0001). This also strongly supports Hypothesis 2.

Last, if it is the latest financial crisis that had caused organizations to adopt NCAs, the impact would have been stronger at the height of the crisis and decreased afterwards. To test this plausible explanation, the twenty-year period of the dataset is divided into three: before the crisis (1996-2006), during the crisis (2007-10), and after the crisis (2011-5). In Model 3, these three indicators are employed with the indicator for the pre-crisis as the reference category. Results shows that during the crisis, organizations were about fourteen times as likely to impose NCAs on CEOs as before ($e^{2.61}$=13.7, p<.0001). In addition, even after the crisis subdued, CEOs were about eight times as likely to sign NCAs ($e^{2.056}$=7.87, p<.0001), but the post-crisis impact is not

as great as that of the mid-crisis. The result still significantly supports Hypothesis 4. Finally, Model 4 incorporates all the alternative predictors along with *blue pencil* into the analysis. The results in Model 4 consistently support Hypotheses.

DISCUSSION

Recent diffusion studies have attempted to provide more convincing explanations about why some practices could spread among organizations despite contention and controversy over them. This paper explores the diffusion of another contested practice of NCA use among the biggest firms in the U.S. It suggests a theoretical framework that integrates organizational- and state- and national-level determinants that contribute to increased NCA adoptions: employee bargaining power, variation in state legal environments, and an exogenous national systemic shock.

Given negative impacts on employees associated with NCAs, their imposition upon employees, especially low-wage workers, has been highly controversial and sparked intense contestation within and beyond the organization. This paper clarifies these different loci of contestation. Some contestation over an organizational practice is internal at the organizational level, while other contention takes place at the societal or population level (Ansari et al., 2010; Fiss et al., 2012; Sanders & Tuschke, 2007). First, studies of contested practices have recognized differences in interests between the organization and management, and shown how executive officers adopt or deter practices that could impact their own interests (Joseph et al., 2014; Jung, 2016; Sanders & Tuschke, 2007). Drawing on these studies investigating this divide within the firm, I show that NCAs are another example of how the CEO and the firm can have conflicting interests between them.

Second, I also contribute to studies of the role of law in organizational practices by revealing the importance of varying legal environments in the diffusion of contested practices. Thus far, law in the organization literature is usually treated as a coercive force; thus, laws impose mandates that require actions by organizations (Chuang et al., 2011; DiMaggio & Powell, 1983; Ingram & Rao, 2004; Sanders & Tuschke, 2007; Tolbert & Zucker, 1983). That is, laws of interest in the organization literature have primarily been mandatory government regulations. Government regulations often demand that organizations need to do or refrain from doing something. Under this framework, legal environments have been coded dichotomously depending on the legality of focal practices. In contrast, this paper moves on to investigate another decisive characteristic of the state legal environments related to enforcement of NCAs. As long as state legal environments adopt a modification approach like the blue pencil doctrine, drafting excessively restrictive NCAs only to intimidate employees can be deemed as "strategic contracting" or "winning legally" (Bagley, 2013; DiMatteo, 2010). Organizations do not only respond to the law but also actively participate in the meaning of law by testing what an enforceable NCA is (Edelman et al., 2011).

Last, I also contribute to studies of organizational responses to systemic shocks and the latest financial crisis, in particular. Although organizational studies have mostly singled out institutional change as the macro-level driving force of organizational practices, this paper manages to document how organizations could change their behavior in the wake of exogenous economic disruptions. After the recent Great Recession subsided, economists have recently begun to investigate the causes and consequences of the crisis (Demyanyk & Van Hemert, 2011; Hoffmann et al., 2013; Spiegel, 2011). Related research on individual decision making lends insight into how economic hardship would impact individual decision making (Kahneman &

Tversky, 1972; Sirola & Pitesa, 2017; Tversky & Kahneman, 1992), but to date the exploration of the impact of economic shocks like the 2007-8 financial crisis on organizations has been scant in the organization literature. This paper reveals how massive economic disruptions could influence organizational decision to adopt contested practices.

Future studies on diffusion of NCA among rank-and-file employees will advance our knowledge of NCA and contested practices as well. CEOs and other employees may have different predictors of having NCAs. Ordinary employees do not thoroughly negotiate their terms of employment, organizational-level factors might drive the diffusion. In addition, organization scholars can research further the impact of the financial crisis on organizations and their members. The sensitivity to the crisis could differ by organizations and individuals, but we do not have much knowledge about what has happened. Last, in addition to the antecedents of NCAs, the outcomes of NCAs on employees can be investigated further. Existing studies have relied on proxy measures of employees having NCAs, and direct observation of NCAs and their outcomes will better reveal what consequences NCA may bring about for employees and the economy.

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<Table 1>
Summary statistics and correlations (n=4,557)

Variables	Mean	SD	1	2	3	4	5	6	7	8	9
1 Noncompete Agreement (NCA)	0.09	0.286	1								
2 Duality	0.692	0.462	-0.12	1							
3 Enforcing state	0.849	0.359	0.07	0.08	1						
4 Blue pencil	0.646	0.478	0.06	0.06	0.49	1					
5 Financial crisis	0.507	0.5	0.14	-0.15	-0.03	-0.05	1				
6 Sex	0.972	0.172	0.03	0.01	0.05	0.01	-0.04	1			
7 Age	3.968	0.124	0.02	0.12	0.13	0.09	0.02	0.06	1		
8 Total compensation	8.74	1.148	0.03	0.06	0.04	0	0.16	-0.04	0.12	1	
9 Assets	9.323	1.527	0.04	0.07	0.11	0.11	0.25	-0.03	0.18	0.38	1
10 Return on equity	0.1	3.01	0.03	0	-0.01	0.02	0.01	0.05	-0.02	0.05	0.03
11 Sales	8.77	1.357	0.04	0.06	0.1	0.12	0.22	-0.02	0.17	0.38	0.79
12 Common shares outstanding	5.618	1.156	0.02	-0.04	-0.05	0.05	0.18	-0.08	0.08	0.34	0.74
13 Invested capital	8.738	1.361	0.04	0.03	0.08	0.08	0.28	-0.04	0.17	0.39	0.95
14 Prior adopters	9.231	10.009	0.05	-0.14	-0.09	0.1	0.63	-0.04	0.03	0.17	0.3
15 Agriculture	0.006	0.08	-0.03	-0.05	0.03	0.06	0.02	0.01	-0.05	0	-0.02
16 Mining	0.063	0.242	-0.02	0.02	0.06	0.07	0.04	0.04	0.06	0.03	-0.02
17 Utilities	0.068	0.253	0.02	0.06	0	-0.05	-0.01	0	0.08	-0.06	0.09
18 Construction	0.014	0.117	-0.01	-0.07	0.05	-0.01	0	0.02	-0.04	0.01	-0.05
19 Manufacturing	0.406	0.491	-0.01	0.07	-0.04	0.02	-0.02	-0.02	0.05	0.03	-0.16
20 Wholesale	0.018	0.131	0	-0.01	-0.01	0.01	0.01	0.02	-0.02	-0.01	-0.04
21 Rental	0.061	0.239	0	-0.03	0.05	0.03	-0.01	0.04	-0.09	-0.1	-0.1
22 Transportation	0.026	0.16	-0.01	0.06	0.03	-0.04	0	0.03	0.07	-0.04	0.04
23 IT	0.087	0.282	0	-0.14	-0.14	-0.14	-0.02	-0.13	-0.1	-0.02	-0.02
24 Finance	0.136	0.343	0	0.01	0.09	0.08	0.04	0.02	0.07	0.09	0.44
25 Real estate	0.045	0.207	0.03	0	-0.15	-0.08	-0.02	-0.01	-0.13	-0.05	-0.08
26 Science & Technology	0.016	0.126	0.03	-0.08	0.05	0.08	-0.02	0.02	-0.02	-0.03	-0.11
27 Management	0.017	0.13	0.01	0	0	0.02	0.01	0	0.02	0	-0.09
28 Health care	0.013	0.112	0.02	0.03	0.05	0	0	0.03	-0.02	0.04	-0.05
29 Accommodations	0.022	0.147	-0.02	0	0.06	-0.03	0.01	0.02	-0.01	0.05	-0.07
30 Others	0.002	0.042	0.01	0.03	0.02	0.03	-0.01	0.01	-0.04	0.02	0.11

<Table 1>
Summary statistics and correlations (n=4,557) (*cont'd*)

Variables	10	11	12	13	14	15	16	17	18	19	20	21	22
11	0.04	1											
12	0	0.72	1										
13	0.03	0.8	0.78	1									
14	0.02	0.2	0.24	0.3	1								
15	0	-0.04	0	0	0.01	1							
16	0	-0.08	-0.06	0.03	-0.01	-0.02	1						
17	0	0.02	-0.05	0.1	-0.05	-0.02	-0.07	1					
18	0	0.01	-0.07	-0.04	-0.01	-0.01	-0.03	-0.03	1				
19	0.03	0.04	0.01	-0.11	-0.04	-0.07	-0.21	-0.22	-0.1	1			
20	0	0.09	-0.04	-0.04	0.01	-0.01	-0.03	-0.04	-0.02	-0.11	1		
21	0.01	0.1	0	-0.1	-0.06	-0.02	-0.07	-0.07	-0.03	-0.21	-0.03	1	
22	0	0.07	0.03	0.06	-0.07	-0.01	-0.04	-0.04	-0.02	-0.14	-0.02	-0.04	1
23	-0.05	-0.05	0.15	0.02	0.05	-0.02	-0.08	-0.08	-0.04	-0.26	-0.04	-0.08	-0.05
24	-0.02	0.08	0.11	0.25	0.12	-0.03	-0.1	-0.11	-0.05	-0.33	-0.05	-0.1	-0.07
25	0.01	-0.23	-0.11	-0.02	0.04	-0.02	-0.06	-0.06	-0.03	-0.18	-0.03	-0.06	-0.04
26	0.01	-0.1	-0.06	-0.13	-0.02	-0.01	-0.03	-0.03	-0.02	-0.11	-0.02	-0.03	-0.02
27	0	-0.05	-0.04	-0.12	0.09	-0.01	-0.03	-0.04	-0.02	-0.11	-0.02	-0.03	-0.02
28	0	-0.02	-0.08	-0.03	-0.03	-0.01	-0.03	-0.03	-0.01	-0.09	-0.02	-0.03	-0.02
29	-0.02	-0.02	-0.05	-0.07	-0.07	-0.01	-0.04	-0.04	-0.02	-0.12	-0.02	-0.04	-0.02
30	0	0.1	0.13	0.12	-0.01	0	-0.01	-0.01	-0.01	-0.03	-0.01	-0.01	-0.01

Variables	23	24	25	26	27	28	29
24	-0.12	1					
25	-0.07	-0.09	1				
26	-0.04	-0.05	-0.03	1			
27	-0.04	-0.05	-0.03	-0.02	1		
28	-0.03	-0.04	-0.02	-0.01	-0.01	1	
29	-0.05	-0.06	-0.03	-0.02	-0.02	-0.02	1
30	-0.01	-0.02	-0.01	-0.01	-0.01	0	-0.01

<Table 2>

Discrete-time Survival Analysis of Organizational Adoption of Noncompete Agreements (n=4,551)

VARIABLES	(1) baseline	(2) H1	(3) H2	(4) H3	(5) H4	(6) Full
Predictors						
Duality		-0.620***				-0.587**
		(0.176)				(0.179)
Enforcing states			1.899***			1.332**
			(0.452)			(0.483)
Blue pencil				1.159***		0.714*
				(0.299)		(0.319)
Financial crisis					1.875*	1.444+
					(0.818)	(0.823)
Controls						
Sex (male=1)	1.289**	1.130*	1.284**	1.305**	1.289**	1.141*
	(0.482)	(0.477)	(0.482)	(0.487)	(0.482)	(0.482)
Age	-1.660***	-1.560***	-2.050***	-1.780***	-1.660***	-1.920***
	(0.350)	(0.344)	(0.364)	(0.359)	(0.350)	(0.365)
Total compensation	0.086	0.084	0.089	0.085	0.086	0.083
	(0.079)	(0.078)	(0.079)	(0.080)	(0.079)	(0.079)
Return on equity	0.071+	0.072+	0.069+	0.069+	0.071+	0.070+
	(0.040)	(0.039)	(0.039)	(0.039)	(0.040)	(0.039)
Sales	0.128	0.087	0.140	0.116	0.128	0.088
	(0.183)	(0.181)	(0.182)	(0.185)	(0.183)	(0.183)
Common shares	-0.330*	-0.330*	-0.248	-0.298+	-0.330*	-0.241
	(0.166)	(0.163)	(0.167)	(0.168)	(0.166)	(0.165)
Invested capital	0.102	-0.016	0.100	0.181	0.102	0.059
	(0.315)	(0.310)	(0.312)	(0.317)	(0.315)	(0.312)
Prior adopters	-0.001	-0.001	0.003	-0.012	-0.001	-0.007
	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)
Industry indicators (finance as reference)						
Agriculture	.000	.000	.000	.000	.000	.000
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Mining	-0.879	-0.611	-0.865	-1.233	-0.879	-0.894
	(0.754)	(0.738)	(0.744)	(0.768)	(0.754)	(0.749)
Utilities	0.396	0.581	0.495	0.499	0.396	0.712
	(0.670)	(0.651)	(0.660)	(0.665)	(0.670)	(0.645)
Construction	-0.695	-0.618	-0.897	-0.566	-0.695	-0.625
	(1.322)	(1.285)	(1.305)	(1.308)	(1.322)	(1.269)
Manufacturing	-0.113	0.125	-0.107	-0.206	-0.113	0.053
	(0.570)	(0.562)	(0.565)	(0.574)	(0.570)	(0.565)
Wholesale	-0.329	-0.114	-0.371	-0.441	-0.329	-0.207

	(1.153)	(1.118)	(1.144)	(1.153)	(1.153)	(1.119)
Rental trade	0.153	0.380	0.027	0.017	0.153	0.196
	(0.802)	(0.784)	(0.793)	(0.803)	(0.802)	(0.784)
Transportation	0.105	0.370	0.104	0.117	0.105	0.364
	(0.949)	(0.922)	(0.934)	(0.953)	(0.949)	(0.917)
IT	0.457	0.481	0.605	0.589	0.457	0.667
	(0.664)	(0.647)	(0.661)	(0.670)	(0.664)	(0.654)
Real estate	0.628	0.745	1.048	0.627	0.628	1.081
	(0.750)	(0.729)	(0.750)	(0.773)	(0.750)	(0.762)
Science & technology	1.103	1.089	0.853	0.802	1.103	0.751
	(1.025)	(0.993)	(1.013)	(1.025)	(1.025)	(0.988)
Management	0.624	0.729	0.511	0.835	0.624	0.874
	(1.030)	(1.005)	(1.023)	(1.040)	(1.030)	(1.012)
Health care	0.779	1.016	0.594	0.692	0.779	0.841
	(1.208)	(1.178)	(1.192)	(1.196)	(1.208)	(1.162)
Accommodation, food	-1.783	-1.476	-1.977	-1.682	-1.783	-1.553
	(1.239)	(1.209)	(1.224)	(1.235)	(1.239)	(1.202)
Others	0.382	0.683	0.100	-0.091	0.382	0.114
	(2.714)	(2.606)	(2.667)	(2.676)	(2.714)	(2.560)

Standard errors, clustered by firm, are in parentheses. Fixed effects for time are included in the model, but not shown here.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<.1$

<Table 3>
Additional Discrete-time Survival Analysis of
Organizational Adoption of Noncompete Agreements

VARIABLES	(1) H1 (n=4,432)	(2) H2 (n=4,404)	(3) H4 (n=4,451)	(4) Full (n=4,177)
Alternative predictors				
Share ownership	-0.960**			-1.028***
	(0.297)			(0.298)
Enforceability		0.247***		0.207**
		(0.068)		(0.073)
Period 1 (year 2007-10)			2.610***	2.439***
			(0.207)	(0.215)
Period 2 (year 2011-5)			2.056***	1.824***
			(0.261)	(0.281)
Blue pencil				0.250*
				(0.105)
Controls				
Sex (male=1)	1.285**	1.219*	1.233**	1.212*
	(0.479)	(0.480)	(0.474)	(0.477)
Age	-1.063**	-1.899***	-1.735***	-1.411***
	(0.384)	(0.356)	(0.315)	(0.370)
Total compensation	0.070	0.080	0.088	0.066
	(0.080)	(0.079)	(0.077)	(0.080)
Total assets	-0.032	-0.053	-0.006	-0.121
	(0.332)	(0.334)	(0.328)	(0.329)
Return on equity	0.068+	0.072+	0.071+	0.071+
	(0.039)	(0.040)	(0.038)	(0.039)
Sales	0.107	0.124	0.158	0.133
	(0.182)	(0.182)	(0.179)	(0.181)
Common shares	-0.393*	-0.251	-0.284+	-0.278+
	(0.168)	(0.166)	(0.161)	(0.167)
Invested capital	0.071	0.110	0.083	0.120
	(0.311)	(0.313)	(0.306)	(0.307)
Prior adopters	-0.001	0.012	0.004	0.002
	(0.013)	(0.014)	(0.012)	(0.013)
Industry indicators (finance as reference)				
Agriculture	.000	.000	.000	.000
	(.000)	(.000)	(.000)	(.000)
Mining	-0.848	-0.484	-0.790	-0.785
	(0.742)	(0.749)	(0.736)	(0.752)
Utilities	0.259	0.510	0.444	0.457
	(0.657)	(0.659)	(0.653)	(0.642)
Construction	-0.532	-0.606	-0.667	-0.241
	(1.300)	(1.296)	(1.292)	(1.271)

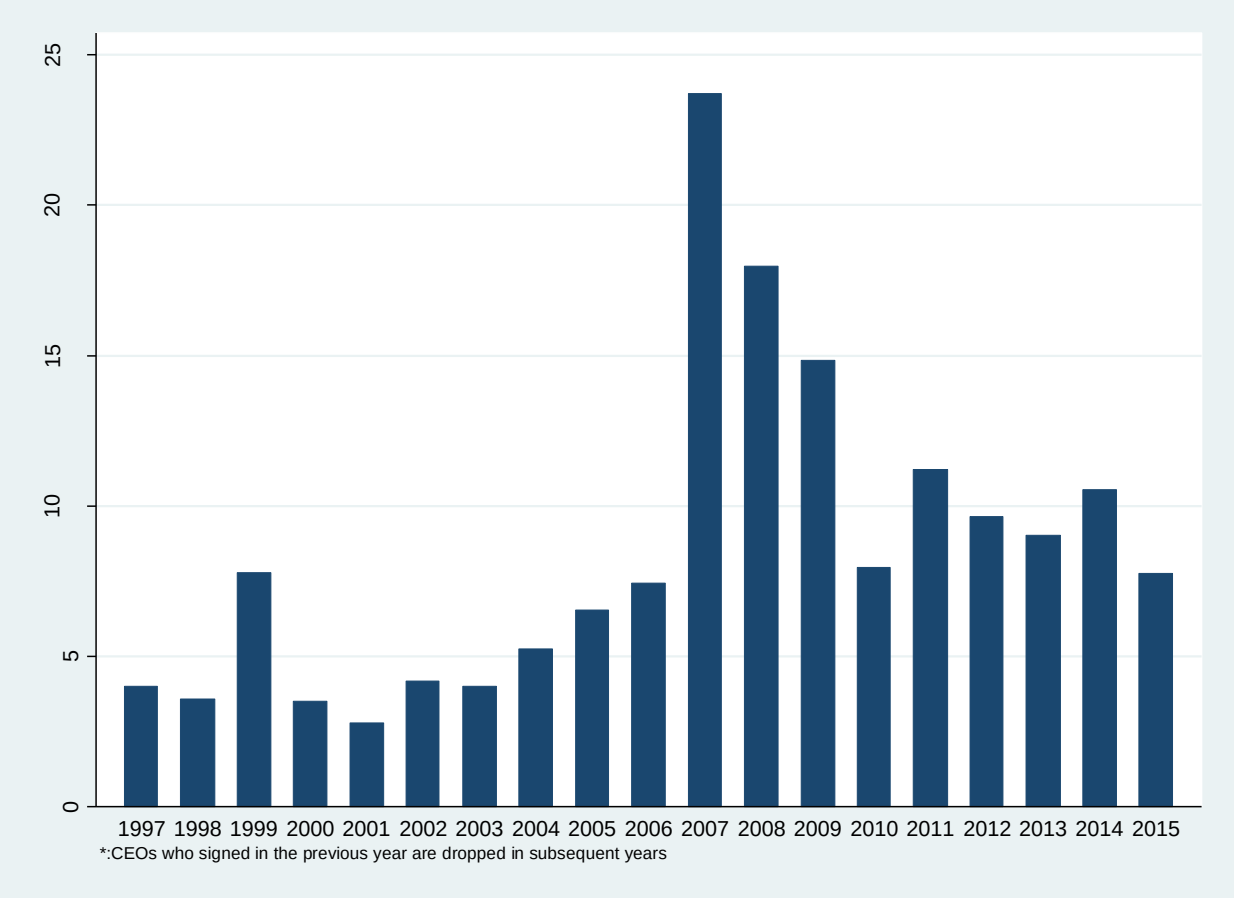
Manufacturing	-0.149	-0.006	-0.094	-0.127
	(0.563)	(0.568)	(0.556)	(0.561)
Wholesale	-0.244	-0.343	-0.190	-0.238
	(1.131)	(1.140)	(1.129)	(1.118)
Rental trade	0.184	0.042	0.172	-0.004
	(0.790)	(0.798)	(0.784)	(0.783)
Transportation	0.118	0.025	0.133	0.082
	(0.930)	(0.933)	(0.924)	(0.912)
IT	0.508	0.581	0.449	0.715
	(0.655)	(0.659)	(0.649)	(0.655)
Real estate	0.687	0.925	0.679	0.986
	(0.737)	(0.743)	(0.729)	(0.753)
Science & technology	1.022	1.000	1.114	0.777
	(1.007)	(1.021)	(1.003)	(1.000)
Management	0.498	0.844	0.706	0.890
	(1.016)	(1.021)	(1.002)	(1.003)
Health care	0.884	0.735	0.663	0.692
	(1.190)	(1.190)	(1.178)	(1.156)
Accommodation, food	-1.461	-1.754	-1.653	-1.244
	(1.242)	(1.218)	(1.211)	(1.211)
Others	0.610	-0.260	0.221	-0.340
	(2.649)	(2.661)	(2.646)	(2.568)

Standard errors, clustered by firm, are in parentheses. Fixed effects for time are included in the model, but not shown here.

*** $p<0.001$, ** $p<0.01$, * $p<0.05$, + $p<.1$

FIGURE 1

Percentage of CEOs Who Signed Their First Noncompete Agreements among S&P 500 CEOs



DO TIES THAT BIND HURT? THE CONSEQUENCES OF NONCOMPETE AGREEMENTS ON CEO COMPENSATION AND TENURE

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Do Ties That Bind Hurt? The Consequences of Noncompete Agreements on CEO Compensation and Tenure

Abstract

This paper uses a novel data set that contains information about 423 noncompete agreements (NCAs) between Standard & Poor's 500 firms and their CEOs during 1996-2015 and investigates the outcomes of such agreements on CEO compensation and tenure. Findings first show that CEOs with NCAs receive more compensation than others without them. Moreover, the pattern of compensation increases may differ by recruitment pathway; externally hired CEOs with NCAs receive more cash whereas internally promoted CEOs with the same constraints receive more equity. Finally, CEOs with NCAs also have longer tenure than others without them, and their tenure becomes even longer as state legal environments allow easier NCA enforcement. Contributing to employee mobility research, executive compensation literature, as well as an emerging strand of research on NCAs, this paper rigorously investigates how NCAs affect CEOs and suggests implications for further NCA studies.

Keywords: Noncompete agreements, mobility, CEO compensation, CEO tenure.

Introduction

As organizations rely less on the internal labor market for talent acquisition and seek new hires externally for any positions, researchers have begun to focus increasingly on the implications of the external labor market and inter-firm mobility of employee. They investigate whether an employee can enjoy comparable compensation growth and job security even after they are no longer guaranteed seniority-based compensation growth and long tenure. Thus far,

most studies exploring how employee mobility affects compensation and tenure have implicitly assumed unrestricted moves by employees with no contractual or institutional constraints on inter-firm mobility. This relative inattention to increasing restrictions on employee mobility is somewhat surprising. In reality, mutual agreements can explicitly restrict employees' inter-firm mobility (Campbell, Coff, & Kryscynski, 2012). Most states also have laws that govern the validity of such constraints. The most explicit and strongest restriction of this type is a noncompete agreement (NCA), which refers to an agreement on inter-firm mobility constraints that prevent ex-employees from working for a competitor for a certain period in designated geographical areas (Garner, 2009; Malsberger, Carr, Pedowitz, & Tate, 2013).

Although NCAs are increasingly used across the U.S., research on this phenomenon is not sufficient. So far, studies of NCAs have relied on a proxy measure of NCA use and portrayed NCAs as detrimental to employees (Garmaise, 2009; Marx, Strumsky, & Fleming, 2009; Starr, 2019). However, NCAs are a type of employment practice that happens within individual organizations, and we lack a concrete understanding of how NCAs can affect employee compensation and tenure. Existing studies assume that NCAs bind employees regardless of their will but fail to consider employee responses and the possible compensation rewards for signing NCAs and staying longer with the firm. In essence, the impact of NCAs can be better understood when we treat NCAs as a firm-level employment practice and look into organizations and their employees that actually have NCAs.

I, for the first time in the employee mobility literature, use a novel data set that contains information about NCAs between Standard & Poor's (S&P) 500 firms and their CEOs and investigate how NCAs lead to changes in CEO compensation and tenure. Although NCAs may

have harsher consequences for less privileged employees or the general workforce (Marx, 2011; Starr, 2019), CEOs are able to respond more effectively to the firm's demand for the agreement to post-employment mobility restriction. The comparison of compensation and tenure of CEOs who signed NCAs with those who did not will more accurately highlight the outcomes of NCAs on employees. In addition, the investigation of the NCA impact on CEO compensation is also appropriate given that inter-firm mobility of managers is an important factor in compensation increases for them (Brett & Stroh, 1997; Lam & Dreher, 2004; Quintana-García & Elvira, 2017). Externally hired CEOs and internally promoted CEOs have different characteristics, and their responses to NCAs could vary as well. Last, while investigating CEO tenure, I also emphasize the importance of institutional environments in the implementation of employment practices. Management studies have found the essential role of legal environments in the adoption of organizational practices, but they have paid less attention to laws' impact on the consequences of already adopted practices. The comparable employment practices could have a stronger impact in more favorable legal environments.

With the investigation of NCAs and their impact on CEO compensation and tenure, I contribute to mobility research by bringing scholarly attention to constraints on inter-firm mobility. Compared to an increasing body research that compares inter-firm and intra-firm moves, studies of NCAs have been relatively scarce. I also contribute to the executive compensation literature that investigates the impacts of recruitment pathways on compensation by revealing that NCAs may moderate that relationship between them. Lastly, I advance our understanding of NCAs and show that NCA impacts may not always be negative and vary depending on the characteristics of employees who signed it.

Theory and Hypotheses

NCA Impact on CEO Compensation

Existing NCA studies have emphasized that NCA will deprive employees of alternative job offers which are important bargaining chips for employees and implicitly assumed that NCAs will be unilaterally foisted upon employees as long as state policy allows the enforcement of NCAs (Marx, 2011; Marx et al., 2009; Starr, 2019). Based on these assumptions, they conclude that NCAs will suppress wage growth of the state workforce in the states that allow NCA enforcement. However, given that NCAs are also a type of contract that is only valid with mutual consent between the employer and the employee, it is reasonable that the employee, especially one with substantial bargaining power, may respond to the employer's demand.

Studies drawing on bargaining power theory have shown that the outcomes for employer-employee arrangements depend on their relative bargaining power (Phillips, 2001; Phillips & Sørensen, 2003). Bargaining theory perspectives may also present an effective explanation about what could happen during the negotiation between the firm and the managerial staff (Dencker, 2009; Jung, 2016; Shin, 2014). When the firm wants their CEO to sign an NCA, the CEO, who will have substantial bargaining power, is highly likely to demand sufficient consideration for signing an NCA. First, the release of the CEOs' rights to pursue economic freedom is not an employer's privilege but should be a valid mutual agreement in order to be legally enforceable; In a valid arrangement between the two parties, the employer offers sufficient consideration in return for the CEO's signing away her freedom to move. Even though it is possible that some employees may not receive additional compensation at all due to the lack of bargaining power

(Marx, 2011; Starr, 2019), CEOs are not likely to agree to their NCA without any type of compensation.

In addition, it is all the more likely that CEOs will ask for additional compensation for signing NCAs because the mobility restriction created by NCAs will reduce their future bargaining power. CEOs with NCAs could be less successful in increasing their compensation in subsequent negotiations since they cannot use alternative offers as their bargaining chip (Brown, Gao, Lee, & Stathopoulos, 2012). Due to the very possibility, CEOs who are asked to sign an NCA may demand as much increase in their compensation as possible to make up for a reduction in their bargaining power and abandonment of mobility opportunities.

H1: CEOs who signed an NCA will receive more compensation than others who did not.

Moderating Impacts of Recruitment Pathways on NCA and Compensation

When the annually granted compensation of CEO may increase with the signing of NCAs, CEOs may differently experience their compensation increases. One important CEO characteristic that may lead to different compensation changes is their recruitment pathway. After the demise of the internal labor market, virtually all organizations now recruit employees internally or externally for any positions (Arthur & Rousseau, 1996; Cappelli, 1999; Jacoby, 1999). One of the main outcomes of interest for inter-firm mobility has been changes in the amount of compensation, and some studies find a greater increase in compensation for external hires than internal ones (Bidwell, 2011; DeOrtentiis, Van Iddekinge, Ployhart, & Heetderks, 2018; Elsaid & Davidson, 2009; Harris & Helfat, 1997; Murphy & Zabojnik, 2004). One explanation for external hires' wage premium is the firm's need to compensate them for the mobility cost of abandoning existing skills and experience. In contrast, some studies also find

internal hires receive more compensation than external hires (Bidwell & Mollick, 2015; Le Grand & Tåhlin, 2002). Internal hires have accumulated knowledge and skills and familiarity with the organizational culture, and these qualifications lead to better performance.

Despite the rich understanding of the impact of different recruitment pathways on compensation, less is known about how restrictions on inter-firm moves may affect external and internal hires' compensation. Recruits who have moved across firms could believe NCAs may cause a heavy burden on their career relative to inter hires. First, the cost of NCAs can be higher for external hires. Since external hires already sacrificed their skills and knowledge when they made a move to the current firm, external hires now have less to lose when making another transfer (DeOrtentiis et al., 2018). In this regard, NCAs could more severely restrict the future career path of externally hired CEOs. In addition, their moves could cost their wealth. Outsider CEOs are highly likely to have been executives at other firms. As such, they must have received equity compensation that will be forfeited with their external move. Hiring organizations may need to reimburse their instant loss of wealth with additional compensation that can be instantly endowed. Second, NCAs could block alternatives for external hires. If they end up underperforming due to the lack of skills and knowledge required for their new job as well as familiarity with the organizational culture (Bidwell & Mollick, 2015; Chatman, Polzer, Barsade, & Neale, 1998), external hires might have to consider a subsequent external move. One choice for them is to return to their previous job or similar positions where they have developed firm-specific human capital. However, if they have moved into a competitor firm that asks to sign an NCA, they can no longer consider that rollback option.

External hires' increased sensitivity to NCAs may, in turn, affect the relationship between NCAs and compensation. Compensation studies have also revealed that externally hires receive additional cash compensation partly because a primary objective of paying high cash compensation is to attract outside talent (Brett & Stroh, 1997; Harris & Helfat, 1997). NCAs could strengthen external CEOs' cash premium. Employers might pay additional compensation because of the above potential disadvantages that external hires experience in connection with NCAs.

H2: Externally hired CEOs who signed an NCA will further receive additional cash compensation than internally promoted CEOs.

In addition, given that a majority of CEOs are from internal promotions (Agrawal, Knoeber, & Tsoulouhas, 2006; Jenter & Kanaan, 2015), a separate investigation of how compensation of internal CEOs are affected by NCAs will provide a complete view of the NCA impact on different CEO recruitment pathways and compensation. Executive compensation research has indicated that equity compensation drove the overall increase in CEO compensation and attempted to explain its growing use (for review, see Devers et al. 2007, Frydman and Jenter 2010). Compensation scholars have been recently paying attention to equity compensation's deterrent effects (Babenko, Bennett, Bizjak, & Coles, 2017; Iskandar-Datta & Jia, 2012; Sengupta, Whitfield, & McNabb, 2007). Just as NCAs can deter CEO departure, equity compensation may indirectly prevent inter-firm moves because equity makes staying with the firm more economically beneficial (Francis, 2019). Most equity compensation contracts, by design, contain temporal elements in that the compensation is paid in a staggered manner and requires vesting periods for full control and ownership. Moreover, these contracts might even

include clawback or recoupment clauses that allow the employer to stop disbursing remaining payments and recoup paid but unvested portions if the recipient employee leaves the firm. Scholars likened this manner of reducing employee turnover to "golden handcuffs" (Heery & Noon, 2008; Marsden, 1999; Sengupta et al., 2007).

Notwithstanding the hidden conditions of equity compensation, internally promoted CEOs could be more receptive to equity compensation than outsider CEOs. First, moving across firms is more costly to internal CEOs. They have long been seeking opportunities to maximize the value of their existing skills and knowledge within the career ladder. Once they leave the firm, they have to bear the loss of their career-long skills and knowledge specific to their current job (Becker, 1962; Campbell et al., 2012). Second, mobility research shows that thanks to their firm-specific knowledge and skills, internal hires tend to perform better (Bidwell, 2011; DeOrtentiis et al., 2018). Since equity compensation awarded to CEOs is indispensably linked to firm performance, internally promoted CEOs may be better able to increase the value of their equity. Last, internally promoted CEOs might have already received equity compensation that they have been waiting for it to vest. Departure means that they will also lose their existing equity awarded to them prior to the CEO appointment, something that externally hired CEOs need not consider.

Internal CEOs' receptiveness to equity compensation suggests that when employers want their internal CEOs to sign an NCA as well as need to increase their total compensation, it is easier for them to give equity compensation as consideration for the NCA. From the employer's standpoint, the combination of equity compensation with NCAs will more successfully prevent

CEO departure; leaving CEOs will not only lose their awarded but unvested equity compensation but also face litigation on the ground of the NCA violation if they leave to work for a competitor.

H3: Internally promoted CEOs who signed an NCA will further receive additional equity compensation than externally hired CEOs.

Impact of NCAs and State Legal Environments on CEO Tenure

Even without NCAs, some employers have actively attempted to discourage their employees from leaving in order to protect intellectual property rights and related business interests. Such tactics often involve litigation. Litigious employers might sue employees even when the risk of infringement upon their intellectual property rights or business interests is minimal. The objective of apparently frivolous lawsuits is often not a favorable verdict in court but the intimidation of employees (Hyde, 2012). By displaying their litigiousness, these employers could send a warning message to their employees as well as their competitors (Agarwal, Ganco, & Ziedonis, 2009).

NCAs are a convenient cause of legal action against departing employees (Bishara, 2011; Hyde, 2012; Pivateau, 2007). Employers could allege that employees violated any of the terms of their NCAs: the length of the noncompete period, stipulations involving the employer's competitors, the scope of geographic areas and industries, and prohibited job positions, and so forth. For fear of retaliatory meritless lawsuits, employees are more likely to refuse other offers that do not even violate the terms of their noncompete agreements. In this way, suppressed inter-firm transfers will cause employee tenure to become longer (Marx, 2011).

H4: The tenure of CEOs with NCAs will be longer than without NCAs.

More important, given that disagreements over NCAs could escalate into a legal battle, state laws that govern the enforceability of NCAs is crucial for determining their impact on tenure. If state laws governing whether and how NCAs are enforced favor the protection of business interests, state courts are likely to find for employers and order employees to abide by their NCAs. Furthermore, employees who signed NCAs might also expect adverse court rulings, which could affect their decisions even before litigation: they are more likely to reject offers than are other employees who work in states where NCA enforcement is more difficult to justify.

H5: The tenure of CEOs with NCAs will become longer as state laws readily enforce NCAs.

Empirical Setting: CEO NCAs and Varying State NCA Laws

Confidential information like trade secrets and client lists has become more critical than ever for the success of the firm (Castellaneta, Conti, & Kacperczyk, 2017; Conti, 2014). CEOs, as top employees of the firm, can have access to the most classified information that their firm has. To prevent the disclosure of sensitive information, the employer and the CEO could agree that the latter promises not to work for the former's competitor as CEO or consultant in similar industries after the CEO steps down. As an explicit type of constraint on inter-firm mobility, NCAs are increasingly used across the U.S. (U.S. Department of Treasury, 2016).

Researchers have argued that how a state enforces NCAs could determine regional economic success (Garmaise, 2009; Gilson, 1999; Samila & Sorenson, 2011; Stuart & Sorenson, 2003). Comparing the rise of Silicon Valley in California and the demise of Route 128 in Massachusetts, one study attributes the success of the Californian district to its liberal corporate culture of frequent job hopping (Saxenian, 1996). Silicon Valley's high inter-firm mobility might

benefit from California's legal ban on noncompete mobility constraints (Gilson, 1999). On the other hand, recent research finds that state laws that enforce noncompete mobility constraints could have positive impacts on firms. For example, firms in enforcing states are more likely to engage in high-risk R&D projects (Conti, 2014). Firms in those states are also considered more attractive merger targets, presumably because the risk of employee turnover can be reduced (Younge, Tong, & Fleming, 2015).

The methodological approach of employing state laws as a proxy for NCA use was made feasible because states vary widely in whether and how their laws enforce NCAs (Malsberger et al., 2013). For example, California is notable in that it does not allow enforcement; only under exceptional circumstances, such as the sale of a business, are mobility constraints enforced in California. North Dakota, Oklahoma, and Oregon also impose substantial restrictions on enforcement. In sharp contrast, Florida and Texas are known for their favorable state laws on NCA, making it easier for employers to use NCAs to restrict employees' inter-firm mobility.

The legal principle that courts apply in rulings on NCA enforceability is that they must aim only to protect employers against unfair competition that employee turnover could cause. It follows that if NCAs infringe upon employee freedom more than is necessary to protect the employer's business interests, those constraints could be ruled unenforceable. Unenforceable NCAs may seem strange or even contrary to the popular belief that employers use them to terrorize and punish employees. In fact, in one case, multiple state attorneys general investigated NCAs on employees of a national sandwich franchise, due to a suspicion that these constraints seriously undermined employees' rights. The state governments believed that the company would benefit little from forcing most of its employees to agree to these noncompete agreements.

Eventually, in anticipation of possible punishment, the firm withdrew its mandatory NCAs (Bishara & Starr, 2016). This incident also reveals that the use of state NCA laws as a proxy for in-state firms' use of NCAs may not have sufficient validity. No matter how state laws dictate NCAs should be, a specific NCA between the firm and the employee can have an impact on their relationship regardless of its legal enforceability.

Method

Data

The initial sample for this paper consisted of 1,097 CEOs from Standard & Poor's (S&P) 500 firms in 2015 who were appointed between 1996 and 2015. Among these CEOs, 423 (38%) agreed to at least one NCA during their tenure at their firms.[4] The direct evidence of noncompete

[4] Thus far, one study also investigated employment contracts of CEOs. Bishara, Martin, & Thomas (2015) used annual reports (10-K) to find noncompete clauses in employment contracts. As they admitted, however, they often failed to find employment contracts for many CEOs and had to limit their sample to retrieved employment contracts. Thus, their unit of analysis is employment contracts with one or more contracts of the same CEOs. Due to the path dependence tendency (i.e., once signed NCAs will be renewed in subsequent contracts), their sample has a much higher percentage of having NCAs in employment contracts (80%). I use proxy statements instead of annual reports. From direct experience gained during the data collection process, I realized that many employment contracts that were omitted in annual reports still appeared in whole or in part in proxy statements; shareholders are interested in the terms of employment for chief executives. Equity contracts of CEOs, many of which also contain NCAs, require

mobility constraints to which these CEOs agreed was obtained from proxy statements (DEF-14) of the sample S&P 500 firms, which were reported to the Securities and Exchange Commission (SEC). The SEC requires that public companies whose shares are traded on the U.S. stock exchange report any meaningful events and register all their documents so that investors can access the information about the firm. The list of documents includes, among others, annual reports (10-K) and proxy statements. All publicly listed firms must distribute proxy statements at least once a year before their annual shareholder meeting. In proxy statements, information about employment contracts, long-term incentive plans, severance packages, or retirement plans for CEOs can be found as agenda items for shareholder notification or approval, and these contracts can include NCAs that CEOs signed. When CEOs signed employment or compensation contracts that included noncompete clauses. Occasionally, CEOs made stand-alone NCAs, which were included in proxy statements as well. Even if CEOs did not agree to an NCA at the beginning of their employment, some did so later when they renewed their employment or compensation contracts.

Due to the vast number of documents, coding scripts were written to exhaustively retrieve all information. To find information about explicit constraints on inter-firm mobility from proxy statements, the following keywords were applied: noncompete, noncompetition, non-compete, non-competition, not to compete, restrictive agreement, and restrictive covenant. When a match was found, information including the nature of the contract that contained an inter-firm mobility

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shareholder approval and must be included in proxy statements. I count only one NCA per CEO, thereby eliminating the potential selection bias described above.

constraint, the names of the company and the CEO, and the issue date of the proxy statement was also collected. After contracts in proxy statements containing those keywords were identified, human coders read the contracts and verified the accuracy of the information to determine whether the contract pertained to NCAs to which the firm's CEOs had agreed. References that did not pertain to CEO NCAs were excluded from analysis.[5]

Insert Figure 1 about here

Analysis of 423 contracts that contained noncompete clauses shows that 42% (n=177) of the sample's noncompete mobility constraints are part of employment contracts; 18% (n=78) are part of equity compensation contracts; 37% (n=156), retirement compensation contracts; 3%, others. Employment contracts were concluded before or at the beginning of employment, and

[5] It turned out that there were a much larger number of false positives of NCAs. Many organizations make NCAs with other firms in the context of the sale of a business. In these inter-organizational NCAs, buyer organizations ask seller organizations not to engage in the business that the sellers sell off. These agreements are not included in the dataset. Furthermore, many CEOs who had not signed an NCA during their employment later agreed to one after they stepped down by signing a consulting contract or retirement agreement. Since the scope of this paper is the investigation of NCA impacts on their compensation and tenure, these NCAs were also excluded from the dataset.

compensation contracts needed to be approved at the shareholder meeting before the CEOs' first-year equity compensation was paid.

The following examples illustrate variations in noncompete clauses in employment and compensation contracts.

Employment Agreements with Named Executive Officers

CVS has entered into employment agreements with Messrs. Ryan, Conaway, Rickard, Nelson and Merlo. These employment agreements supersede the Change in Control Policy, described above, as it relates to such executives. The employment agreements provide for an initial employment term of three years, automatically renewed for a one-year term at the end of the initial term and each one-year renewal term unless either party gives notice of non-renewal at least 180 days prior to expiration of the then current term. The employment agreements generally provide for payment of an annual base salary, subject to review for increase at the discretion of the Compensation Committee. Base salaries are, as of year-end 1999, $975,000, $650,000, $575,000, $470,000 and 470,000 for Messrs. Ryan, Conaway, Rickard, Nelson and Merlo, respectively. *The employment agreements also generally provide for non-competition for a period of 18 months subsequent to a voluntary termination of employment if CVS elects to continue paying 50% of the executive's base salary during such period.* (definitive proxy statement by CVS; italics added)

Recoupment of Compensation

We maintain clawback provisions relating to stock options, restricted stock units, performance share units and market share units. Under these clawback provisions, *executives that violate non-competition* or non-solicitation agreements, or otherwise act in a manner detrimental to our interests, *forfeit any outstanding awards, and any accrued and unpaid dividend equivalents* underlying these awards, as of the date such violation is discovered and have to return any gains realized in the twelve months prior to the violation. These provisions serve to protect our intellectual property and human capital, and help ensure that executives act in the best interest of BMS and our stockholders (definitive proxy statement by Bristol Myers Squibb; italics added)

Noncompetition and Confidentiality

> Under the Compensation Agreement, *Mr. Brian L. Roberts has agreed not to compete with the Company* during his employment and *for two years after termination of his employment*. The Compensation Agreement also requires him to maintain the confidentiality of certain information of the Company, and not to use such information except for the benefit of the Company, at all times during his employment and after termination of his employment. *Breach by Mr. Brian L. Roberts of any of such obligations constitutes cause for termination of the Compensation Agreement, and terminates the Company's obligations for payments subsequent to such termination.* (definitive proxy statement by Comcast Corp; italics added)

In addition, this paper also collected information on CEO tenure and compensation from BoardEx and Execucomp. As the two most frequently used databases for CEO research, BoardEx and Execucomp provide detailed information on company executives' compensation structures as well as tenure, gender, and age. Finally, organizations' financial information was obtained from Compustat. Combining all the above-mentioned information, a final dataset of 7,116 firm-year observations was created.

Measure

Dependent variables. This paper has four dependent variables. *Total direct compensation* is the annual sum of cash and equity compensation that are granted each year. Each compensation component is subcategorized into as follows: c*ash compensation* refers to the sum of annual salaries and bonuses while *equity compensation* is the sum of annual restricted stock units and stock option awards. In addition, *tenure* refers to the number of years that a CEO held his or her position. All dependent variables took the natural logarithm.

Predictor and moderator variables. The main predictor, *NCA*, is a dichotomous variable that indicates whether a CEO agreed to an NCA. If a CEO agreed to a constraint at the

beginning of the employment relationship in the employment contract, then the *NCA* was coded 1 throughout the tenure. If a CEO agreed to a constraint during his or her tenure, it was coded 0 before the agreement but 1 thereafter.

This study introduces two moderators of NCA impacts on the outcome variables. First, to test the varying NCA impact on compensation by recruitment pathways, *external hire* indicates whether the CEO was hired from outside the organization. It was coded 1 when the employee had held no position within the organization before taking office as CEO and 0 otherwise, meaning the CEO was internally promoted. Second, *enforceability* concerns NCA enforceability. It is an integer score developed by Garmaise (2009) and indicates how easy it is for firms to enforce NCAs in each state. Garmaise sought to quantify the state laws governing enforceability across the United States. He drew on a treatise titled "Covenants Not to Compete: State-by-state Survey" (Malsberger et al., 2013) to grade each state on the ease of enforcing mobility constraints. His state enforceability scores range from 0 to 9, with 0 representing an absolute ban and 9 representing the most generous enforcement in favor of employers. In the dataset, 38 states had at least one corporate headquarters of the sample S&P 500 firms. Among these states, California does not allow enforcement of mobility constraints in the employment context. Oregon and Oklahoma generally ban constraints with only a few exceptions. Approximately 12% of the observations in the dataset pertained to firms with corporate headquarters in one of these three non-enforcing states.

Control variables. Various control variables were employed in the analyses. First, *sex* and logged *age* were included. *Chairpersonship* is a dichotomous variable indicating whether the CEO also sat as chairperson of the board. *Tenure* was also included as a control in the analysis of

compensation. In addition, to control for organizational-level confounding factors, the logarithm values of the following variables were included. *Sales* measured firm size. *Total assets* and *return on assets* were also controlled for to measure the firm performance. The number of *outstanding shares* was controlled for because this could affect stock prices, which, in turn, affect the value of equity compensation. *Invested capital* reflected the degree of the firm's spending on new projects and was used as a proxy for the practical need to restrict CEOs' inter-firm mobility. Table 1 reports descriptive statistics with a correlations matrix of the variables used in this study.

Insert Table 1 about here

Empirical Specification

Omitted variables might be correlated with covariates or error terms, causing endogeneity issues (Bascle, 2008; Hamilton & Nickerson, 2003). In addition, heteroskedastic error terms and autocorrelations can bias the analysis of panel datasets (Wooldridge, 2010). To address these concerns, fixed-effects analysis can be an effective solution. A specification test indicated that fixed-effects models were more appropriate than were random effects (p<.000) (Hausman, 1978). Accordingly, the firm was used as the grouping variable to estimate all model specifications of compensation and tenure. Additionally, year fixed effects were used to capture unobserved temporal variances by year. The following model specification was used:

$$Y_{it} = \beta_1 * NCA_{it} + (\beta_2 * NCA_{it} * external\_hire_{it} \text{ or } \beta_3 * NCA_{it} * legal\_environment_{it}) + \beta_4 X_{it} + \alpha_i + \gamma_t + \varepsilon_{it}$$

Y_{it} is the dependent variable of firm *i* at time *t.* $\beta_{1\text{-}3}$ are the estimated coefficients on the predictor and its interaction terms with each moderator variable. X_{it} is the vector of time-variant control variables. Last, α_i represents the firm fixed effect that absorbs time-invariant firm characteristics, and γ_t refers to the time fixed effect (with the year 1996 dropped to avoid the perfect collinearity). Given the introduction of both time and firm fixed effects, some efficiency loss in the modeling is inevitable (Allison, 2009). Nonetheless, the fixed-effects regression estimation provides stringent empirical testing of the hypotheses.

Results

Compensation

Insert Table 2 about here

Table 2 presents the results of longitudinal fixed-effects regression on CEOs' total direct compensation to test Hypothesis 1. As a baseline, Model 1 includes only control variables along with year indicators. The age of the CEO is negatively associated with compensation, but the impact of tenure is positive. CEOs are higher paid when firms are bigger and perform better. The coefficients on return on assets and sales are positive and significant (p<.001). Model 2 includes the main predictor NCA and tests Hypothesis 1. CEOs with NCAs receive more compensation, supporting Hypothesis 1 (p<.001). Model 3 adds the moderator variable external hire and further tests the Hypothesis. Consistent with Model 2, the coefficient on the NCA is positive and significant (p<.001). The coefficient on the external hire is positive but not significant,

suggesting that the externally hired CEOs do not necessarily receive more compensation than internally promoted CEOs.

Insert Table 3 about here

Table 3 presents the results of fixed-effects longitudinal regression on cash compensation to test Hypothesis 2. Model 1 contains only control variables. CEOs who serve as chairperson actually receive less cash, but the tenure is positively associated with it ($p<.05$, respectively). Many organizational-level covariates show strong positive associations with cash compensation. Invested capital is negatively associated with cash compensation, suggesting that reduced cash resources are aligned with CEO compensation. Model 2 adds the main predictor. The coefficient on the NCA is positive and significant ($p<.01$), which is consistent with Hypothesis 1 that CEOs with NCAs receive more compensation. Model 3 adds the moderator external hire and tests the main effects of both the predictor and the moderator. In line with previous research (Harris & Helfat, 1997), externally hired CEOs receive more cash compensation than internally promoted counterparts ($p<.001$). The predictor variable NCA is also positive and significant ($p<.01$). Finally, Model 4 tests Hypothesis 2 that externally hired CEOs receive additional cash compensation when they sign NCAs than internally promoted CEOs. The coefficient on the interaction term between the NCA and the external hire is positive and significant ($p<.01$), supporting Hypothesis 2.

Insert Table 4 about here

In parallel with Table 3, Table 4 tests the impact of predictor and moderator variables on equity compensation. Here, for the convenience of interpretation regarding Hypothesis 3, an inverted variable internal hire (=1 – external hires) is used. Model 1 is the baseline and shows that the age itself is negatively associated with equity compensation, whereas the tenure is positive and significant ($p<.001$, respectively). In Model 2, the coefficient on the NCA is again positive and significant ($p<.01$), which is consistent with Hypothesis 1. Model 3 adds the inverted moderator and tests the main effects of both the predictor and the moderator. The NCA is consistently positive. Internally hired CEOs do not necessarily receive more equity compensation than outsider CEOs. Model 4 finally tests Hypothesis 3 and examines whether internally hired CEOs who signed an NCA receive more equity than outsider CEOs with NCAs. The coefficient on the interaction between the NCA and the internal hire is positive and significant, which supports Hypothesis 3 ($p<.001$).

Tenure

Insert Table 5 about here

Table 5 examines the impacts of NCAs and state NCA laws on tenure. It should be noted that in the employment context, longer tenure itself should not necessarily be interpreted as harmful. Long tenure could be the indication that the firm wants the CEO to stay thanks to good firm performance or that the CEO manages to retain his or her position despite the pressure to leave. Ruling out these alternative explanations about longer tenure is crucial in the empirical testing of NCAs and CEO tenure. For this aim, controls for firm performance and CEO power are essential, which are measured by return on assets and chairpersonship. The positive

association between return on assets and tenure may indicate that companies want CEOs with better firm performance to stay longer (Jenter & Kanaan, 2015). Moreover, the reason chairpersonship increases their tenure may be because, by sitting also as chair of the board of directors, CEOs could undermine their firm's decision to dismiss them (Ocasio, 1994).

Model 1 is the baseline model using only control variables. Model 2 tests Hypothesis 4 that employees with inter-firm mobility constraints have longer tenure. It shows that CEOs with NCAs tend to have longer tenure. The coefficient on the NCA is positive and strongly significant ($p<.001$). Model 3 adds NCA enforceability. Consistent with Hypothesis 4, the coefficient on the NCA is positive and as strongly significant ($p<.001$). Finally, Model 4 tests Hypothesis 5 by including the interaction between the NCA and its enforceability in each state. In Model 4, the coefficient on the interaction term is also positive and significant, supporting Hypothesis 5 ($p<.001$). NCAs become more effective in lengthening CEO tenure in states that enforce such constraints easily.

Supplementary Analysis

Insert Table 6 about here

Table 6 performs additional tests on Hypotheses 2 and 3 by breaking down cash and equity compensation into their components: salary, bonus, option awards, and restricted stocks. First, Models 1-4 categorize cash compensation into salaries and bonuses to further investigate whether a certain element strongly influences the outcomes. The coefficients on the NCA in Models 1 and 3, respectively, show that the increase in cash compensation is driven by both salaries and bonuses. The coefficients of salaries and bonuses are pretty similar but the

coefficient on salaries are more significant (p<.001). Models 2 and 4 add the interaction term between NCAs and external hires. Both show positive and significant coefficients in support of Hypothesis 2; relative to internally promoted CEOs, externally hired CEOs receive more salaries and bonuses after they agree to mobility constraints.

Next, Models 5-8 additionally test Hypothesis 3 on equity compensation by breaking it down to its components: stock option awards and restricted stock units. Models 5 and 6 use stock option awards, and Models 7 and 8 use restricted stocks units. The coefficient on the NCA in Model 5 is positive but not significant, whereas the coefficient in Model 7 is positive and significant (p<.001). These results are also consistent with the overall trend in CEO compensation: the use of stock option awards have substantially decreased over recent years, and restricted stocks have taken its place (Frydman & Jenter, 2010). Yet, the impact of recruitment pathways is significant in both cases. Models 6 and 8 consistently show the negative coefficients of the interaction between external hires and equity compensation in support of Hypothesis 3; Conversely, internally hired CEOs with NCAs are likely to receive more option awards and restricted stocks. In summary, the impacts of NCA and recruitment pathways of CEOs on compensation are mostly consistent even when each component of compensation is separately investigated.

Discussion

Employers have increasingly relied on the external labor market for talent acquisition (Bidwell, Briscoe, Fernandez-Mateo, & Sterling, 2013; Osterman & Burton, 2006; Quintana-García & Elvira, 2017). Accordingly, recent studies have debated the repercussions of ever-increasing inter-firm mobility. However, employment practices that suppress inter-firm mobility

have also increased in both volume and severity (for a theoretical discussion of mobility constraints and firm-specific human capital, see Campbell et al., 2012). Taking note of growing use of NCAs, in this paper I investigate how agreements that restrict that mobility of CEOs can influence their compensation and tenure. Thus far, the literature on employee mobility has shown mixed results regarding its impact on compensation. Yet, a growing body of research on NCAs has argued that the reduced mobility may hurt compensation growth by showing that state NCA laws that easily enforce NCAs decrease employee compensation (Garmaise, 2009; Starr, 2019). However, more accurate NCA impacts can be found by comparing employees who did sign NCAs with those who did not. Using the sample of CEOs of S&P 500 firms, findings show the opposite result that NCAs are positively associated with compensation growth.

Furthermore, this paper contributes to the literature of employee mobility. Even among CEOs who signed their NCA, NCAs have varying impacts on their compensation depending on the recruitment pathways. Researchers have so far examined changes to compensation in conjunction with employee mobility, while a growing number of studies on NCAs have begun to look into constraints on employee mobility. However, no studies have considered the simultaneous impacts of both employee mobility and its constraints on employee compensation. In this paper, the analysis of responses to NCAs based on the different characteristics of internal and external hires reveals that NCAs lead to more cash compensation for externally hired CEOs but to more equity compensation for internally promoted ones.

Finally, the investigation of CEO tenure associated with NCAs shows that the same employment practice may have different repercussions in varying legal environments that determine the effectiveness of such practices. In line with previous NCA studies (Garmaise,

2009; Marx et al., 2009), this paper argues that state laws that allow easy NCA enforcement are associated with longer CEO tenure. However, I depart from previous NCA studies in terms of the underlying assumption about the role of state NCA laws. Existing studies used variations in state NCA laws as a proxy for in-state firms' NCA use and tested a direct association between state NCA laws and outcomes of interest (Conti, 2014; Garmaise, 2009; Marx, Singh, & Fleming, 2015; Marx et al., 2009; Samila & Sorenson, 2011; Starr, 2019; Younge et al., 2015). This proxy measure could be useful for analyzing macroeconomic differences across states, but these studies somewhat conflated state-level variations in NCA enforceability with organizational-level phenomena.

I also contribute to NCA research with the methodological advancement of this paper. It is the first in the literature to utilize direct information about NCAs, thereby conducting finer-grained analyses of NCA impact on employees. State NCA laws may not accurately reflect organizational NCA use within the state, thus lacking in internal validity. First, employers frequently force their employees to agree to NCAs regardless of their enforceability in their state (Bishara & Starr, 2016; Hyde, 2012; U. S. Department of the Treasury, 2016). For example, many California employees sign NCAs and are unaware of the invalidity of such agreements. In contrast, just because state laws allow easy NCA enforcement, all firms in the state will not necessarily use NCAs with every employee. Unlike government regulations, the laws do not "force" organizations to use NCAs. As a result, state laws governing NCA enforcement are more appropriate as a moderator of actual NCAs that CEOs have actually signed than as a predictor.

Future research could continue to investigate the NCA impacts on other outcomes such as individual performance and firm performance. Even though employees with NCAs might have little incentive to develop their own human capital generally applicable to other firms, firms are

more likely to provide employer-sponsored training in NCA-enforcing states (Starr, 2019) Whereas a reluctance to invest in general human capital could deteriorate worker productivity, the development of firm-specific human capital might counterbalance decreased general human capital. In addition, this paper necessitates scholarly discussion of the broader repercussions of constrained inter-firm mobility. When employees are no longer guaranteed lifetime employment and internal upward mobility, on-the-job training that helps them develop general skills has been regarded as an alternative benefit to secure employability (Stone, 2002). However, NCAs deprive employees of opportunities to use their work experience for career advancement. If employees experience difficulty finding quality jobs, NCAs could eventually contribute to income inequality. Finally, CEOs might not be representative of the overall workforce; thus, another empirical setting that examines NCAs with other types of employees will further reveal the NCA impacts on employee compensation and tenure.

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Table 1. Descriptive Statistics and Correlations Matrix (n=7,116)

variables	Mean	SD	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 total direct compensation	11.21	2.69	0	18.73														
2 cash compensation	3.5	0.73	0	6.03	0.34													
3 equity compensation	7.71	2.54	0	13.92	0.96	0.07												
4 tenure	1.65	.61	0.69	3.33	0.01	-0.26	0.09											
5 NCA	0.29	.45	0	1	0.07	-0.2	0.13	0.27										
6 external hire	0.15	.36	0	1	-0.01	0.05	-0.02	-0.1	0.02									
7 enforceability	3.68	2.03	0	9	-0.03	0.03	-0.04	0	0.11	-0.04								
8 chairpersonship	0.64	.48	0	1	0.05	0.12	0.02	0.26	-0.03	-0.14	0.05							
9 age	4.03	.12	3.26	4.49	0.09	-0.05	0.11	0.31	0.07	-0.05	0.04	0.25						
10 male	0.97	.17	0	1	-0.03	0.03	-0.04	0.02	0.03	0	0.07	0.01	0.05					
11 total assets	9.37	1.51	4.42	14.76	0.22	0.01	0.23	0.07	0.1	-0.05	-0.02	0.07	0.2	-0.04				
12 return on assets	0.06	.11	-5.78	0.50	0.02	0	0.02	0.04	-0.01	-0.02	-0.04	-0.01	0.01	-0.01	-0.11			
13 sales	8.80	1.34	1.61	13.09	0.22	0.04	0.22	0.06	0.08	-0.08	0.02	0.06	0.2	-0.04	0.78	0.06		
14 outstanding shares	5.61	1.12	2.48	10.28	0.18	0.01	0.18	0.02	0.02	-0.01	-0.12	-0.03	0.1	-0.08	0.74	0.01	0.72	
15 invested capital	8.78	1.34	2.92	13.28	0.21	-0.03	0.24	0.09	0.1	-0.05	-0.03	0.04	0.2	-0.05	0.95	-0.09	0.78	0.77

Table 2. Longitudinal Fixed-effects Regression of Total Direct Compensation (n=7,116)

	(1) baseline	(2)	(3) H1
NCA		0.283***	0.282***
		(0.085)	(0.085)
External hire			0.068
			(0.108)
Chairpersonship	-0.037	-0.039	-0.030
	(0.082)	(0.082)	(0.083)
Age	-1.812***	-1.791***	-1.801***
	(0.372)	(0.372)	(0.372)
Male	0.315	0.266	0.270
	(0.223)	(0.224)	(0.224)
Tenure	0.383***	0.339***	0.339***
	(0.066)	(0.068)	(0.068)
Total assets	0.260	0.300	0.300
	(0.200)	(0.200)	(0.200)
Return on assets	1.020***	1.006***	1.010***
	(0.261)	(0.261)	(0.261)
Sales	0.507***	0.503***	0.504***
	(0.115)	(0.115)	(0.115)
Outstanding shares	-0.021	-0.014	-0.014
	(0.085)	(0.085)	(0.085)
Invested capital	-0.282	-0.303	-0.303
	(0.160)	(0.160)	(0.160)
Constant	13.811***	13.623***	13.635***
	(1.585)	(1.584)	(1.585)

Notes: Standard errors are in parentheses (two-tailed tests).
All analyses are performed using firm and year fixed effects, which are not reported.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 3. Longitudinal Fixed-effects Regression of Cash Compensation (n=7,116)

	(1) baseline	(2)	(3)	(4) H2
NCA		0.041**	0.040**	0.024
		(0.015)	(0.015)	(0.016)
External hire			0.079***	0.052*
			(0.020)	(0.022)
NCA*external hire				0.104**
				(0.036)
Chairpersonship	-0.032*	-0.032*	-0.022	-0.021
	(0.015)	(0.015)	(0.015)	(0.015)
Age	0.007	0.010	-0.002	-0.009
	(0.067)	(0.067)	(0.067)	(0.067)
Male	-0.025	-0.032	-0.028	-0.031
	(0.040)	(0.041)	(0.041)	(0.041)
Tenure	0.027*	0.021	0.021	0.021
	(0.012)	(0.012)	(0.012)	(0.012)
Total assets	0.157***	0.162***	0.163***	0.165***
	(0.036)	(0.036)	(0.036)	(0.036)
Return on assets	0.157***	0.155**	0.160***	0.159***
	(0.047)	(0.047)	(0.047)	(0.047)
Sales	0.151***	0.151***	0.152***	0.149***
	(0.021)	(0.021)	(0.021)	(0.021)
Outstanding shares	-0.027	-0.026	-0.026	-0.024
	(0.015)	(0.015)	(0.015)	(0.015)
Invested capital	-0.146***	-0.149***	-0.150***	-0.149***
	(0.029)	(0.029)	(0.029)	(0.029)
Constant	3.128***	3.100***	3.115***	3.150***
	(0.287)	(0.287)	(0.287)	(0.287)

Notes: Standard errors are in parentheses (two-tailed tests).
All analyses are performed using firm and year fixed effects, which are not reported.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 4. Longitudinal Fixed-effects Regression of Equity Compensation (n=7,116)

	(1) baseline	(2)	(3)	(4) H3
NCA		0.241**	0.242**	0.334***
		(0.082)	(0.082)	(0.087)
External hire			-0.011	-0.146
			(0.104)	(0.115)
NCA*external hire				-0.602**
				(0.189)
Chairpersonship	-0.005	-0.007	-0.008	-0.016
	(0.079)	(0.079)	(0.080)	(0.080)
Age	-1.819***	-1.801***	-1.799***	-1.757***
	(0.358)	(0.358)	(0.359)	(0.359)
Male	0.340	0.298	0.298	0.313
	(0.215)	(0.215)	(0.215)	(0.215)
Tenure	0.355***	0.318***	0.318***	0.317***
	(0.064)	(0.065)	(0.065)	(0.065)
Total assets	0.103	0.137	0.137	0.127
	(0.192)	(0.193)	(0.193)	(0.193)
Return on assets	0.863***	0.851***	0.850***	0.857***
	(0.251)	(0.251)	(0.251)	(0.251)
Sales	0.356**	0.353**	0.352**	0.372***
	(0.111)	(0.111)	(0.111)	(0.111)
Outstanding shares	0.006	0.012	0.012	0.003
	(0.082)	(0.082)	(0.082)	(0.082)
Invested capital	-0.135	-0.153	-0.153	-0.157
	(0.154)	(0.154)	(0.154)	(0.154)
	10.682***	10.522***	10.520***	10.320***
Constant	(1.526)	(1.526)	(1.526)	(1.526)
	(0.287)	(0.287)	(0.287)	(0.287)

Notes: Standard errors are in parentheses (two-tailed tests).
All analyses are performed using firm and year fixed effects, which are not reported.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 5. Longitudinal Fixed-effects Regression of Tenure (n=7,116)

	(1) baseline	(2) H4	(3)	(4) H5
NCA		0.254***	0.252***	0.131***
		(0.015)	(0.015)	(0.031)
Enforceability			-0.005	-0.014
			(0.019)	(0.019)
NCA*enforceability				0.031***
				(0.007)
Chairpersonship	0.437***	0.418***	0.420***	.420***
	(0.014)	(0.014)	(0.014)	(0.014)
Age	2.012***	1.957***	1.956***	1.959***
	(0.062)	(0.061)	(0.061)	(0.061)
Male	0.107**	0.056	0.059	0.062
	(0.040)	(0.039)	(0.039)	(0.039)
Total assets	-0.051	-0.014	-0.010	-0.010
	(0.038)	(0.037)	(0.037)	(0.037)
Return on assets	0.091	0.075	0.084	0.086
	(0.049)	(0.048)	(0.049)	(0.049)
Sales	0.015	0.011	0.012	0.011
	(0.022)	(0.021)	(0.021)	(0.021)
Outstanding shares	0.026	0.032*	0.030	0.029
	(0.016)	(0.016)	(0.016)	(0.016)
Invested capital	0.061*	0.040	0.037	0.039
	(0.030)	(0.030)	(0.030)	(0.030)
Constant	-8.064***	-7.928***	-7.910***	-7.893***
	(0.267)	(0.262)	(0.274)	(0.274)

Notes: Standard errors are in parentheses (two-tailed tests).
All analyses are performed using firm and year fixed effects, which are not reported.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 6. Supplementary Analyses of CEO Compensation (n=7,116)

	Log salary		Log bonus		Log option awards		Log restricted stocks	
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NCA	0.06***	0.03	0.06^{+}	0.02	0.07	0.16**	0.57***	0.62***
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)	(0.06)	(0.12)	(0.12)
External hire		-0.05*		-0.01		0.34***		0.54**
		(0.03)		(0.04)		(0.07)		(0.17)
NCA*external hire		0.09*		0.21**		-0.60**		-0.63*
		(0.04)		(0.07)		(0.12)		(0.27)
Chairpersonship	0.03	0.02	0.06*	0.06*	0.05	0.07	0.13	0.17
	(0.02)	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)	(0.11)	(0.11)
Age	-0.06	0.00	0.32*	0.36**	-0.14	-0.12	-2.12***	-2.14***
	(0.08)	(0.08)	(0.13)	(0.12)	(0.23)	(0.23)	(0.51)	(0.51)
Male	-0.14**	-0.15***	-0.27**	-0.31***	0.44**	0.47***	0.21	0.24
	(0.05)	(0.05)	(0.10)	(0.09)	(0.14)	(0.14)	(0.30)	(0.30)
Tenure	0.02	-0.01	-0.03	-0.04	0.12**	0.12**	-0.09	-0.09
	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)	(0.04)	(0.09)	(0.09)
Total assets	0.10*	0.07	0.10	0.06	0.03	0.02	0.10	0.08
	(0.04)	(0.04)	(0.07)	(0.07)	(0.12)	(0.12)	(0.28)	(0.28)
Return on assets	0.02	-0.10	1.08***	0.86***	0.32*	0.34*	0.21	0.23
	(0.06)	(0.05)	(0.16)	(0.16)	(0.16)	(0.16)	(0.36)	(0.36)
Sales	0.07**	0.02	0.22***	0.19***	0.21**	0.23**	0.19	0.21
	(0.03)	(0.02)	(0.04)	(0.04)	(0.07)	(0.07)	(0.16)	(0.16)
Outstanding shares	0.02	0.01	-0.02	-0.02	0.05	0.04	-0.11	-0.10
	(0.02)	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)	(0.12)	(0.12)
Invested capital	-0.05	-0.02	-0.09	-0.07	0.10	0.09	-0.29	-0.30
	(0.04)	(0.03)	(0.06)	(0.05)	(0.10)	(0.10)	(0.22)	(0.22)
Constant	3.38***	2.07***	1.14*	0.16	4.23***	4.05***	10.30***	10.28***
	(0.35)	(0.33)	(0.54)	(0.53)	(0.96)	(0.96)	(2.21)	(2.21)

Notes: Standard errors are in parentheses (two-tailed tests).
All analyses are performed using firm and year fixed effects, which are not reported.
* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Figure 1. Distribution of Noncompete Agreements by Contract Type